



Date of Council Meeting: November 26, 2013

**TOWN OF LEESBURG  
TOWN COUNCIL MEETING**

**Subject:** Green Energy Partners/Stonewall, LLC

**Staff Contact:** Jeanette A. Irby, Town Attorney

**Recommendation:** Informational

**Issue:** State Corporation Commission is reviewing the permit application

**Fiscal Analysis:**

**Background:**

The State Corporation Commission (SCC) is in the process of reviewing the permit application for the operation of the Green Energy Plant (GEP). The review process allows for interested parties to comment upon the application. In light of Council's approval of the agreement between GEP, I have submitted for consideration, the agreement, the resolution and the minutes of the Council meeting approving the agreement.

Additionally, the Airport Commission was provided information concerning a potential issue with respect to a thermal plume that may interfere with aircraft in the area. The Federal Aviation Association (FAA) has provided information to the SCC and has not identified any potential issues to date. The Department of Aviation of Virginia has submitted the attached comment letter to the SCC with respect to turbulence in the area.

If anyone is interested in reading the filings and application in this matter, please go to <http://docket.scc.virginia.gov/vaproduct/main.asp> click on "search cases" and enter PUE 2013-00104. The application, our comments, and the DOVA have been attached. Please let me know if you have any additional comments or questions.

Attachments



# COMMONWEALTH of VIRGINIA

Randall P Burdette  
Director

*Department of Aviation*  
5702 Gulfstream Road  
Richmond, Virginia 23250-2422

V/TDD • (804) 236-3624  
FAX • (804) 236-3635

November 19, 2013

Ms. Julia Wellman  
Virginia Department of Environmental Quality  
Office of Environmental Impact Review  
629 East Main Street, Sixth Floor  
Richmond, Virginia 23219

RE: 750 MW Electric Generating Facility, Green Energy Partners/Stonewall, **DEQ Project 13-181S**

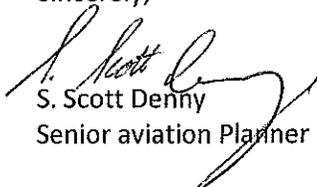
Dear Ms. Wellman:

Thank you for providing the Virginia Department of Aviation with the opportunity to comment on the above referenced project. The site plan's conditional approval letter, dated October 24, 2012, and acceptance of the revised proffer agreement by the Loudoun County Board of Supervisors on April 19, 2010, demonstrates the overall support by Loudoun County for the proposed project. While the Virginia Department of Aviation does not object to the project, staff does have concerns that stem from the project's proposed location in relation to the Leesburg Executive Airport and the potential impacts the plants byproducts could have on air traffic utilizing the public use airport.

In reviewing the information package, staff noted the project sponsor has addressed several issues such as parking lot lighting and plume abatement. These are often issues of concern for aircrews while navigating to an airport. In our review staff did note that the issue of turbulence was not addressed by the applicant. As a result of the proposed location of the power plant (+/- 1.5 miles from the Leesburg Executive Airport), aircraft approaching the Leesburg Executive Airport from the South may be exposed to an underdetermined level of turbulence while aircrews are in the final stages of decent and while aircraft are in pre-landing configurations. The Virginia Department of Aviation therefore requests the project sponsor address the plant's turbulence production and provide any additional information on any efforts being taken to mitigate the potential impacts to aircraft arriving or departing the Leesburg Executive Airport.

If you have any questions regarding these comments or would like to discuss the matter further, please contact me at (804) 236-3632.

Sincerely,

  
S. Scott Denny  
Senior aviation Planner





SCC-CLERK'S OFFICE  
DOCUMENT CONTROL CENTER

2013 SEP 20 P 4: 01

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FILE NO: 80281.2

September 20, 2013

**By Hand**

Hon. Joel H. Peck, Clerk  
State Corporation Commission  
Document Control Center  
Tyler Building - First Floor  
1300 East Main Street  
Richmond, Virginia 23219

**Application of Green Energy Partners/Stonewall LLC  
For a Certificate of Public Convenience and  
Necessity for a 750 MW electric  
Generating facility in Loudoun County  
Case No. PUE-2013-00104**

Dear Mr. Peck:

Please find enclosed for filing in the above-referenced case an original and 15 copies of Green Energy Partners/Stonewall LLC's Application for a certificate of public convenience and necessity for a 750 MW electric generating facility in Loudoun County, Virginia.

Sincerely,

Richard D. Gary

Enclosures

cc: William H. Chambliss, Esq.  
William F. Stephens  
C. Meade Browder, Jr., Esq.  
Ross Metersky  
William Caudle  
John A. Andrews II  
Timothy E. Biller, Esq.

130920103

**CERTIFICATE OF SERVICE**

I hereby certify that true and exact copies of the foregoing Application were delivered by hand or mailed first class postage prepaid this 20<sup>th</sup> day of September 2013, to:

William H. Chambliss, Esq.  
Office of General Counsel  
State Corporation Commission  
Tyler Building, 10th Floor  
1300 East Main Street  
Richmond, Virginia 23219

C. Meade Browder, Jr., Esq.  
Office of the Attorney General  
Insurance and Utilities Regulatory Section  
900 East Main Street  
Richmond, Virginia 23219

Meera Ahamed, Esq.  
Senior Legal Counsel  
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1809 Coyote Drive  
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\_\_\_\_\_

COMMONWEALTH OF VIRGINIA  
BEFORE THE  
STATE CORPORATION COMMISSION

APPLICATION OF )  
 )  
GREEN ENERGY PARTNERS/ )  
STONEWALL LLC )  
 )  
For a Certificate of Public Convenience and )  
Necessity for a 750 MW electric )  
Generating facility in Loudoun County )

Case No. PUE-2013-00104

# Application

Filed: September 20, 2013

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION

APPLICATION OF	)	
	)	
GREEN ENERGY PARTNERS/ STONEWALL LLC	)	
	)	
	)	Case No. PUE-2013-00104
For a Certificate of Public Convenience and Necessity for a 750 MW electric Generating facility in Loudoun County	)	

APPLICATION

Green Energy Partners/Stonewall LLC (“Stonewall” or “Applicant”) hereby submits this application to the State Corporation Commission (“Commission”) for a Certificate of Public Convenience and Necessity (“CPCN”), pursuant to §§ 56-46.1 and 56-580D of the Code of Virginia (“Code”) and 20 VAC 5-302, for the construction and operation of a 750 MW gas-fired combined cycle generating facility in Loudoun County Virginia (the “Project”). The attached Appendix includes the information required pursuant to 20 VAC 5-302-20. In support of its Application, Stonewall states as follows:

I. The Applicant

Stonewall is a special-purpose entity organized solely to develop, construct, own, and operate the Project. Stonewall is currently controlled by its three members: GEP/S Holdings LLC, Bechtel Development Company, and Panda Midatlantic Development, LLC.

GEP/S Holdings LLC is principally owned by John Andrews II. Mr. Andrews is an experienced real estate developer based in Loudoun County, Virginia. Mr. Andrews has strong local roots and ties with the Loudoun County community and has lived and worked in Loudoun County for over twenty five years. Mr. Andrews has successfully developed numerous

commercial, industrial, and large-scale residential projects in Loudoun County over the last twenty years. Mr. Andrews has significant experience and expertise in rezoning, land use entitlement, and site development.

Bechtel Development Company (“BDC”) is a part of Bechtel Corporation and is based in Reston, Virginia, with offices in Frederick, Maryland. BDC has significant expertise in infrastructure project development, having developed and invested in more than 77 projects representing \$32 billion in project costs. Bechtel Corporation is among the most respected engineering, project management, and construction companies in the world. Bechtel has more than 60 years of experience in the power industry and has successfully completed 17 combined cycle generating units in the United States in the last 10 years. Bechtel’s talent, experience and financial strength bring value to any project. Bechtel Corporation facts:

- Worked on more than 22,000 projects in 140 countries on all seven continents.
- 40 permanent offices and nearly 53,000 employees in 50 countries.
- No. 1 U.S. contractor per Engineering News-Record since 1998
- Named one of America’s safest companies by Occupational Hazards Magazine
- Core values of Safety, Quality and Sustainability

Panda Midatlantic Development, LLC (“Panda Midatlantic”) is the majority owner and managing partner of Green Energy Partners/Stonewall LLC. Prior to construction, Panda Midatlantic Development, LLC will become the sole member of Green Energy Partners/Stonewall LLC.

Panda Midatlantic will draw on development, technical, and financing expertise from Panda Power Funds (“Panda”), an affiliate of Panda Midatlantic. Panda is engaged in the business of development and investment in power generation and its related infrastructure

projects in the United States, and currently has over 3,100 MW of combined cycle plants under construction.

Panda is a private equity firm comprising one of the nation's most experienced, full-service power development teams. The Panda team has developed, financed, constructed, and/or operated approximately 12,000 megawatts of natural gas-fueled generating capacity ranging from 180 to 2,250 megawatts in size. Panda's formation was sponsored by the leadership of Panda Energy International, Inc. ("PEII") to develop and invest in natural gas power generation and solar energy projects. In April 2010, nearly all of PEII's senior management and energy professionals transitioned to Panda.

Panda is focused on domestic, greenfield power development; brownfield repowering and expansion; and developing solar projects in select states. Panda specializes in assuming development and construction risk and can partner, own, or transfer power assets to its clients. It also brings investment capital to utility-scale power projects of all sizes. Panda currently owns and operates a fleet of generating plants in New Jersey, Texas and Pennsylvania, including an approximately 20 MW solar power plant, which was one of the largest solar plants in the United States at the time of construction. Panda currently has three 758 MW plants under construction in Sherman, Texas and Temple, Texas, and an 829 MW plant under construction in Bradford County, Pennsylvania, all of which were financed without long-term power purchase agreements.

Stonewall's three current members bring significant resources and expertise to support the successful development of the Project that will ensure that the Project is able to be brought to completion after obtaining all necessary approvals.

## II. Nature of the Proposed Facility

The Project is to be located in an ideal area of Loudoun County for such a facility, on a 101-acre parcel consolidation zoned for industrial use (the “Site”) located south-southeast of the Leesburg Executive Airport and north of the Dulles Greenway in Loudoun County, Virginia. Immediately surrounding the Site on the south and west are 200 acres of land zoned for industrial uses. The property east of the Site is owned by Luck Stone Corporation and is zoned for mineral extraction. North of the Site is the floodplain of Sycolin Creek and Loudoun County-owned open space recreational area.

The Site is currently traversed by two existing interstate natural gas pipelines and three existing high-voltage transmission lines, to which the Project will interconnect to obtain fuel for the Project and deliver the generation into the regional transmission system with only minimal facilities required for such interconnections.

The Project is a natural gas-fired combined cycle electric generating facility capable of producing approximately 750 MW at 95 degrees Fahrenheit. The Project will be configured with two combustion turbines (“CTs”), two heat recovery steam generators (“HRSGs”) with duct burners (“DBs”), and one steam turbine generator (“STG”).

The CTs will use low-NO<sub>x</sub> combustion technology and will be equipped with selective catalytic reduction (“SCR”) systems to control NO<sub>x</sub> emissions. High-efficiency combustion design, with oxidation catalyst, will be employed to control CO and VOC emissions. The exclusive use of pipeline-quality natural gas will minimize particulate matter (“PM”)/PM<sub>10</sub>, SO<sub>2</sub>, and sulfuric acid (“H<sub>2</sub>SO<sub>4</sub>”) air emissions.

The Project will use reclaimed water provided by the Town of Leesburg Water Pollution Control Facility for cooling water and make-up water. The reclaimed water, after being used for

cooling in the facility, will be sent to a zero liquid discharge system for recovery and reuse of water and capture of solids. Solids will be disposed of at an approved landfill.

III. Applicant's Technical and Financial Fitness to Construct, Operate, and Maintain the Proposed Facility

As discussed above and throughout this Application, the Applicant's members possess extensive experience in project development and have extensive experience in building and operating generating facilities such as the Project. In addition, the Applicant, through its members, is well-capitalized to support the development of the Project. The Panda team has developed, financed, constructed, and/or operated approximately 12,000 MW of natural gas-fueled generating capacity and Panda Midatlantic and its affiliated companies currently have over 3,100 MW of combined cycle plants similar to the Project under construction.

IV. The Effects of the Facility on the Environment and Economic Development

A. Overview of Environmental Impacts

As described in detail in the Environmental Assessment included with the Stonewall's Application, there will be minimal adverse environmental effects and the Applicant will comply with all necessary conditions imposed by the regulatory agencies with oversight responsibilities for all environmental aspects of the Project to ensure protection of public health and the environment.

The Project was issued a Prevention of Significant Deterioration and Non-Attainment New Source Review permit issued by the Virginia Department of Environmental Quality ("DEQ") in April 2013, which was amended in May 2013, addressing the air emissions from the

Project. In addition, the Project will be a zero liquid discharge facility and will utilize reclaimed water provided by the Town of Leesburg waste water treatment facility for cooling. Stormwater discharges will be addressed in compliance with Loudoun County and DEQ requirements, both during construction and during operation of the facility. There will be minimal impacts on wetlands and other bodies of water, with only permanent impacts on .05 acres of palustrine open water and 25 linear feet of stream channel. With regard to threatened and endangered species, the Virginia Department of Conservation and Recreation, Division of Natural Heritage, already has found that the Project will not affect any documented State-listed threatened or endangered plants or insects. Based on the permits and other reviews that have been conducted, there will be minimal environmental impact associated with the Project.

#### B. Overview of Economic Development Impacts

It is expected that the Project will create approximately 600 construction jobs in Loudoun County during the peak of construction and that there will be approximately 30 long-term jobs at the facility with an average annual salary of over \$100,000. In addition, the Project will generate approximately \$20 million per year in direct and indirect spending in the area. Further, the Project will increase the tax base in Loudoun County and the Commonwealth and will provide several million dollars per year to Loudoun County and the Commonwealth associated with property taxes on the Project and state sales tax. One of the innovative aspects of the Project is that it will use reclaimed waste water from the Town of Leesburg to provide cooling water for the facility and the purchase of this reclaimed water will provide approximately \$500,000 to \$1,000,000 per year in revenue to the Town of Leesburg.

Overall, the Project will add to the mix of competitive wholesale power available in the region and will add support to the high demand for energy in the Northern Virginia region.

V. Why Construction and Operation of the Proposed Facility is not contrary to the Public Interest

The Project will promote the public interest by providing economic benefits to Loudoun County and the surrounding area. The Project meets rising demand in the Mid-Atlantic region with appropriate, environmentally responsible technology. The Project's generation would enhance local reliability and displace older, more costly generators in the region. The Project will leverage the Commonwealth's existing infrastructure, as it will utilize existing natural gas pipelines and high-voltage transmission lines that already run directly through the property on which the Project will be constructed. No additional gas pipelines or electric transmission lines will be necessary to serve the Project. Also, the Applicant is not a regulated utility, and as a result any business risk associated with the Project will be borne solely by the Applicant, with no impact on the rates paid by the ratepayers in Virginia. Finally, the Project will be constructed and operated in a way to minimize any adverse environmental impact, and in fact is designed to utilize reclaimed waste water that would otherwise be discharged into local waterways, reducing the phosphorus, nitrogen, suspended solids, and other nutrients deposited into the Potomac River basin, thereby contributing in the upstream effort to preserve the health of the Chesapeake Bay.

The Project will enhance the competitive market for wholesale electricity in the region by offering generation that will not be owned by an incumbent electric utility, and advance the goals of the Commonwealth by increasing in-state energy production to meet the rising demand in the state, particularly in the Northern Virginia region where the Project will be located.

Specifically, the Project promotes the goals set out in the 2010 Virginia Energy Plan by providing much-needed generating capacity in the Commonwealth. The 2010 Virginia Energy Plan set as a goal the increase of in-state production of energy by 20 percent through 2020. *See*

*e.g. 2010 Virginia Energy Plan* at 8-1. “Virginia will need to add over 7,200 megawatts of capacity by 2020 to maintain the same electricity imports ratio of 38 percent as in 2008. Virginia will need to add 11,700 megawatts of capacity to meet 100 percent of projected growth.” *2010 Virginia Energy Plan* at 2-14. The Project will reduce the Commonwealth’s reliance on the import of energy to fill the gap between in-state production and use: in 2008, the Commonwealth imported thirty-four percent of its electricity. *2010 Virginia Energy Plan* at 2-10. Demand is projected to increase in the Commonwealth by over 7,000 MW through 2020. *See 2010 Virginia Energy Plan* at 2-16. A significant growth in demand has occurred in Northern Virginia, where the Project is to be located, due to a rapid growth in population since 1990. Loudoun County is consistently ranked among the fastest growing counties in the US.

#### VI. Statutory Standard

For generating facilities such as the Project that are not constructed and operated by a regulated utility whose rates are regulated pursuant to §56-585.1 of the Code, § 56-580 D of the Code requires a finding that:

such generating facility and associated facilities (i) will have no material adverse effect upon reliability of electric service provided by any regulated public utility, . . . and (iii) are not otherwise contrary to the public interest. *See* § 56-580 D of the Code.

This Application and the accompanying attachments, exhibits (including the PJM interconnection studies) and testimony, clearly show that the Project will have no material adverse effect upon the reliability of electric service provided by any regulated utility. In fact, this Application shows that the Project will help support the reliability in the Northern Virginia region by providing additional generation in this high-demand region of the state. Further, this

Application shows that, far from being contrary to the public interest, the Project is in fact in the public interest as it will provide significant economic benefits to the local area and will add to the competitive market for wholesale electricity in the region.

Further, the §§56-46.1 and 56-580 D of the Code require that the Commission “shall give consideration to the effect of the facility and associated facilities on the environment” and that

any valid permit or approval required for an electric generating plant and associated facilities issued or granted by a federal, state or local governmental entity charged by law with responsibility for issuing permits or approvals regulating environmental impact and mitigation of adverse environmental impact or for other specific public interest issues such as building codes, transportation plans, and public safety, whether such permit or approval is prior to or after the Commission's decision, shall be deemed to satisfy the requirements of this section with respect to all matters that (i) are governed by the permit or approval or (ii) are within the authority of, and were considered by, the governmental entity in issuing such permit or approval.

In order to assist the Commission and other reviewing agencies in satisfying this requirement, the Application reviews and includes copies of all permits and approvals that have been obtained or are in the process of being obtained for the Project. As the Application shows, due to the design and operation of the Project, as well as the applicable regulatory requirements, the Project will have no or minimal adverse environmental effects.

Finally, § 56-46.1 A requires that

the Commission (a) shall consider the effect of the proposed facility on economic development within the Commonwealth, including but not limited to furtherance of the economic and job creation objectives of the Commonwealth Energy Policy set forth in §§ 67-101 and 67-102, and (b) shall consider any improvements in service reliability that may result from the construction of such facility.

As the Application clearly shows, the Project will have a clear and beneficial impact on economic development in the Commonwealth and furthers the goals set forth in the

Commonwealth Energy Policy. Further, the Project will help support and will likely improve the reliability of electric service in the Northern Virginia region by providing additional generation in this high-demand region of the state.

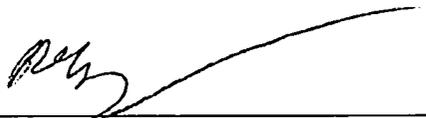
In compliance with the requirements of 20 VAC 5-302-20, a copy of this Application has been served on all local gas distribution companies that serve in the vicinity of the Project.

ACCORDINGLY, for the reasons set forth in this Application, Green Energy Partners/Stonewall LLC respectfully requests that the Commission grant the Company a Certificate of Public Convenience and Necessity to construct and operate the Project.

Respectfully submitted,

GREEN ENERGY PARTNERS/STONEWALL LLC

Dated: September 20, 2013

By:  \_\_\_\_\_

Richard D. Gary  
Kevin J. Finto  
Timothy E. Biller  
Hunton & Williams LLP  
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**DIRECT TESTIMONY  
OF  
ROSS METERSKY  
ON BEHALF OF  
GREEN ENERGY PARTNERS/STONEWALL LLC  
BEFORE THE  
STATE CORPORATION COMMISSION OF VIRGINIA  
CASE NO. PUE-2013-00104**

1   **Q.    Please state your name and current position.**

2    A.    My name is Ross Metersky, and I am Vice President, Business Development with Panda  
3        Power Funds (“Panda”) and Development Manager for Green Energy Partners/Stonewall  
4        LLC (“Stonewall” or the “Company”).

5   **Q.    What is your educational and professional background?**

6    A.    I earned a Bachelor of Business Administration degree in Accounting from Texas A&M  
7        University in 1988 and received a Master of Business Administration degree from Ohio  
8        State University in 2004.

9        Prior to joining Panda, I held business development positions with BP, American Electric  
10       Power, Enserch and Tenneco. I have more than 25 years of energy industry experience  
11       including positions in operations, project management, project finance, development and  
12       ISO market participation. I have successfully led efforts to permit power generation  
13       facilities totaling nearly 1,000 MW, including an 85-MW CHP facility licensed by the  
14       California Energy Commission in April 2012. I recently led the acquisition of an 829-  
15       MW independent power project under development in Pennsylvania. I managed the  
16       remaining development activities and the project secured financing and commenced  
17       construction in August 2013.

1 **Q. What are your responsibilities for the Company?**

2 A. I am responsible for the day-to-day management of the Company, including the  
3 continued development and permitting of the Project.

4 **Q. What is the purpose of your testimony in this proceeding?**

5 A. I will provide an overview of the Company's Application for a Certificate of Public  
6 Convenience and Necessity in this proceeding and sponsor the Company's Application  
7 and exhibits.

8 **Q. What is the Company requesting in this Application?**

9 A. Stonewall is requesting a Certificate of Public Convenience and Necessity ("CPCN") for  
10 the construction and operation of a nominal 750 MW gas-fired combined cycle  
11 generating facility in Loudoun County Virginia (the "Project").

12 **Q. Where will the Project be located?**

13 A. The Project is to be located in Loudoun County on a 101-acre parcel consolidation zoned  
14 for industrial uses (the "Site") located south-southeast of the Leesburg Executive Airport  
15 and north of the Dulles Greenway in Loudoun County, Virginia. Immediately  
16 surrounding the Site on the south and west are 200 acres of land zoned for industrial uses.  
17 The property east of the Site is owned by Luck Stone Corporation and is zoned for  
18 mineral extraction. North of the Site is the floodplain of Sycolin Creek and Loudoun  
19 County owned open space recreational area.

20 The use of the Site for the Project has been approved by the Loudoun County Board of  
21 Supervisors on April 20, 2010 and conditional approval for the Project's Site Plan was  
22 granted by Loudoun County on October 24, 2012.

1 Q. Can you describe the Project and the technology to be employed?

2 A. The Project is a natural gas-fired combined cycle electric generating facility capable of  
3 producing approximately 750 MW at 95 degrees Fahrenheit. The Project will be  
4 configured with two combustion turbines (“CTs”), two heat recovery steam generators  
5 (“HRSGs”) with duct burners (“DBs”), and one steam turbine generator (“STG”).

6 Because the Project’s air permit issued by the Virginia Department of Environmental  
7 Quality approved the use of either Siemens’ SGT6-5000F(5) CT or General Electric’s  
8 7FA.05 CT, the Project currently has flexibility in selecting a CT manufacturer.

9 The CTs will be equipped with evaporative inlet air cooling, which is designed to lower  
10 the CT intake air temperature during periods of higher ambient air temperatures. An  
11 auxiliary boiler will be provided for plant startup and shutdown needs.

12 A CT operates by using ambient air as the primary working fluid. Initially, air is  
13 inducted into a series of compressor stages to increase its overall potential energy. The  
14 high-pressure air exiting the compressor then passes into a low-NOx burner unit, where it  
15 is mixed with natural gas. The premixed working gases are then subjected to a near  
16 constant pressure combustion process. This pressure increases the working fluid  
17 temperature, further increasing its potential energy. Following combustion, the working  
18 fluids are expanded and cooled through a series of turbine stages. This decrease in  
19 potential energy of the working fluids drives the turbine blade shaft. Part of the energy  
20 extracted by spinning turbine blades is used to drive the compressor stages to allow for a  
21 continuous process, and the remaining energy is used to spin an electro-magnetic  
22 generator, thereby producing electricity.

1 Since the exhaust gases exiting the turbine blades are still at temperatures significantly  
2 above the starting ambient conditions, they represent additional available energy. The  
3 turbine exhaust is routed to an HRSG. Each HRSG has an associated DB that can be  
4 used to further increase the temperature of the turbine exhaust gas for additional steam  
5 generation. In the HRSG, the turbine exhaust is used to generate steam in a non-contact  
6 heat exchanger bank. Steam produced by the HRSGs is expanded through a steam  
7 turbine that drives another electro-magnetic generator, creating additional electricity.  
8 Exhaust gases from each HRSG will be vented to the atmosphere through separate stacks  
9 with heights of 130 feet above ground level.

10 The CTs will use low-NOx combustion technology and will be equipped with selective  
11 catalytic reduction (“SCR”) systems to control NOx emissions. High-efficiency  
12 combustion design, with oxidation catalyst, will be employed to control CO and VOC  
13 emissions. The exclusive use of pipeline-quality natural gas will minimize particulate  
14 matter (“PM”)/PM<sub>10</sub>, SO<sub>2</sub>, and sulfuric acid (“H<sub>2</sub>SO<sub>4</sub>”) air emissions.

15 The Project will use reclaimed water provided by the Town of Leesburg Water Pollution  
16 Control Facility for cooling water and make-up water. The reclaimed water, after being  
17 used for cooling in the facility will be sent to a zero liquid discharge system for recovery  
18 and reuse of water and capture of solids. Solids will be disposed of at an approved  
19 landfill.

20 **Q. What will the Project use for fuel and how will it obtain the fuel?**

21 A. The Project will use pipeline-quality natural gas as the exclusive fuel for generation.  
22 This will be obtained from one or both of the natural gas interstate pipelines that

1 currently traverse the Site. One pipeline is owned by Dominion Transmission, Inc.  
2 (“Dominion”) and the other is owned by Columbia Gas Transmission Company (“TCO”).  
3 Pipeline laterals and a regulation and metering station will be constructed on the Site to  
4 interconnect to these pipelines. The Company plans to secure firm transportation by  
5 contracting with gas supplier(s) that own or control firm transportation service on either  
6 or both of the Dominion or TCO interstate pipelines.

7 **Q. How will the Project interconnect with the transmission system in the area?**

8 A. The Site is currently traversed by three existing Virginia Electric and Power Company  
9 transmission lines. The Project is proposed to interconnect on the Pleasant View to  
10 Brambleton 230 kV TL201 transmission line that traverses the property. This  
11 interconnection will be accomplished through facilities constructed on the Site.  
12 Preliminary Feasibility and System Impact Studies conducted by PJM Interconnection,  
13 L.L.C. (“PJM”) indicate that the impacts on the transmission system would be largely  
14 local. It is currently anticipated that a more detailed Facility Study will be completed in  
15 October 2013 regarding the interconnection costs for the Project.

16 **Q. Can you briefly describe the environmental impacts of the Project?**

17 A. The Company is well on its way to obtaining all of the necessary permits and conducting  
18 the necessary studies on the environmental impact of the Project. As described in detail  
19 in the Environmental Assessment included with the Company’s Application, there will be  
20 minimal adverse environmental effects and the Company will comply with all necessary  
21 conditions imposed by the regulatory agencies with oversight responsibilities for all

1 environmental aspects of the Project to ensure protection of public health and the  
2 environment.

3 The Project was issued a Prevention of Significant Deterioration (“PSD”) and Non-  
4 Attainment New Source Review (“NSR”) permit issued by the Virginia Department of  
5 Environmental Quality (“DEQ”) in April 2013, which was amended in May 2013,  
6 addressing the air emissions from the Project.

7 As described above, the Project will be a zero liquid discharge facility and will utilize  
8 reclaimed water provided by the Town of Leesburg waste water treatment facility for  
9 cooling water make-up. Stormwater discharges will be addressed in compliance with  
10 Loudoun County and DEQ requirements, both during construction and during operation  
11 of the facility.

12 There will be minimal impacts on wetlands and other bodies of water and the U.S. Army  
13 Corps of Engineers (“Corps”) issued Green Energy Partners/Stonewall LLC coverage  
14 under Nationwide Permit 43 on January 9, 2013 to govern a temporary impact on 2.13  
15 acres of palustrine open water and 195 linear feet of stream channel, as well as permanent  
16 impacts on .05 acres of palustrine open water and 25 linear feet of stream channel.

17 With regard to threatened and endangered species, the Virginia Department of  
18 Conservation and Recreation (“DCR”), Division of Natural Heritage, has found that the  
19 Project will not affect any documented State-listed threatened or endangered plants or  
20 insects.

1 Additional details are provided in the Company's Environmental Assessment, but based  
2 on the permits and other reviews that have been conducted, there will be minimal  
3 environmental impact associated with the Project.

4 **Q. What economic benefits will be associated with the Project?**

5 A. It is expected that the Project will create approximately 600 construction jobs in Loudoun  
6 County during the peak of construction and that there will be approximately 30 long-term  
7 jobs at the facility with an average annual salary of over \$100,000. In addition, the  
8 Project will generate approximately \$20 million per year in direct and indirect spending  
9 in the area. The Project will increase the tax base in Loudoun County and the  
10 Commonwealth and will provide several million dollars per year to Loudoun County and  
11 the Commonwealth associated with property taxes on the Project and state sales tax.  
12 Additionally, the purchase of reclaimed water for cooling the Project will provide  
13 approximately \$500,000 to \$1,000,000 per year in revenue to the Town of Leesburg.  
14 Overall, the Project has strong support from the local community as evidenced by the  
15 letters of support attached to the Application as Exhibit 13. In addition, the Project will  
16 add to the mix of competitive wholesale power available in the region and will add  
17 support to the high demand for energy in the Northern Virginia region.

18 **Q. Is approval of the Project in the public interest?**

19 A. Yes. As I have just described, the Project will promote the public interest by providing  
20 economic benefits to Loudoun County and the surrounding area. The Project meets  
21 rising demand for electricity in the Mid-Atlantic region with appropriate,  
22 environmentally responsible technology. The Project's generation will enhance local

1 reliability and can displace older, more costly generators in the region. The Project will  
2 leverage the Commonwealth's existing infrastructure as it will utilize existing natural gas  
3 pipelines and high-voltage transmission lines that already run directly through the  
4 property on which the Project will be constructed. No additional gas pipelines or electric  
5 transmission lines will be necessary to serve the Project. Also, the Company is not a  
6 regulated utility, and as a result any business risk associated with the Project will be  
7 borne solely by the Company, with no impact on the rates paid by the ratepayers in  
8 Virginia. Finally, the Project will be constructed and operated in a way to minimize any  
9 adverse environmental impact and in fact is designed to utilize reclaimed waste water that  
10 would otherwise be discharged into local waterways, reducing the phosphorus, nitrogen,  
11 suspended solids, and other nutrients deposited into the Potomac River basin, thereby  
12 contributing in the upstream effort to preserve the health of the Chesapeake Bay.

13 The Project will enhance the competitive market for wholesale electricity in the region by  
14 offering generation that will not be owned by an incumbent electric utility, and advance  
15 the goals of the Commonwealth by increasing in-state energy production to meet the  
16 rising demand in the state, particularly in the Northern Virginia region where the Project  
17 will be located.

18 **Q. Does this conclude your testimony?**

19 **A. Yes, it does**

# APPENDIX

**Information Required Pursuant to 20 VAC 5-302-20**

The Applicant proposes to construct and operate a nominal 750 megawatt (“MW”) gas-fired combined cycle generating facility in Loudoun County, Virginia, called the Stonewall Energy Project (the “Project”).

**1. Legal name of applicant as well as any trade name:**

Green Energy Partners/Stonewall LLC

**2. The Applicant’s authorized business structure:**

The Applicant is organized as a Virginia limited liability company (“LLC”), with a certificate issued by the Commonwealth of Virginia on March 18, 2009.

**3. Name and business addresses of all principal corporate officers, directors, or LLC members:**

The current members of Green Energy Partners/Stonewall LLC are:

GEP/S Holdings LLC  
P.O. Box 660  
39100 East Colonial Highway  
Hamilton, VA 20159

Bechtel Development Company, Inc.  
12011 Sunset Hills Blvd  
Reston, VA 20190

Panda Midatlantic Development, LLC  
4100 Spring Valley Road  
Suite 1001  
Dallas, TX 75244

Panda Midatlantic Development, LLC (“Panda Midatlantic”) is the majority owner and managing partner of Green Energy Partners/Stonewall LLC. Prior to construction, Panda Midatlantic Development, LLC will become the sole member of Green Energy Partners/Stonewall LLC.

**4. Financial information:**

Panda is a private equity fund that is well capitalized to fund development of the Project. Panda held the final closing of its first fund in November 2011 with \$420 million dollars in capital commitments.

**5. Pre-filed testimony in support of the application:**

The Applicant’s request for approval and certification of the Project is supported by the attached prepared direct testimony of Ross Metersky, the Development Manager for the Applicant.

**6. Discussion of Applicant's qualifications:**

- (a) *Summary of other projects developed and managed by the applicant: location, status and operational history.*

While the Applicant is a special-purpose entity organized solely to develop, construct, own, and operate the Project, its current members have extensive experience in the development of projects of this nature. Please see the table attached as Exhibit 1 showing relevant projects developed by the Panda team.

- (b) *Detailed description of organizational structure of the applicant, including division of ownership, if applicable*

The Applicant is currently controlled by three members, GEP/S Holdings LLC, Bechtel Development Company, Inc., and Panda Midatlantic Development, LLC; however, prior to construction of the facility, Panda Midatlantic Development, LLC will obtain 100% of the ownership interest in the Applicant.

- (c) *Description of any affiliation or affiliations with incumbent electric utility in Virginia:*

None.

**7. Specific information about the site for the proposed facility:**

- (a) *Written description of the location that is suitable for newspaper publication and for identification of affected areas*

The Project will be located at 20077 Gant Lane, Leesburg, Virginia 20175 in Loudoun County (the "Site"). The Site is located at 39.058° N Latitude, 77.545° W Longitude, approximately 4 miles south-south east of Leesburg, directly north of the Sycolin Rd (SR 643) / Dulles Greenway (SR 267) overpass, and approximately 1.2 miles west/southwest of the Luck Stone quarry. The property east of the Site is owned by Luck Stone Corporation and is zoned for mineral extraction. The Site is within the quarry notification overlay area. North of the Site is the floodplain of Sycolin Creek and Loudoun County owned open space recreational area.

- (b) *Description of the Site: (depiction on topographic maps of the proposed site)*

The Site is a 101-acre parcel consolidation zoned for industrial use located south-southeast of the Leesburg Executive Airport and north of the Dulles Greenway in Loudoun County, Virginia. Immediately surrounding the Site on the south and west are 200 acres of land zoned for industrial uses. The property east of the Site is owned by Luck Stone Corporation and is zoned for mineral extraction. The Site is within the quarry notification overlay area. North of the Site is the floodplain of Sycolin Creek and Loudoun County owned open space recreational area.

Access to the Site is available from Sycolin Road and Gant Lane off of Cochran Mill Road.

The Site is crossed by two 30-inch high-pressure natural gas pipelines located within a 30-foot easement, and three existing Dominion Virginia Power high-voltage transmission lines within a 250-foot easement.

The maps attached as Exhibit 2 depicts the location of the Site. Exhibit 3 is an aerial photograph of the location of the Site.

- (c) *Status of the Site acquisition*

The Site is a consolidation of four parcels of land, Loudoun County Parcel numbers 193-39-3665, 193-38-4362, 193-29-6778 and 194-48-6020 in part. The Applicant currently owns parcel number 193-39-3665 and holds options to purchase the remaining land.

- (d) *Description of any applicable local zoning or land use approvals required, and status of such approvals*

The use of the Site for the Project was approved by the Loudoun County Board of Supervisors on April 20, 2010 based on applications CMPT 2009-0001, ZMAP 2009-0005, and SPEX 2009-0009. In conjunction with this approval, the zoning designation of the Site was changed to Planned Development – General Industry (PD\_GI). A Special Exception and Planning Commission permit were also approved to allow the development of a utility generating plant associated uses. Further, conditional approval for the Site Plan was granted by Loudoun County on October 24, 2012 based on Site Plan application STMP-2012-0003.

## 8. Specific Information about the proposed facility:

- (a) *Description of all major systems, facility configuration and expected suppliers of major components*

Attached as Exhibit 4 is an illustration of the Project. The following is a description of the Project and its key components and systems.

### Overall Project Description

The Project is a natural gas-fired combined cycle electric generating facility capable of producing approximately 750 MW at 95 degrees Fahrenheit. The Project will be configured with two combustion turbines (“CTs”), two heat recovery steam generators (“HRSGs”) with duct burners (“DBs”), and one steam turbine generator (“STG”). Because the Project’s air permit issued by the Virginia Department of Environmental Quality approved the use of either Siemens’ SGT6-5000F(5) CT or General Electric’s 7FA.05 CT, the Project currently has flexibility in selecting a CT manufacturer.

The CTs will be equipped with evaporative inlet air cooling, which is designed to lower the CT intake air temperature during periods of higher ambient air temperatures. An auxiliary boiler will be provided for plant startup and shutdown needs.

A CT operates by using ambient air as the primary working fluid. Initially, air is inducted into a series of compressor stages to increase its overall potential energy. The high-pressure air exiting the compressor then passes into a low-NO<sub>x</sub> burner unit, where it is mixed with natural gas. The premixed working gases are then subjected to a near constant pressure combustion process. This pressure increases the working fluid temperature, further increasing its potential energy. Following combustion, the working fluids are expanded and cooled through a series of turbine stages. This decrease in potential energy of the working fluids drives the turbine blade shaft. Part of the energy extracted by spinning turbine blades is used to drive the compressor stages to allow for a continuous process, and the remaining energy is used to spin an electro-magnetic generator, thereby producing electricity.

Since the exhaust gases exiting the turbine blades are still at temperatures significantly above the starting ambient conditions, they possess additional available energy. The turbine exhaust is routed to an HRSG. Each HRSG has an associated DB that can be used to further increase the temperature of the turbine exhaust gas for additional steam generation. In the HRSG, the turbine exhaust is used to generate steam in a non-contact heat exchanger bank. Steam produced by the HRSGs is expanded through a steam

turbine that drives another electro-magnetic generator, creating additional electricity. Exhaust gases from each HRSG will be vented to the atmosphere through separate stacks with heights of 130 feet above ground level.

The CTs will use low-NO<sub>x</sub> combustion technology and will be equipped with selective catalytic reduction (“SCR”) systems to control NO<sub>x</sub> emissions. High-efficiency combustion design, with add-on oxidation catalyst, will be employed to control CO and VOC emissions. The exclusive use of pipeline-quality natural gas will minimize particulate matter (PM)/PM<sub>10</sub>, SO<sub>2</sub>, and sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) air emissions.

In addition, some important characteristics of the facility are as follows:

- The Project will be an outdoor facility. Certain equipment enclosures will be provided (e.g. combustion turbine & generator, steam turbine) where needed for noise attenuation and/or weather protection.
- The Project will use a multi-cell, wet, mechanical draft, plume-abated cooling tower for heat rejection of the power cycle.
- The Project will be fueled by natural gas supplied from two existing pipelines described in detail below at an interface point within the Site boundary.
- Reclaimed water from the Town of Leesburg Water Pollution Control Facility will be provided as the plant cooling water and make-up water. The incoming reclaimed water will be stored in a 5 million gallon water tank.
- Potable water will be supplied by Loudoun Water. Potable water will be delivered to a connection provided at the Site boundary.
- The Project’s main water consumption will be makeup for the cooling towers. Secondary water consumption will be cycle make-up which will be produced by the plant’s demineralized water system. Demineralized water will be produced onsite by redundant reverse osmosis/electrodeionization trains.
- Wastewater produced within the facility will be routed to a cooling tower blowdown and recovery and either reused, or processed/evaporated within in the facility’s zero liquid discharge (“ZLD”) system. A 24-hour capacity cooling tower blowdown tank will be provided.
- The ZLD system will consist primarily of a brine concentrator/evaporator which evaporates approximately 95% of the liquid waste stream. The subsequent final concentration of the remaining 5% wastewater will be accomplished using a crystallizer. There will be no industrial wastewater discharges to surface waters, ground waters or to the municipal system. The crystalline dry solids produced by the crystallizer will be trucked to an off-site waste disposal facility.
- Water from CT water wash will be collected in an on-site tank(s) or sump and disposed offsite.
- Sanitary sewage generated within the Project’s administration building will be discharged to an existing municipal sewage line at the Site boundary.
- Contact storm water will be collected, treated as needed in an oil-water separator, and routed to the existing storm water management (“SWM”) pond via the Project’s SWM system. Noncontact stormwater will be collected and routed to the existing SWM pond via the Project’s SWM system.

- The Project includes a three-breaker radial collector bus 230 kV switchyard that will connect to the facility.
- The Project will be designed for operational flexibility. The CTs, HRSGs, STG, and other main process balance-of-plant equipment will be operated primarily from the main control room via the microprocessor-based distributed control system and turbine control system provided by Siemens or General Electric. Programmable logic controller-based control systems will be provided for the water treatment systems or other systems as required.
- Project construction will include site development, the generating units, and the balance-of-plant. The Project will be constructed on a greenfield tract of land located in Leesburg, Virginia.

### **Specific Project Equipment/Facilities**

The Project's main process equipment and support systems will include:

- Two natural-gas-fired CTs with air inlet filters, evaporative coolers, and auxiliary equipment
- Two HRSGs with three pressure levels, reheat, supplemental gas firing, SCR systems, oxidation catalyst (CO) system, and outlet stacks each equipped with a stack damper. Each HRSG will have a 130 foot tall stack.
- One condensing, reheat STG and accessory equipment
- Complete feedwater system including motor driven pumps, strainers and atomizers
- Two-pass steam surface condenser
- Condensate system, including motor driven pumps, strainers
- Circulating water system with a mechanical draft cooling tower with non-reversing constant speed fan motors with plume-abatement and constant speed motor driven circulating water pumps
- Natural gas fuel system with filters, pressure control, metering and heating (if required).
- Auxiliary boiler firing natural gas (producing ~200 psi saturated steam) with electric superheater to establish steam seals during plant startup.
- Domestic (potable) water system (for administration building and emergency eyewash stations throughout the facility as needed)
- Instrument air system and service air systems
- Closed cooling water system for cooling auxiliary equipment, including closed cooling water pumps, closed cooling water plate type heat exchangers, and expansion tank
- Service water system for facility services, including service water pumps
- Raw water system, including a 5 million gallon storage tank
- Demineralized water system consisting of redundant reverse osmosis/electrodeionization trains

- Boiler feedwater chemical injection systems
- Circulating water treatment chemical storage and injection system
- Fire protection system, including one diesel-driven pump, one electric motor-driven pump, and one jockey pump
- Wastewater collection system, including ZLD system described above
- Sanitary waste collection system to an existing sewage line located near the site boundary as shown on the Site Plan
- Administration/control/warehouse building, water treatment building, fire water pump module, main electrical/switchgear building with battery room, distributed electrical switchgear modules, CEMS module, diesel generator module and guardhouse
- Heating, ventilating, and air-conditioning systems for control room, offices, and electrical switchgear rooms/modules as required
- Ventilation for warehouse building area and other enclosed areas as required.
- Aqueous-ammonia system for use as SCR reagent
- Distributed control system, uninterruptible power supply system
- Continuous emissions monitoring system (CEMS)
- Miscellaneous hoists
- Heat tracing for process requirements and freeze protection (as required)
- Lighting, grounding, and cathodic-protection systems
- Electric power distribution system
- Main-Tie-Main switchgear
- Emergency-diesel generator for safe shutdown
- Facility loop road, interior roads, administration building parking lot
- Stormwater drainage system
- Fencing for the main power facility

(b) *nameplate capacity, gross dependable capacity, net dependable capacity, and expected seasonal heat rates*

Expected capacity

Nameplate:	808 MW
Gross Dependable:	775 MW (approximate value at 95 degrees F)
Net Dependable:	750 MW (approximate value at 95 degrees F)

The facility will be sized to produce a net dependable capacity of approximately 750 MW at 95 degrees F with evaporative cooling and HRSG duct burners operating. The approximate gross capacity at this condition is 775 MW. Nameplate capacity is considered to be the maximum capability of all generators, and will be finalized when equipment is purchased. It is anticipated that the capability of each gas turbine generator will be approximately 276 MVA (or 235 MW at 0.85 power factor), and the capability of

the steam turbine generator will be approximately 398 MVA (or 338 MW at 0.85 power factor).

Expected seasonal heat rates (MMBtu, HHV):

Summer	6,894
Winter	6,908
Shoulder	6,875

Assumes 100% CT load and full duct firing.

(c) *estimated costs, and schedule for construction, testing and commercialization*

The facility represents an estimated total capital expenditure of approximately \$500 million, excluding certain owner and financing costs, from 2014 through 2017.

The following table includes key target milestones for the facility that are associated with the development, engineering, construction, and commissioning of the facility. These milestones have been estimated based on the most recent information and are subject to the Commission's approval of this Application.

Milestone	Month
Submit CPCN Application	Sep-2013
Receive Final Site Plan Approval from Loudoun County	Dec-2013
EPC Contract and Major Equipment Award	Dec-2013
Receive CPCN	Apr-2014
Enter PJM Capacity Auction for 2017/2018	Apr-2014
Financial Closing	May-2014
Issue EPC Notice To Proceed	May-2014
Commence Site Clearing	May-2014
Commence Equipment Installation	Oct-2015
Back-Feed Power Available	Mar-2016
Natural Gas Available	Jun-2016
Commence Commissioning	Nov-2016
Commercial Operation Date	Mar-2017

9. **Description of fuel supply arrangement for the proposed facility:**

(a) *Fuel type, quality and source or sources*

The Project will utilize pipeline-quality natural gas delivered via two existing 30" diameter interstate pipelines. One pipeline is owned by Dominion Transmission, Inc. ("Dominion") and the other is owned by Columbia Gas Transmission Company ("TCO"). Both existing pipelines traverse the Site and the interconnection delivery points will be located on the Site.

- (b) *Transportation and fuel storage arrangements for fuel delivery*  
 Natural gas will be delivered to the Project by gas suppliers owning or controlling firm transportation capacity, on Dominion and/or TCO, from gas supply basins to the delivery point(s).
- (c) *identification of all new pipeline facilities, if any, needed to serve the proposed facility*  
 Natural gas pipeline laterals connecting the Project's on-Site regulation and metering station to Dominion and TCO will be constructed on Site. No new off-site pipelines will be constructed to serve the Project.
- (d) *ownership of such facilities*  
 Either Dominion or TCO will construct, own, operate, and maintain the delivery metering facilities.
- (e) *plans for constructing such facilities*  
 To be determined by the pipeline companies.
- (f) *location and routing of any such facilities*  
 To be determined by the pipeline companies.
- (g) *size of such facilities*  
 To be determined by the pipeline companies.
- (h) *whether such facilities will be utilized to provide or enhance fuel supplies to other entities*  
 The facilities will be located on the Project's Site and will only serve the needs of the Project.
- (i) *identification of the pipeline or gas distribution company rate schedule the applicant intends to utilize in order to serve the proposed generating facility. if service is firm or interruptible*  
 The Project will secure firm transportation service by contracting with gas supplier(s) that own or control firm transportation service on either or both of the Dominion or TCO interstate pipelines that traverse the Site.
- (j) *if applicant is to be served by firm capacity from an interstate pipeline, identification of whether capacity is to be acquired through the construction of new facilities, via capacity that is currently unsubscribed, or through capacity purchased on the secondary market*  
 See response to 9 (i).
- (k) *if pipeline capacity is to be constructed, identification of the FERC docket Number or an open season that has been held by the interstate pipeline*  
 n/a
- (l) *if pipeline capacity is to be purchased on the secondary market, identification of the availability of secondary market capacity in the plant's market area during days that the plant intends to operate*  
 See response to 9 (i).
- (m) *identification of the proposed in-service date of any facilities to be constructed*

Construction of metering facilities and interconnections with interstate pipelines will be completed by June 1, 2016.

- (n) *in general terms, description of the availability of fuel supplies required to serve the proposed facility*

There are numerous available natural gas suppliers, owning or controlling firm transportation on the Dominion and/or TCO interstate pipelines that are interested in supplying firm gas supplies to the Project. The Applicant is currently in discussions with numerous gas suppliers.

**10. Discussion of economic impacts, both positive and negative, of the project**

The Project will:

- Create new jobs in Loudoun County with approximately 600 construction jobs at the peak of construction and approximately 30 long-term jobs with an average annual salary over \$100,000
- Generate approximately \$20 million per year in direct and indirect spending;
- Increase the tax base in Loudoun County and the Commonwealth and generate several million dollars per year in property taxes as well as State sales tax
- Provide approximately \$500,000 to \$1,000,000 per year in revenue to the Town of Leesburg for the purchase of wastewater
- Add to the mix of competitive wholesale power available for the entire region and provide this fast growing region of Northern Virginia with electricity generated locally to help support the high demand in the region.

**11. List of other local, state, or federal government agencies whose requirements must be met in connection with the construction or operation of the project and a statement of the status of approval procedures for each of these agencies:**

The requirements and the status of approvals from state and federal agencies with authority over the environmental impacts of the Project will be addressed in response to Section (12) below.

(a) *Loudoun County:*

- i. Loudoun County approved the land use and zoning through ZMAP 2009-0005, SPEX 2009-0009 & SPEX 2009-0001 approved on April 20, 2010. (*See Exhibit 5*)
- ii. Conditional Site Plan Approval was issued on October 24, 2012 (STMP-2012-0003). (*See Exhibit 6*)
- iii. The Project is working with the County currently to address each of the conditions in the Conditional Approval. Final Approval is anticipated not later than December 2013.
- iv. The Project will also need various other approvals from Loudoun County, including building and structure permits that will be applied for at the appropriate time in the construction timeline.

(b) *Town of Leesburg utilities*

A Memorandum of Understanding has been executed between the Town and Green Energy Partners / Stonewall LLC for the sale and purchase of reclaimed water. It is expected that a final agreement will be executed in the near future.

(c) *Loudoun Water*

Approval of the proposed water and sanitary sewer infrastructure is under review by Loudoun Water (Plan #20120001). Final Loudoun Water approval is expected by the end of 2013.

(d) *Federal Aviation Administration*

Approval was required from the Federal Aviation Administration (“FAA”) due to the proximity of the Project to the Leesburg Executive Airport. On November 20, 2012 and June 7, 2013, the FAA issued Determinations of No Hazard to Air Navigation for various components of the Project. The determinations are attached as Exhibit 7.

(e) *Federal Energy Regulatory Commission*

The Applicant plans to file for Exempt Wholesale Generator Status from the Federal Energy Regulatory Commission and for authority to make wholesale sales of energy, capacity, and certain ancillary services at market-based rates. These filings will occur prior to generating any power from the Project.

**12. Analysis of the Environmental Impact. § 56-46.1, 56-580D.**

See the “Environmental Assessment” attached as Exhibit 8 for required information and analysis regarding the environmental impact of the Project.

**13. General discussion of reliability impacts including:**

(a) *Description of transmission interconnection requirements and needed interconnection facilities*

The Project is proposed to interconnect on the Pleasant View to Brambleton 230 kV TL201 transmission line. The interconnection is approximately 1.3 miles south of Pleasant View at a new 230 kV three-breaker ring bus substation on the Site at Cochran Mill.

The electrical schematic for the interconnection is attached as Exhibit 9, as well as a plan of the physical layout as Exhibit 10.

The project is a 750 MW 2/1 combined cycle generating station. It will be comprised of:

- 2 - 254 MVA CTG generators each with a 242/18 kV 159 MVA OA generator step-up transformer
- 1 - 333 MVA STG generator with a 242/19 kV 228 MVA OA generator step-up transformer

Each generator will have its own 230 kV breaker connected to a 230 kV radial into a three-breaker 230 kV ring bus on the Site at Cochran Mill. The Cochran Mill ring bus will loop into the Pleasant View to Brambleton 230 kV transmission line TL201.

- (b) *Description of the potential impact of the proposed facility on the interconnected transmission system. Discussion should identify and summarize any system impact studies or proposed studies.*

The Project is identified as number X4-039 in the PJM generation queue. It is subject to the PJM Interconnection, L.L.C. ("PJM") Large Generator Interconnection tariff and to Virginia Electric and Power Company's generator interconnection requirements. As such, it completed the "PJM Generator Interconnection, X4-039 Pleasant View - Brambleton 230 kV, 750 MW Capacity/800 MW Energy, Feasibility Study Report" dated April, 2012 ("Feasibility Study") and the "PJM Generator Interconnection X4-039, Pleasant View - Brambleton 230 kV, 750 MW Capacity/750 MW Energy, System Impact Study Report" dated November 2012 ("System Impact Study"). Both of these reports are attached as Exhibits 11 and 12, respectively. The PJM Facility Study is underway and completion is expected by October 2013.

The Feasibility Study examined the thermal impact of contingencies, generator deliverability, multiple facility contingencies, contributions to previously identified overloads and short-circuit impacts of the project. The impacts were found to be largely local with the following estimated interconnection costs (expressed in millions of dollars):

Attachment Facilities	\$ 1.00
Direct Connections (3-breaker ring, loop into TL201)	\$ 3.20
Non-direct connection upgrades	
Thermal overloads (Conastone)	\$ 3.00
Network breaker upgrades	\$ 2.23
Network TL Upgrades (rebuild Cochran Mill-Pleasant View section)	<u>\$ 2.00</u>
Total	\$11.43

The System Impact Study repeated the prior analysis but with updated system conditions associated with the latest generator queue. The impacts were again found to be largely local with the following estimated interconnection costs (expressed in millions of dollars):

Attachment Facilities	\$ 1.00
Direct Connections (3-breaker ring, loop into TL201)	\$ 3.20
Non-direct connection upgrades	
Thermal overloads (Conastone)	-
Network breaker upgrades	\$ 4.77
Network TL Upgrades (rebuild Cochran Mill-Pleasant View section)	-
Total	\$ 8.97

The reduction in interconnection costs from the Feasibility Study to the System Impact Study analysis was due to updated system conditions for the latter analysis.

- (c) *Description of anticipated services (ancillary services, re-dispatch, energy imbalance, etc.) that may be provided to any transmission service provider.*

The Applicant anticipates offering grid reliability services such as regulation up and down as well as frequency response.

- (d) *Discussion of existing and expected generation reserves in the region and the impact of the proposed facility on such reserves.*

A significant amount of anticipated generation retirements between 2013 and 2015 reduces the PJM capacity reserves. Over 20 GWs of coal plant deactivation notices have been submitted to PJM and there is a significant amount of coal capacity in proximity to the Project. By 2017, the existing plus expected new generation additions are expected to reach 184,314 MWs while the total forecasted peak demand plus reserve required is expected to be 176,269 MWs. That equates to a 5% reserve margin. The Project will have a positive impact by increasing the capacity reserve margins as well as the reliability in the Dominion load area.

In addition, the Project will provide significant dynamic and static reactive power support to the PJM transmission system.

**14. Proposed Facility is not contrary to the public interest.**

- The Project will promote the public interest by providing economic benefits to Loudoun County and the surrounding area, including increased tax base by several million dollars a year in property taxes as well as state sales taxes and other taxes, approximately 600 employment opportunities during construction, up to 30 high-paying operating positions, and purchases from local merchants and vendors. *See, e.g. Application of Tenaska Virginia Partners*, Hearing Examiner's Report at 32 (Oct. 23, 2001), finding that the "additional tax revenue and jobs generated by the Facility will benefit Fluvanna County's economy," and *Application of CPV Warren, LLC, For a certificate of public convenience and necessity for electric generation facilities in Warren County, Virginia*, Case No. PUE-2002-00075, Final Order at 17, (March 13, 2003), finding that the facility is not contrary to the public interest as it would provide economic benefits. The majority of construction workers are expected to be sourced from the Northern Virginia and surrounding areas and there will be no need to build additional housing to accommodate this workforce.
- The Project will have no material adverse effect on the reliability of electric service provided by any regulated public utility, as is required by Va. Code § 56-580D. PJM has completed a system impact analysis and has determined that only relatively minor upgrades to the transmission system are required as a result of the Project. Once PJM completes the Facilities Study for the Project, further delineating the required upgrades, it is expected that the required upgrades will be installed.
- The PJM studies demonstrate the Project's minimal impact on the transmission system's reliability.
- The Project promotes the goals set out in the 2010 Virginia Energy Plan by providing much-needed generating capacity in the Commonwealth. The 2010 Virginia Energy Plan set as a goal the increase of in-state production of energy by 20 percent through 2020. *See e.g. 2010 Virginia Energy Plan* at 8-1. "Virginia will need to add over 7,200 megawatts of capacity by 2020 to maintain the same electricity imports ratio of 38 percent as in 2008. Virginia will

need to add 11,700 megawatts of capacity to meet 100 percent of projected growth.” *2010 Virginia Energy Plan* at 2-14. The Project will reduce the Commonwealth’s reliance on the import of energy to fill the gap between in-state production and use: in 2008, the Commonwealth imported thirty-four percent of its electricity. *2010 Virginia Energy Plan* at 2-10. Demand is projected to increase in the Commonwealth by over 7,000 MW through 2020. *See 2010 Virginia Energy Plan* at 2-16. A significant growth in demand has occurred in Northern Virginia, where the Project is to be located, due to a rapid growth in population since 1990. Loudoun County is consistently ranked among the fastest growing counties in the US.

- The Project will leverage the Commonwealth’s existing infrastructure as it will utilize existing natural gas pipelines and high-voltage transmission lines that already run directly through the property on which the Project will be constructed. No additional gas pipelines or transmission lines will be necessary to serve the Project.
- Effluent from the Town of Leesburg wastewater system is currently piped and released into the Potomac River. The reclaimed water will be diverted to the power generating facility, used for cooling then sent to a zero liquid discharge system for filtration and reuse of the filtered water. Solids from the filtration process will be disposed of at an approved landfill. The reuse of the effluent reduces the phosphorus, nitrogen, suspended solids, and other nutrients deposited into the Potomac River, thereby contributing in the upstream effort to preserve the health of the Chesapeake Bay.
- The Project meets rising demand in the Mid-Atlantic region with appropriate, environmentally responsible technology. The Project’s generation would enhance local reliability and displace older, more costly generators in the region.
- As the Applicant is not a regulated utility, the business risk associated with the project will be borne solely by the Project, with no impact on the rates paid by the ratepayers in Virginia. *See CPV Application, Final Order* at 17, finding that the facility is not otherwise contrary to the public interest in that “rates for the regulated public utility will not be impacted.”

There is sufficient supply of natural gas and sufficient transmission pipeline capacity so that the facility will have no material adverse effect on rates (*See Application of Tenaska, Hearing Examiner’s Report* at 26 (April 3, 2002)).

- The Project will be constructed and operated in a way to minimize any adverse environmental impact as more fully described in the Environmental Assessment provided in response to Section (12) above.
- The Project has received overwhelming support from the community and local officials. Attached as Exhibit 13 are letters of support for the Project provided by the following state and local officials:
  - Thomas A. “Tag” Greason, Virginia House of Delegates, 32<sup>nd</sup> District
  - Joe T. May, Virginia House of Delegates, 33<sup>rd</sup> District
  - James M. LeMunyon, Virginia House of Delegates, 67<sup>th</sup> District
  - Scott K. York, Chairman, Loudoun County Board of Supervisors
  - Stevens R. Miller, Former member of the Loudoun County Board of Supervisors
  - Cliff Keirce, Former member of the Loudoun County Planning Commission

**15. How facility will further goal of electric competition in Virginia**

The Project will enhance the competitive market for wholesale electricity in the region. As Staff has found in previous applications, “competition is benefited by the construction and operation of generation that is owned or controlled by a company other than an incumbent electric utility...[S]uch capacity has a desirable effect on competition.” *Application of CPV Warren, LLC*, Hearing Examiner’s Report (Nov. 25, 2002)

*See also Application of Tenaska*, Order at 15 (Jan. 16, 2002), finding that “the proposed facility should help develop wholesale competition in the region which, in turn, should help advance the goal of competition in the Commonwealth.”

Part 2

130820104  
EXHIBIT 104

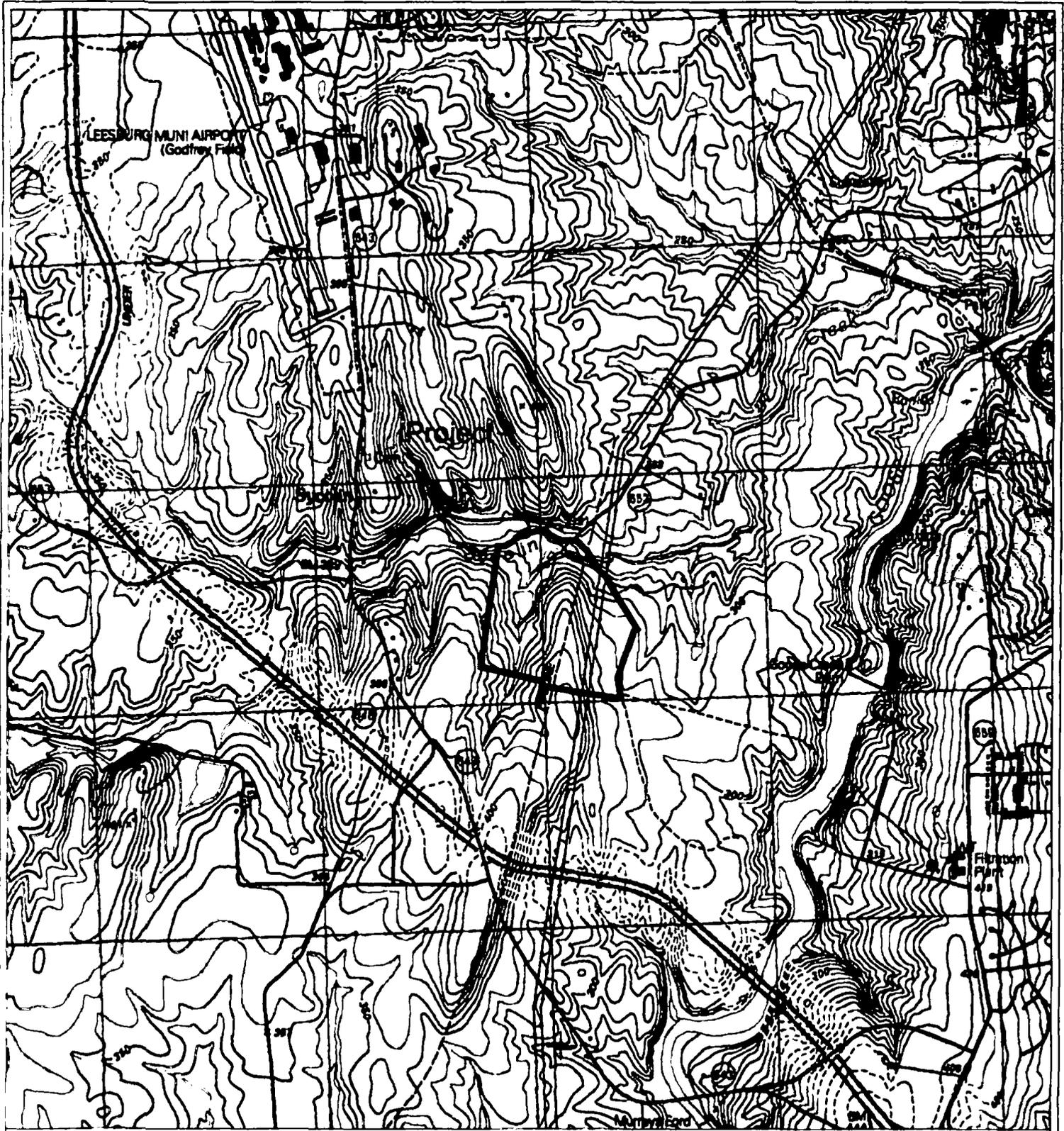
**Exhibit 1: Projects Developed or Under Development by the Panda team**

PROJECT	SIZE (MW)	LOCATION	TYPE	COD
Operating				
Rosemary	180	Roanoke Rapids, NC	CCGT	1990
Brandywine	230	Brandywine, MD	CCGT	1996
Lamar	1,000	Paris, TX	CCGT	1998
Odessa	1,000	Odessa, TX	CCGT	1999
Oneta	1,000	Coweta, OK	CCGT	1999
Luannan	110	Luannan, China	Coal	2000
Bhote Koshi	40	Kathmandu, Nepal	Hydro	2001
Guadalupe	1,000	Guadalupe, TX	CCGT	2001
Gila River	2,250	Gila River, AZ	CCGT	2003
El Dorado	2,250	El Dorado, AR	CCGT	2003
Pilesgrove	20	Pilesgrove Township, NJ	Solar	2011
	9,080			
Under Construction				
Sherman	758	Sherman, TX	CCGT	2014
Temple I	758	Temple, TX	CCGT	2014
Temple II	758	Temple, TX	CCGT	2015
Liberty	829	Bradford County, PA	CCGT	2016
	3,103			
Active Development				
Patriot	829	Lycoming County, PA	CCGT	2016
Stonewall	750	Loudoun County, VA	CCGT	2017
Mattawoman	859	Brandywine, MD	CCGT	2017
Other	3,000	Various	CCGT	Various
	5,438			
<b>Total</b>	<b>17,621</b>			

30920104

Exhibit 2





Scale: 1"=2000'

Source: USGS (1994)

# Bowman CONSULTING

Bowman Consulting Group, Ltd.  
14020 Thunderbolt Place Suite 300  
Chantilly, Virginia 20151

Phone: (703) 464-1000  
Fax: (703) 481-9720  
[www.bowmanconsulting.com](http://www.bowmanconsulting.com)

© Bowman Consulting Group, Ltd.

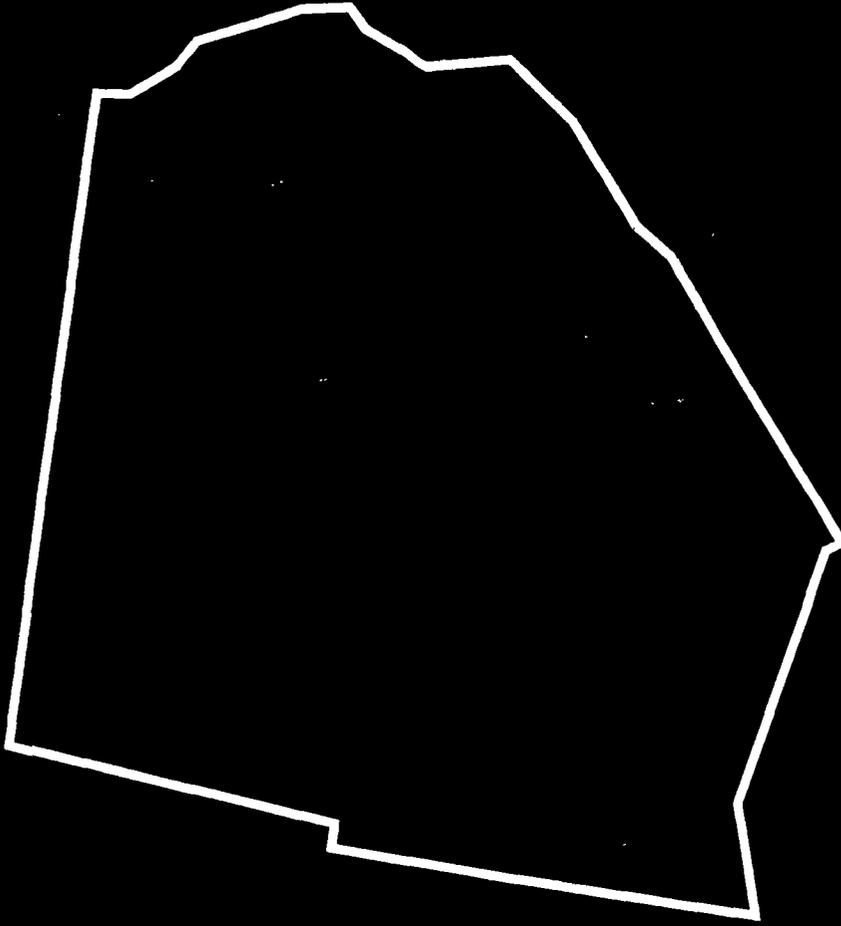
## USGS Quadrangle Map Stonewall Energy Park

39°03'32"N, -77°32'28"W Leesburg, VA USGS Quadrangle Map  
PL15 (Sycolin Creek), HUC 02070008 (Middle Potomac-Catoctin)  
Loudoun County, Virginia

Prepared for:  
Green Energy Partners/Stonewall, LLC  
P.O. Box 660  
Hamilton, Virginia 20159

30920104

Exhibit 3



Scale: 1"=500'

Source: EDR, Inc. (2013)

**Bowman**  
CONSULTING

Aerial Photograph - 2011  
Figure 4J  
**Stonewall Energy Park**  
Leesburg, VA-MD USGS Quadrangle Map  
Loudoun County, Virginia

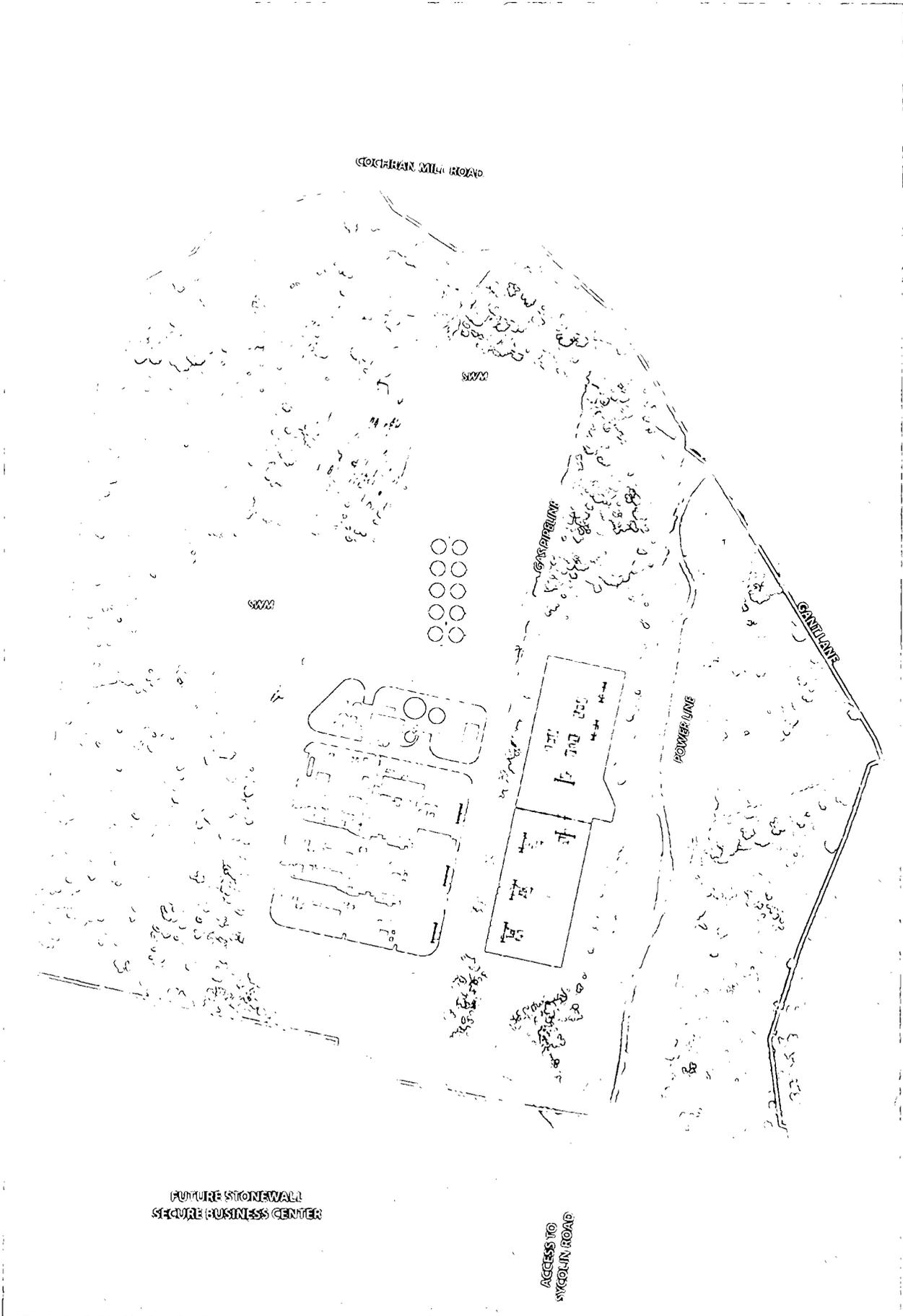
Bowman Consulting Group, Ltd.  
14020 Thunderbolt Place Suite 300  
Chantilly, Virginia 20151

Phone: (703) 464-1000  
Fax: (703) 481-9720  
[www.bowmanconsulting.com](http://www.bowmanconsulting.com)

Prepared for:  
Green Energy Partners/Stonewall LLC  
5275 Westview Drive  
Frederick, Maryland 21703

30920104

Exhibit 4



30920104

Final  
Signed  
As-Approved  
Proffers  
4/20/10

**PROFFER STATEMENT**  
**GEP/S HYBRID ENERGY PARK**  
**ZMAP 2009-0005, SPEX 2009-0009 & CMPT 2009-0001**

August 20, 2009  
Revised November 20, 2009  
Revised January 6, 2010  
Revised February 26, 2010  
Revised March 8, 2010  
Revised March 30, 2010  
Revised April 19, 2010

**Green Energy Partners/Stonewall, LLC**, applicant, together with **Evergreen Loudoun – One Limited Partnership**, record owner of Loudoun County Tax Map 60, Parcels 38 (42.47 acres) and 38A (.32 acre) (PIN #193-38-4362 and 193-49-0539), and **John A. Andrews, Trustee**, record owner of Loudoun County Tax Map 61, Parcel 12 (30.88 acres) (PIN #193-39-3665) and **LTI Limited Partnership**, record owner of Loudoun County Tax Map 60, Parcel 39 (15.20 acres of 59.94 acres)(PIN #194-48-6020) and Loudoun County Tax Map 61, Parcel 14 (11.96 acres) (PIN #193-29-6778), collectively the “Subject Property” consisting of a total of approximately 101 acres, (the above referenced record owners and applicant shall hereafter be referred to as the “Applicant”), hereby voluntarily proffers, pursuant to Section 15.2-2303 of the Code of Virginia (1950), as amended, and Section 6-1209 of the Revised 1993 Loudoun County Zoning Ordinance of Loudoun County, Virginia (hereinafter referred to as “Zoning Ordinance”), as amended, that in the event the Loudoun County Board of Supervisors approves ZMAP 2009-0005, to change the zoning designation of the Subject Property to the Planned Development – General Industry (“PD-GI”) zoning district and as more particularly shown on the Concept Plan/ZMAP/SPEX/CMPT Plat (identified below), the development of the Subject Property will be in substantial conformance with the following proffered terms and conditions.

**I. LAND USE**

**1. CONCEPT PLAN/ZMAP/SPEX/CMPT PLAT**

The development of the Subject Property shall be in substantial conformance with Sheets 1, 2, 5 and 6 (“Concept Plan”) of the plan set titled “Green Energy Partners/Stonewall Hybrid Energy Park Zoning Map Amendment Application 2009-0005, Special Exception Application 2009-0009 & Commission Permit Application

2009-0001", dated July, 2009, and revised through March 30, 2010, prepared by William H. Gordon Associates, Inc. and shall be in substantial conformance with the conditions set forth below. The Concept Plan shall control the general development layout of the Subject Property. The Applicant shall have reasonable flexibility in the final design during site plan review to accommodate minor modifications necessitated by grading, drainage, environmental, cultural and natural features, development ordinance requirements, and other final engineering considerations. The Applicant shall develop the Subject Property, excepting only that approximately 10-acre portion containing the permanent private travelway providing access to Sycolin Road, with a "*Utility generating plant and transmission facility, pursuant to 4-607(H)*" as a principal use, as listed in Section 4-604(I) of the Zoning Ordinance, with related accessory uses as permitted by approved special exception in the PD-GI zoning district. No other PD-GI uses as listed in Section 4-600 of the Zoning Ordinance either permitted by right or allowed by special exception shall be permitted on the Subject Property.

The development of the Subject Property shall also be subject to the advertised zoning modification of Section 4-606 (B) of the Zoning Ordinance which is shown on Sheet 2 of the Concept Plan and pursuant to Section 6-1504 of the Zoning Ordinance. Said zoning modification specifically pertains to the "STEAM TURBINE", as shown on Sheet 5 of the Concept Plan, and allows for the "STEAM TURBINE", if enclosed, to be built to a maximum height of one hundred (100) feet without the additional setback specified in Section 4-606 (B) of the Zoning Ordinance.

As a proffered commitment in addition to the requirement for substantial conformity with the Special Exception Plat imposed in the SPEX 2009-0009 development conditions, the Applicant shall install an active solar electrical power generating array on the Subject Property within the area identified on the Concept Plan as "Solar Array Area". The solar electrical power generating cells within this solar array shall be mounted on individual poles that will reduce ground impacts and enhance the



establishment and sustainability of the meadowland habitat within this "Solar Array Area" required under the SPEX 2009-0009 development conditions.

## II. TRANSPORTATION

### 2. ON-SITE PRIVATE TRAVELWAYS

The Applicant shall construct all on site travelways on the Subject Property in the locations as shown on the Concept Plan, and in accordance with the County of Loudoun's Land Subdivision and Development Ordinance ("LSDO") and Facilities Standards Manual ("FSM"), as may be applicable, to provide on-site access to the Subject Property. Prior to approval of the first site plan for the Subject Property emergency ingress and egress easements will be created and established on all on-site travelways on the Subject Property by the recordation of a deed or deeds of easement approved by the County Attorney, and associated plat or plans approved by the Director of Building and Development, which shall provide that the Applicant shall be responsible for the construction, repair and maintenance of said travelways and that neither the County nor the Virginia Department of Transportation ("VDOT") shall have any such responsibility. The Applicant shall construct the on-site private travelways providing access to the Subject Property from Sycolin Road (State Route 643) in the location as shown on the Concept Plan and in conformance with the LSDO and the FSM and shall construct, or bond for construction, the new Sycolin Road private travelway entrance in conformance with VDOT minimum standards as determined at time of first site plan approval.

### 3. GANT LANE (ROUTE 652) RIGHT-OF-WAY RESERVATION

The Applicant shall reserve for future dedication to the County, as public right of way, land on the Subject Property and also along the Subject Property's frontage in amounts sufficient to provide a maximum Gant Lane (State Route 652) right-of way width up to 50 feet within the Subject Property and up to a maximum of 25 feet to the proposed centerline of Gant Lane along the Subject Property's frontage for the ultimate 50-foot road section of Gant Lane. The aforementioned future dedication of



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reserved rights-of-way shall be granted to the County, at no public cost, upon written request by the County when said rights-of-way have been determined by the County to be needed for the widening of Gant Lane. Said reservation shall be created and established on the Subject Property by the recordation of a deed or deeds of reservation approved by the County Attorney in conjunction with the first site plan for the Subject Property.

In addition to the foregoing right-of-way reservation, the Applicant will grant at time of ultimate right-of-way dedication all necessary easements outside of the right-of-way relating to road construction and road maintenance for utilities, drainage and grading.

In light of the presence of sensitive environmental features, habitat and 100-year floodplain present along Gant Lane, no further road improvements shall be constructed by Applicant along Gant Lane within the 100-year floodplain.

4. CONSTRUCTION TRAFFIC

Prior to the first site plan approval for the Subject Property, the Applicant shall seek and obtain approval from VDOT and Loudoun County of a delivery and construction traffic plan for construction-related access on the permanent private travelway access point on Sycolin Road.

5. RESERVATION OF RIGHT-OF-WAY FOR FUTURE DEDICATION –  
COCHRAN MILL ROAD, RELOCATED.

The Applicant shall reserve for possible future dedication and conveyance to the County, at no public cost, a strip of right-of-way up to seventy-feet (70') in width, together with any needed associated temporary grading and/or permanent drainage and grading easements for a portion of the Cochran Mill Road (Route 653) Relocated alignment in conformance with the Countywide Transportation Plan and in the general area as more particularly shown on Sheet 5 of the Concept Plan as



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“(Realigned Rte 653)”. The final location of Cochran Mill Road Relocated through the Subject Property shall be determined by the County during the processing of the road construction plans and profiles for Cochran Mill Road Relocated. The foregoing reservation shall be limited to a period of twenty-one (21) years from the date of approval of this ZMAP 2009-0005 and shall thereafter immediately and automatically terminate unless the County shall have previously requested the dedication, which said request by the County shall suspend the running of the 21-year period. At any time during the 21-year reservation period, the County may request dedication of the said reserved right-of-way and/or conveyance of any needed associated temporary grading and/or permanent drainage and grading easements for Cochran Mill Road Relocated following submission of road construction plans and profiles for such road construction and when determined by the County to be **needed for actual construction of this realigned public road. Said reservation shall be created and established on the Subject Property by the recordation of a deed or deeds of reservation approved by the County Attorney in conjunction with the first site plan for the Subject Property.**

### III. ENVIRONMENTAL

#### 6. FEDERAL AND STATE PERMITS

Prior to construction of the utility generating plant and transmission facility proposed in SPEX 2009-0009 and CMPT 2009-0001, the Applicant shall obtain all of the required federal and state permits necessary for the construction of the utility generating plant and transmission facility, and shall provide the Department of Building and Development with copies of these permits prior to first site plan approval.

#### 7. LOW IMPACT DEVELOPMENT DESIGN/BEST MANAGEMENT PRACTICES (BMP's)

Development of the Subject Property shall incorporate low impact development design and BMP techniques to filter on-site run-off and protect the water quality of Sycolin Creek. The low impact development design and best management practices

will include the appropriate site-specific water control techniques recommended in the latest edition of the Virginia Stormwater Management Handbook and the FSM.

8. CASH CONTRIBUTION TOWARD REGIONAL STREAM MONITORING STATION ON SYCOLIN CREEK.

The Applicant shall provide a cash contribution in the amount of \$7,500 to the County not later than approval of the first site plan or grading permit for the Subject Property, whichever event occurs sooner in time, to assist with the costs associated with the design, construction, and installation of an off-site regional stream monitoring station on the Sycolin Creek, in the Lower Sycolin watershed, at a point in the stream to be determined to be appropriate by Loudoun County, that can provide stream water quality data and trends and discern the sources of pollutants from residential, agricultural, industrial landowners upstream, in conformance with the CH2M Hill Loudoun County Stream Valley Water Quality Study.

9. TREE SAVE AREAS AND REPLANTING AREAS

Prior to first site plan approval, the Applicant shall coordinate with the County Urban Forester to develop a forest management plan and accompanying planting plan for the areas identified on Sheet 5 of the Concept Plan as Tree Save Area ("TSA's") and Replanting Areas ("RA's"), respectively, on the Subject Property. This forest management plan shall include recommendations that provide for sustained growth and optimum viability for all TSA's. The planting plan will include site description, site preparation, specie selection, stocking, establishment method, size, plant material protection and maintenance until establishment has been achieved.

Within the areas identified on the Concept Plan as TSA's, the Applicant shall preserve healthy trees provided, however, that trees may be removed to the extent necessary for the construction of stormwater management facilities that are required and/or shown on the site plan as lying within such TSA's and for the construction of utilities necessary for development of the Subject Property. A minimum of eighty



(80) percent of the canopy within the cumulative TSA's depicted on the Concept Plan will be preserved, exclusive of stands of Virginia Pine over 25 years in age. In the event that the eighty (80) percent canopy threshold cannot be achieved within the designated TSA's, such lost canopy will be recaptured elsewhere onsite in locations to be designated at the discretion of the Applicant in consultation with the County Urban Forester.

If, during construction on the Subject Property, it is determined by the Applicant's certified arborist and/or the County Urban Forester that any healthy tree located within the boundaries of any of the TSA's as described in this proffer has been damaged during construction and will not survive, then, prior to any subsequent bond release for the Subject Property, the Applicant shall remove each such tree and replace each such tree with two (2) 2\_ - 3 inch caliper native, non-invasive deciduous trees. The placement of the replacement trees shall be proximate to the area of each such damaged tree so removed, or in another area on the Subject Property as determined by the County Urban Forester.

#### 10. RIVERS AND STREAM CORRIDOR RESOURCES MANAGEMENT BUFFER

The Applicant shall preserve and protect existing trees, vegetation, and environmental features within the areas identified on Sheet 5 of the Concept Plan as Rivers and Stream Corridor Resources Management Buffer ("Management Buffer") that are not located within the TSA's. No land disturbing activity will be permitted in the Management Buffer areas with the exception of disturbance necessary for road construction, bridge installation, stormwater management, drainage improvements, water lines, sanitary sewer lines, slope stabilization, wetlands mitigation, landscaping, or other project utilities. The Applicant, its successors and/or assigns will be prohibited from clearing any trees (other than invasive species, dead, dying or diseased trees) in the Management Buffer area, with the exceptions as stated above.



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Prior to and during construction, to protect the Management Buffer area, the Applicant will use temporary chain link fencing or super silt fencing in lieu of the plastic orange fencing required by the FSM, if approved by the Department of Building and Development. Chain link fencing will not be required in areas employing super silt fencing.

11. WETLANDS MITIGATION

In the event the U.S. Army Corp of Engineers or the Virginia Department of Environmental Quality ("DEQ") determine, at the time of first site plan approval or construction plan approval, that any jurisdictional wetland areas are affected by the proposed development which require mitigation, the Applicant shall provide such required mitigation, in order of preference, as follows: 1) on the Subject Property, 2) within the Sycolin Creek Watershed within the same Planning Policy Area, 3) within the Sycolin Creek Watershed outside the Planning Policy Area, 4) within Loudoun County, and 5) within other areas outside of Loudoun County, subject to approval by the U.S. Army Corps of Engineers and DEQ.

12. LIGHTING

The Applicant shall install lighting that is directed downward and inward, full cutoff and fully shielded, and in full conformance with Zoning Ordinance and FSM requirements. All exterior luminaries shall be of a "shoebox" design and utilize cut-off optics, where feasible. All luminaries shall be I.E.S. ("Illuminating Engineering Society") Type V lenses that give circular light distribution for a maximum coefficient of utilization.

13. SYCOLIN CREEK

At the time of issuance of the first zoning permit on the Subject Property, the Applicant will coordinate with Keep Loudoun Beautiful to adopt a section of Sycolin Creek from Sycolin Road and extending through the Subject Property for clean up of



trash and debris during the annual Keep Loudoun Beautiful River and Stream clean up day.

**14. GREEN BUILDING STANDARDS**

The Applicant shall design the Administration Building and the Guardhouse/Visitor Center to achieve the Leadership in Energy and Environmental Design ("LEED") Certified status for design, building and operation of these habitable buildings requiring issuance of Certificates of Occupancy ("CO").

In addition to the standard site plan performance bonding required for site plans, the Applicant shall also furnish a surety satisfactory to the County prior to site plan approval, in the amount of \$.03 per square foot of habitable space in the Administration Building and the Guardhouse/Visitors Center. Such surety shall guarantee the Applicant's commitment to design said buildings to achieve the LEED Certified status and shall be released only upon a determination by the United States Green Building Council or by County Staff that LEED Certified status for the said buildings has been achieved.

**IV. HISTORIC RESOURCES AND PARK EASEMENT**

**15. ARCHAEOLOGICAL SITES #44LD1326, #44LD1328 AND BARN #053-5278**

Prior to and during construction, to protect the above-referenced historic resources, the Applicant will use temporary chain link fencing or super silt fencing in lieu of the plastic orange fencing required by the FSM, if approved by the Department of Building and Development. Chain link fencing will not be required in areas employing super silt fencing.

**16. LOWER SYCOLIN SETTLEMENT**

At the time of issuance of the first zoning permit, the Applicant shall contribute \$35,000 to fund the production of the narrative to document the collective history of the post Civil War historic African American community known as Lower Sycolin.



This contribution shall be made payable to Loudoun County. The County shall use this funding for the research and documentation of the historic Lower Sycolin community by a professional consultant meeting the Secretary of the Interior's Professional Qualification Standards (*Federal Register* 48:190:44716-44742) for history, and the subsequent production of a written report containing a narrative history of Lower Sycolin and a Web document, created for the general public, which summarizes the written report, highlights the significant historical attributes of the community and provides illustrations and graphics. The County will provide both electronic and digital copies of the report to appropriate local and regional repositories and the Applicant. The Web-based document will reside on the County's server and will be accessible to the general public. The Property Owner shall retain ownership of any artifacts found on the Subject Property.

**17. PASSIVE PARK AND REGIONAL TRAIL**

Prior to first site plan approval, the Applicant shall grant an easement to the County, at no public cost, by recordation of a deed in form as approved by the County Attorney, for passive park and/or trail uses on the north side of and adjacent to Sycolin Creek, as more particularly shown on the Concept Plan. In addition to this easement, the Applicant shall make a contribution to the County in the amount of Fifteen Thousand Dollars (\$15,000) at time of issuance of the first zoning permit on the Subject Property. This contribution shall be designated for trail phasing within the Philip A. Bolen Memorial Park for connection to the W&OD Regional Park Trail.

**V. FIRE, RESCUE AND EMERGENCY SERVICES**

**18. ONE-TIME CONTRIBUTION**

The Applicant shall make a one-time contribution to the servicing fire and rescue companies in the amount of Fifty Thousand Dollars (\$50,000) payable to the County at the time of issuance of the first zoning permit and this contribution shall be divided equally between the servicing fire and rescue companies.



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**19. EMERGENCY OPERATIONS PLAN**

The Applicant shall be responsible for providing first response to any emergency in relation to the operation of the Facilities. In addition, the Applicant shall, prior to site plan approval, contact the Loudoun County Department of Fire, Rescue and Emergency Services to discuss development of an Emergency Operations Plan to include an evacuation plan and access and circulation of emergency personnel and emergency vehicles throughout the Subject Property. The Applicant shall prepare at its own cost, prior to site plan approval, an Emergency Operations Plan and shall submit such plan to the Loudoun County Department of Fire, Rescue and Emergency Services for review and approval to ensure that the site layout provides emergency vehicles and personnel adequate access and circulation throughout the Subject Property. Thereafter, the Applicant shall implement the approved Emergency Operations Plan prior to commencement of operation of the Special Exception Use. The Applicant shall be responsible for providing first response to any emergency in relation to the operation of the Special Exception Use, and on-site employees shall be trained as first responders to any such emergency.

**VI. CONTRIBUTION ESCALATION**

**20. CONTRIBUTION ESCALATION**

All cash payments or contributions required or permitted in this proffer statement shall escalate on an annual basis beginning one year after zoning approval and be adjusted effective January 1<sup>st</sup> of each year thereafter, based on the Consumer Price Index, for all urban consumers (CPI-U), 1982-1984=100 (not seasonally adjusted) as published by the Bureau of Labor Statistics, U.S. Department of Labor, for the Washington-Baltimore, MD-VA-DC-WV Consolidated Metropolitan Statistical Area with 2010, as the base year.



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**VII. CONDITIONAL REVERSION OF SUBJECT PROPERTY PD-GI ZONING**

**21. CONDITIONAL ZONING REVERSION**

The rezoning of the Subject Property from TR-10 and JLMA-20 to the PD-GI classification is solely to allow the utility generating plant and transmission facility that is the subject of SPEX 2009-0009 and CMPT 2009-0001, which use is not allowed under the TR-10 and JLMA-20 classifications. The Subject Property may not be used for any other uses allowed by right or by special exception in the PD-GI district. The conditions of approval for SPEX 2009-0009 specifically provide that the approval of the utility generating plant and transmission facility use is valid for a period of ten (10) years. The special exception approval does not expire if, within that ten (10) year period (1) a building permit for the utility generating plant and transmission facility has been issued and construction is diligently pursued, or (2) a certificate of occupancy has been issued and the utility generating plant and transmission facility use has commenced. The Applicant agrees that after the expiration of the ten (10) year period of validity, and any approved extensions of that period of validity, the Board of Supervisors may rezone the Subject Property on its own motion to any reasonable zoning classification consistent with the comprehensive plan existing at that time. In addition, if at any time there is a final decision by any federal agency, state agency, or regional transmission entity, following an exhaustion of all allowed appeals, premised upon an original or any subsequent resubmitted or modified application(s) by the Applicant or its lessee, that constitutes a final and unappealable judgment disallowing the establishment or operation of the utility generating plant and transmission facility, then the Board may rezone the Subject Property on its own motion to any reasonable zoning classification consistent with the comprehensive plan at that time. For purposes of this proffer, the Applicant and any lessee waive any vested rights or other restrictions limiting the Board's right to approve and apply a new zoning classification for the Subject Property after (1) the expiration of the period of validity, as may be extended by the Board of Supervisors, of the special exception use for a utility generating plant and transmission facility, or (2) a final decision by any federal agency, state agency or



regional transmission entity, following an exhaustion of all allowed appeals, premised upon an original or any subsequent resubmitted or modified application(s) by the owner or applicant, that constitutes a final and unappealable judgment disallowing the establishment of the utility generating and transmission facility, whichever is sooner.

**VIII. BINDING EFFECT**

**22. BINDING EFFECT**

The undersigned hereby warrant that all of the owners with a legal interest in the Subject Property have signed this Proffer Statement, that no signature from any additional party is necessary for these Proffers to be binding and enforceable in accordance with their terms, that they, together with the others signing this document, have full authority to bind the Subject Property to these conditions, and that this Proffer Statement is entered into voluntarily.

**[SIGNATURE PAGES FOLLOW THIS PAGE]**



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GREEN ENERGY PARTNERS/STONEWALL,  
LLC

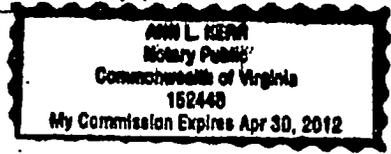
BY: [Signature]  
NAME: John A. Andrews II  
TITLE: Managing Member

STATE OF Virginia  
CITY/COUNTY OF Roanoke: to-wit:

The foregoing instrument was acknowledged before me, this 13<sup>th</sup> day of April, 2010, by John A. Andrews II as Managing Member, of Green Energy Partners/Stonewall, LLC

[Signature]  
Notary Public

My Commission Expires: 4-30-2012





EVERGREEN LOUDOUN – ONE LIMITED PARTNERSHIP

BY: Evergreen Loudoun-One Investments, Inc.  
ITS: General Partner

BY: Mary Grace Day  
NAME: Mary Grace Day  
TITLE: President

DISTRICT  
STATE OF Columbia  
CITY/COUNTY OF WASHINGTON: to-wit:

The foregoing instrument was acknowledged before me, this 19 day of April, 2010, by Mary Grace Day, as President of Evergreen Loudoun-One Investments, Inc., being the General Partner of Evergreen Loudoun – One Limited Partnership.

Keauna L. Ray  
Notary Public, District of Columbia  
My Commission Expires 8/30/2014

Keauna Ray  
Notary Public

My Commission Expires: 6/30/2014

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JOHN A. ANDREWS, TRUSTEE

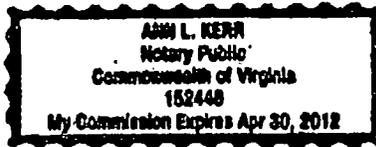
BY: *[Signature]*  
NAME: JOHN A. ANDREWS, TRUSTEE

STATE OF Virginia  
CITY/COUNTY OF Spotsylvania: to-wit:

The foregoing instrument was acknowledged before me, this 13<sup>th</sup> day of April, 2010, by John A. Andrews, Trustee.

*[Signature]*  
Notary Public

My Commission Expires: 4-30-2012



130920104

LTI LIMITED PARTNERSHIP  
BY: Capitol Properties, Inc.  
ITS: General Partner

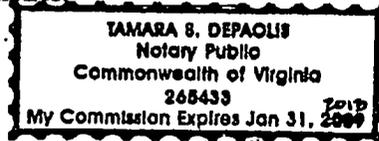
BY: Stephen J. Garchik  
NAME: Stephen J. Garchik  
TITLE: President

STATE OF Virginia  
CITY/COUNTY OF Fairfax: to-wit:

The foregoing instrument was acknowledged before me, this 13<sup>th</sup> day of April, 2010, by Stephen J. Garchik, as President of Capitol Properties, Inc., being the General Partner of LTI Limited Partnership.

[Signature]  
Notary Public

My Commission Expires:



**GREEN ENERGY PARTNERS/STONEWALL HYBRID ENERGY PARK  
SPEX 2009-0009 - CONDITIONS OF APPROVAL (April 5, 2010)**

1. Substantial Conformance. The approved Special Exception Use, a utility generating plant and transmission facility, shall be developed in substantial conformance with the Special Exception Plat, consisting of four (4) sheets numbered as 1, 2, 5 and 6 and labeled as "COVER SHEET", "REZONING PLAT/NOTES, TABULATIONS & REQUIREMENTS", "CONCEPT PLAN (ZMAP/SPEX/CMPT PLAT)", and "CONCEPT PLAN OVER EXISTING CONDITIONS", respectively, and dated July 2009, as revised through March 30, 2010, and prepared by William H. Gordon Associates, Inc. (the "SPEX Plat"). Approval of this application for Tax Map #s 160////////38/ (PIN # 193-38-4362), 160////////38A (PIN # 193-49-0539), 161////////12/ (PIN # 193-39-3665), 161////////14/ (PIN # 193-29-6778), and a portion of 160////////39/ (PIN # 194-48-6020) (collectively the "Property") shall not relieve the Applicant or the owners of the Property from the obligation to comply with and conform to any Zoning Ordinance, Codified Ordinance, or applicable requirement. As used in these conditions, "Applicant" includes the owner of the Property subject to this Special Exception approval, its successors, and parties developing, establishing or operating the approved Special Exception Use.
2. Period of Validity. The period of validity, set forth in Section 6-1313 of the Revised 1993 Loudoun County Zoning Ordinance, for this Special Exception approval shall be ten (10) years.
3. Lot Consolidation. Prior to first site plan approval, the Property shall be consolidated into one parcel, with the exception of the private access easement road.
4. Property Taxes. The Applicant shall not apply for any exemption from real estate or personal property taxes in association with the Special Exception Use on the Property.
5. Noise. Prior to first site plan approval, the Applicant shall conduct a noise study and shall submit the noise study and its findings to the Zoning Administrator. The noise study shall analyze the maximum noise potential of the Special Exception Use, including but not limited to, predicted noise during the construction of the Special Exception Use, baseline noise generated by the day-to-day operations of the Special Exception Use, the cumulative noise of the baseline noise and the noise produced once the single-cycle peaker turbines are in operation, and the cumulative noise once emergency back-up generators or equipment are in operation. The noise study shall include recommendations for specific noise attenuation measures and an assessment of whether installation and operation of the proposed noise attenuation measures can achieve noise attenuation that provides compliance with Section 5-1507 of the Revised 1993 Zoning Ordinance. The noise standards of Section 5-1507 of the Revised 1993 Zoning Ordinance shall also apply to any non-stationary noise source.

Once the Special Exception Use is operational, the Applicant shall conduct quarterly noise testing to ensure that noise levels do not exceed the performance standards set forth in Section 5-1507 of the Revised 1993 Zoning Ordinance. Should the testing results at any time determine that noise levels exceed the noise limitations set forth in Section 5-1507, the Applicant shall notify the Zoning Administrator and shall take immediate action to bring the noise levels into compliance through the use of noise attenuation measures. Once said noise attenuation measures are implemented, the Applicant shall provide the Zoning Administrator

with the results of noise testing to demonstrate compliance with Section 5-1507.

6. Lighting. All exterior lighting, including security lighting, shall be designed and installed to minimize light trespass and the visibility of lighting from properties offsite of the Property. Exterior light fixtures shall be full cut-off and fully shielded and shall direct light downwards and into the interior of the Property and away from surrounding public roads and properties. Exhaust stacks, storage tanks, cooling towers, turbines, heat recovery steam generators, ("HRSG's"), and similar tall structures shall not have exterior lighting, unless otherwise required by law, ordinance or regulation or necessary for safety. In addition, the utility generating plant and transmission facility shall be designed to enable exterior lighting for distinct area(s) of the utility generating plant and transmission facility to be switched off when not in use.
7. Plume Abatement. All cooling towers shall be equipped with plume abatement systems, which shall be operated during daylight hours when weather conditions exist to cause a visible plume at a height equal to or greater than 150 feet above the ground elevation of the base of the cooling tower or at the time weather conditions are predicted to occur that would cause a visible plume at a height equal to or greater than 150 feet above the ground elevation of the base of the cooling tower, to mitigate visibility of cooling tower plumes. Additionally, plume abatement shall be operated when ambient conditions exist that would cause ground level fog to occur from the cooling tower operation to mitigate the fog conditions.
8. Color of Utility Generating Plant and Transmission Facility. Equipment and structures on the Property shall be a light, uniform, neutral color; a color to match the sky; or earth tones, excluding dark gray and black.

#### ENVIRONMENTAL

9. Combined Cycle and Natural Gas Turbine. The production of electrical power shall occur through a combined cycle and single cycle natural gas turbine energy facility that does not involve the use of burning coal or nuclear reaction. Alternative non-fossil fuels, such as biogas and other bio-fuels may be utilized on the Property for the production of electrical power and accessory uses when reliable supplies are available, as approved by the County. The Special Exception Use shall not utilize fuel oil, diesel fuel, coal, or nuclear reaction in the production of energy. The production of electrical power may also occur through a photovoltaic solar array. In the event that solar technology advances beyond that approved with this application, the applicant may upgrade its solar technology within the footprint shown on the SPEX Plat without requiring a Zoning Concept Plan Amendment or Proffer Statement Amendment.
10. Air Quality. Emissions generated by the Special Exception Use shall not exceed the Air Emissions (plus 5%) levels contained in Table 3.1 on page 10 of the report titled "Revised Air Quality Study of Green Energy Partners/Stonewall Solar and Natural Gas-Fired Power Plant at Leesburg, VA", dated November 20, 2009, and prepared by MACTEC Engineering and Consulting, Inc., attached hereto as Exhibit A. Should the testing results at any time determine that emissions levels exceed the limitations set forth in this Condition, the Applicant shall notify the Zoning Administrator and shall take immediate action to bring the emissions levels into compliance with this Condition. Once said emissions levels are

returned to compliance, the Applicant shall provide the Zoning Administrator with the results of the emissions testing to demonstrate compliance with this Condition.

11. Water Quality. The Applicant shall design, construct, and install a surface water monitoring station on-site on the Property at point of stormwater discharge with specific monitoring details as deemed appropriate by the Virginia Department of Environmental Quality ("DEQ") during site plan review. This on-site point discharge water quality monitoring station shall produce data reports at an interval as determined to be appropriate by DEQ requirements and to be determined during site plan review. Such data reports shall measure Toxicity, Flow rate, pH, Temperature, Dissolved Oxygen, Copper, Iron, Chloride, Water Hardness, Oil, Grease and other Petroleum Hydrocarbons and other elements and compounds. In the event DEQ does not mandate monitoring of Oil, Grease and other Petroleum Hydrocarbons at this singular channelized point of stormwater discharge, these pollutants shall be monitored at the same frequency as what DEQ would require in the permit.
12. Erosion and Sediment Control and Turbidity Management. In addition to the minimum requirements for erosion and sediment control in Chapter 1220 of the Codified Ordinance and the Virginia Erosion and Sediment Control Handbook; the Applicant shall provide the following heightened erosion and sediment control measures specified in the Facilities Standards Manual for Reservoir Protection Requirements, namely:
  - a. Super silt fence shall be substituted for silt fence in all perimeter locations;
  - b. The use of stabilization matting shall be expanded to aid in the establishment of vegetation; and
  - c. Development Phasing shall be utilized to avoid extensive areas of disturbance for extended periods of time.

The Applicant shall measure levels of turbidity in runoff leaving the Property during the construction phase. Outfall discharge measurements samples shall be collected from any storm event that is less than or equal to a two (2) year, twenty-four ( 24) hour storm that causes a discharge within the first sixty (60) minutes (or as soon thereafter as practical) of when the runoff begins discharging from the facility. This information shall be submitted to the County Erosion and Sediment Control Inspector.

Turbidity is measured in nephelometric turbidity units (NTU) or Jackson Turbidity Units (JTU). If discharge turbidity measurements exceed 280 NTU/JTU due to site sediment and erosion control measures the Applicant shall, upon consultation with the County Erosion and Sediment Control Inspector, adjust the erosion and sediment control measures to reduce the measurements to a level below 280 NTU/JTU.

13. Zero Discharge. The Applicant shall install a "zero discharge" water treatment system to treat any process water utilized in the operation of the steam generators and cooling towers. Process water shall be treated, reused, recycled and not disposed of as surface runoff or into the stormwater management system. Solid wastes resulting from the treatment of the water shall be disposed of offsite in an approved landfill.
14. Stormwater Treatment. The Applicant shall (a) incorporate best management practices ("BMP's") for treatment for all stormwater runoff leaving impervious surfaces; (b) design all

BMP's to treat the first inch of stormwater runoff from impervious surfaces; and (c) design all BMP's to remove a percentage of phosphorous not lower than fifty (50) percent.

15. Wetlands. Prior to the commencement of any land disturbing activities in wetlands areas, all necessary state and federal wetlands permits shall be obtained and copies of these permits shall be submitted to the Loudoun County Department of Building and Development.
16. Very Steep Slope Areas. Prior to the commencement of any land disturbing activities, the Applicant shall survey, flag, and install super silt fencing or temporary chain link fencing, in lieu of plastic orange fencing, if approved by the Department of Building and Development, around the very steep slope areas that are located in proximity to the area to be affected by land disturbance. Said fencing shall remain in place for the duration of all land disturbing activities.
17. Best Available Control Technology. The Special Exception Use shall utilize Best Available Control Technology ("BACT") in accordance with the most current DEQ permit standards.
18. Open Space. For the purpose of these Conditions, open space shall be defined as all areas labeled on the SPEX Plat as "SOLAR ARRAY OR OPEN SPACE", "OPEN SPACE AREA", "REPLANTING AREA", "50' YARD", OR "TYPE IV BUFFER YARD", "TREE SAVE AREA #1", and "TREE SAVE AREA #2" (collectively the "Open Space"). A minimum of sixty-five percent (65%) Open Space shall be provided on the Property and shall be demonstrated on the approved site plan.
19. Natural Resources Management Plan (NRMP). Prior to first site plan approval, the Applicant shall coordinate with the County Urban Forester to develop a Natural Resources Management Plan (NRMP) and accompanying planting plan for the entirety of the Open Space on the Property to ensure that all habitats (to generally include forest, meadow, riparian, and wetland) are rehabilitated and managed so that they function as viable habitat. The NRMP shall include recommendations that provide for sustained growth and optimum viability for the entirety of the Open Space, including but not limited to forest, meadow, riparian, and wetland habitats.

The NRMP shall provide for the management of natural resources, including aquatic life, wildlife, and forest, meadow, riparian, and wetland habitats, while allowing for harmony with the Special Exception Use. The Applicant shall actively maintain the Open Space to maximize its habitat value, minimize the impact of the Special Exception Use by the use of trees and vegetation to screen and buffer the adjacent uses, mitigate stormwater run-off, minimize water and air pollution, remove invasive plants, and avoid wildlife conflicts.

The accompanying planting plan shall consist of native species and shall be completed for forest, meadow, riparian, and wetland habitats, to include site description, site preparation, species selection, stocking, establishment method, plant size, plant material protection, plant maintenance, protection against deer, and other management actions. Invasive species shall be removed, whenever practicable. Preferred removal methods shall include mechanical means for woody invasive species, rotational mowing, and the removal of hay, as applicable. If no other method is successful, the application of herbicides may be considered. All management activities in the NRMP shall consider and be sensitive to the life-cycle of animals, including ground-nesting birds, small mammals, and amphibians.

For specific Open Space areas on the Property, the following shall also apply:

- a. Solar Array Area. If the area labeled on the SPEX Plat as "SOLAR ARRAY OR OPEN SPACE" is not used for a solar array, the area shall only be used as Open Space. If the area labeled on the SPEX Plat as "SOLAR ARRAY OR OPEN SPACE" is used for a solar array, since establishment of arboreal vegetation areas are not appropriate in the area labeled on the SPEX Plat as "SOLAR ARRAY OR OPEN SPACE", the NRMP and accompanying planting plan shall be designed in coordination with the County Urban Forester to allow for establishment of a meadowland habitat conducive to flora and fauna indigenous to such a habitat.
  - b. Under Power Lines. Within Open Space located underneath the power lines, where indigenous vegetation has been impaired by herbicide application and where the establishment of arboreal vegetation areas are not appropriate, the NRMP and planting plan shall be designed in coordination with the County Urban Forester to allow for establishment of a meadow habitat conducive to flora and fauna indigenous to such a habitat, consistent with existing power line easement requirements.
  - c. Construction Staging Areas. The replanting of the construction staging areas shall be in conformance with the Natural Resources Management Plan in these Conditions of Approval.
20. Wood Turtle. Prior to any land disturbing activity on the Property in the area of the wood turtle habitat identified in the Applicant's submitted Endangered and Threatened Species Habitat Evaluation and Rare Plant Species/Community Assessment, prepared by Wetland Studies and Solutions, Inc., and dated November 8, 2004, the Applicant shall perform a search for wood turtles in the area to be affected by construction. The Applicant shall provide educational materials about the wood turtle to contractors working on the Property prior to the commencement of any land disturbing activity. The Applicant shall instruct contractors to use bridge spans or bottomless culverts to prevent barriers of migration.

#### TRANSPORTATION

21. Sycolin Road Access. The proposed entrance onto Sycolin Road (Route 643) shall be constructed to VDOT standards including, but not limited to, locating the proposed entrance relative to future median breaks, the provision of turn lanes and the demonstration of adequate sight distance. The Applicant shall coordinate this site entrance with the Office of Transportation Services ("OTS") and VDOT in consideration of any approved and bonded construction plans for the planned future grade-separated interchange on the Dulles Greenway at the westernmost crossing of Sycolin Road, south of the proposed site entrance location.
22. Sycolin Road Pottery Site. The Applicant shall protect the Sycolin Road Pottery Site (44LD1195) located on the adjacent parcel (PIN # 194-48-6020) from inadvertent impact and encroachment related to the construction of the vehicular entrance proposed on the east side of Route 643 (Sycolin Road) including any road widening, tree removal, clearing, or other improvements. The Applicant shall delineate the boundaries of the Sycolin Road Pottery Site (44LD1195) on all grading plans, construction plans and profiles, and site plans submitted to the County for review. Prior to the commencement of any land disturbing

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activities on the Property, the Applicant shall install and maintain demountable chain link (long-fence type) fencing along the boundaries of the Property in the area adjacent to the portion of archaeological site 44LD1195 that is located on the east side of Route 643 as defined by the Louis Berger Group, Inc. in their report entitled Archaeological Survey of Route 643 (Sycolin Road) and Archaeological Evaluation of Site 44LD1195 (VDOT project: 0643-053-P91, M501) prepared for VDOT and dated September, 2006. Said fencing shall remain in place for the duration of all land disturbing activities.

23. Traffic Management. Prior to first site plan approval for the Special Exception Use, the Applicant shall submit a Traffic Management Plan to OTS and VDOT for review and approval. Such plan shall address temporary construction entrances and access routes, delivery schedules for wide loads during off-peak times, and measures for minimizing conflicts on access routes to and from the site. Construction traffic access to and from the Property shall be limited to Sycolin Road.
24. Cochran Mill Road. Prior to first site plan approval for the Special Exception Use, the Applicant shall grant to the County a reservation for future public street dedication of seventy (70) feet of right-of-way to permit future realignment and widening of Cochran Mill Road, together with any necessary temporary construction and drainage easements. Such right-of-way shall be dedicated to the County or VDOT upon request by the County or VDOT and at no cost to the County or VDOT.
25. Fire and Rescue Access. In conjunction with the initial submittal of each site plan for the Property, the Applicant shall submit such site plan to the Department of Fire, Rescue and Emergency Services for review and approval to ensure that the site layout provides emergency vehicles and personnel adequate access and circulation throughout the Property.

#### UTILITIES

26. Collocation of Effluent and Utility Lines. The Applicant shall minimize land disturbance by coordinating with the Town of Leesburg and/or Loudoun Water, to the extent permitted by law, to collocate the effluent line with other existing or planned Town of Leesburg and/or Loudoun Water utility lines prior to site plan approval for the Property.
27. Utility Lines. The Applicant shall collocate and bury sewer and water utility lines and facilities to the extent allowed by Loudoun Water or the Town of Leesburg policies and regulations, whichever is applicable at the time.

#### ACCOUNTABILITY

28. Compliance with Special Exception. The Applicant shall provide written certification to the Zoning Administrator annually that the Special Exception Use is in compliance with all Conditions of this Special Exception.
29. Response to Complaints and Inquiries. The Applicant shall respond promptly to any complaints or inquiries to the Board of Supervisors, County Administrator, or Zoning Administrator.
30. Federal, State, and Local Approvals. The Special Exception Use shall not commence operation until all necessary approvals from applicable regulatory agencies of the federal,

state, and local government have been obtained. The Applicant shall operate the Special Exception Use in conformance with all permits, laws, rules and regulations of federal, state, and local laws.

31. Federal and State Permits. If violations of any state or federal permits are reported to Loudoun County by the applicable regulatory agency, the Board of Supervisors, and/or the County Administrator, may request the Applicant to provide, at the Applicant's sole expense, the services of an appropriate firm to review the nature of the violation, if any, and the remedy, if any. This firm shall be jointly selected by the Applicant and Loudoun County and will report solely to Loudoun County.
32. Inspections. The County reserves the right to inspect the site at any reasonable time during normal hours of operation without prior notice to insure that the operation of the Special Exception Use meets the requirements of the Revised 1993 Zoning Ordinance, these conditions, the codified ordinance or other regulatory requirement.
33. Discontinuance of Use. At such time as the Property shall not be used for a utility generating and transmission facility for two years, the Applicant shall restore the site substantially to its prior condition, or such other condition as may be approved by the Board of Supervisors.

Exhibit A. Air Quality

<b>CO</b>						
Lbs/hour	11.0	34.6	91.2		27.3	
Tons/year	45.1	39.8	156.3		32.4	198.0
<b>PM2.5-10</b>						
Lbs/hour	14.4	10.0	48.8	1.7	0.7	
Tons/year	89.1	10.0	146.1	7.4	2.5	163.8
<b>NOx</b>						
Lbs/hour	18.0	72.1	180.4		143	
Tons/year	74.5	68.5	285.9		188	319.9
<b>SO<sub>x</sub></b>						
Lbs/hour	1.3	1.4	5.8		0.1	
Tons/year	5.4	1.1	13.0		0.2	13.8
<b>VOC</b>						
Lbs/hour	6.2	3.9	19.0		5.7	
Tons/year	25.4	3.2	57.2		3.1	63.3
<b>Ammonia</b>						
Lbs/hour	14.8	-	29.6			
Tons/year	64.7	-	129.3			136.0

**CONDITIONS OF APPROVAL (ZMOD) (April 5, 2010)**

1. In accordance with Sheet 5 of the SPEX Plat, the height modification of Section 4-606(B) of the Revised 1993 Loudoun County Zoning Ordinance increasing the maximum building height to 100 feet, without providing additional setbacks, shall only apply to the steam turbine enclosure (# 17 Steam Turbine). All other structures that are not exempt under Section 1-103(D)(2) shall comply with the building height requirements of Section 4-606(B) of the Revised 1993 Loudoun County Zoning Ordinance.





Loudoun County, Virginia  
www.loudoun.gov

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**Department of Building and Development**

1 Harrison Street, S.E., P.O. Box 7000, Mailstop #60A, Leesburg, VA 20177-7000

**(703) 777-0220**

FAX Numbers: Permits (703) 771-5522 - Engineering (703) 737-8993  
Zoning & Administration (703) 771-5215

October 24, 2012

Mr. John Andrews  
Partners/Stonewall, LLC  
P. O. Box 660  
Hamilton, VA 20159

**Re: Conditional Approval of Stonewall Hybrid Energy Park, Fast Track  
Application STMP-2012-0003**

Dear Mr. Andrews:

The site plan application STMP-2012-0003 for construction of a Combined Cycle Natural Gas Turbine Power Generation and Transmission Facility with an Administrative Building (18,000 sf), a Guard House Building (1,500 sf), a Control House Building (864 sf) each for switchyard #1 & #2, a Main Switch Gear Building (3,784 sf), a Water Treatment Building (115 sf), a Raw Water Equipment Building (2,500 sf), 29 parking spaces, and related infrastructure, is hereby **conditionally approved** by the County of Loudoun.

With this conditional approval, the applicant may now obtain a Phase 1 Grading Permit, VDOT Entrance Permit, Property Addressing, and may apply for Building Permits. This approval is with the understanding that prior to obtaining Phase 2 Grading Permit the following conditions shall be met:

1. Proffer II.2. All private access easements, emergency access easements shall be reviewed, approved, & recorded.
2. Proffer II.3. Gant Lane ROW reservation shall be reviewed, approved, & recorded.
3. Proffer II.4. Delivery and Construction Traffic Plan shall be approved by Loudoun County OTS and VDOT.
4. Proffer II.5. Reservation of ROW for future dedication of Cochran Mill Road relocated shall be reviewed, approved, & recorded.
5. Proffer III.6. Federal and state permits copies shall be provided to B&D Loudoun County.
6. Proffer III.8. Cash contribution in the amount \$7,500 toward Regional Stream Monitoring Station on Sycolin Creek shall be paid to the County.
7. Proffer III.9. Tree Save and Replanting Areas (FMP) plan shall be coordinated & developed, and approved with/by County Urban Forester.
8. Proffer IV. 17. Deed/plat granting an easement to the County for the Passive Park shall be reviewed, approved, & recorded.

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9. Proffer V.19. Emergency Operation Plans shall be submitted & approved by Loudoun County Department of Fire, Rescue, and Emergency Services.
10. SPEX-COA #2. Lot Consolidation shall be submitted, reviewed, & recorded.
11. SPEX-COA #5. Noise study shall be conducted and the findings submitted to Zoning Administrator.
12. SPEX-COA #11. Water Quality-Surface Water Monitoring Station shall be designed, constructed, & installed (demonstrate compliance) as deemed appropriate by DEQ.
13. SPEX-COA #19 Natural Resources Management Plan shall be coordinated & developed, and approved with/by County Urban Forester.
14. SPEX-COA #19.c. Construction Staging Area shall be designated as approved by the County Urban Forester.
15. SPEX-COA #23. Traffic Management shall be submitted to OTS and VDOT for review and approval. Such plan shall address temporary construction entrances and access routes, delivery schedules for wide loads during off-peak times, and measures for minimizing conflicts on access routes to and from the site. Construction traffic access to and from the Property shall be limited to Sycolin Road.
16. SPEX-COA #24. Cochran Mill Road reservation for future public street dedication of seventy (70) feet of right-of-way to permit future realignment and widening of Cochran Mill Road, together with any necessary temporary construction and drainage easements shall be granted to County. Such right-of-way shall be dedicated to the County or VDOT upon request by the County or VDOT and at no cost to the County or VDOT- reservation shall be reviewed, approved, & recorded.
17. SPEX-COA #25. Fire and Rescue Access plan shall be submitted to the County Department of Fire, Rescue and Emergency Services for review and approval to ensure that the site layout provides emergency vehicles and personnel adequate access and circulation throughout the Property.
18. Geotechnical Report shall be submitted and approved.
19. All on-site & off-site easement shall be reviewed, approved, & recorded.
20. All Performance Bonds shall be reviewed, approved & recorded.
21. BLAD-2012-0033 shall be reviewed, approved, & recorded.
22. VDOT approval of Gant Lane and Sycolin Road Entrances shall be required.
23. Loudoun Water approval shall be required.
24. Floodplain Alteration/Waiver application shall be reviewed & approved.
25. The applicant is to provide design & details of the proposed "emergency diesel generator" & the "oil/water separator" to show compliance with (FSM 5.320.E.4) "hot spot" requirements.

In accordance with Section 8.108.B.4 of the Facilities Standards Manual, upon satisfactory completion of the installation of all required improvements shown on the approved site plan, the developer shall submit to the County two copies of the Building Location Plat showing the as-built exterior dimensions and the setback dimensions of buildings; at least two weeks prior to the anticipated occupancy permit of any building.

Please find attached three (3) sets of the approved plans for your files. If you have any questions, please call me at (703) 737-8927, or contact me by email at [Neelam.Henderson@loudoun.gov](mailto:Neelam.Henderson@loudoun.gov)

Sincerely,



Neelam Henderson  
Engineering Project Manager

Reviewed by Fhm

cc: Teresa Miller, Zoning; Alan Drager, E&S Field Manager; Ali Bokae, WRT  
Todd Taylor, ERT; Dana Malone, NRT; Pat Quante, P.E., Bowman Consulting, Group  
Robyn Bailey, Economic Development; Blythe Tucker, OMGI  
Marsha Keim, B&D Zoning Permits; Steve Plante, General Services  
Jim Brown, E&S Program Administrator; Julie Atwell, Loudoun Water  
Thomas VanPoole, P.E., VDOT District; Project/LMIS/Engineering Files

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Exhibit 7



Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5083-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Water Tank Structure 1 - Water Storage Tank  
 Location: Leesburg, VA  
 Latitude: 39-03-38.68N NAD 83  
 Longitude: 77-32-30.14W  
 Heights: 300 feet site elevation (SE)  
 48 feet above ground level (AGL)  
 348 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 48 feet above ground level (348 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

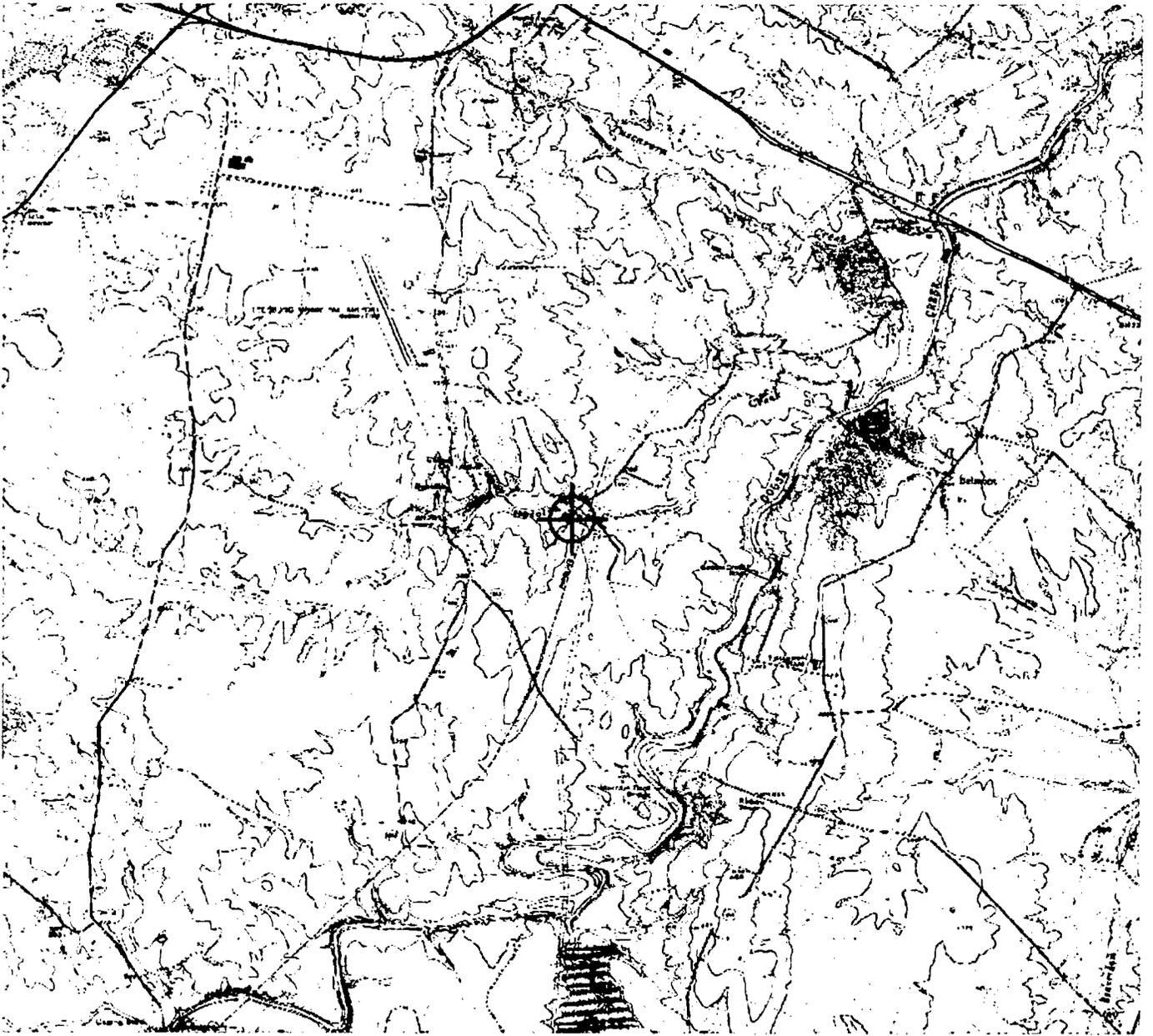
Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5083-OE.

**Signature Control No: 175324403-177313142**  
Cindy Whitten  
Specialist

( DNE )

Attachment(s)  
Map(s)





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5084-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure 2 - Cooling Tower  
 Location: Leesburg, VA  
 Latitude: 39-03-35.52N NAD 83  
 Longitude: 77-32-31.21W  
 Heights: 340 feet site elevation (SE)  
 70 feet above ground level (AGL)  
 410 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 70 feet above ground level (410 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

130920104

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

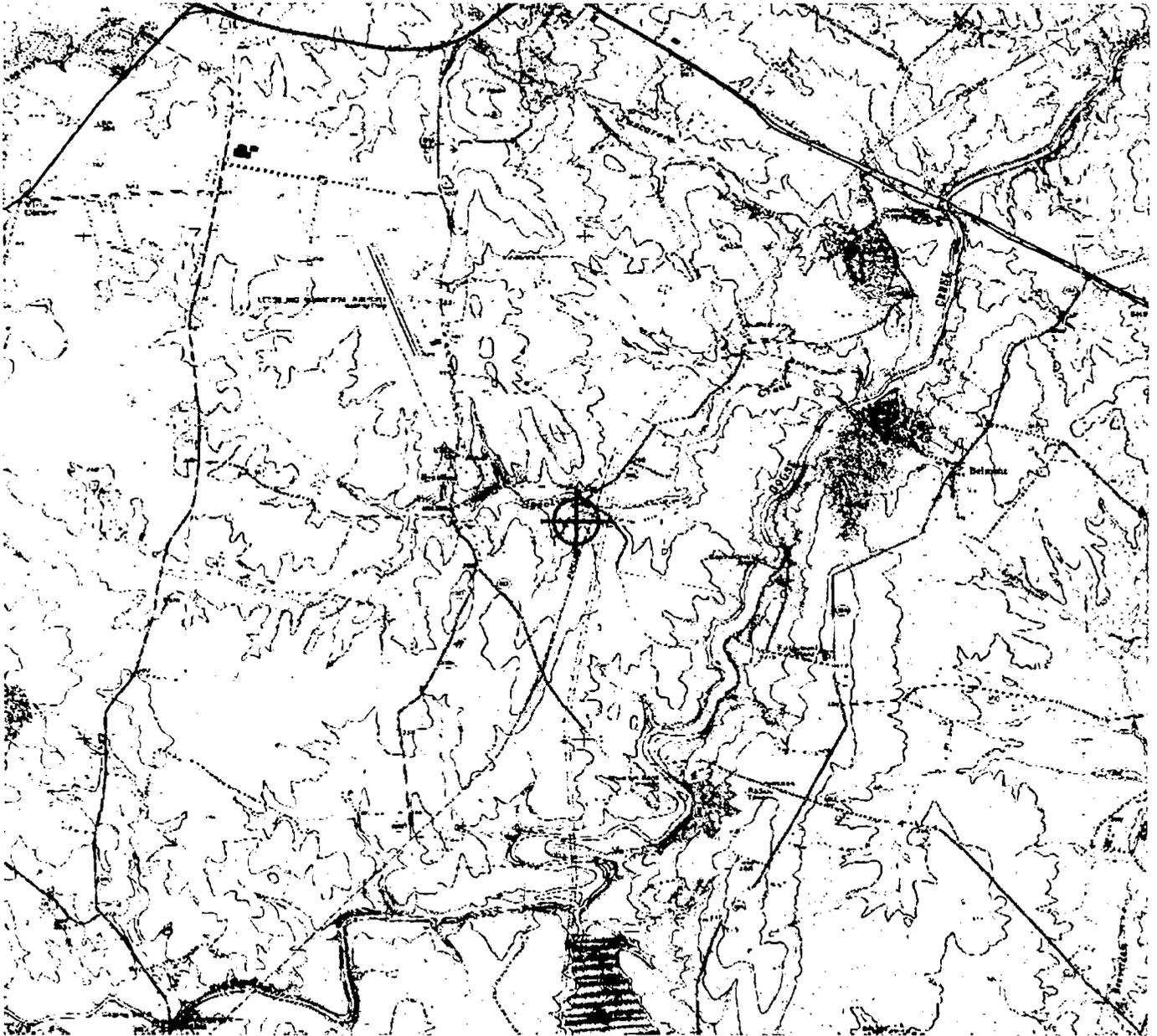
Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5084-OE.

**Signature Control No: 175324404-177316481**  
Cindy Whitten  
Specialist

( DNE )

Attachment(s)  
Map(s)





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5085-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure 3 - Cooling Tower Blowdown Tank & Pumps  
 Location: Leesburg, VA  
 Latitude: 39-03-31.34N NAD 83  
 Longitude: 77-32-32.02W  
 Heights: 341 feet site elevation (SE)  
 40 feet above ground level (AGL)  
 381 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 40 feet above ground level (381 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

130920104

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

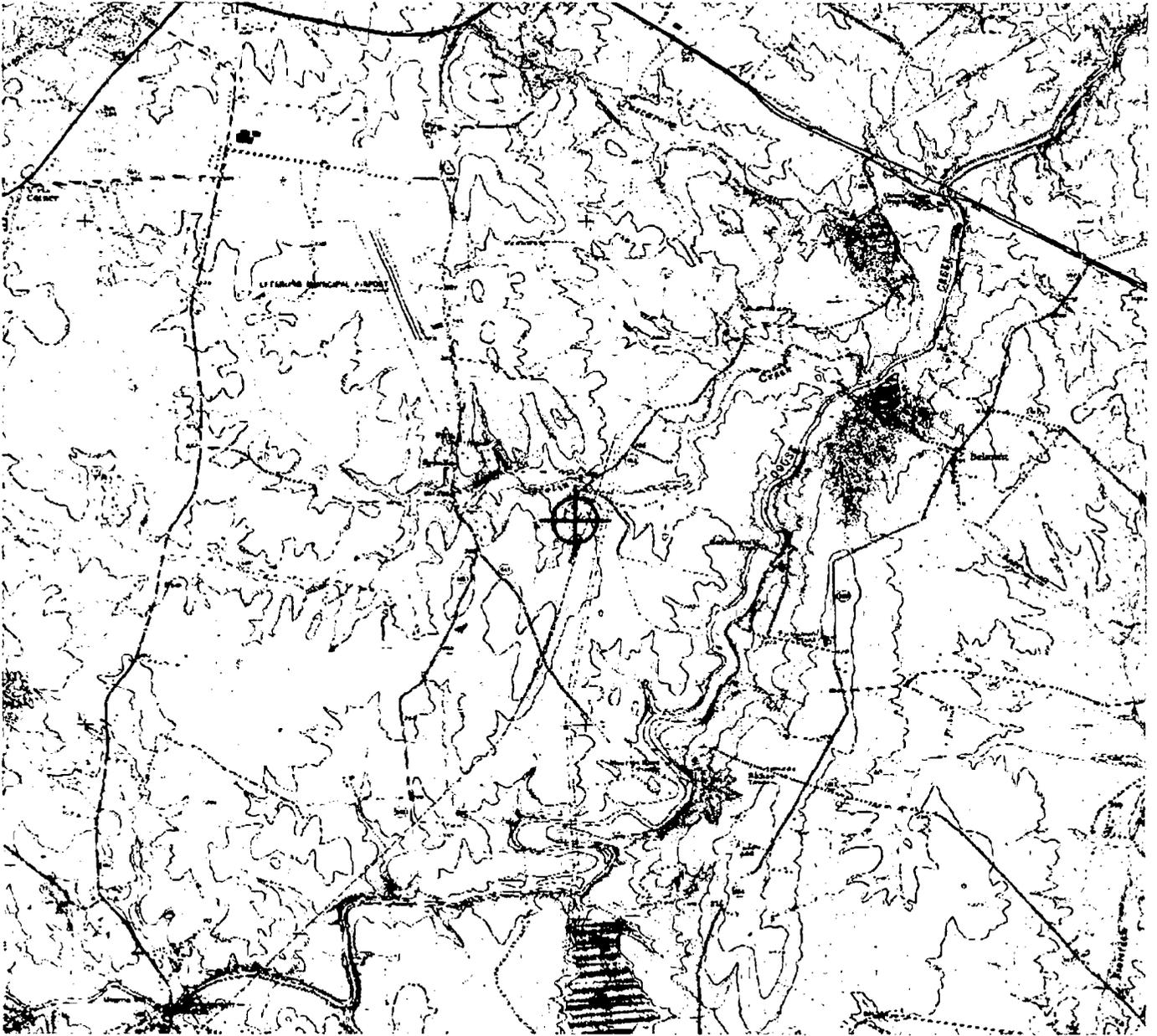
If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5085-OE.

**Signature Control No: 175324409-177317178**

( DNE )

Cindy Whitten  
Specialist

Attachment(s)  
Map(s)





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5086-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Water Tank Structure 4 - Brine Evaporator Water Tank  
 Location: Leesburg, VA  
 Latitude: 39-03-30.81N NAD 83  
 Longitude: 77-32-34.47W  
 Heights: 341 feet site elevation (SE)  
 110 feet above ground level (AGL)  
 451 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked/lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, paint/red lights - Chapters 3(Marked),4,5(Red),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

**See attachment for additional condition(s) or information.**

Any height exceeding 110 feet above ground level (451 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

130920104

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5086-OE.

**Signature Control No: 175324410-177320613**  
Cindy Whitten  
Specialist

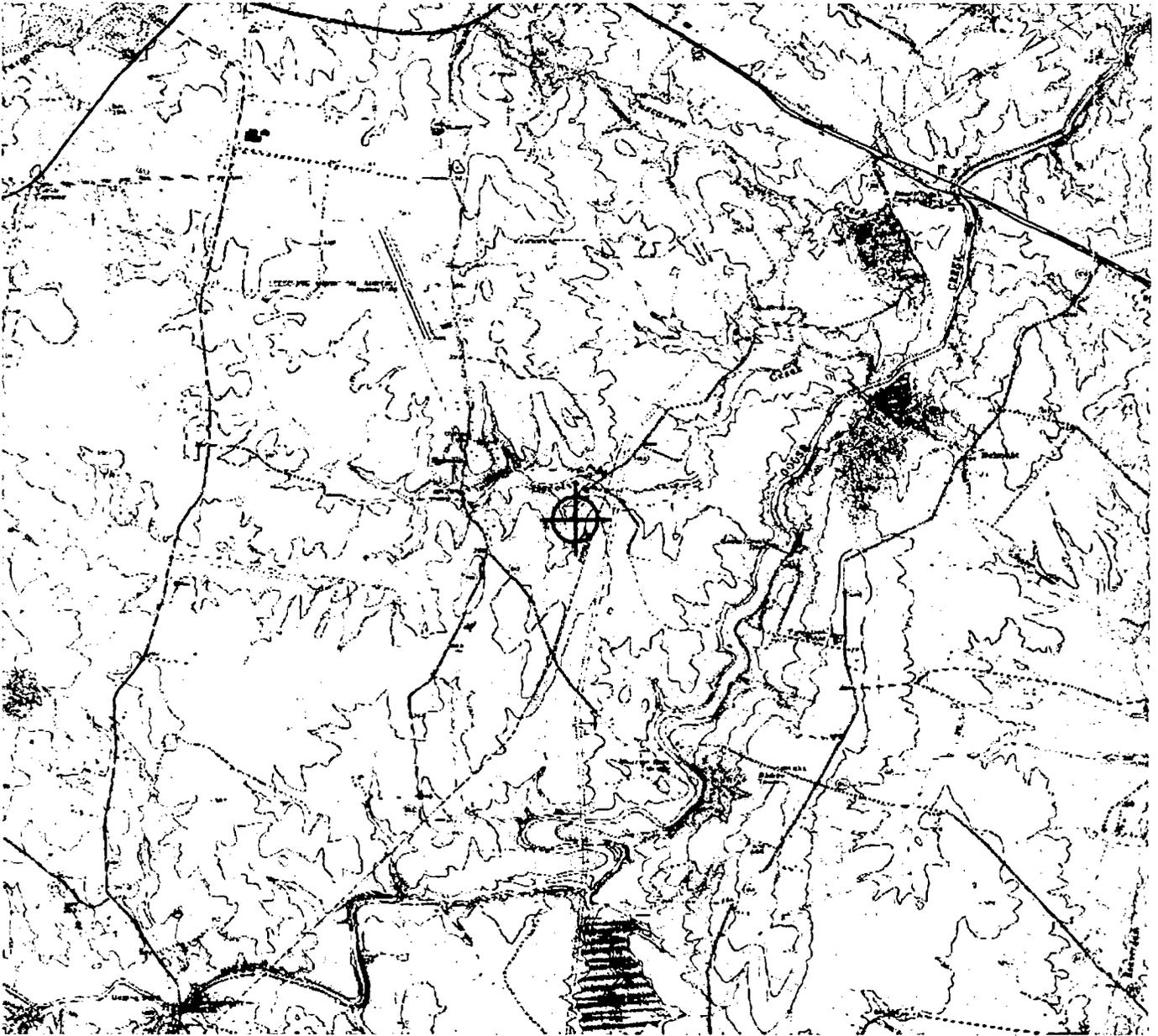
( DNE )

Attachment(s)  
Additional Information  
Map(s)

**Additional information for ASN 2012-AEA-5086-OE**

The marking and lighting requirement was at the request of the Navy.

**130920104**





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5087-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure 5 - Steam Turbine  
 Location: Leesburg, VA  
 Latitude: 39-03-29.37N NAD 83  
 Longitude: 77-32-32.83W  
 Heights: 343 feet site elevation (SE)  
 75 feet above ground level (AGL)  
 418 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 75 feet above ground level (418 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

130920104

**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

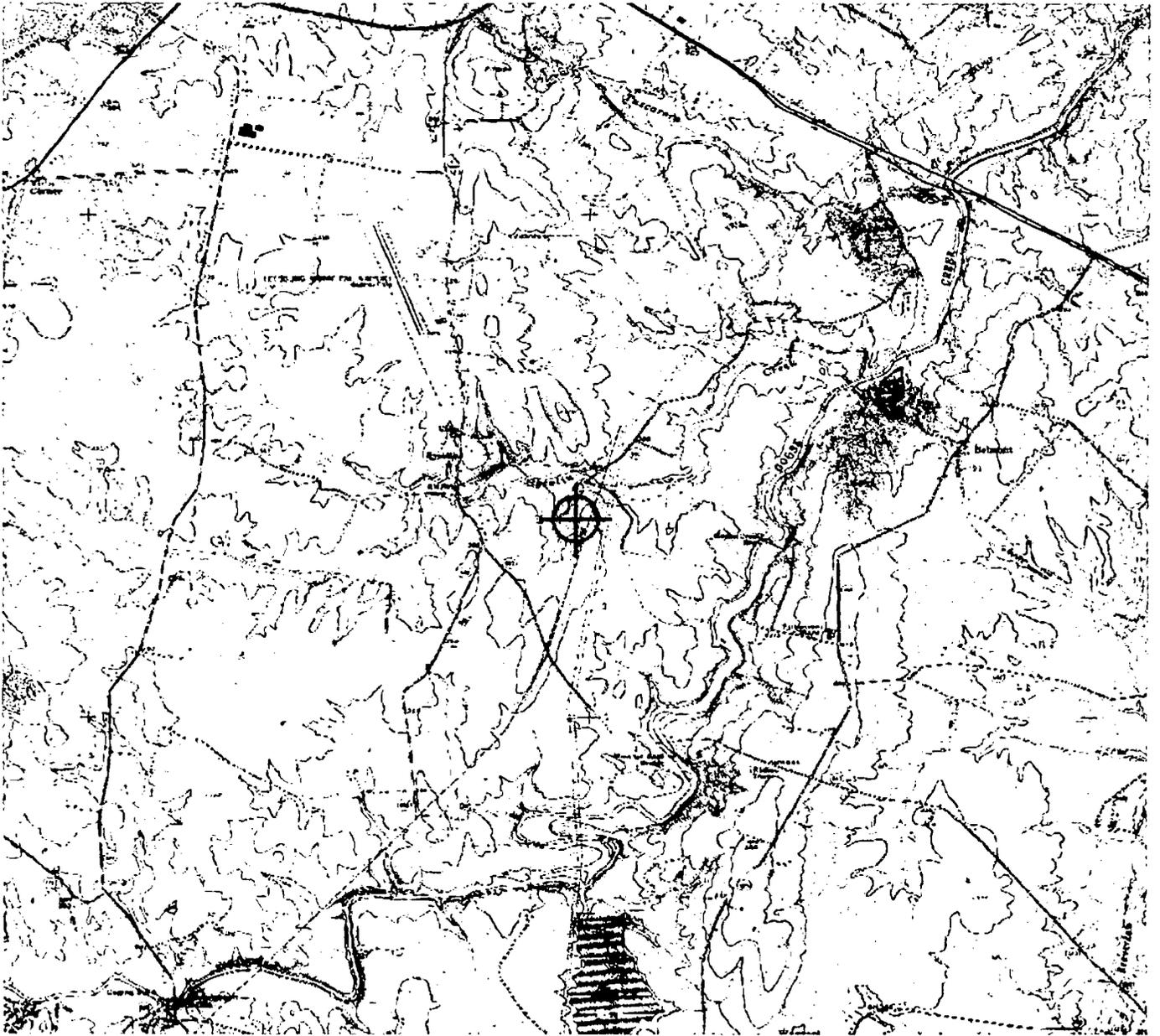
If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5087-OE.

**Signature Control No: 175324412-177321227**

( DNE )

Cindy Whitten  
Specialist

Attachment(s)  
Map(s)





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5088-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure-6 - Potential Raw Water Pretreatment  
 Location: Leesburg, VA  
 Latitude: 39-03-37.44N NAD 83  
 Longitude: 77-32-30.44W  
 Heights: 343 feet site elevation (SE)  
 40 feet above ground level (AGL)  
 383 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 40 feet above ground level (383 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

136920184

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5088-OE.

**Signature Control No: 175324415-177321389**

( DNE )

Cindy Whitten  
Specialist

Attachment(s)  
Map(s)

TOPO Map for ASN 2012-AEA-5088-OE

130920104





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5089-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure 7 - Combustion Turbine  
 Location: Leesburg, VA  
 Latitude: 39-03-27.87N NAD 83  
 Longitude: 77-32-33.34W  
 Heights: 343 feet site elevation (SE)  
 70 feet above ground level (AGL)  
 413 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 70 feet above ground level (413 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5089-OE.

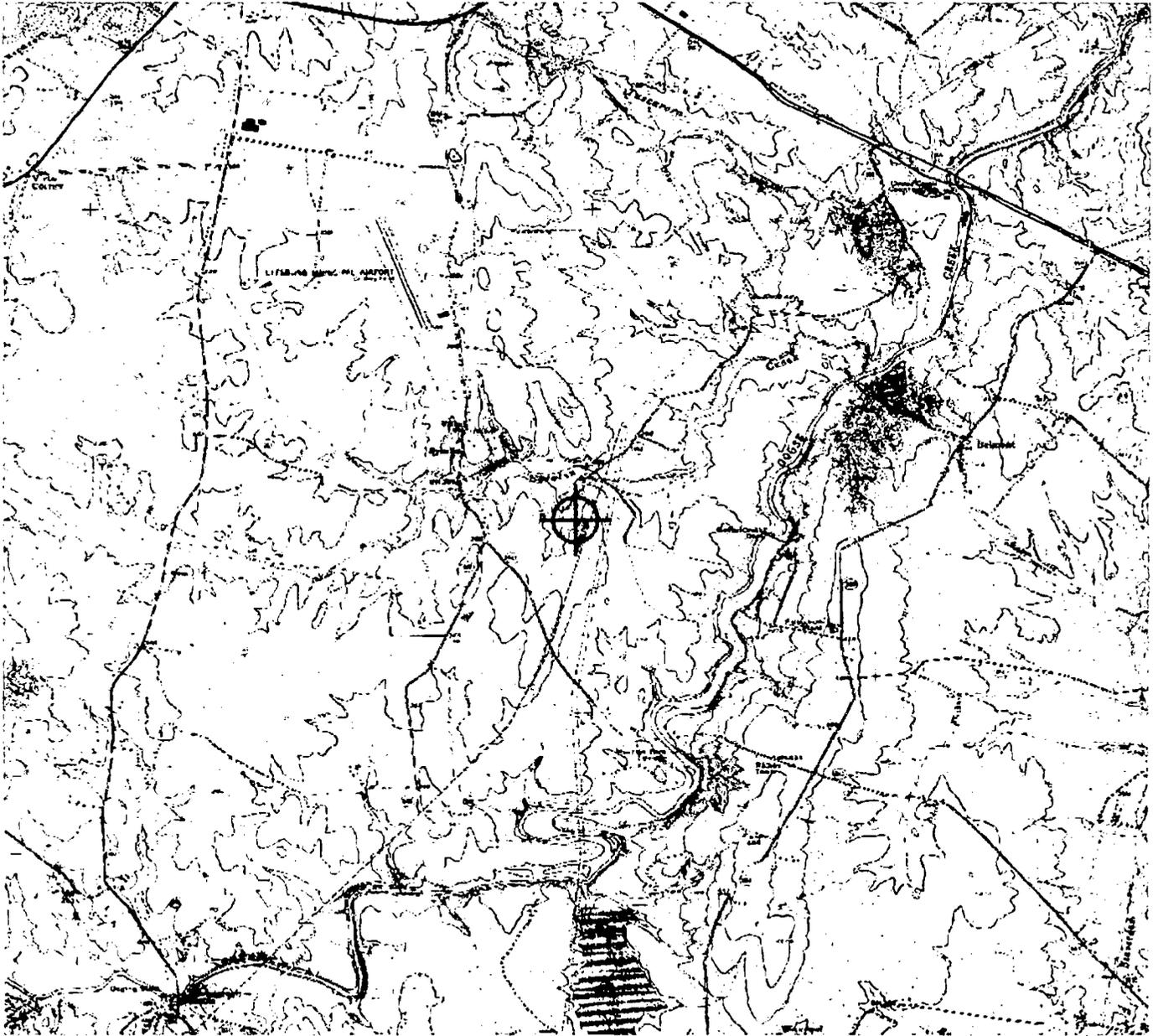
**Signature Control No: 175324416-177321526**  
Cindy Whitten  
Specialist

( DNE )

Attachment(s)  
Map(s)

TOPO Map for ASN 2012-AEA-5089-OE

130920104





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5092-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure 10 - Combustion Turbine  
 Location: Leesburg, VA  
 Latitude: 39-03-26.43N NAD 83  
 Longitude: 77-32-33.79W  
 Heights: 343 feet site elevation (SE)  
 70 feet above ground level (AGL)  
 413 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 70 feet above ground level (413 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5092-OE.

**Signature Control No: 175324425-177324900**

Cindy Whitten  
Specialist

( DNE )

Attachment(s)  
Map(s)





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5093-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure 11 - Switch Yard 1  
 Location: Leesburg, VA  
 Latitude: 39-03-28.54N NAD 83  
 Longitude: 77-32-28.60W  
 Heights: 366 feet site elevation (SE)  
 80 feet above ground level (AGL)  
 446 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 80 feet above ground level (446 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5093-OE.

**Signature Control No: 175324430-177322298**

Cindy Whitten  
Specialist

( DNE )

Attachment(s)  
Map(s)

130920104





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5094-OE

130920104

Issued Date: 11/20/2012

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Structure 12 - Switch Yard 2  
 Location: Leesburg, VA  
 Latitude: 39-03-32.39N NAD 83  
 Longitude: 77-32-27.40W  
 Heights: 350 feet site elevation (SE)  
 80 feet above ground level (AGL)  
 430 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

Any height exceeding 80 feet above ground level (430 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 05/20/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

130920104

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5094-OE.

**Signature Control No: 175324431-177325026**

( DNE )

Cindy Whitten  
Specialist

Attachment(s)  
Map(s)





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5090-OE

130920104

Issued Date: 06/07/2013

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Stack Structure 8 - Heat Recovery Steam Generator Stack  
 Location: Leesburg, VA  
 Latitude: 39-03-28.42N NAD 83  
 Longitude: 77-32-35.95W  
 Heights: 342 feet site elevation (SE)  
 130 feet above ground level (AGL)  
 472 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked/lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height.(7460-2, Part II)

**See attachment for additional condition(s) or information.**

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 130 feet above ground level (472 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 12/07/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.

130920104

- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

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Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5090-OE.

**Signature Control No: 175324419-191322910**  
 Cindy Whitten  
 Specialist

( DNE )

Attachment(s)  
 Additional Information  
 Map(s)

**Additional information for ASN 2012-AEA-5090-OE**

Due to the close proximity to the airport runways and at the request of the Department of Defense, Marking and/or lighting was recommended for aviation safety.

The sponsor is also required to provide an as built 1A accuracy survey once the structure is built.

**130920104**





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2012-AEA-5091-OE

130920104

Issued Date: 06/07/2013

Jordan Dimoff  
 Green Energy Partners / Stonewall LLC  
 39100 East Colonial Highway  
 Hamilton, VA 20158

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Stack Structure 9 - Heat Recovery Steam Generator Stack  
 Location: Leesburg, VA  
 Latitude: 39-03-26.98N NAD 83  
 Longitude: 77-32-36.39W  
 Heights: 342 feet site elevation (SE)  
 130 feet above ground level (AGL)  
 472 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked/lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, red lights - Chapters 4,5(Red),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

**See attachment for additional condition(s) or information.**

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

Any height exceeding 130 feet above ground level (472 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 12/07/2014 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.

130920104

- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination is based, in part, on the foregoing description which includes specific coordinates , heights, frequency(ies) and power . Any changes in coordinates , heights, and frequencies or use of greater power will void this determination. Any future construction or alteration , including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

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This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

If we can be of further assistance, please contact our office at (816) 329-2528. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2012-AEA-5091-OE.

**Signature Control No: 175324420-191323211**  
 Cindy Whitten  
 Specialist

(DNE )

Attachment(s)  
 Additional Information  
 Map(s)

**Additional information for ASN 2012-AEA-5091-OE**

Due to the close proximity to the airport runways and at the request of the Department of Defense, Marking and/or lighting was recommended for aviation safety.

The sponsor is required to provide an as built 1A accuracy survey once the structure is built.

130920104

TOPO Map for ASN 2012-AEA-5091-OE

130920104



10920104

Exhibit 8

GREEN ENERGY PARTNERS / STONEWALL LLC  
ENVIRONMENTAL ASSESSMENT

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## Attachments

- |                      |  |
|----------------------|--|
| <b>Attachment 1</b>  | <b>USGS Topographic Map of Project Location</b>  |
| <b>Attachment 2</b>  | <b>Project Site Plan</b>   |
| <b>Attachment 3</b>  | <b>Project Plot Plan</b>   |
| <b>Attachment 4</b>  | <b>Virginia Department of Environmental Quality Prevention of Significant Deterioration and Non-Attainment New Source Review permit dated April 2013 and amended in May 2013</b> |
| <b>Attachment 5</b>  | <b>U.S. Army Corps of Engineers Authorization under Nationwide Permit 43 dated January 9, 2013</b>   |
| <b>Attachment 6</b>  | <b>Virginia Department of Environmental Quality Certification under § 401 dated December 6, 2012</b>   |
| <b>Attachment 7</b>  | <b>Virginia Marine Resources Commission letter dated December 17, 2012</b>   |
| <b>Attachment 8</b>  | <b>Virginia Department of Conservation and Recreation, Division of Natural Heritage letter dated October 10, 2012</b>  |
| <b>Attachment 9</b>  | <b>Habitat Assessment and Field Survey for State-listed Threatened Wood Turtle Report dated April 12, 2013</b>   |
| <b>Attachment 10</b> | <b>U.S. Fish and Wildlife Service letter dated October 11, 2012</b>  |
| <b>Attachment 11</b> | <b>Natural Resources Management Plan dated August 13, 2013</b>   |
| <b>Attachment 12</b> | <b>Acoustical Design Assessment: Operational and Construction Sound Emissions dated September 5, 2013</b>  |
| <b>Attachment 13</b> | <b>Virginia Department of Transportation letter dated August 27, 2013</b>  |

**GREEN ENERGY PARTNERS / STONEWALL LLC  
ENVIRONMENTAL ASSESSMENT**

**EXECUTIVE SUMMARY**

Green Energy Partners / Stonewall LLC is pleased to submit this environmental assessment for its proposed 750 megawatt power generation facility in Loudoun County, Virginia. This Environmental Assessment is submitted to satisfy the requirements of Virginia Code § 56-46.1. The proposed new facility is called the Stonewall Energy Project (the "Project"). It will provide additional electrical capacity to Northern Virginia, and has the support of both the host locality and legislators representing this area of the Commonwealth.

Regulatory agencies with oversight of environmental impacts have been engaged in reviewing and permitting the Project and ensuring that any environmental impact is minimized. Specific information is provided below.

**I. Project Description**

- **Size:** 750 Megawatts (nominal)
- **Technology:** Combined cycle: Either two (2) General Electric combustion turbines or two (2) Siemens combustion turbines with two (2) heat recovery steam generators with duct burners and one (1) steam turbine (2 on 1).
- **Fuel:** Exclusively pipeline-quality natural gas; two interstate pipelines located on site.
- **Proposed Site:** Loudoun County Virginia, approximately 4 miles south-southeast of the Town of Leesburg ("Town"). Adjacent to Luck Stone Quarry, Loudoun Water and Stonewall Secure Industrial business park properties.
- **Operation:** Baseload power generation facility electrically interconnected with Virginia Electric & Power Company in PJM.
- **Transmission:** Interconnect to 230kV line located on site.

## II. Schedule

- Commence Site Clearing: May 2014
- Commence Foundations: April 2015
- Commence Equipment Installation: October 2015
- Commence Commissioning: November 2016
- Commercial Operations: March 2017

## III. Environmental Design and Permitting

- Air Quality
  - The Virginia Department of Environmental Quality (“DEQ”) has regulatory responsibility for permitting of air emissions in Virginia. DEQ issued a Prevention of Significant Deterioration (“PSD”)/Non-Attainment New Source Review (“NSR”) permit for the Project in April 2013 with a revision in May 2013.
  - No adverse impact on ambient air quality predicted by DEQ-approved modeling. Computer modeling, using conservative assumptions demonstrated that the Project will not cause or contribute to an exceedance of applicable National Ambient Air Quality Standards, which are designed to protect human health with an adequate margin of safety.
  - Low SO<sub>2</sub> emissions from natural gas.
  - NO<sub>x</sub> controlled by dry low NO<sub>x</sub> burners and selective catalytic reduction with ammonia injection.
  - Project will use Best Available Control Technology to minimize emissions of NO<sub>x</sub>, PM<sub>10</sub>, CO and greenhouse gases (“GHGs”).
  - Project will purchase offsets at a ratio of 1.00 to 1.15 to mitigate NO<sub>x</sub> and, depending on the turbine manufacturer, VOC emissions.
- Water Supply
  - Cooling Water
    - Reuse water from the Town’s wastewater treatment plant will be used for cooling water. DEQ regulates water reuse. In accordance with DEQ requirements, the Town will obtain applicable water reclamation and reuse authorization.
    - A Memorandum of Understanding has been executed between the Town and Green Energy Partners / Stonewall LLC for the sale and purchase of this water. It is expected that a final agreement will be executed in the near future.

- Potable Water
  - Potable water will be supplied through an extension of existing Loudoun Water service lines. The facility is within the Loudoun Water service area.
- Wastewater
  - Sanitary
    - Sanitary sewer will be provided through an extension of existing or planned Loudoun Water service lines. The facility is within the Loudoun Water sanitary sewer service district. The receiving pump station will be constructed in conjunction with the adjacent Loudoun Water 40 MGD water treatment plant. If necessary due to construction timing, a temporary pump and haul permit from the Loudoun County Health Department will be used as an interim measure.
  - Process
    - Cooling water will be recycled in the plant for use as process water.
- Storm Water
  - Both DEQ and Loudoun County regulate stormwater discharges.
  - Green Energy Partners / Stonewall LLC will obtain a construction stormwater general permit from DEQ.
  - A Storm Water Pollution Prevention Plan (“SWPPP”) and Erosion and Sediment Control Plan will be prepared for the construction phase and reviewed by Loudoun County.
  - Storm water quality for the site will be addressed utilizing Best Management Practices (“BMPs”), including retention, extended detention, low impact design (“LID”) and water quality monitoring.
  - BMPs for the site will be designed and implemented in accordance with the requirements of the Virginia Stormwater Management Handbook (1999 edition) performance based water quality criteria.
- Wetlands and Other Waters of the United States
  - The United States Army Corps of Engineers (“USACE”), DEQ and the Virginia Marine Resources Commission (“VMRC”) have regulatory authority over wetlands and other waters of the United States.
  - The only impacts to wetlands and waters of the United states will be minimal temporary and permanent impacts associated with the construction of the Project. Coverage under Nationwide Permit 43 (Storm Water Management Facilities) USACE Project NO. 2010-1543 has been obtained for this purpose,

- DEQ has issued a CWA 401 certification in support of the Nationwide 43 Permit and does not require an individual permit separate from the USACE permit.
- VMRC has provided written confirmation that it does not have jurisdiction over the impacts.
- Two natural gas transmission lines traverse the property, and thus there is only a minimal amount of construction associated with connecting the Project to the natural gas pipeline consisting of a small, on-site lateral and metering station, and wetlands will not be impacted.
- Impact of Solid and Hazardous Waste on water resources
  - Any solid and/or hazardous waste generated by the Project will be minimized or reduced at the source, re-used, or recycled to the extent possible. The Project will use non-hazardous or non-toxic materials where feasible.
  - All requirements for stormwater discharge and monitoring will be complied with as required by Loudoun County and the DEQ.
  - A Phase I Environmental Site Assessment did not identify Recognized Environmental Conditions at the site.
- Threatened or Endangered Species
  - The United States Fish and Wildlife Service (“FWS”), Virginia Department of Game and Inland Fisheries (“DGIF”) and Virginia Department of Conservation and Recreation (“DCR”) have regulatory responsibility for endangered and threatened species.
  - DCR’s Division of Natural Heritage has provided written confirmation that the Project will not affect any documented State-listed threatened or endangered plants or insects.
  - DCR identified the potential for the site to support populations of plants that are considered natural heritage resources, and it provided written confirmation there will not be any impact because there will not be any ground disturbance within these areas of potential diabase soils on the property, and proposed disturbance within the existing powerline easement is limited to overhead electrical connections to the existing powerlines, with no vegetative disturbance beyond routine easement maintenance activities.
  - Consultation with the FWS and DGIF did not identify any threatened or endangered species in the Project area.
- Erosion and Sediment Control
  - All requirements for stormwater discharge and monitoring will be complied with as required by Loudoun County and the DEQ, including an Erosion and Sediment Control Plan and a SWPPP.

- Cultural and Historical Resources
  - Based on review conducted as part of the USACE permitting process, no adverse effects to properties listed, or potentially eligible for listing, in the National Register of Historic Places (“NRHP”) are anticipated as a result of project construction.
  - Although cultural and historical resources on the site are not significant, the Applicant has committed to contribute \$35,000 to Loudoun County to be used to create public documentation of the collective history of the post-Civil War African American community known as Lower Sycolin that existed in the area surrounding the site.
- Chesapeake Bay Preservation Areas
  - There are no Chesapeake Bay Preservation Areas designated in Loudoun County and are therefore not applicable to the Project, however, the use of reclaimed wastewater will contribute to the upstream efforts to preserve the health of the Chesapeake Bay.
- Wildlife Resources
  - The Project will utilize fences to control access to the facility by wildlife. There are no anticipated impacts to wildlife resources associated with the Project.
- Agricultural, forest and recreational resources
  - There are no expected impacts on agricultural or recreational areas. The site is non-agricultural land and zoned for industrial uses by Loudoun County. There are no expected impacts on nearby land.
- Noise
  - Loudoun County regulates noise impacts from the Project.
  - A Sound Impact Study was completed and provided to Loudoun County in September 2013.
  - The Sound Impact Study demonstrates that during normal full load operation, the effective 55 dBA limit (at the northern site boundary) and the 70 dBA limit (at the site boundaries on the east, west and south) found in the Loudoun County Ordinance will not be exceeded at any of the adjoining land uses.
- Pesticides and herbicides
  - To the extent that any pesticides or herbicides are used in connection with the Project, only selective, low volume applications of EPA-approved substances will be used.
  - Only EPA and FWS-approved substances will be used in or around surface water.

- Geology
  - Geotechnical studies indicate that the site is suitable for construction of a power plant and meets Loudoun County requirements for site work. As a condition of its site plan approval, the Project was required to complete and submit a Geotechnical Report to Loudoun County for approval.
- Transportation Infrastructure
  - There is not expected to be any significant impact on transportation infrastructure. The Virginia Department of Transportation (“VDOT”) has approved the site plan for the Project and a Delivery and Construction Traffic Plan and a Traffic Management Plan will be submitted for approval by Loudoun County and VDOT.

#### IV. Conclusion

This environmental assessment facilitates the Commission’s consideration of the effect of that facility on the environment and conditions that may be desirable or necessary to minimize adverse environmental impacts to satisfy the requirements of Va Code 56-46. 1. A. The permitting processes conducted by other agencies having regulatory authority over environmental aspects of the Project have considered these same impacts and the requirements and restrictions imposed in the permits required for this Project avoid, minimize and mitigate the environmental impacts.

## GREEN ENERGY PARTNERS / STONEWALL LLC

ENVIRONMENTAL ASSESSMENTI. INTRODUCTION

Green Energy Partners / Stonewall LLC is pleased to submit this Environmental Assessment of its proposed project in Loudoun County, Virginia, to assist the State Corporation Commission (“SCC”) in meeting its obligation to assess environmental impacts from electric utility facilities under Virginia Code § 56-46.1. The proposed new facility is called the Stonewall Energy Project (the “Project”). It will provide additional electrical capacity to Northern Virginia, and has the support of both the host locality and legislators representing this area of the Commonwealth. The Project has been designed to minimize its environmental impact. The Project is regulated by Federal, State and local agencies with responsibility for protecting Virginia’s environment and natural resources.

This Assessment and its Attachments provide: (1) a description of the proposed project; (2) a description of the environmental setting; (3) an assessment of environmental effects and applicable permits that address any such impacts; and (4) a summary of this assessment.

The Virginia General Assembly has provided in Virginia Code § 56-46.1 that,

A. Whenever the Commission is required to approve the construction of any electrical utility facility, it shall give consideration to the effect of that facility on the environment and establish such conditions as may be desirable or necessary to minimize adverse environmental impact. In order to avoid duplication of governmental activities, any valid permit or approval required for an electric generating plant and associated facilities issued or granted by a federal, state or local governmental entity charged by law with responsibility for issuing permits or approvals regulating environmental impact and mitigation of adverse environmental impact or for other specific public interest issues such as building codes, transportation plans, and public safety, whether such permit or approval is granted prior to or after the Commission's decision, shall be deemed to satisfy the requirements of this section with respect to all matters that (i) are governed by the permit or approval or (ii) are within the authority of, and were considered by, the governmental entity in issuing such permit or approval, and the Commission shall impose no additional conditions with respect to such matters.

The following environmental permits that have been obtained for this Project are provided as attachments to this assessment: Prevention of Significant Deterioration and Non-Attainment New Source Review permit issued by the DEQ in April 2013 and amended in May 2013 (Attachment 4); USACE authorization under Nationwide Permit 43 on January 9, 2013 (Attachment 5); and DEQ certification under § 401. In addition, numerous other decisions, approvals, and assessments by regulatory bodies are provided as attachments to this assessment. Thus these agency permits and approvals and the conditions they impose are incorporated into this assessment so that reviewing agencies can avoid unnecessary duplication of effort as directed in the statute.

## II. DESCRIPTION OF PROPOSED PROJECT

### A. Introduction.

Green Energy Partners / Stonewall LLC proposes to construct and operate a 750 megawatt electric power generation facility in Loudoun County, Virginia (the "Project"), consisting of combined cycle units that will be fueled by natural gas and are designed to minimize adverse environmental effects.

### B. Location and Plot Plan.

Attachment 1 is a U.S. Geological Survey ("USGS") topographic map showing the Project location and the surrounding area. Attachment 2 is a site plan. Attachment 3 is a plot plan of the proposed operating facility.

### C. Equipment and Operations.

The Project will operate as an independent power producer and deliver the electricity generated to a transmission grid via existing electric transmission systems. The proposed facility will consist of a "2-on-1" power block capable of producing a total nominal power output of approximately 750 megawatts ("MW"). The power block will consist of either two (2) General Electric combustion turbines or two (2) Siemens combustion turbines, as well as two (2) heat recovery steam generators ("HRSGs") with duct burners ("DBs"), and one steam turbine ("ST"). The CT/HRSG/ST combination is commonly termed a combined cycle configuration.

The General Electric CTs would have a nominal heat input of approximately 2,230 million Btu per hour ("MMBtu/hr") each while the HRSG's duct burners would have a nominal heat input of approximately 650 MMBtu/hr each. Alternatively, the Siemens CTs would have a nominal heat input of approximately 2,260 MMBtu/hr each while the HRSG's duct burners would have a nominal heat input of approximately 450 MMBtu/hr. Under both alternatives, the CTs and the HRSGs will fire only natural gas.

Air emissions will be controlled by the use of Best Available Control Technology ("BACT"). Dry low-nitrogen oxide ("NOx") combustors will be used in the CTs. In addition, a selective catalytic reduction ("SCR") system will be installed to further reduce NOx emissions. An oxidation catalyst will be installed to minimize carbon monoxide ("CO") and volatile organic compounds ("VOC") emissions.

A CT operates by using ambient air as the primary working fluid. Initially, air is inducted into a series of compressor stages to increase its overall potential energy. The high-pressure air exiting the compressor stages then passes into a low-NOx burner unit, where it is mixed with natural gas. The premixed working gases are then subjected to a near constant pressure combustion process. This pressure increases the working fluid temperature, further increasing its potential energy. Following combustion, the working fluids are expanded and cooled through a series of turbine stages. This release of potential energy from the working fluids drives the turbine blade shaft. Part of the energy extracted by spinning turbine blades is used to drive the compressor stages to allow for a continuous process, and the remaining energy is used to spin an electro-magnetic generator, thereby producing electricity.

Since the exhaust gases exiting the turbine blades are still at temperatures significantly above the starting ambient conditions, they possess additional recoverable thermal energy. The turbine exhaust is routed to a HRSG. Each HRSG has an associated DB that can be used to further increase the temperature of the turbine exhaust gas for additional steam generation. In the HRSG, the turbine exhaust is used to generate steam in a non-contact heat exchanger bank. Steam produced by the HRSGs is expanded

through a steam turbine that drives another electro-magnetic generator, creating additional electricity. Exhaust gases from each HRSG will be vented to the atmosphere through separate stacks with heights of 130 feet above ground level. A portion of the expanded steam from the steam turbine exhaust will be condensed to hot water which will be used to preheat heat the natural gas. The Project will include two (2) fuel preheaters one for each CT. .

The Project will include an emergency generator and an emergency firewater pump. The emergency generator will be driven by a 2088 bhp diesel-fired engine capable of producing 15.40 MMBtu/hr and is expected to operate less than 500 hours per year. The emergency generator will provide power when station power is unavailable, but is not intended to provide sufficient power for a black start. The emergency firewater pump will be driven by a 330 (bhp) horsepower diesel-fired engine capable of producing 2.54 MMBtu/hr and is expected to operate less than 500 hours per year.

A ten-cell cooling tower will be integral to operation of the facility. The majority of the cooling water will be used in the surface condenser to absorb the heat rejected from the steam turbine. Water from the cooling tower is commonly referred to as “main” cooling water. A dedicated set of cooling water pumps is provided for this service. Cooling tower water is not used for direct cooling of plant auxiliaries; a closed loop auxiliary cooling system is provided for this purpose. The cooling tower itself is a device designed to evaporate clean water that provides cooling. Some small water droplets (referred to as drift) escape from the top of the tower, along with some dissolved solids, as they evaporate in the atmosphere. Particulate matter emissions will be controlled by high efficiency drift eliminators which will limit drift to 0.0005% of the recirculated water rate.

Other systems supporting plant operations and safety include:

- Cooling tower water treatment system; Plant sumps, sump pumps, and oil-water separator;
- Feed water treatment system;
- 12,000 gallon Ammonia tank (storing 19% aqueous ammonia) for use with the SCR system;
- Plant and instrument air compressors and auxiliary equipment;
- Sanitary lift station; and
- Steam and water sampling systems.

The design, layout and operation of this facility may undergo additional optimization to make it safer, easier to operate and more cost effective. Any relevant changes will be reviewed with the Virginia Department of Environmental Quality (“DEQ”) to verify that no adverse environmental impacts result from such changes.

#### D. Natural Gas and Electrical Transmission Lines.

The Project site has on-site access to two 30-inch high-pressure natural gas pipelines (Columbia Gas Transmission and Dominion Transmission) and existing Virginia Electric and Power Company high-voltage transmission lines. The availability of these lines will minimize construction-related effects on the surrounding environment.

E. Water Supply.

Treated wastewater effluent will be obtained from the Town for non-contact condenser cooling and other non-potable water needs. Green Energy Partners / Stonewall will construct the pipeline necessary to transport the water from the Town to the Project. Once construction is complete, the Town will own the pipeline. The Town is responsible for applying for and obtaining applicable permits from the DEQ for water reuse.

The potable water needs for the facility will be provided by extensions of existing Loudoun Water facilities.

F. Wastewater Discharges.

The Project will be a zero liquid discharge facility. There will be no wastewater generated by the Project's industrial operations.

Sanitary sewer will be provided through an extension of existing or planned Loudoun Water service lines. The facility is within the Loudoun Water sanitary sewer service district. The receiving pump station will be constructed with the adjacent Loudoun Water 40 MGD water treatment plant. If necessary due to construction timing, a temporary pump and haul permit from the Loudoun County health department will be utilized as an interim measure.

### III. DESCRIPTION OF ENVIRONMENTAL SETTING.

The Project will be constructed in Loudoun County, Virginia on an approximate 101-acre parcel south-southeast of the Leesburg Executive Airport and north of the Dulles Greenway in a planned industrial area of Loudoun County.

The Project will be constructed outside the 100-year flood plain, except for the reconstruction of the storm water management pond. There are wetlands, ponds, streams and other waters of the United States located on the property. Impacts to these areas have been demonstrated to be avoided or minimized through selective siting of the Project as evidenced by the USACE wetland permit (Attachment 5). Impacts to wetlands or waters of the United States as a result of construction of the reuse pipeline will be avoided, minimized or mitigated as required by applicable USACE regulations. The reuse water line is being coordinated with other utility infrastructure projects to limit any disturbance. There will be no impacts relating to transmission lines and natural gas pipelines, as those lines already exist on site.

According to the Project Review Letter dated October 10, 2012 from the Virginia Department of Conservation and Recreation ("DCR"), Division of Natural Heritage (Attachment 8), the Project will not affect any documented State-listed threatened or endangered plants or insects. Based on a habitat assessment required by the Project's zoning, suitable habitat for the wood turtle exists on the Project site, but there are no known occurrences of this species in the vicinity of the Project. Furthermore, a wood turtle habitat assessment and field survey was completed on April 12, 2013, and no wood turtles were found. Based on correspondence with the Virginia Department of Game and Inland Fisheries and the U.S. Fish and Wildlife Service, there are no threatened or endangered species (or habitat) in the Project (Attachment 10).

## IV. ASSESSMENT OF ENVIRONMENTAL EFFECTS

### A. Air Emissions.

#### 1. Emissions.

Emissions from the Project and impacts on ambient air quality have been addressed in the Prevention of Significant Deterioration (“PSD”) and Non-Attainment New Source Review (“NSR”) permit issued by the DEQ in April 2013 and amended in May 2013. A copy of the original permit and subsequent amendment is provided as Attachment 4. The Project is expected to participate in the Virginia NOx cap and trade program. The Project will obtain offsets for NOx and VOC emissions, based on the type of turbine installed. Predicted impacts of the Project have demonstrated no adverse impact in comparison to ambient air quality standards.

The DEQ has determined that BACT for GHGs is the use of low carbon fuels and high efficiency design and operation of the CT in a combined cycle mode. The GE7FA.05 or Siemens SGT6-5000F5 combined cycle plant will operate at a higher heating value heat rate, new and clean at ISO conditions, below 7,000 Btu/kWh. The proposed GHG BACT for this project is consistent with recent BACT determinations and was approved in the DEQ-issued PSD/NSR permit.

#### 2. Applicable Permit Requirements.

Review under the PSD Program is required for the construction of any new source with emissions that exceed the PSD major source thresholds outlined in 9 V.A.C 5-80-1615. Large fossil fuel-fired steam electric plants, such as the proposed facility, have a PSD major source threshold level of 100 tons per year (“tpy”) of any regulated pollutant. The Project is subject to PSD permitting requirements for PM<sub>10</sub>, CO and GHGs. Additionally, Loudoun County is designated as “nonattainment” for ozone. This means the more stringent NSR standards apply for NOx, VOC and PM<sub>2.5</sub>.<sup>1</sup>

With respect to air quality, new and existing industrial sources are classified as either major or minor sources based on their potential to emit (“PTE”) air contaminants. This classification is also affected in part by whether the area in which the source is located has attained the National Ambient Air Quality Standards (“NAAQS”). An area is classified as attainment if the ambient air quality concentration for a specific pollutant, as measured by a monitor, is below the standard concentration level for a set of averaging periods.

The Washington D.C. Metropolitan Statistical Area (“MSA”), which includes Loudoun County, is designated as a “moderate” nonattainment area for the ozone 8-hour NAAQS. VOC and NOx emissions, precursors to ozone formation, are regulated based on the area’s moderate nonattainment ozone designation. The Project is subject to nonattainment NSR for both of these pollutants for the Siemens option, and subject to nonattainment NSR for NOx for the GE option. This includes the potential requirements for applying lowest achievable emission rate (“LAER”) control technology and obtaining offsets if needed.

For most activities, a major source is defined as one which has the PTE of 250 tons per year of any regulated air contaminant. For a special group of 28 industrial activities, the EPA has defined the

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<sup>1</sup> Although the Washington, D.C. Metropolitan Statistical Area (“MSA”) is designated as nonattainment for PM<sub>2.5</sub>, the current air quality in the region is significantly below the 1997 annual PM<sub>2.5</sub> NAAQS. Virginia is seeking to have the area redesignated as attainment. The Project’s PSD application contemplated both scenarios (nonattainment and attainment for PM<sub>2.5</sub>).

major source emission threshold to be 100 tons per year. Steam-Electric Power Generation is one of these special groups. The proposed project will be classified as a “major stationary source” of air emissions based on this 100 ton per year threshold.

In addition to the PSD/NSR program requirements, several New Source Performance Standards (“NSPS”) requirements apply to the proposed facility: Subpart KKKK applies to the combustion turbines; Subpart Dc applies to the auxiliary boiler and the fuel gas heater; Subpart IIII applies to the emergency generator and fire water pump.

Additionally, with respect to toxics, Maximum Achievable Control Technology (“MACT”), 40 CFR 63, Subpart ZZZZ applies to the emergency generator and fire water pump.

No National Emission Standard for Hazardous Air Pollutants (“NESHAP”) for sources regulated under 40 CFR Part 61 are applicable to the Project. 40 CFR 63 Subpart ZZZZ, National Emissions Standards for HAPs for Stationary Reciprocating Internal Combustion Engines, was promulgated June 15, 2004 and applies to stationary reciprocating internal combustion (“IC”) engines located at major and area sources of HAP emissions. Per 40 CFR 63.6590(c), stationary IC engines subject to Regulations under 40 CFR Part 60 can meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII for compression ignition engines. Subpart IIII applies to the proposed IC engines, and the applicable requirements from Subpart IIII have been included in the permit. The Project has been designed to ensure compliance with the Virginia Air Toxics Rule.

The CTs and HRSG DBs will be subject to the Acid Rain Program (“ARP”). 40 CFR Parts 72 and 75. The ARP requires emission monitoring for multiple pollutants and the acquisition or generation of emissions allowances. In addition, the Risk Management Program under Clean Air Act § 112(r) is potentially applicable to the Project depending on the concentration and quantity of aqueous ammonia held in storage for the SCR system.

The Project will be subject to the Title V Federal Operating Permit Program because potential emissions of regulated pollutants are greater than 100 tpy. Green Energy Partners / Stonewall LLC will have one year from the start of operation of the Project to submit a Title V permit application. Compliance Assurance Monitoring (“CAM”) regulations will be addressed through the Title V permitting process. It is not expected that the CAM regulations will impose any additional requirements, beyond what is required under the ARP.

The Project will also be subject to the 9 VAC 5 Chapter 140, NOx Budget Trading Program, Clean Air Interstate Rule (CAIR) NOx Annual Trading Program, CAIR NOx Ozone Season Trading Program, and CAIR SO2 Annual Trading Program. While the United States Circuit Court for the District of Columbia Circuit has remanded the Federal CAIR program to EPA because its regional trading requirements exceed EPA’s authority under the Clean Air Act, the court left the current rule in effect until such time as EPA promulgates a new rule.

State-specific requirements also apply to this Project, including general rules for fossil-fuel combustion. The state-specific fossil-fuel combustion rules are less stringent than the applicable NSPS regulations. Therefore, compliance with NSPS requirements ensures compliance with the DEQ combustion rules.

### 3. Ambient Air Quality Effects.

A detailed regulatory applicability analysis and emission calculations for the Project, as well as all modeling and other supplemental information required by the DEQ to issue a permit for the

construction and operation of the Project, were included in the PSD permit application. The application was evaluated by DEQ and a PSD permit for the Project was issued in April 2013. The application includes a detailed analysis of air quality impacts which is summarized only briefly here.

Any entity proposing to build and operate a new power plant is required under the Clean Air Act and by the DEQ to conduct air quality analyses. These air quality analyses are used by the DEQ and the United States Environmental Protection Agency (“EPA”) to assess the impacts that emissions from a new facility may have on air quality to ensure that the health and welfare of the public will be protected. The results of the analyses contained in the PSD permit application demonstrate that the limits established in the PSD permit issued by DEQ ensure that air quality impacts from the Project will be below all applicable federal and state health-based standards. Computer modeling, using conservative assumptions demonstrated that the Project will not cause or contribute to an exceedance of applicable NAAQS, which are designed to protect human health with an adequate margin of safety.

In addition to the analyses required for the protection of human health and welfare, additional air quality analyses are required to ensure that the natural and cultural resources of certain designated national parks and wilderness areas (i.e., Class I Areas) are not adversely affected by air pollution. Federal Land Managers are tasked with protecting specific Class I Areas and have defined “air quality related values” (“AQRVs”) to assess the effects of new and existing facilities on these areas. These AQRVs include visibility, regional haze, and the deposition of nitrates and sulfates in soil and surface waters. The results of the analyses demonstrate that the limits established in the PSD permit issued by DEQ ensure that the Project will not adversely impact any AQRVs in nearby Class I Areas. The Federal Land Managers were also involved in reviewing the modeling and agreed that no adverse impacts on national parks and wilderness areas would result from the Project.

Through the use of predictive air dispersion modeling techniques approved by DEQ and EPA, Green Energy Partners / Stonewall LLC has shown that impacts from the Project will not cause or contribute to an exceedance of NAAQS or AQRVs.

In the increasingly competitive marketplace for electrical services, new combined cycle facilities can cost-effectively achieve very low emissions, providing a means for achievement of significant improvements in air quality within the Commonwealth of Virginia.

B. Water Use, Wastewater Discharge, and Storm Water Management.

1. Water Reuse.

The operation of the Project will require an annual average of approximately 3 MGD of water. Reuse water generated from the Town’s waste water treatment facility will be used in the cooling tower. The water quality will meet the DEQ requirements for reuse. The Town will own and operate the pumps, pipeline and right of way for the reuse line. The pipeline and any necessary pump upgrades will be constructed by the Project under a contract and construction permit from the Town. This construction permit requires Town inspections and ensures quality control in the process. The Town will assume ownership of the pipeline once construction is complete. There are no expected adverse effects on human and aquatic life due to the Project’s water usage. Construction of the water facilities will require approvals from DEQ and, if wetlands are impacted, the USACE. Utilizing reuse water for coolant will eliminate nutrient rich water from being deposited in the Potomac River and entering the Chesapeake Bay, the current outlet for the treatment plant.

## 2. Wastewater Discharge.

The Project will be a zero liquid discharge operation. The reuse water used for cooling will be sent to a zero liquid discharge system for filtration. After filtration the water again is recycled into the coolant flow stream. Solids from the filtration process will be disposed of at an approved landfill. In order to assure available quantities, the design of the plant includes a 5 million gallon storage facility and a tie in to the Loudoun Water system with a capacity of approximately 2 MGD.

Sanitary sewer service will be provided through an extension of existing or planned Loudoun Water service lines. The facility is within the Loudoun Water sanitary sewer service district. The receiving pump station will be constructed in conjunction with the Loudoun Water 40 MGD water treatment plant. If necessary due to construction timing, a temporary pump and haul permit from the Loudoun County Health Department will be used as an interim measure.

## 3. Storm Water.

Both DEQ and Loudoun County will regulate stormwater discharges from the site. Stormwater discharges during construction of the Project will be addressed through an individual or general permit for construction stormwater discharges, as well as the implementation of an Erosion and Sediment Control Plan and a SWPPP as required by Loudoun County and the DEQ. Storm water control measures will include Best Management Practices (“BMPs”) such as retention, extended detention, low impact design (“LID”) and water quality monitoring.

BMPs for the site will be designed and implemented in accordance with the requirements of the Virginia Stormwater Management Handbook (1999 edition) performance based water quality criteria.

Two retention basins and one extended detention basin are proposed to provide the BMPs for the site.

LID will be implemented by conserving and limiting use of natural resources (i.e. tree save areas), using vegetated ditches, minimizing concentrated runoff, allowing water to percolate and directing runoff to natural areas.

A surface water monitoring station will be installed at the point of storm water discharge and will measure storm water quality in accordance with Loudoun County and DEQ requirements. The complete list of parameters for testing will be coordinated with DEQ.

During the development process turbidity levels will be controlled with the use of super silt fences, stabilization matting and phasing to limit disturbed areas for extended periods of time.

Stormwater discharges during operation of the Project will be addressed through the Project design, which will not allow storm water to come in contact with potentially polluting industrial materials. All lubricating and hydraulic oils, and any other small quantities of chemicals that may be located on-site, will be maintained under roof or within the equipment enclosures. Where there is potential for stormwater coming in contact with oils, oil water separators are being designed into the management system for additional insurance. The Project will use non-hazardous or non-toxic materials, where feasible, and all will be kept under roof for storage. Green Energy Partners/Stonewall LLC anticipates that any applicable storm water permit requirements will be imposed through a general or individual permit.

C. Wetlands and Waters of the United States.

The U.S. Army Corps of Engineers (“Corps”) issued Green Energy Partners/Stonewall LLC coverage under Nationwide Permit 43 on January 9, 2013 to govern a temporary impact on 2.13 acres of palustrine open water and 195 linear feet of stream channel, as well as permanent impacts on .05 acres of palustrine open water and 25 linear feet of stream channel. (See Attachment 5). These impacts are associated with improvements to a pond and construction of a stormwater outfall. DEQ issued a Clean Water Act Section 401 certification in support of the permit on December 6, 2012. (See Attachment 6). VMRC determined that they did not have jurisdiction over these impacts. (See Attachment 7).

Potential impacts to wetlands and waters of the United States from the water pipeline construction will be minimized and addressed by permits issued by the Corps and DEQ if required. Because the natural gas pipeline and transmission line are already located onsite, there are no wetland impacts associated with the natural gas pipeline and transmission lines.

D. Impact of Solid and Hazardous Waste on water resources

Any solid and/or hazardous waste generated by the Project will be minimized or reduced at the source, re-used, or recycled to the extent possible. The Project will use non-hazardous or non-toxic materials where feasible. As discussed above regarding stormwater management, all requirements for stormwater discharge and monitoring will be complied with as required by Loudoun County and the DEQ.

A Phase I Environmental Site Assessment dated April 30, 2013 did not identify any Recognized Environmental Conditions at the site.

E. Threatened and Endangered Species.

According to the Project Review Letter dated October 10, 2012 from the Virginia Department of Conservation and Recreation (“DCR”), Division of Natural Heritage, the Project will not affect any documented State-listed threatened or endangered plants or insects. (See Attachment 8) DCR did note the potential for the site to support populations of natural heritage resources, specifically several rare plants that are typically associated with prairie vegetation that inhabit semi-open diabase glades, as shown on the DCR-DNH Map. However, no ground disturbance is proposed within these areas of potential diabase soils on the property, and proposed disturbance within the existing powerline easement is limited to overhead electrical connections to the existing powerlines, with no vegetative disturbance beyond routine easement maintenance activities proposed.

On April 12, 2013, the wood turtle habitat assessment and field survey was completed as required by the zoning for the site. While the site includes areas considered suitable habitat for the wood turtle, there have been no documented occurrences of this species within the site. (See Attachment 9). Review of available information and records maintained by the Virginia Department of Game and Inland Fisheries (“DGIF”), contact with DGIF and the US Fish and Wildlife Service (“FWS”) and the Virginia Department of Conservation and Recreation (“DCR”) indicate that there are no known locations within the area of potential project effects where threatened or endangered species are present. (See Attachment 10).

Prior to finalization of the water pipeline route, field surveys of all potential habitats for state and federally listed threatened, endangered and candidate species will be conducted to confirm the absence of such species.

F. Erosion and Sediment Control

As discussed with regard to stormwater management for the Project, all requirements for stormwater management will be complied with as required by Loudoun County and the DEQ, including implementation of an Erosion and Sediment Control Plan and a SWPPP.

G. Cultural and Historical Resources.

Impacts to cultural and historical resources are reviewed and regulated by VDHR and Loudoun County. A review conducted in conjunction with the USACE permitting process, and preliminary results of a cultural and historical resource investigation at the site, indicate that there are no historic resources within areas that will be directly affected by Project construction.

Although cultural and historical resources on the site are not significant, the Applicant has committed to contribute \$35,000 to Loudoun County to be used to create public documentation of the collective history of the post-Civil War African American community known as Lower Sycolin that existed in the area surrounding the site.

G. Chesapeake Bay Preservation Areas

There are no Chesapeake Bay Preservation Areas designated in Loudoun County and are therefore not applicable to the Project. As discussed throughout this Application, however, the use of reclaimed wastewater will contribute to the upstream efforts to preserve the health of the Chesapeake Bay.

H. Wildlife Resources

The Project will utilize fences to control access to the facility by wildlife. There are no anticipated impacts to wildlife resources associated with the Project.

I. Agricultural, forest and recreational resources

There are no expected impacts on agricultural or recreational areas. This site is non-agricultural land and zoned for industrial uses by Loudoun County. There are no expected impacts on nearby land.

A Natural Resources Management Plan has been prepared and approved for the site as required by the Loudoun County Zoning Ordinance. (See Attachment 11).

J. Noise.

Noise impacts are assessed and regulated by Loudoun County. Based on an independent consultant's sound impact assessment completed and provided to Loudoun County in September 2013, noise levels attributable to plant operations will be less than Loudoun County limitations for sound exposure at all adjacent properties. Quarterly sound testing will be conducted as required by the zoning for the site. The assessment found that there may be some temporary noise impacts that occur during construction, but these will be mitigated in accordance with the recommendations of the assessment. (See Attachment 12).

K. Pesticides and Herbicides

To the extent that any pesticides or herbicides are used in connection with the Project, only selective, low volume applications of EPA-approved substances will be used.

Only EPA and FWS-approved substances will be used in or around surface water.

L. Geology

Geotechnical studies indicate that the site is suitable for construction of a power plant and meets Loudoun County requirements for site work. As a condition of the site plan approval, the Project was required to complete and submit a Geotechnical Report to Loudoun County for approval.

M. Transportation Infrastructure

There is not expected to be any significant impact on transportation infrastructure from the Project. The Virginia Department of Transportation ("VDOT") has approved the site plan for the Project (See Attachment 13) and a Delivery and Construction Traffic Plan and a Traffic Management Plan will be submitted for approval by Loudoun County and VDOT.

N. Emergency Planning.

Pursuant to Loudoun County's zoning approval, Green Energy Partners / Stonewall LLC will prepare and submit an Emergency Operating Plan and Fire & Rescue Access Plan to the Loudoun County Department of Fire, Rescue and Emergency Services.

H. Socioeconomic Impacts.

A combination of minimal environmental effects and significant economic benefits from the Project serves the public interest.

The Project is in the public interest for the following reasons:

1. Overall environmental impacts from the Project will be minimal and addressed by permits and oversight by federal and state regulatory agencies. Air emissions will be far below those produced by facilities using other fossil fuels.

2. The Project will promote the public interest by providing economic benefits to Loudoun County and the Northern Virginia region, enhancing the competitive market for wholesale electricity in Virginia, and providing future generating capacity within the Commonwealth. The economic benefits will come primarily from the increased tax base that this facility, which will cost approximately \$500 million, will add to the Commonwealth and Loudoun County, as well as the employment of 600 construction workers (at peak) and some 30 permanent employees at the facility. The majority of construction workers are expected to be sourced from the Northern Virginia and surrounding areas and there will be no need to build additional housing to accommodate this workforce. The business risk associated with the Project will be borne solely by Green Energy Partners/Stonewall LLC.

3. The Project will contribute to electric system reliability in Northern Virginia.

I. “No-Action” Alternative.

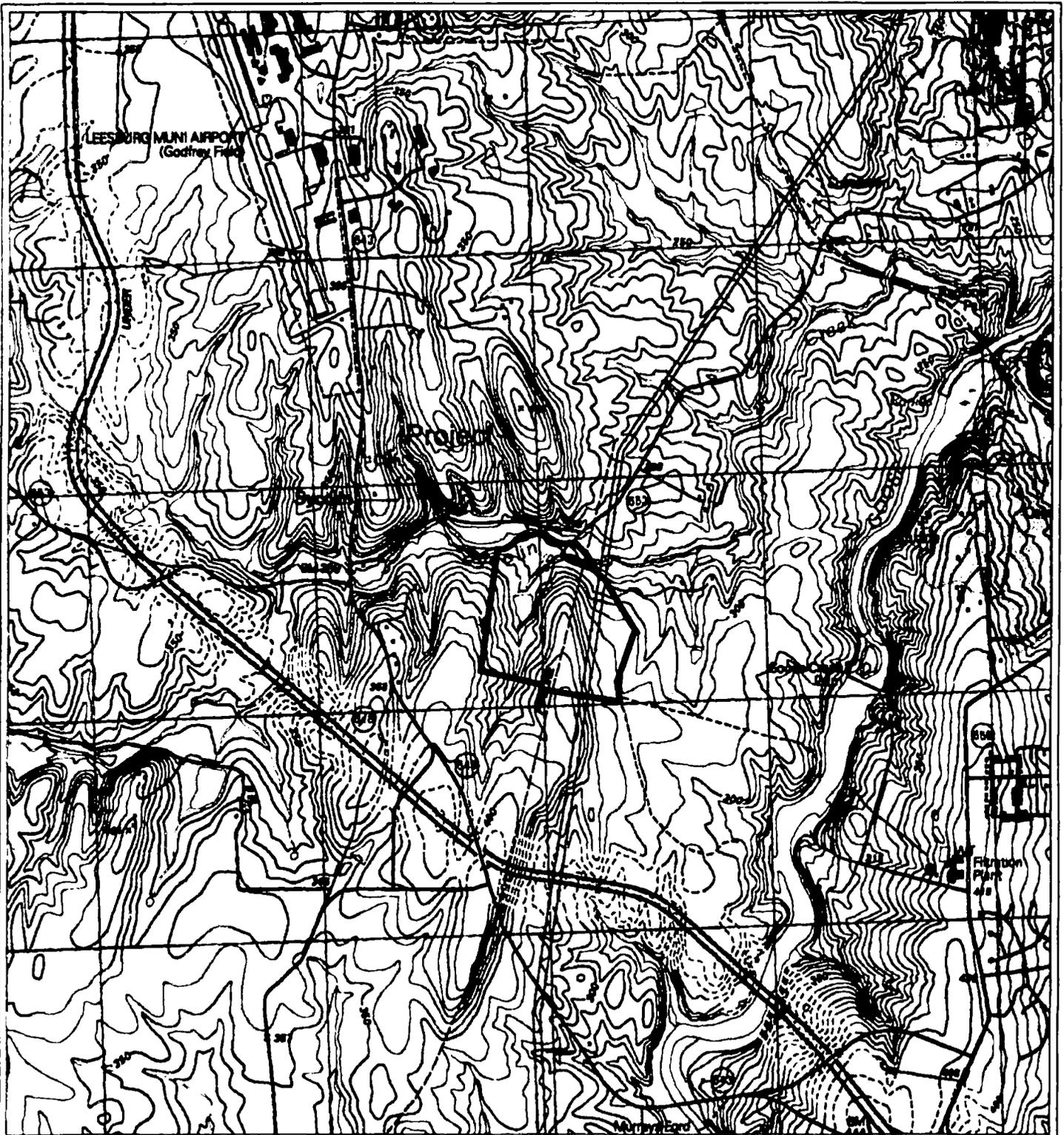
If the Project is not completed, there would be an increased risk of brownouts, blackouts and higher electricity costs to the consumer. Construction of merchant plants such as the one proposed by Green Energy Partners / Stonewall LLC are a major goal, if not a mandate, of legislation enacted by the Virginia General Assembly for re-regulating the electric generating industry. Increasing demand for electricity, unalleviated by clean power sources such as the one proposed, may result in construction of facilities with greater adverse impacts on the environment than the Project.

V. ASSESSMENT SUMMARY

The Project will provide significant economic benefits and enhanced reliability with minimal adverse environmental effects. Green Energy Partners / Stonewall LLC has already received or will apply for all required permits, which will impose all necessary conditions to ensure protection of public health and the environment. Regulatory agencies with oversight responsibilities for all environmental aspects of the Project have been and will continue to be engaged in the review of this Project, exercising oversight and applying permitting or regulatory requirements on the construction and operation of the Project. Due to the design and operation of the Project, as well as the applicable regulatory requirements, the Project will have no or minimal adverse environmental effects.

part 3

138920105



Scale: 1"=2000'

Source: USGS (1994)

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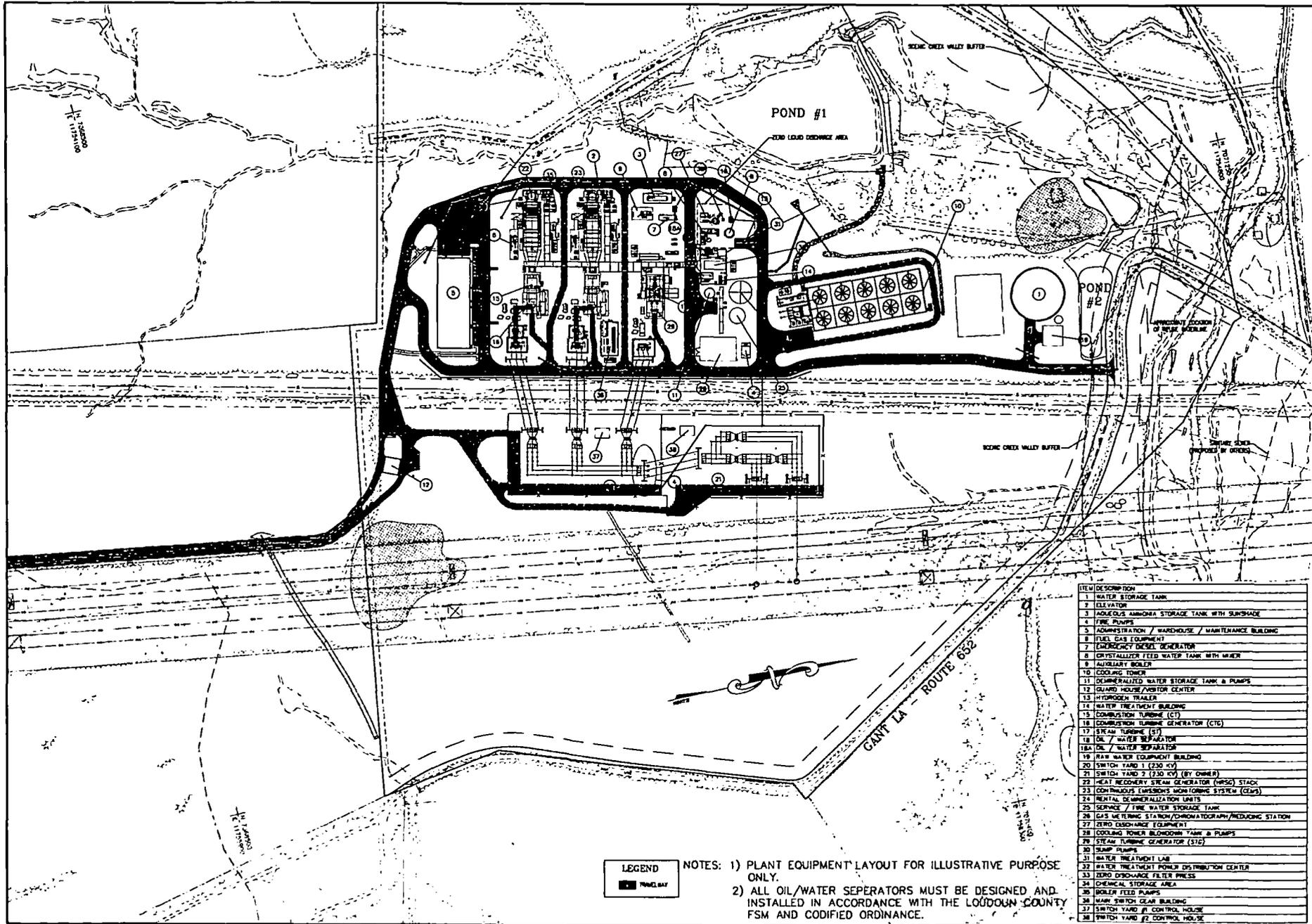
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## USGS Quadrangle Map Stonewall Energy Park

39°03'32"N, -77°32'28"W Leesburg, VA USGS Quadrangle Map  
PL15 (Sycolin Creek), HUC 02070008 (Middle Potomac-Catoctin)  
Loudoun County, Virginia

Prepared for:  
Green Energy Partners/Stonewall, LLC  
P.O. Box 660  
Hamilton, Virginia 20159

30920105



**LEGEND**  
 PANELWAY

**NOTES:**  
 1) PLANT EQUIPMENT LAYOUT FOR ILLUSTRATIVE PURPOSE ONLY.  
 2) ALL OIL/WATER SEPARATORS MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE LOUDOUN COUNTY FSM AND CODIFIED ORDINANCE.

ITEM DESCRIPTION
1 WATER STORAGE TANK
2 ELEVATOR
3 CONTINUOUS AMMONIA STORAGE TANK WITH SUNSHADE
4 FIRE PUMPS
5 ADMINISTRATION / WAREHOUSE / MAINTENANCE BUILDING
6 FUEL GAS EQUIPMENT
7 DIESEL GENERATOR
8 CRYSTALLIZER FEED WATER TANK WITH MIXER
9 AUXILIARY BOILER
10 COOLING TOWER
11 DEMINERALIZED WATER STORAGE TANK & PUMPS
12 GUARD HOUSE / VISITOR CENTER
13 HYDROGEN TRAILER
14 WATER TREATMENT BUILDING
15 COMBUSTION TURBINE (CT)
16 COMBUSTION TURBINE GENERATOR (CTG)
17 STEAM TURBINE (ST)
18 OIL / WATER SEPARATOR
19 RAW WATER EQUIPMENT BUILDING
20 SWITCH YARD #1 (230 KV)
21 SWITCH YARD #2 (230 KV) (BY OWNER)
22 HEAT RECOVERY STEAM GENERATOR (HRSG) STACK
23 CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)
24 RENTAL DEMINERALIZATION UNITS
25 STORAGE / FINE WATER STORAGE TANK
26 GAS HEATING STATION/COMBUSTION/HEATING STATION
27 ZERO DISCHARGE EQUIPMENT
28 COOLING TOWER BLOWDOWN TANK & PUMPS
29 STEAM TURBINE GENERATOR (STG)
30 SLUMP PUMPS
31 WATER TREATMENT LAB
32 WATER TREATMENT PUMP DISTRIBUTION CENTER
33 ZERO DISCHARGE FILTER PRESS
34 CHEMICAL STORAGE AREA
35 BOILER FEED PUMPS
36 MAIN SWITCH GEAR BUILDING
37 SWITCH YARD #1 CONTROL HOUSE
38 SWITCH YARD #2 CONTROL HOUSE

**Bowman**  
 CONSULTING

Bowman Consulting Group, LLC  
 101 South Street, S.E.  
 Leesville, Virginia 22569  
 Phone: (703) 433-8200  
 Fax: (703) 433-8202  
 www.bowmanconsulting.com

POWER PLANT SCHEMATIC  
**STONEWALL ENERGY PARK**  
 SITE PLAN  
 CATCOTIN ELECTION DISTRICT LOUDOUN COUNTY, VIRGINIA



**PLAN STATUS**  
 DATE: 07/17/2013  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 DATE: SEPT. 6, 2013  
 FILE NO: 5363-D-09-00  
 SHEET 5A of 58

30920105



130920105



NRO-079-13

## COMMONWEALTH of VIRGINIA

Douglas W. Domenech  
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY  
NORTHERN REGIONAL OFFICE  
13901 Crown Court, Woodbridge, Virginia 22193-1453  
(703) 583-3800 Fax (703) 583-3821  
www.deq.virginia.gov

David K. Paylor  
Director

Thomas A. Faha  
Regional Director

April 30, 2013

Mr. John A. Andrews  
Green Energy Partners / Stonewall, LLC  
39100 East Colonial Highway  
Hamilton, Virginia 20158

Location: Loudoun County  
Registration Number: 73826

Dear Mr. Andrews:

Attached is a permit to construct and operate an electric power generation facility in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on February 26, 2013 and solicited written public comments by placing a newspaper advertisement in the Washington Post and The Loudoun Times Mirror on February 27, 2013. A public hearing was held on April 3, 2013. The required comment period, provided by 9 VAC 5-80-1775 F expired on April 19, 2013.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to construct and operate shall not relieve Green Energy Partners / Stonewall, LLC of the responsibility to comply with all other local, state, and federal permit regulations. Please note that your proposed emergency generator (EG-1) and emergency fire water pump (EFP-1) may be affected facilities under 40 CFR 60, New Source Performance Standard (NSPS), Subpart IIII and therefore subject to owner/operator requirements of the NSPS; and to 40 CFR 63, Maximum Achievable Control Technology, (MACT), Subpart ZZZZ, and therefore subject to owner/operator requirements of the MACT. In summary, the units could be required to comply with certain federal emission standards and operating limitations over their useful life. The DEQ advises you to review the appropriate NSPS and MACT to ensure compliance with applicable emission and operational limitations. As the owner/ operator you are also responsible for monitoring, notification, reporting and recordkeeping requirements of the NSPS and MACT. Notifications for these regulations and the results of performance tests required by 40 CFR 60, Subparts Dc, IIII, and KKKK shall to be sent to:

130920105

Associate Director  
Office of Air Enforcement (3AP20)  
U.S. Environmental Protection Agency  
Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-200 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

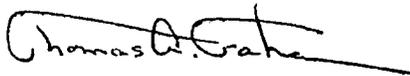
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director  
Department of Environmental Quality  
P. O. Box 1105  
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact the regional office at (703) 583-3800.

Sincerely,



Thomas A. Faha  
Regional Director

TAF/JBL/TMV/73826PSD.docx

Attachments: Permit  
Source Testing Report Format

cc: Director, OAPP (electronic file submission)  
Manager, Data Analysis (electronic file submission)  
Chief, Office of Air Enforcement and Compliance Assistance, U.S. EPA, Region III  
(electronic file submission)  
Manager, Air Compliance



NRO-079-13

# COMMONWEALTH of VIRGINIA

Douglas W. Domenech  
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David K. Paylor  
Director

Thomas A. Faha  
Regional Director

130920105

## PREVENTION OF SIGNIFICANT DETERIORATION PERMIT NON-ATTAINMENT NEW SOURCE REVIEW PERMIT STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

**This permit includes designated equipment subject to New Source Performance Standards (NSPS).**

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Green Energy Partners / Stonewall, LLC  
P.O. Box 660  
Hamilton, Virginia 20158  
Registration Number: 73826  
Plant ID No. 51-107-01019

is authorized to construct and operate:

An electric power generation facility

located at:

20077 Gant Lane  
Leesburg, VA 20175 (Loudoun County)  
(approximately 4 miles south/south east of  
Leesburg & north of Dulles Toll Road (SR 267)  
39.058° N Latitude, 77.545° W Longitude

in accordance with the conditions of this permit

Approved on: April 30, 2013

Thomas A. Faha  
Regional Director

Permit consists of 37 pages  
Permit Conditions 1 to 83.

## INTRODUCTION

This permit approval is based on the permit application dated July 19, 2012, with additional information submitted on August 16, 2012, and the modeling analysis and revised application which were both submitted on October 5, 2012, and November 15, 2012. Any changes in the permit application specifications, or any existing facilities which alter the impact of the facility on air quality, may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-80-1110, 9 VAC 5-80-2010, and 9 VAC 5-10-20 of the Commonwealth of Virginia State Air Pollution Control Board's (Board's) Regulations (Regulations) for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the Department of Environmental Quality (DEQ) or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the Board's Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

## PROCESS REQUIREMENTS

### 1. **Equipment List**

Equipment to be constructed at this facility consists of:

- Two (2) combined-cycle electric power generating units (Ref. No. CCT1 & CCT2) where each unit includes the following emission units:

- One (1) General Electric natural gas-fired combustion turbine (CT) generator, Model GE 7FA.05, rated at 2,230 million Btu per hour heat input (Ref. No. CT1 & CT2) with inlet evaporative coolers (NSPS Subpart KKKK) and,
- One (1) 650 million Btu per hour duct fired (Ref. No. DB1 & DB2) heat recovery steam generator (HRSG) that provides steam to a common steam turbine generator (NSPS Subpart KKKK).

OR

- One (1) Siemens natural gas-fired combustion turbine (CT) generator, Model SGT6-5000F5, rated at 2,260 million Btu per hour heat input (Ref. No. CT1 & CT2) with

inlet evaporative coolers (NSPS Subpart KKKK) and,

- One (1) 450 million Btu per hour duct fired (Ref. No. DB1 & DB2) heat recovery steam generator (HRSG) that provides steam to a common steam turbine generator (NSPS Subpart KKKK).
- One (1) natural gas-fired auxiliary boiler rated at 75 million Btu per hour heat input (Ref. No. AB1) (NSPS Subpart Dc).
- One (1) natural gas-fired fuel gas heater, rated at 20 million Btu per hour heat input (Ref. No. FGH1) (NSPS Subpart Dc).
- One (1) diesel-fired emergency generator, rated at 15.4 million Btu per hour heat input and 1,500 kW electric power output (Ref. No. EG1) (NSPS Subpart IIII and MACT Subpart ZZZZ).
- One (1) diesel-fired emergency fire pump, rated at 2.54 million Btu per hour heat input and 330 BHP mechanical power output (Ref. No. EFP1) (NSPS Subpart IIII and MACT Subpart ZZZZ).
- One (1) ten cell mechanical draft cooling tower rated at 187,400 gallons/minute of cooling water (Ref. No. MCT1- MCT10).
- One (1) 12,000-gallon aqueous ammonia above ground storage tank (Ref. No. AST1).
- One (1) 1,250-gallon diesel above ground storage tank for the emergency generator (Ref. No. AST2).
- One (1) 400-gallon diesel above ground storage tank for the fire pump (Ref. No. AST3).
- Circuit Breakers containing sulfur hexafluoride (SF<sub>6</sub>) (Ref. No. CB1)

Specifications included in the permit under this condition are for informational purposes only and do not form enforceable terms or conditions of the permit.

(9 VAC 5-80-1180 D 3, 9 VAC 5-80-2050, and 9 VAC 5-80-1605 A)

**2. Emission Controls: Combustion Turbines (Ref. No. CT1 & CT2) and Heat Recovery Steam Generators (HRSG) Duct Burners (DB1 & DB2)**

**a. NO<sub>x</sub>**

Oxides of nitrogen (NO<sub>x</sub>) emissions from each combustion turbine (Ref. No. CT1 & CT2) and each heat recovery steam generator (HRSG) duct burner (Ref. No. DB1 & DB2) shall be controlled by dry low-NO<sub>x</sub> combustion with selective catalytic reduction (SCR) control system with ammonia injection. The SCR system shall be provided with adequate access for inspection and shall be in operation when the combustion turbines and duct burners are operating, at all times except during start up and shutdown, as defined in Condition 15.

**b. CO and VOC**

Carbon monoxide (CO) and volatile organic compounds (VOC) emissions from each combustion turbine (Ref. No. CT1 & CT2) and each heat recovery steam generator (HRSG) duct burner (Ref. No. DB1 & DB2) shall be controlled by an oxidation catalyst and combustion practices as recommended by the equipment manufacturer. The oxidation catalyst shall be provided with adequate access for inspection and shall be in operation when the combustion turbines and duct burners are operating, at all times except during start up and shutdown, as defined in Condition 15.

c. PM-10 and PM-2.5

Particulate matter (PM-10 and PM-2.5) emissions from each combustion turbine (Ref. No. CT1 & CT2) and each heat recovery steam generator (HRSG) duct burner (Ref. No. DB1 & DB2) shall be controlled by combustion practices as recommended by the equipment manufacturer, and use of pipeline natural gas, as defined in 40 CFR §72.2.

d. Greenhouse Gases

Greenhouse gas emissions (including carbon dioxide, methane, and nitrous oxide), as CO<sub>2</sub>e from the combined cycle gas turbine generators (CT1 & CT2) for both the GE 7FA.05 and Siemens SGT6-5000F5 and associated heat recovery steam generator (HRSG) duct burner (Ref. No. DB1 & DB2) shall be controlled by combustion practices as recommended by the equipment manufacturer, and use of pipeline natural gas, as defined in 40 CFR § 72.2. The combined cycle gas turbine generators and associated HRSG DBs shall operate at a Higher Heating Value (HHV) heat rate, at full load and corrected to ISO conditions, not to exceed 7,340 Btu HHV/kWh gross output without duct burning and 7,780 Btu HHV/kWh gross output with duct burning. Compliance with this limit shall be demonstrated as contained in Conditions 63 and 68.

(9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-80-2050, and 9 VAC 5-80-1705 B)

3. **Emission Controls: Auxiliary Boiler (Ref. No. AB1) and Fuel Gas Heater (Ref. No. FGH1)**

a. NO<sub>x</sub>

Oxides of nitrogen (NO<sub>x</sub>) emissions from the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) shall be controlled by ultra low-NO<sub>x</sub> burners with a NO<sub>x</sub> performance of 9 ppmvd at 3% O<sub>2</sub> for natural gas. The low NO<sub>x</sub> burners shall be installed and operated in accordance with manufacturer's specifications.

b. CO and VOC

Carbon monoxide (CO) and volatile organic compounds (VOC) emissions from the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) shall be controlled by good combustion practices, operator training, and proper emissions unit design, construction and maintenance to achieve a maximum CO emission rate of 50 ppmvd at 3% O<sub>2</sub>. Boiler and heater operators shall be trained in the proper operation of all such equipment. (Refer to Condition 75 for training and record keeping requirements).

c. Particulate Matter (PM-10 and PM-2.5)

PM-10 and PM-2.5 emissions from the auxiliary boiler (AB1) and the fuel gas heater (FGH1) shall be controlled by good combustion practices and the use of pipeline-quality natural gas with a sulfur content of no greater than 0.1 grains per 100 standard cubic feet (scf), on a 12-month rolling average.

d. Greenhouse Gases

CO<sub>2</sub>e from the auxiliary boiler (AB1) and the fuel gas heater (FGH1) shall be controlled by the use of pipeline-quality natural gas and high efficiency design and operation.

(9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-80-1705 B and 9 VAC 5-80-2050)

4. **Emission Controls: Emergency Generator (Ref. No. EG1)**

Oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), and particulate matter (PM-10 and PM-2.5) emissions from the emergency generator (Ref. No. EG1) shall be controlled by combustion practices as recommended by the equipment manufacturer and the use of ultra low sulfur diesel fuel oil with a maximum sulfur content of 15 ppm by weight. CO<sub>2</sub>e emissions shall be controlled by high efficiency design and operation.

(9 VAC 5-80-1180, 9 VAC 5-80-1705 B and 9 VAC 5-50-260)

5. **Emission Controls: Emergency Fire Pump (Ref. No. EFP1)**

Oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), and particulate matter (PM-10 and PM-2.5) emissions from the emergency fire pump (Ref. No. EFP1) shall be controlled by combustion practices as recommended by the equipment manufacturer and the use of ultra low sulfur diesel fuel oil with a maximum sulfur content of 15 ppm by weight. CO<sub>2</sub>e emissions shall be controlled by high efficiency design and operation.

(9 VAC 5-80-1180, 9 VAC 5-80-1705 B, 9 VAC 5-80-2050, and 9 VAC 5-50-260)

6. **Monitoring Devices: SCR** – Each SCR system shall be equipped with devices to continuously measure and record ammonia feed rate and catalyst bed inlet gas temperature. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with the device manufacturer's written requirements and recommendations. Each monitoring device shall be provided with adequate access for inspection, and shall be in operation when the SCR system is operating.

(9 VAC 5-80-1180, 9 VAC 5-50-20 C, 9 VAC 5-50-260, 9 VAC 5-80-2050, and 9 VAC 5-80-1705 B)

7. **Monitoring Devices: Oxidation Catalyst** – Each oxidation catalyst shall be equipped with a device to continuously measure and record temperature at the catalyst bed inlet and outlet. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with the device manufacturer's written requirements and recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the oxidation catalyst is operating.

(9 VAC 5-80-1180, 9 VAC 5-50-20 C, 9 VAC 5-50-260, 9 VAC 5-80-2050, and 9 VAC 5-80-1705 B)

8. **Monitoring Device Observation and Documentation: SCR** – The devices used to continuously measure ammonia feed rate and SCR catalyst bed inlet gas temperature shall be observed by the permittee with a frequency sufficient to ensure good performance of the SCR system, but not less than once per day of operation.  
(9 VAC 5-50-50 H)
9. **Monitoring Device Observation and Documentation: Oxidation Catalyst** - The devices used to continuously measure the catalyst bed inlet and outlet gas temperatures for each oxidation catalyst shall be observed by the permittee with a frequency sufficient to ensure good performance of the oxidation catalyst, but not less than once per day of operation.  
(9 VAC 5-50-50 H)
10. **Monitoring Device: Hour Meter** - The emergency generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP-1) shall be equipped with a non-resettable hour metering device to monitor the operating hours of each unit. Each monitoring device shall be observed by the permittee with a frequency of not less than once each day that the generator/fire pump is in operation. The permittee shall keep a log of these observations.

Each monitoring device shall be installed, maintained, calibrated (as appropriate) and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the generator/fire pump is operating.

(9 VAC 5-80-1180 D and 40 CFR 60.4209)

### **OPERATIONAL LIMITATIONS**

11. **Fuel: Natural Gas Fired Units** – The approved fuel for each combustion turbine (Ref. No. CT1 & CT2), each heat recovery steam generator (HRSG) duct burner (Ref. No. DB1 & DB2), the auxiliary boiler (Ref. No. AB1), and the fuel gas heater (Ref. No. FGH1) is pipeline natural gas as defined in 40 CFR § 72.2, with a maximum sulfur content of 0.1 grains or less of total sulfur per 100 standard cubic feet. A standard cubic foot of gas is defined as a cubic foot of gas at standard conditions (68°F and 29.92 in Hg) as specified in 40 CFR § 72.2. No change in fuel type may occur without DEQ approval. A change in the fuel may require a permit to modify and operate.  
(9 VAC 5-50-410, 9 VAC 5-80-1705, 9 VAC 5-80-1715, 9 VAC 5-50-260, 9 VAC 5-80-2050, and 40 CFR 60.4330(a)(2))
12. **Fuel Specification: Diesel Fired Units** - The approved fuel for the emergency engine generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP1) shall be diesel fuel that meets the specifications below:
  - a. Does not exceed the American Society for Testing and Materials (ASTM) specifications, D975, for grade ultra low sulfur 2-D, or grade 2-D S14, or
  - b. Has a maximum sulfur content not to exceed 0.0015% by weight (15 ppm), and either a minimum cetane number of forty or maximum aromatic content of thirty-five percent by volume.

(9 VAC 5-80-1180, 9 VAC 5-80-2050, and 9 VAC 5-50-260)

13. **Fuel Certification** - The permittee must use the sources listed in Condition 13.a to demonstrate compliance with Condition 11 and the sources of information in Condition 13.b to demonstrate compliance with Condition 12:

- a. The fuel characteristic in a current, valid purchase contract, tariff sheet or transportation contract for the natural gas, specifying that the maximum total sulfur content for the natural gas is 0.1 grains of sulfur or less per 100 standard cubic feet and / or representative fuel sampling data, which shows that the sulfur content of the fuels does not exceed  $2.61 \times 10^{-4}$  lb SO<sub>2</sub>/MMBtu heat input.

If the permittee elects not to demonstrate the sulfur content using the above option, the permittee may:

- i. Determine and record the total sulfur content of the natural gas once per unit operating day; or,
  - ii. Develop custom schedules for determination of the total sulfur content of the natural gas, based on the design and operation of the affected facility and the characteristics of the fuel supply. Except as provided in 40 CRF 60.4370(c)(1) and (c)(2), custom schedules shall be substantiated with data and shall receive prior EPA approval.
- b. The permittee shall obtain a fuel certification from the fuel supplier with each shipment of diesel fuel oil. Each fuel supplier certificate shall contain the following:
    - i. The name of the fuel supplier, and
    - ii. The date on which the diesel fuel oil was received, and
    - iii. The quantity of diesel fuel oil delivered in the shipment, and
    - iv. Either a statement that the diesel fuel oil conforms to the requirements of Condition 12 – Fuel Specification, or
    - v. Alternately, the permittee shall obtain approval from the Regional Air Compliance Manager of the DEQ's Northern Regional Office (NRO) at the address listed in Condition 57 if other documentation will be used to certify the diesel fuel oil type.

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by the DEQ, may be used to determine compliance with the fuel specifications stipulated in Condition 12. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.  
(9 VAC 5-80-1180, 9 VAC 5-50-410, 9 VAC 5-80-2050, 9 VAC 170-160, 40 CFR 60.4365(a), 40 CFR 60.4370(b), and 40 CFR 60.4370(c))

14. **Fuel Throughput** – The two GE 7FA.05 combustion turbines (Ref. No. CT1 & CT2) and two 650 MMBtu/hr duct burners (Ref. No. DB1 & DB2) shall not consume more than  $4.01 \times 10^{10}$  cubic feet of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. The two Siemens SGT6-5000F5 combustion turbines (Ref. No. CT1 & CT2) and two 450 MMBtu/hr duct burners (Ref. No. DB1 & DB2) shall not consume more than  $4.00 \times 10^{10}$  cubic feet of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be

demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9 VAC 5-80-1180 and 9 VAC 5-80-2050)

15. **Startup / Shutdown** – The short-term emission limits contained in Condition 33 apply at all times except during periods of startup and shutdown.

a. Startup and shutdown periods are defined as the average time per turbine for the two turbine plant to complete startup and shutdown as follows:

- i. Cold Startup – refers to restarts made 72 hours or more after shutdown. Exclusion from the short-term emission limits for cold startup periods shall not exceed 226 minutes per occurrence.
- ii. Warm Startup – refers to restarts made more than 4, but less than 72 hours after shutdown. Exclusion from the short-term emission limits for warm startup periods shall not exceed 128 minutes per occurrence.
- iii. Hot Startup – refers to restarts made 4 hours or less after shutdown. Exclusion from the short-term emissions limits for hot startup periods shall not exceed 38 minutes per occurrence.
- iv. Shutdown – refers to the period between the time the turbine load drops below 50 percent operating level and the fuel supply to the turbines is cut. Exclusion from the short-term emissions limits for shut down shall not exceed 14 minutes per occurrence.

b. The permittee shall operate the Continuous Emission Monitoring Systems (CEMS) during the periods of startup and shutdown.

c. The permittee shall record the date, time, and duration of each startup and shutdown period. The records must include calculations of NOx and CO emissions during each event based on the CEMS data. These records must be kept for five years following the date of such event.

d. During startup, the combustion turbine SCR system, including ammonia injection, shall be operated in a manner to minimize emissions, as technologically feasible, and not later than when the load reaches 50% of unit output.

(9 VAC 5-50-260, 9 VAC 5-80-1715, 9 VAC 5-80-1180, and Table 1 to NSPS KKKK of part 60)

16. **Operational Limit – Duct Burners**

The duct burners (Ref. No. DB1 & DB2) shall not operate independently of each combustion turbine (Ref. No. CT1 & CT2).

(9 VAC 5-80-1180, 9 VAC 5-80-2050, 9 VAC 5-40-410, and 40 CFR 60.4320)

17. **Operational Limit – Duct Burners**

Each heat recovery steam generator (HRSG) duct burner (Ref. No. DB1 & DB2) shall not operate more than 1,400 hours per year, calculated monthly as the sum of each consecutive twelve month period.  
(9 VAC 5-50-260, 9 VAC 5-80-1180, and 9 VAC 5-80-2050)

**18. Requirements by Reference** – Except where this permit is more restrictive than the applicable requirement, the combustion turbines (Ref. No. CT1 & CT2) and the heat recovery steam generator (HRSG) shall be operated in compliance with the requirements of 40 CFR 60, Subpart KKKK.  
(9 VAC 5-50-400, 9 VAC 5-50-410, 9 VAC 5-80-1180, 9 VAC 5-80-2050, and 40 CFR 60, Subpart KKKK)

**19. CAIR (Clean Air Interstate Rule) NO<sub>x</sub> Annual Trading Requirements** –The combined-cycle power generating units (Ref. No. CCT1 & CCT2) listed in Condition 1 meet the definition of a CAIR NO<sub>x</sub> Unit and are subject to the CAIR NO<sub>x</sub> emission limits under 9 VAC 5-140-1040 or for opt in sources under 9 VAC 5-140-1800. As required by 9 VAC 5-140-1200 A, for each CAIR NO<sub>x</sub> source required to have a federally enforceable permit, such permit will include the CAIR permit to be administered by the permitting authority. The following requirements pertain to the CAIR NO<sub>x</sub> Annual Trading program:

- a. Prior to commencement of operation, the permittee shall obtain a CAIR permit, as required by 9 VAC 5-140-1200 A, to be administered by the Virginia Department of Environmental Quality (DEQ) under the authority of 9 VAC 5-80-360 *et seq.*, and 9 VAC 5-140-1010 *et seq.*
- b. As commencement of operation of the permitted facility (the first day a combustion turbine burns fuel), the permittee shall comply with the requirements of the CAIR NO<sub>x</sub> emission limitations under 9 VAC 5-140-1040.
- c. Each combined-cycle power generating unit (combustion turbine and heat recovery steam generator) in Condition 1 meets the applicability requirements as provided in 9 VAC 5-140-1040 A.1 and A.2. The permittee shall meet the monitoring, emission calculation, recordkeeping, reporting, and testing requirements as applicable under 9 VAC 5 Chapter 140, Part II, Article 8.

(9 VAC 5-80-1180, 9 VAC 5-80-2050, and 9 VAC 5 Chapter 140, Part II, Article 8)

**20. Fuel Throughput – Auxiliary Boiler (AB1)**

The auxiliary boiler (Ref. No. AB1) shall not consume more than  $6.44 \times 10^8$  cubic feet of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9 VAC 5-80-1180 and 9 VAC 5-80-2050)

**21. Fuel Throughput – Fuel Gas Heater (Ref. No. FGH1)**

The fuel gas heater (Ref. No. FGH1) shall not consume more than  $1.72 \times 10^8$  cubic feet of natural gas per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding

the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9 VAC 5-80-1180 and 9 VAC 5-80-2050)

22. **Requirements by Reference** – Except where this permit is more restrictive than the applicable requirement, the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) shall be operated in compliance with the requirements of 40 CFR 60, Subpart Dc. (9 VAC 5-50-400, 9 VAC 5-50-410, 9 VAC 5-80-1180, 9 VAC 5-80-2050, and 40 CFR 60, Subpart Dc)
23. **Emergency Generator and Emergency Fire Pump Operation** – The operation of the emergency generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP1) are limited to emergency situations. Emergency situations include emergency generator use to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted and emergency engine use to pump water in case of fire or flood, etc. The emergency generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP1) may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the federal, state, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year for each unit.  
(9 VAC 5-80-1180, 40 CFR 60.4211(e), and 40 CFR 60.4219)
24. **Operating Hours: Emergency Generator** – The emergency generator (Ref. No. EG1) shall not operate more than 500 hours per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9 VAC 5-80-1180 and 9 VAC 5-80-2050)
25. **Operating Hours: Emergency Fire Pump** – The emergency fire pump (Ref. No. EFP1) shall not operate more than 500 hours per year, calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.  
(9 VAC 5-80-1180)
26. **Maintenance and Operation** – The permittee must maintain and operate the emergency generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP1) in accordance with the manufacturer's written requirements. In addition, the permittee may only change those settings that are allowed by the equipment manufacturer's written requirements.  
(9 VAC 5-80-1180, 9 VAC 5-50-260, 40 CFR 60.4206, and 40 CFR 60.4211)
27. **Emission Controls: Cooling Tower** – Particulate matter emissions from the ten cell mechanical draft cooling tower (Ref. No. MCT1 – MCT10) shall be controlled to a drift rate of 0.0005 percent of the circulating water flow and a total dissolved solids content of the cooling water of no more than 5,000 ppm total dissolved solids.  
(9 VAC 5-80-1705 B, 9 VAC 5-50-280 and 9 VAC 5 -80-2050)

**28. Sampling & Monitoring – Ten Cell Mechanical Draft Cooling Tower (Ref. No. MCT1-MCT10)**

The facility shall sample the water used by the ten cell mechanical draft cooling tower (Ref. No. MCT1 – MCT10) for total dissolved solids (TDS) at a frequency of not less than once per month to ensure compliance with the TDS in Condition 27. If the TDS sampling demonstrates compliance for three years of cooling tower operation, then the permittee can request a reduction in the sampling frequency. Samples taken as required by this permit shall be analyzed in accordance with 1 VAC 30-45, Certification for Noncommercial Laboratories, or 1 VAC 30-46, Accreditation for Commercial Environmental Laboratories. (9 VAC 5-50-260, 9 VAC 5-170-160, 9 VAC 5-80- 2050, and 9 VAC 5-80-2080)

**29. Emission Controls: Electrical Breakers – Greenhouse gas emissions (including SF<sub>6</sub>) from the electrical circuit breakers (Ref No. CB1) shall be controlled by an enclosed circuit breaker, with a maximum annual leakage rate of 1.0 percent, and a low pressure detection system (with alarm). The low pressure detection system shall be in operation when the circuit breakers are in use. Emissions shall be monitored in accordance with the requirements of the Mandatory Greenhouse Gas Reporting Rule for Electrical Transmission and Distribution Equipment Use (40 CFR Part 98, Subpart DD). (9 VAC 5-80-1705 B, 9 VAC 5-50-280)**

**30. Re-tuning – Excess emissions resulting from the retuning of the combustion turbines (Ref. No. CT1 & CT2) shall be permitted provided that:**

- a. Best operational practices are adhered to and the duration of excess emissions shall be minimized but in no case exceed twelve hours per combustion turbine (Ref. No. CT1 & CT2) re-tuning event in any 24 hour period. The operator may request additional hours from the DEQ as long as the notification is done as soon as the source is aware that the re-tuning event will exceed twelve hours.
- b. During each combustion turbine (Ref. No. CT1 & CT2) retuning event, NO<sub>x</sub> emission concentrations, based on an hourly average, shall not exceed the NO<sub>x</sub> standards of the New Source Performance Standards (NSPS) 40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines (60.4300 et seq.).
- c. The permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57 no less than 24 hours prior to each turbine's retuning event. The notification shall include, but is not limited to:
  - i. Identification of the specific turbine to be retuned.
  - ii. Reason for the retuning event.
  - iii. Measures to be taken to minimize the length of the retuning event.
- d. The permittee shall furnish a written report to the Regional Air Compliance Manager of the DEQ's NRO of all the pertinent facts concerning the retuning event, as soon as practicable, but not later than 14 business days after the retuning event. The notification shall include, but is not limited to:
  - i. Identification of the turbine that was retuned.

- ii. *The magnitude of excess emissions per turbine, any conversion factors used in the calculation of excess emissions, and the date and time of commencement and completion of each period of excess emissions.*
- e. NO<sub>x</sub> emissions during each turbine's retuning shall be recorded and included in the associated quarterly reports and the total annual emissions as required by this permit.
- f. The retuning event for each turbine shall be identified on the Data Acquisition Report.

(9 VAC 5-20-180, 9 VAC 5-50-50, and 9 VAC 5-50-410)

**31. Pollution Prevention: Ammonia** – Compliance with the ammonia emission limit in Condition 33 shall be determined based on a one-hour block average. At least three months prior to startup, the permittee shall submit a plan for approval for monitoring the ammonia emissions and demonstrating compliance with the ammonia emission limit from each SCR system to the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57. Implementation of the plan shall commence upon startup of the facility. The permittee shall demonstrate compliance with the ammonia emission limit at least 95 percent of the time that the SCR is operating. Compliance with the 95 percent time percentage requirement shall be calculated daily and based on a 30-day rolling period. Alternatively, if on a given day less than 100 hours of operation has occurred in the prior thirty days, compliance with the 95 percent limits may be based on the most recent 100 hours of SCR operation.

(9 VAC 5-80-1180, 9 VAC 170-160, and the Virginia Pollution Prevention Act Subsection 10.1-1425.11)

**32. Pollution Prevention: SCR Replacement** – At least two years prior to a planned replacement of the entire SCR system, the permittee shall conduct a study of technically and economically feasible and commercially available NO<sub>x</sub> control devices. The study shall include the cost effectiveness for each control device evaluated, including SCR. The results of the evaluation shall be submitted to the Regional Air Permitting Manager of the DEQ's NRO at the address listed in Condition 57 prior to ordering the new system. In the event the permittee wants to replace the SCR with an alternative control device, such a replacement may not require a permit to modify and operate, providing the new system provides an equal or better level of control.

(9 VAC 5-80-1180, 9 VAC 5-80-2050, 9 VAC 5-170-160, and the Virginia Pollution Prevention Act Subsection 10.1-1425.11)

**EMISSION LIMITS**

**33. Emission Limits - Combined-Cycle Power Generation Units (Ref. No. CCT1 & CCT2)**

**Short-Term Emission Limits** - Emissions from the operation of each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) shall not exceed the limits specified below:

GE 7FA.05

Air Pollutant	Short-Term Emission Limits
Oxides of Nitrogen (as NO <sub>2</sub> )	<ul style="list-style-type: none"> <li>▪ 2.0 ppmvd at 15% O<sub>2</sub> W &amp; w/o DB firing</li> <li>▪ 21.0 lb/hr with HRSG duct burner firing</li> </ul>

	<ul style="list-style-type: none"> <li>▪ 16.2 lb/hr without HRSG duct burner firing</li> </ul>
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>▪ 2.0 ppmvd at 15% O<sub>2</sub> with &amp; w/o duct burning.</li> <li>▪ 12.7 lb/hr with HRSG duct burner firing</li> <li>▪ 9.9 lb/hr without HRSG duct burner firing</li> </ul>
Volatile Organic Compounds (VOCs) (as methane)	<ul style="list-style-type: none"> <li>▪ 2.4 ppmwv at 15% O<sub>2</sub> with duct burner firing</li> <li>▪ 1.0 ppmwv at 15% O<sub>2</sub> without duct burner firing</li> <li>▪ 7.3 lb/hr with HRSG duct burner firing</li> <li>▪ 2.8 lb/hr without HRSG duct burner firing</li> </ul>
PM-10 (Includes filterable and condensibles)	<ul style="list-style-type: none"> <li>▪ 3.34 x 10<sup>-3</sup> lb/MMBtu at full load</li> <li>▪ 16.2 lb/hr with HRSG duct burner firing</li> <li>▪ 9.6 lb/hr without HRSG duct burner firing</li> </ul>
PM-2.5 (Includes filterable and condensibles)	<ul style="list-style-type: none"> <li>▪ 3.34 x 10<sup>-3</sup> lb/MMBtu at full load</li> <li>▪ 16.2 lb/hr with HRSG duct burner firing</li> <li>▪ 9.6 lb/hr without HRSG duct burner firing</li> </ul>
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>▪ 2.61 x 10<sup>-4</sup> lb/MMBtu</li> <li>▪ 0.75 lb/hr with HRSG duct burner firing</li> <li>▪ 0.58 lb/hr without HRSG duct burner firing</li> </ul>
Ammonia (NH <sub>3</sub> )	<ul style="list-style-type: none"> <li>▪ 5.0 ppmvd at 15% O<sub>2</sub></li> </ul>

Siemens SGT6-5000F5

Air Pollutant	Short-Term Emission Limits
Oxides of Nitrogen (as NO <sub>2</sub> )	<ul style="list-style-type: none"> <li>▪ 2.0 ppmvd at 15% O<sub>2</sub></li> <li>▪ 20.4 lb/hr with HRSG duct burner firing</li> <li>▪ 17.1 lb/hr without HRSG duct burner firing</li> </ul>
Carbon Monoxide (CO)	<ul style="list-style-type: none"> <li>▪ 2.0 ppmvd at 15% O<sub>2</sub> with &amp; w/o duct burning.</li> <li>▪ 12.5 lb/hr with HRSG duct burner firing</li> <li>▪ 10.4 lb/hr without HRSG duct burner firing</li> </ul>
Volatile Organic Compounds (VOCs) (as methane)	<ul style="list-style-type: none"> <li>▪ 1.5 ppmwv at 15% O<sub>2</sub> with duct burner firing</li> <li>▪ 1.0 ppmwv at 15% O<sub>2</sub> without duct burner firing</li> <li>▪ 5.7 lb/hr with HRSG duct burner firing</li> <li>▪ 3.0 lb/hr without HRSG duct burner firing</li> </ul>
PM-10 (Includes filterable and condensibles)	<ul style="list-style-type: none"> <li>▪ 3.74 x 10<sup>-3</sup> lb/MMBtu at full load</li> <li>▪ 14.5 lb/hr with HRSG duct burner firing</li> <li>▪ 10.1 lb/hr without HRSG duct burner firing</li> </ul>
PM-2.5 (Includes filterable and condensibles)	<ul style="list-style-type: none"> <li>▪ 3.74 x 10<sup>-3</sup> lb/MMBtu at full load</li> <li>▪ 14.5 lb/hr with HRSG duct burner firing</li> <li>▪ 10.1 lb/hr without HRSG duct burner firing</li> </ul>
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>▪ 2.61 x 10<sup>-4</sup> lb/MMBtu</li> <li>▪ 0.70 lb/hr with HRSG duct burner firing</li> <li>▪ 0.58 lb/hr without HRSG duct burner firing</li> </ul>
Ammonia (NH <sub>3</sub> )	<ul style="list-style-type: none"> <li>▪ 5.0 ppmvd at 15% O<sub>2</sub></li> </ul>

Where:

ppmvd = parts per million by volume on a dry gas basis, corrected to 15 percent O<sub>2</sub>.

ppmwv = parts per million by volume on a wet gas basis, corrected to 15 percent O<sub>2</sub>.

Short-term emission limits for VOC, PM-10 and PM-2.5 represent averages for a three-hour sampling period. Short-term emission limits for nitrogen oxides and carbon monoxide shall be calculated as one-hour averages.

Unless otherwise specified, limits apply at all times except during startup, shutdown, and malfunction. Periods considered startup and shutdown are defined in Condition 15 of this permit.

Compliance with the SO<sub>2</sub> limit may be determined as stated in Condition 11.

This permit may be changed in accordance with 9 VAC 5-80-1925 and 9 VAC 5-80-2000, to reduce the emission limits based on results from stack testing as required in Conditions 56, 58 and 59 of this permit.

(9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-50-410, 9 VAC 5-80-2050, 9 VAC 5-80-1705, 40 CFR 60.4320, 40 CFR 60.4330 and the Virginia Pollution Prevention Act Subsection 10.1-1425.11)

**34. Emission Limits: Combined-Cycle Power Generating Units (Ref. No. CCT1 & CCT2) -**

CO<sub>2e</sub> emissions from the combined cycle gas turbine generators and associated HRSGs shall not exceed 903 lb/MWh (gross) calculated monthly on a 12-operating month annual average basis. Compliance shall be determined each month by summing the CO<sub>2e</sub> 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 gross electrical energy output over that same period.

(9 VAC 5-50-280, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

**35. Annual Process Emission Limits – Total emissions from the combined operation of the two combined-cycle power generating units (Ref. No. CCT1 & CCT2), including duct burners, shall not exceed the limits specified below:**

GE 7FA.05

Pollutant	Annual Emissions (tons per year)
Oxides of Nitrogen (as NO <sub>2</sub> )	148.6
Carbon Monoxide (CO)	188.8
Volatile Organic Compounds (VOC)	31.0
PM-10 (Includes filterable and condensables)	93.7
PM-2.5 (Includes filterable and condensables)	93.7
Sulfur Dioxide (SO <sub>2</sub> )	5.3
Greenhouse Gases (GHG) Carbon Dioxide Equivalent (CO <sub>2e</sub> )	2,418,273

Or:

Siemens SGT6-5000F5

Air Pollutant	Annual Emissions (tons per year)
Oxides of Nitrogen (as NO <sub>2</sub> )	154.45
Carbon Monoxide (CO)	124.8
Volatile Organic Compounds (VOC)	45.26
PM-10 (Includes filterable and condensables)	94.68
PM-2.5 (Includes filterable and condensables)	94.68
Sulfur Dioxide (SO <sub>2</sub> )	5.26
Greenhouse Gases (GHG) Carbon Dioxide Equivalent (CO <sub>2</sub> e)	2,414,296

Annual emission limits are derived from the estimated overall emission contribution from operating limits, including periods of startup and shutdown. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with these limits may be determined as stated in Conditions 11, 14, 17, 47, and 70. Annual emissions shall be calculated as the sum of each consecutive 12-month period.

This permit may be changed in accordance with 9 VAC 5-80-1925, to reduce the emission limit based on results from stack testing as required in Conditions 56, 58 and 59 of this permit.

(9 VAC 5-80-1180, 9 VAC 5-50-260, 9 VAC 5-50-410, 9 VAC 5-80-2050, 9 VAC 5-80-1705, and 9 VAC 5-80-1715)

**36. Visible Emission Limit** – Visible emissions from each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) stack shall not exceed 10 percent opacity, except during one six-minute period in any one hour in which visible emissions shall not exceed 20 percent opacity as determined by EPA Method 9 (Reference 40 CFR 60, Appendix A). This condition applies at all times except during start up, shutdown (as defined in Condition 15), and malfunction.

(9 VAC 5-50-20, 9 VAC 5-50-260, and 9 VAC 5-80-1705)

**37. Process Emission Limits – Auxiliary Boiler (Ref. No. AB1)**

Emissions from the auxiliary boiler (Ref. No. AB1) shall not exceed the limits specified below:

Pollutant	lb/hr	tons/year
Oxides of Nitrogen (as NO <sub>2</sub> )	0.83	3.61
Carbon Monoxide (CO)	2.78	12.15
Volatile Organic Compounds (VOC)	0.15	0.66
PM-10 (Includes filterable and condensables)	0.15	0.66

PM-2.5 (Includes filterable and condensibles)	0.15	0.66
Greenhouse Gases (GHG) Carbon Dioxide Equivalent (CO <sub>2</sub> e)	8,873	38,856

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits.  
 (9 VAC 5-50-260 and 9 VAC 5-80-1180)

**38. Process Emission Limits – Fuel Gas Heater (Ref. No. FGH1)**

Emissions from the fuel gas heater (Ref. No. FGH1) shall not exceed the limits specified below:

Pollutant	lb/hr	tons/year
Oxides of Nitrogen (as NO <sub>2</sub> )	0.22	0.96
Carbon Monoxide (CO)	0.74	3.24
Greenhouse Gases (GHG) Carbon Dioxide Equivalent (CO <sub>2</sub> e)	2,365	10,362

These emissions are derived from the estimated overall emission contribution from the operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits.  
 (9 VAC 5-50-260 and 9 VAC 5-80-1180)

**39. Visible Emission Limit – Visible emissions from both the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) stacks shall not exceed 10 percent opacity as determined by EPA Method 9 (Reference 40 CFR 60, Appendix A).  
 (9 VAC 5-80-1180)**

**40. Process Emission Limits – Emergency Generator (Ref. No. EG1)**

Emissions from the emergency generator (Ref. No. EG1) shall not exceed the limits specified below:

Pollutant	lb/hr	tons/year
Oxides of Nitrogen (as NO <sub>2</sub> )	21.16	5.29
Carbon Monoxide (CO)	11.57	2.89
Volatile Organic Compounds (VOC)	21.16	5.29
Greenhouse Gases (GHG) Carbon Dioxide Equivalent (CO <sub>2</sub> e)	2,534	634

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Compliance with the annual emission limits may be determined as stated in Condition 24.  
 (9 VAC 5-50-260, 9 VAC 5-80-1180, 9 VAC 5-80- 1785 and 9 VAC 5-80-2050)

**41. Process Emission Limits – Emergency Fire Pump (Ref. No. EFP1)**

Emissions from the emergency fire pump (Ref. No. EFP1) shall not exceed the limits specified below:

Pollutant	lb/hr	tons/year
Oxides of Nitrogen (as NO <sub>2</sub> )	2.17	0.54
Carbon Monoxide (CO)	1.90	0.47
Volatile Organic Compounds (VOC)	2.17	0.54
Greenhouse Gases (GHG) Carbon Dioxide Equivalent (CO <sub>2</sub> e)	416	104

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Compliance with the annual emission limits may be determined as stated in Condition 25.

(9 VAC 5-50-260, 9 VAC 5-80-1773 and 9 VAC 5-80-2050)

**42. Process Emission Limits – Ten Cell Mechanical Draft Cooling Tower (Ref. No. MCT1 - MCT10)**

Emissions from the ten cell mechanical draft cooling tower (Ref. No. MCT1 – MCT10) shall not exceed the limits specified below:

Pollutant	lb/hr	tons/year
PM-10 (Includes filterable and condensibles)	2.35	10.27
PM-2.5 (includes filterable and condensibles)	0.73	3.19

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits shall be considered credible evidence of the exceedance of emission limits. Compliance with these emission limits may be determined as stated in Conditions 27 and 28.

(9 VAC 5-50-260, 9 VAC 5-80-1180, and 9 VAC 5-80-2050)

**43. Process Emission Limits – Total Annual Facility-Wide Emission Limits**

Emissions from the facility shall not exceed the limits specified below:

Pollutant	GE 7FA.05 tons/year	Siemens SGT6-5000F5 tons/year
Oxides of Nitrogen (as NO <sub>2</sub> )	159.0	164.9
Carbon Monoxide (CO)	205.6	143.6
Volatile Organic Compounds (VOC)	37.6	51.9
PM-10 (includes filterable and condensibles)	105.2	106.1
PM-2.5 (includes filterable and condensibles)	98.1	99.1

condensibles		
Sulfur Dioxide (SO <sub>2</sub> )	5.44	5.37
Greenhouse Gases (GHG) Carbon Dioxide Equivalent (CO <sub>2</sub> e)	2,468,468	2,464,490

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits.

(9 VAC 5-50-260, 9 VAC 5-80-1180, 9 VAC 5-80-1785 and 9 VAC 5-80-2050)

**EMISSION OFFSETS**

44. **NO<sub>x</sub> (and VOC) Offsets** – The permittee shall secure NO<sub>x</sub> emission offsets if the GE 7FA.05 combustion turbines are installed, and NO<sub>x</sub> and VOC emission offsets if the Siemens SGT6-5000F5 combustion turbines are installed in accordance with 9 VAC 5-80-2120 and 40 CFR Part 51, Appendix S. The emission offsets are based on total annual facility-wide emissions limits in Condition 43. The offsets shall, at a minimum, meet the following conditions:

- a. The permittee shall secure NO<sub>x</sub> emission offsets of no less than 159 tons x 1.15 = 182.85 tons for the GE 7FA.05 combustion turbines, and 164.9 tons x 1.15 = 189.64 tons for the Siemens SGT6-5000F5 combustion turbines. The permittee shall secure VOC emission offsets of no less than 51.9 tons x 1.15 = 59.69 tons for the Siemens SGT6-5000F5 combustion turbines.
- b. The emission reduction credits shall be creditable, surplus, quantifiable, permanent and state and federally enforceable. The baseline for calculating the offsets shall be determined pursuant to the method set forth in 40 CFR Part 51, App S, Subsection IV.C.
- c. The offsets shall be obtained within the Northern Virginia ozone nonattainment area or from another ozone nonattainment area. If the offsets are obtained from another ozone nonattainment area, the following requirements apply:
  - i. The ozone nonattainment area must have an equal or higher nonattainment classification than the area in which the source is to be located.
  - ii. For any offsets secured from outside of the Commonwealth of Virginia, the emission reductions must be certified to be surplus, quantifiable, permanent and state and federally enforceable by the state or locality where the emission reductions occurred. Documentation of the certification must be provided to and approved by the DEQ Northern Regional Office prior to the beginning of operation of the facility.
- d. Prior to beginning operation, the offsets shall be secured, in effect, and state and federally enforceable.

(9 VAC 5-80-2120 and 40 CFR Part 51, Appendix S)

45. **Offset Timing** – Initial startup and operation of the permitted equipment shall not be initiated until the permittee has provided the DEQ-NRO with an official document from the DEQ and / or the State Agency of the state the offsets were obtained indicating that it recognizes the reduction as creditable and permanent. At a minimum, the document shall state that the emission reduction has not been and will not be credited toward another reduction requirement and that the emissions cannot be resurrected from the same facility without the owner first obtaining a permit under a federally-enforceable new source review program. The document must also provide evidence that the U.S. EPA accepts that the emission reductions are creditable for offset purposes.  
(9 VAC 5-80-2120 and 9 VAC 5-80-2050 A.3.a)

46. **Offset Recordkeeping** - The permittee shall maintain at the permitted facility a copy of the following:

- i. Identification of each source from which the offsets were obtained. Identification shall include the name, address, and Universal Transverse Mercator (UTM) coordinates of the facility and any identification number assigned to the facility by the air pollution control facility that regulates it.
- ii. Certification Document from each air pollution control agency required by Condition 44.c and any supporting documentation.

(9 VAC 5-80-2050 and 9 VAC 5-80-2120)

#### **CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS)**

47. **CEMS** – Continuous Emission Monitoring Systems (CEMS) shall be installed on CCT1 and CCT2 to measure and record the emissions of NO<sub>x</sub> (measured as NO<sub>2</sub>) and carbon monoxide (CO), in parts per million by volume (ppmvd) corrected to 15 percent O<sub>2</sub>, from each combined-cycle power generating unit (Ref. No. CCT1 & CCT2). CEMS shall also be installed to measure and record the emissions of carbon dioxide (CO<sub>2</sub>). The NO<sub>x</sub> CEMS shall be installed, evaluated, and operated, and meet the design specifications of 40 CFR 75 whereas CEMS for CO shall be installed, evaluated, and operated according to the "Monitoring Requirements" in 40 CFR 60.13. The CEMS shall also be installed on CCT1 and CCT2 to measure and record the oxygen content of the flue gas at each location where NO<sub>x</sub> and CO emissions are monitored. Heat input and power output for CCT1 and CCT2 shall also be measured and recorded. A CEMS or alternative method as allowed by 40 CFR 75 shall be used to measure sulfur dioxide emissions to comply with the requirements of 40 CFR 75 (acid rain program monitoring). For compliance with the emission limits contained in Condition 33, NO<sub>x</sub> data and CO data shall each be reduced to one-hour rolling blocks. The relative accuracy test audit (RATA) of the NO<sub>x</sub>/O<sub>2</sub> CEMS shall be performed on a lb/MMBtu basis.

(9 VAC 5-50-40, 9 VAC 5-80-410, 9 VAC 5-50-420, 40 CFR 75, 40 CFR 60.13, and 40 CFR 60.4340 (b))

48. **CEMS Performance Evaluations (NO<sub>x</sub> CEMS)**– Performance evaluations of the NO<sub>x</sub> and, if applicable, SO<sub>2</sub> CEMS shall be conducted in accordance with 40 CFR 75, Appendix B , and shall take place during the performance tests under 9 VAC 5-50-30 or within 30 days thereafter. One copy of the performance evaluation report shall be submitted to the DEQ, within 45 days of the evaluation. The continuous monitoring systems shall be installed and

operational prior to conducting the initial performance tests. Verification of operational status shall, at a minimum, include completion of the manufacturer's written requirements or recommendations for demonstration of the continuous monitoring system's performance, and subsequent notifications shall be submitted to the DEQ.  
(9 VAC 5-50-40, 40 CFR 75, and 40 CFR 60.4345(a))

**49. CEMS Performance Evaluations (CO CEMS)** – Performance evaluations of the CO CEMS shall be conducted in accordance with 40 CFR 60, Appendix B, and shall take place during the performance tests under 9 VAC 5-50-30 or within 30 days thereafter. One copy of the performance evaluation report shall be submitted to the DEQ, within 45 days of the evaluation. The continuous monitoring systems shall be installed and operational prior to conducting the initial performance tests. Verification of operational status shall, at a minimum, include completion of the manufacturer's written requirements or recommendations for demonstration of the continuous monitoring system's performance, and subsequent notifications shall be submitted to the DEQ.  
(9 VAC 5-50-40, 40 CFR 60, and 40 CFR 60.4345(a))

**50. CEMS Quality Control Program** – For the NO<sub>x</sub> and diluent CEMS, the quality control requirements of 40 CFR Part 75 shall be met. The Quality Assurance Accuracy Specifications for the CO CEMS shall be 40 CFR 60 Appendix F, Procedure 1. A linearity test for NO<sub>x</sub> and diluent, and a Cylinder Gas Audit (CGA) for CO shall be performed once per QA operating quarter (≥ 168 hours operation) not to exceed four calendar quarters. A RATA test for each installed CEMS shall be conducted once every four Quality Assurance (QA) operating quarters (≥ 168 hours operation each), not to exceed eight calendar quarters. The provisions for a grace period to complete testing shall apply (40 CFR 75, Appendix B 2.2.4 & 2.3.3). Data validation shall be as defined in 40 CFR Part 75, Appendix B, 2.3.2 with the exception that missing data for CO, resulting from continuous monitor system breakdown, repair, calibration checks, and zero and span adjustments, shall be reported as monitor downtime and not substituted. No bias factor shall be applied to the CO monitored value as per 40 CFR Part 60.  
(9 VAC 5-50-40, 40 CFR 60.13, 40 CFR 60.4543(e), and 40 CFR 60)

**51. Excess Emissions and Monitor Downtime for NO<sub>x</sub> Continuous Monitoring Systems** – For the purpose of this permit, periods of excess emissions and monitor downtime that must be reported under Condition 53 are defined as follows:

- a. An excess emission is any unit operating period in which the one-hour average NO<sub>x</sub> emission rate exceeds the applicable emission limit in Condition 33, and
- b. A period of monitor downtime is any unit operating hour in which the data for any of the following parameters are either missing or invalid: NO<sub>x</sub> concentration, O<sub>2</sub> concentration, fuel flow rate, steam flow rate, steam temperature, steam pressure, or megawatts. The steam flow rate, steam temperature, and steam pressure are only required if the permittee uses this information for compliance purposes.

(9 VAC 5-50-50, 9 VAC 5-50-410, 40 CFR 60.7(c), and 40 CFR 60.4380)

**52. Excess Emissions and Monitor Downtime for SO<sub>2</sub> Monitoring Systems:**

For the purpose of this permit, periods of excess emissions and monitor downtime that must be reported under Condition 53 are defined as follows:

- a. An excess emission occurs each unit operating hour included in the hour beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the combustion turbine exceeds the applicable limit and ending on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit; and
- b. A period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime ends on the date and hour of the next valid sample.

(9 VAC 5-50-50, 9 VAC 5-50-410, 40 CFR 60.7(c), and 40 CFR 60.4385)

**53. Reports for Continuous Monitoring Systems** – The permittee shall furnish written reports to the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57 from any process monitored by a CEMS, on a quarterly basis, postmarked no later than the 30th day following the end of the calendar quarter. These reports shall include, but are not limited to the following information:

- a. The magnitude of excess emissions, any conversion factors used in the calculation of excess emissions, and the date and time of commencement and completion of each period of excess emissions. For each month in the quarter, report each hour in which a NO<sub>x</sub> permit limit is exceeded. The report shall include for each excess emission of NO<sub>x</sub>: start time, duration, equipment involved, actual NO<sub>x</sub> emissions in ppmvd @ 15% O<sub>2</sub>, fuel consumption rate, actual weather conditions (temperature and barometric pressure) and turbine load.
- b. Specific identification of each period of excess emissions that occur during startups, shutdowns or malfunctions of the process, and the nature and cause of the malfunction the corrective action taken, and preventative measures adopted;
- c. The date and time identifying each time period during which the continuous monitoring system was inoperative except for zero and span checks, and the nature of the system repairs or adjustments;
- d. If during the calendar quarter no excess emissions have occurred or the continuous monitoring systems have not been inoperative, repaired or adjusted, such information shall be stated in the report.
- e. Excess emission reports for sulfur dioxide and nitrogen dioxide as required in 40 CFR 60.4395.

Copies of the written reports referenced in items a through d above are to be sent to:

Associate Director  
Office of Air Enforcement (3 AP 10)  
U.S. Environmental Protection Agency

Region III  
 1650 Arch Street  
 Philadelphia, PA19103 – 2029

(9 VAC 5-50-50, 9 VAC 5-50-410, 40 CFR 60.7(c), 40 CFR 60.4375(a), and 40 CFR 60.4395)

**54. Excess Emissions for Continuous Monitoring Systems** – For purposes of identifying excess emissions:

- a. All CEMS data must be reduced to hourly averages as specified in 40 CFR 60.13(h).
- b. For each operating hour in which a valid hourly average, as described in 40 CFR 60.4345(b), is obtained for both NO<sub>x</sub> and diluent monitors, the data acquisition and handling system must calculate and record the hourly NO<sub>x</sub> emission rate in units of ppm, using the appropriate equation in 40 CFR 60, Appendix A Method 19. For any hour in which the hourly average of O<sub>2</sub> concentration exceeds 19.0 percent O<sub>2</sub>, a diluent cap value of 19.0 percent O<sub>2</sub> may be used in the emission calculations.
- c. Only quality assured data from the CEMS shall be used to identify excess emissions. Periods where the missing data substitution procedures in 40 CFR 75, Subpart D are applied are to be reported as monitor downtime in the excess emissions and monitoring performance report required under 40 CFR 60.7(c).

(9 VAC 5-50-50, 9 VAC 5-50-410, 40 CFR 60.7(c), and 40 CFR 60.4350)

**TESTING**

**55. Testing/Monitoring Ports** – The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stacks and ducts that are free from cyclonic flow. Test ports shall be provided in accordance with the applicable performance specification (reference 40 CFR Part 60, Appendices A & B).  
 (9 VAC 5-50-30 F)

**56. Initial Performance Test (CO, VOCs, PM-10 & PM-2.5) – Combustion Turbines** - Initial performance tests shall be conducted on each combined-cycle power generation unit (Ref. No. CCT1 & CCT2) for the following pollutants using the specified methods, as appropriate:

Pollutant	Test Method
Carbon Monoxide (CO)	40 CFR 60, Appendix A, Method 10
Volatile Organic Compounds (VOC)	40 CFR 60, Appendix A, Method 25A
PM-10 & PM-2.5 (includes condensables)	40 CFR 60, Appendix A, Methods 5 or 17 and 19 and 40 CFR 51, Appendix M, Method 201A and 202

Tests shall be conducted to determine compliance with the emission limits contained in Condition 33. The tests shall be performed, reported and demonstrate compliance within 60

days after achieving the maximum production rate at which the unit will be operated, but in no event later than 180 days after startup of the permitted unit. The tests shall be conducted on each combined-cycle power generation unit for two different operating scenarios: natural gas firing with the duct burners off; and natural gas firing with the duct burners on. The tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30, and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies, one hard copy, and one electronic copy on removable electronic media, of the test results shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days after test completion, but no later than 180 days after startup of the permitted unit and shall conform to the test report format enclosed with this permit. (9 VAC 5-50-30, 9 VAC 5-50-410 and 9 VAC 5-80-2080)

57. **Correspondence** - All correspondence to DEQ concerning compliance with this permit shall be submitted to the following address:

Regional Air Compliance Manager  
Department of Environmental Quality  
Northern Regional Office  
13901 Crown Court  
Woodbridge, VA 22193

(9 VAC 5-50-30, 9 VAC 5-50-410 and 9 VAC 5-80-2050)

58. **Initial Performance Test (NO<sub>x</sub>) – Combustion Turbines** - Initial performance tests shall be conducted on each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) for oxides of nitrogen (as NO<sub>2</sub>) to determine compliance with the limits in Condition 33 as follows:

- a. 40 CFR 60, Appendix A, Methods 7E or 20 shall be used to measure the NO<sub>x</sub> concentration (in ppm). Sampling traverse points for NO<sub>x</sub> and (if applicable) diluent gas are to be selected following EPA Method 20 or EPA Method 1 (non particulate procedures), and sampled for equal time intervals. The sampling must be performed with a transversing single hole probe, or, if feasible, with a stationary multi probe hole that samples each of the points sequentially. Alternatively, a multi-hole probe designed and documented to sample equal volumes from each hole may be used to sample simultaneously at the required points.
- b. Notwithstanding Condition 58a above, the permittee may test at fewer points than are specified in Method 1 or Method 20 if the following conditions are met:

The permittee may perform stratification tests for NO<sub>x</sub> and dilutant pursuant to the procedures specified in 40 CFR 75, Appendix A, Section 6.5.6.1(a) through (e). Once the stratification sampling is completed, the permittee may use following alternate sample point section criteria for the performance test:

- i. If each of the individual transverse point NO<sub>x</sub> concentrations is within +/- 10 percent of the mean concentration for all traverse points, or the individual traverse point diluent concentrations differ by no more than +/-5 ppm, or +/- 5 percent O<sub>2</sub> from the mean for all traverse points, three points located either 16.7, 50.0, or 83.3 percent of the way across the stack or duct, or for circular stacks or ducts greater than 2.4 meters (7.8 feet) in diameter, at 0.4, 1.2 and 2.0 meters from the wall may be used. The three points must be located along the measurement line that exhibited the highest average NO<sub>x</sub> concentration during the stratification test, or
  - ii. The permittee may sample at a single point, located at least one meter from the stack wall or at the stack centroid if each of the individual transverse point NO<sub>x</sub> concentrations is within +/- 2.5 percent of the mean concentration for all transverse points, or the individual transverse point diluent concentration differs by no more than +/- 1 ppm or +/- 0.15 percent O<sub>2</sub> from the mean for all traverse points.
- c. The performance test must be done at any load condition within +/- 25 percent of 100 percent peak load. Testing may be performed at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. Three separate test runs for each performance test must be conducted. The minimum time per run is 20 minutes.
  - d. The permittee must measure the total NO<sub>x</sub> emissions after the duct burner rather than after the turbine. The duct burner must be in operation during the performance test.
  - e. Compliance with the applicable emission limit in Condition 33 must be demonstrated at each tested load level. Compliance is achieved if the three run arithmetic average NO<sub>x</sub> emission rate at each tested level meets the applicable emission limit in Condition 33.
  - f. The performance evaluation of the CEMS may either be conducted separately or (as described in 40 CFR 60.4405) as part of the initial performance test of the affected unit.
  - g. The ambient temperature must be greater than 0°F during the performance test.
  - h. The permittee may use the following alternatives to the reference methods and procedures in this condition:
    - i. Perform a minimum of nine RATA reference method runs, with a minimum time per run of 21 minutes, at a single load level, within +/-25 percent of 100 percent of peak load. The ambient temperature must be greater than 0°F during the RATA runs.
    - ii. Compliance with the applicable emission limits in Condition 33 is achieved if the arithmetic average of all the NO<sub>x</sub> emission rates for the RATA runs, expressed in ppm, does not exceed the emissions limit.

The tests shall be performed, reported and demonstrate compliance within sixty days after achieving the maximum production rate at which the unit will be operated, but in no event later than 180 days after startup of the permitted unit. Tests shall be conducted and reported and the data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section of 9 VAC 5-50-410. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the

address listed in Condition 57. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results shall be submitted (one on paper, and one on removable electronic media) to the Regional Air Compliance Manager of the DEQ's NRO within 60 days after test completion, but no later than 180 days after startup of the permitted unit and shall conform to the test report format enclosed with this permit.

(9 VAC 5-50-30, 9 VAC 5-80-1180, 9 VAC 5-80-2050, 9 VAC 5-80-2080, 9 VAC 5-50-410, 40 CFR 60.8, 40 CFR 60.4405 and 40 CFR 60.4400)

59. **Initial Performance Test (SO<sub>2</sub>) – Combustion Turbines** – Initial performance tests shall be conducted on each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) for sulfur dioxide (SO<sub>2</sub>) to determine compliance with the limits in Condition 33. The permittee may use one of the following three (a, b, or c below) to conduct the performance test:
- a. If the permittee chooses to periodically determine the sulfur content of the fuel combusted in the turbine, a representative fuel sample would be collected following ASTM D5287 (incorporated by reference, see 40 CFR 60.17) or by manually sampling using Gas Process Association Standard 2166 for natural gas. The fuel analyses may be performed either by the permittee, a service contractor retained by the permittee, the fuel vendor, or any other qualified agency. The samples for the total sulfur content of the fuel shall be analyzed using ASTM D1072, or alternately D3246, D4084, D4468, D4810, D6228, D6667, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see 40 CFR 60.17).
  - b. 40 CFR 60, Appendix A, Methods 6, 6C, 8 or 20 shall be used to measure the SO<sub>2</sub> concentration (in ppm). In addition, the American Society of Mechanical Engineers (ASME) standard, ASME PTC 9-10-1981-Part 10 "Flue and Exhaust Gas Analysis", manual methods for sulfur dioxide (incorporated by reference, see 40 CFR 60.17) can be used instead of EPA Methods 6 or 20.
  - c. 40 CFR 60, Appendix A, Methods 6, 6C, or 8 and 3A, or 20 shall be used to measure the SO<sub>2</sub> and diluent gas concentrations. In addition, the permittee may use manual methods for sulfur dioxide ASME PTC 9-10-1981-Part 10 (incorporated by reference, see 40 CFR 60.17).

The tests shall be performed, reported, and demonstrate compliance within 60 days after achieving the maximum production rate at which the unit will be operated, but in no event later than 180 days after startup of the permitted unit. Tests shall be conducted and reported and the data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section of 9 VAC 5-50-410. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results (one on paper, and one copy electronically on removable electronic media) shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days after test completion, but no later than 180 days after startup of the permitted unit and shall conform to the test report format enclosed with this permit. (9 VAC 5-50-30, 9 VAC 5-80-1180, 9 VAC 5-80-2050, 9 VAC 5-80-2080, 9 VAC 5-50-410, 40 CFR 60.8, 40 CFR 60.4405 and 40 CFR 60.4400)

**60. Initial Performance Test – Auxiliary Boiler and Fuel Gas Heater** - Initial performance tests shall be conducted on the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) for NO<sub>x</sub> and CO to determine compliance with the emission limits in Conditions 37 and 38. The tests shall be performed, reported, and demonstrate compliance within 60 days after the boiler or fuel gas heater, as applicable, reach the maximum load level at which the unit will be operated but in no event later than 180 days after its initial startup. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results (one on paper, and one copy electronically on removable electronic media) shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days of the test completion but no later than 180 days from after startup of the permitted unit and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30, 9 VAC 5-80-1180, 9 VAC 5-80-2050, and 9 VAC 5-80-2080)

**61. Visible Emissions Evaluation – Combustion Turbines** - Concurrently with the initial performance tests, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) exhaust stack. Each test shall consist of 30 sets of 24 consecutive observations (at 15 second intervals) to yield a six-minute average. The tests shall be conducted on each combined-cycle power generation unit for two different operating scenarios: natural gas firing with the duct burners off; and natural gas firing with the duct burners on. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the listed referenced in Condition 57. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed within 60 days after achieving the maximum production rate at which the unit will be operated, but in no event later than 180 days after start-up of the permitted unit.

Should conditions occur which require rescheduling the testing, the Regional Air Compliance Manager of the DEQ's NRO shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. Two copies, one hard copy and one electronic copy on removable electronic media, of the test results shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days after test completion but no later than 180 days after startup of the permitted facility and shall conform to the test report format enclosed with this permit.  
(9 VAC 5-50-30, 9 VAC 5-80-1180, 9 VAC 5-80-2050 and 9 VAC 5-80-2080)

**62. Visible Emissions Evaluation – Auxiliary Boiler and Fuel Gas Heater** - Concurrently with the initial performance tests, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted on the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) exhaust stacks. Each test shall consist of 10 sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57. The permittee shall submit a test protocol at least 30 days prior to testing. The evaluation shall be performed within 60 days after achieving the maximum production rate at which the boiler or fuel gas heater, as applicable, will be operated, but in no event later than 180 days after start-up of the permitted unit.

Should conditions occur which require rescheduling the testing, the Regional Air Compliance Manager of the DEQ's NRO shall be notified in writing, within seven days, and visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests. Two copies, one hard copy, and one on removable electronic media of the test results shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days after test completion but no later than 180 days after startup of the permitted facility and shall conform to the test report format enclosed with this permit (9 VAC 5-50-30, 9 VAC 5-80-1180, 9 VAC 5-80-2050, and 9 VAC 5-80-2080)

**63. Testing: Heat Rate Limit** – Initial compliance testing, using ASME Performance Test Code on Overall Plant Performance (ASME PTC 46-1996) or equivalent method approved by the DEQ's NRO, shall be conducted for the heat rate limit of the combined cycle power generating plant (i.e., a combination of the combustion turbines, HRSG DBs and the steam turbine generator) to show compliance with the heat rate limit contained in Condition 2.d. The testing shall be performed, reported and demonstrate compliance within 90 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. The details of the tests are to be arranged with DEQ's NRO. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results (one on paper, and one copy electronically on removable electronic media) shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days of the test completion but no later than 180 days from after startup of the permitted unit and shall conform to the test report format enclosed with this permit. An exceedance of the heat rate limit is not considered a violation of this permit, but triggers a requirement for the permittee to submit a maintenance plan to DEQ's NRO which specifies the actions the permittee plans to take in order to achieve the heat rate limit contained in Condition 2.d. The details of this plan are to be arranged with DEQ's NRO. (9 VAC 5-50-30 and 9 VAC 5-80-1675)

**64. Annual SO<sub>2</sub> Performance Test – Combustion Turbines** – Annual performance tests shall be conducted on each combined-cycle combustion turbine (Ref. No. CCT1 & CCT2) for sulfur dioxide (SO<sub>2</sub>) to determine compliance with the limits contained in Condition 33. The permittee may use one of the following three methods (a, b, or c below) to conduct the performance test:

- a. If the permittee chooses to periodically determine the sulfur content of the fuel combusted in the turbine, a representative fuel sample would be collected following ASTM D5287 (incorporated by reference, see 40 CFR 60.17) or by manually sampling using Gas Process Association Standard 2166 for natural gas. The fuel analysis may be performed either by the permittee, a service contractor retained by the permittee, the fuel vendor, or any other qualified agency. The samples for the total sulfur content of the fuel shall be analyzed using ASTM D1072, or alternately D3246, D4084, D4468, D4810, D6228, D6667, or Gas Processors Association Standard 2377 (all of which are incorporated by reference, see 40 CFR 60.17).
- b. 40 CFR 60, Appendix A, Methods 6, 6C, 8 or 20 shall be used to measure the SO<sub>2</sub> concentration (in ppm). In addition, the American Society of Mechanical Engineers (ASME) standard, ASME PTC 9-10-1981-Part 10 "Flue and Exhaust Gas Analysis",

manual methods for sulfur dioxide (incorporated by reference, see 40 CFR 60.17) can be used instead of EPA Methods 6 or 20.

- c. 40 CFR 60, Appendix A, Methods 6, 6C, or 8 and 3A, or 20 shall be used to measure the SO<sub>2</sub> and diluent gas concentrations. In addition, the permittee may use manual methods for sulfur dioxide ASME PTC 9-10-1981-Part 10 (incorporated by reference, see 40 CFR 60.17).

The tests shall be conducted on an annual basis (no more than 14 calendar months following the previous performance test). Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30 and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 57. The permittee shall submit a test protocol at least 30 days prior to testing. Two copies of the test results (one on paper, and one copy electronically on removable electronic media) shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9 VAC 5-50-30, 9 VAC 5-80-1180, 9 VAC 5-80-2050, 9 VAC 5-80-2080, 9 VAC 5-50-410, and 40 CFR 60.4415(a))

65. **Biennial VOC, PM-10 & PM-2.5 Performance Test – Combustion Turbines** - Upon completion of the initial performance tests required by Condition 56, the permittee shall conduct biennial performance tests on each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) at 24 month intervals for VOC, PM-10, and PM-2.5 emissions as prescribed in Condition 56. The first such biennial test event shall occur no later than 24 months following completion of the initial performance tests required by Condition 56. If during three consecutive test events, including the initial performance tests, neither unit has tests results that show emissions at greater than 80 percent of the emission limits in Condition 33, the testing interval for each turbine may be expanded up to 60 months upon approval from the Regional Air Compliance Manager of the DEQ's NRO. If any subsequent test results in emissions of greater than 80 percent, biennial testing at no more than 24 month intervals shall resume. The tests for each turbine may be staggered within the schedule above, so that they are not necessarily conducted for both units in the same calendar year. The tests need only be conducted at the maximum load in the normal operating range and the minimum load of the normal operating range, unless the minimum load is within ten percent of the maximum load, in which case testing is required at only the maximum load. The normal operating range shall be determined from records of actual operation. Upon request by the DEQ, the permittee shall conduct additional performance tests for each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be agreed upon with the Regional Air Compliance Manager of the DEQ's NRO.  
(9 VAC 5-50-30 G, 9 VAC 5-80-1180, 9 VAC 5-80-2050, 9 VAC 5-80-2080, and 9 VAC 5-50-410)

66. **Visible Emissions Evaluation – Combustion Turbines** – After the initial Visible Emissions Evaluation, the permittee shall conduct visible emission inspections on each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) stack in accordance with the following procedures and frequencies:

- a. At a minimum of once per week, the permittee shall observe the exhaust stack of each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) when in operation for the presence of visible emissions. If during the inspection, visible emissions are observed, a visible emissions evaluation (VEE) shall be conducted in accordance with 40 CFR 60, Appendix A, EPA Method 9. The VEE shall be conducted for a minimum of six minutes. If any of the individual observations exceed the applicable standard, the VEE shall be continued for 60 minutes.
- b. If visible emissions inspections conducted during 12 consecutive weeks show no visible emissions for a particular unit stack, the permittee may reduce the monitoring frequency to once per month for that unit stack. Anytime the monthly visible emissions inspections show visible emissions, or when requested by the DEQ, the monitoring frequency shall be increased to once per week for that stack.
- c. The details and results of all visible emission inspections and observations, and VEEs shall be recorded. The permittee shall maintain records of all such events.

(9 VAC 5-50-20 and 9 VAC 5-80-2080)

**67. Visible Emissions Evaluation – Auxiliary Boiler and Fuel Gas Heater** –The permittee shall conduct visible emission inspections on the auxiliary boiler (Ref. No. AB1) and fuel gas heater (Ref. No. FGH1) stacks in accordance with the following procedures and frequencies:

- a. At a minimum of once per month, the permittee shall observe the exhaust stack of the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) when in operation for the presence of visible emissions. If during the inspection, visible emissions are observed, a visible emissions evaluation (VEE) shall be conducted in accordance with 40 CFR 60, Appendix A, EPA Method 9. The VEE shall be conducted for a minimum of six minutes. If any of the observations exceed the applicable standard, the VEE shall be continued for 60 minutes.
- b. If visible emission inspections conducted during 12 consecutive months show no visible emissions, the permittee may reduce the monitoring frequency to once per quarter. Anytime the quarterly visible emissions inspections show visible emissions, or when requested by the DEQ, the monitoring frequency shall be increased to once per month.
- c. The details and results of all visible emission inspections and observations, and VEEs shall be recorded. The permittee shall maintain records of all such events.

(9 VAC 5-50-20 and 9 VAC 5-80-2080)

**68. Periodic Testing: Heat Rate Limit** – Every five years after initial evaluation of the heat rate limit of the power generation block, the permittee shall conduct a heat rate evaluation of the power generation block to show compliance with the heat rate limit contained in Condition 2 d. The details of the evaluation are to be arranged with DEQ's NRO.

(9 VAC 5-50-30 and 9 VAC 5-80-1675)

69. **Stack Tests** – Upon request by the DEQ, the permittee shall conduct additional performance tests to demonstrate compliance with the emission limits contained in this permit. The details of the stack tests shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO.  
(9 VAC 5-50-30 G)

### **RECORDKEEPING**

70. **On Site Records** – The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO. These records shall include, but are not limited to:
- a. Fuel records to demonstrate compliance with Conditions 11, 12 and 13.
  - b. Fuel monitoring device QA/QC for the CEMS per 40 CFR Part 75.
  - c. Monthly and annual throughput of natural gas to each combustion turbine (Ref. No. CT1 & CT2), calculated monthly as the sum of each consecutive 12 month period.
  - d. Monthly and annual throughput of natural gas to each duct burner (Ref. No. DB1 & DB2), calculated monthly as the sum of each consecutive 12-month period.
  - e. Time, date, and duration of each startup, shutdown, malfunction and turbine retuning period for each combined-cycle power generating unit (Ref. No. CCT1 & CCT2).
  - f. Annual number of startup and shutdown occurrences for each combined-cycle power generating unit (Ref. No. CCT1 & CCT2), calculated monthly as the sum of each consecutive 12-month period.
  - g. Emissions calculations sufficient to verify compliance with the annual emission limits in Condition 35 (Ref. No. CCT1 & CCT2), Condition 37 (Ref. No. AB1), Condition 38 (Ref. No. FGH1), Condition 40 (Ref. No. EG1), Condition 41 (Ref. No. EFP1), Condition 42 (Ref. No. MCT1 – MCT10), and facility-wide emission limits in Condition 43, calculated monthly as the sum of each consecutive 12-month period. Calculation methods shall be approved by the Regional Air Compliance Manager of the DEQ's NRO
  - h. Monthly total dissolved solids sampling results from the water used by the ten cell mechanical draft cooling tower.
  - i. Continuous records of heat input for each combined-cycle power generating unit (Ref. No. CCT1 & CCT2).
  - j. Continuous records of power output for each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) and the steam turbine generator.
  - k. Continuous monitoring systems emissions data, calibrations and calibration checks, percent operating time, and excess emissions.

- l. Annual hours of operation for the emergency generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP1) for emergency purposes, calculated monthly as the sum of each consecutive 12-month period.
- m. Records of time, date and duration of operation for the emergency fire water pump (Ref. No. EFP1) and the emergency generator (Ref. No. EG1) for maintenance checks and readiness testing and the operational status of each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) during those maintenance checks and readiness testing.
- n. Annual hours of operation for the emergency generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP1) for maintenance checks and readiness testing, calculated monthly as the sum of each consecutive 12-month period.
- o. All fuel supplier certifications for the emergency generator (Ref. No. EG1) and the emergency fire pump (Ref. No. EFP1) to demonstrate compliance with Condition 13.
- p. Operation and control device monitoring records for each SCR system and each oxidation catalyst.
- q. Logs of dissolved solids content of cooling water to the ten cell mechanical draft cooling tower (Ref. No. MCT1- MCT10)
- r. Records for each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) showing steady state vs. non steady state operation during a given hour, the ammonia emissions monitoring plan, and the ammonia emission monitoring results as required by Condition 31.
- s. Scheduled and unscheduled maintenance and operator training.
- t. Results of all stack tests, visible emissions evaluations, visible emission inspection results, and performance evaluations.
- u. Monthly and annual throughput of natural gas and hours of operation for the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1), calculated monthly as the sum of each consecutive 12-month period.
- v. Records of manufacturer's instructions for proper operation of equipment for the auxiliary boiler (Ref. No. AB1) and the fuel gas heater (Ref. No. FGH1) as required by Condition 3.
- w. Records related to NO<sub>x</sub> offsets as required by Conditions 44, 45 and 46.
- x. Records related to the CEMS quality control program as required in Condition 50.
- y. Records to verify compliance with the short term emission factors for GHG in Conditions 33 and 34.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-80-1180, 9 VAC 5-80-2050, and 9 VAC 5-50-50)

## NOTIFICATIONS

71. **Initial Notifications** – The permittee shall furnish written notification to the Regional Air Compliance Manager of the DEQ's NRO of:
- a. The actual date on which the construction of the electric power generation facility begins within 30 days after such date.
  - b. The actual date of the selection of the turbine and HRSG manufacturer has been selected including model number, and heat input rating within 30 days after such date.
  - c. Date that emission offsets are identified, and the nature of the offsets within 30 days after such date.
  - d. The anticipated start-up date of the electric power generation facility, postmarked not more than 60 days nor less than 30 days prior to such date.
  - e. The actual start-up date of the electric power generation facility within 15 days after such date.
  - f. The anticipated date of continuous monitoring system (CEMS) performance evaluations postmarked not less than 30 days prior to such date.
  - g. The anticipated date of performance tests of each combined-cycle power generating unit (Ref. No. CCT1 & CCT2) postmarked at least 30 days prior to such date.
  - h. The actual date on which construction of the auxiliary boiler (Ref. No. AB1) commenced within 30 days after such date.
  - i. The anticipated start-up date of the auxiliary boiler (Ref. No. AB1) postmarked not more than 60 days nor less than 30 days prior to such date.
  - j. The actual start-up date of the auxiliary boiler (Ref. No. AB1) within 15 days after such date.
  - k. The actual date on which construction of the emergency generator (Ref. No. EG1) and emergency fire water pump (Ref. No. EFP1) commenced within 30 days after such date. The notification must contain the following:
    - i. Name and address of the permittee,
    - ii. The address of the affected source,
    - iii. Engine information including make, model, engine family, serial number, model year, maximum engine power and engine displacement.
    - iv. Fuel used
  - l. The anticipated start-up date of the emergency generator (Ref. No. EG1) and emergency fire water pump (Ref. No. EFP1) postmarked not more than 60 days nor less than 30 days prior to such date.

- m. The actual start-up date of the emergency generator (Ref. No. EG1) and the emergency fire water pump (Ref. No. EFP1) within 15 days after such date.

Copies of the written notification referenced in items a through d and f through h above are to be sent to the Associate Director of the U.S. EPA at the address in Condition 53.  
(9 VAC 5-50-50 and 9 VAC 5-80-1180)

### **GENERAL CONDITIONS**

72. **Permit Invalidation** - This permit to construct and operate an electric power generation facility shall become invalid, unless an extension is granted by the DEQ, if:

- a. A program of continuous construction is not commenced within 18 months from the date of this permit:
- b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time. This provision does not apply to the period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

DEQ may extend the 18-month period upon a satisfactory showing that an extension is justified  
(9 VAC 5-80-1210, 9 VAC 5-80-1985 and 9-VAC 5-80-2180)

73. **Permit Suspension/Revocation** - The Board may suspend or revoke any permit if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the terms or conditions of this permit;
- c. Fails to comply with any emission standards applicable to an emissions unit included in this permit;
- d. Causes emissions from the facility which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard;
- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan if effect at the time an application for this permit is submitted

(9 VAC 5-80-1210 F, 9 VAC 5-80-1985 F and 9 VAC 5-80-1210 G)

74. **Right of Entry** - The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.  
(9 VAC 5-170-130, 9 VAC 5-80-1180, and 9 VAC 5-80-2050)

- 75. Maintenance/Operating Procedures** - At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any affected facility, including associated air pollution control equipment, in a manner consistent with air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Air Compliance Manager of the DEQ's NRO, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices, and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.  
(9 VAC 5-50-20 E, 9 VAC 5-80-1180 D, and 9 VAC 5-80-2050)

- 76. Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shut-down or failure of the facility or its associated air

pollution control equipment that results in excess emissions for more than one hour. The records shall be maintained in a form suitable for inspection and maintained for at least two years (unless a longer period is specified in the applicable emission standard) following the date of occurrence. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause of malfunction), corrective action, preventive measures taken and name of person generating the record.

(9 VAC 5-20-180 J, 9 VAC 5-80-1180 D, and 9 VAC 5-80-2050)

- 77. Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the DEQ, of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable, but not later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of the discovery. Owners subject to the requirements of 9 VAC 5-40-50 C and 9 VAC 5-50-50 C are not required to provide the written statement prescribed in this paragraph for facilities subject to the monitoring requirements of 9 VAC 5-40-40 and 9 VAC 5-50-40. When the condition causing the failure or malfunction has been corrected and the equipment is again operating the permittee shall notify the DEQ, in writing.

(9 VAC 5-20-180 C, 9 VAC 5-80-1180, and 9 VAC 5-80-2050)

- 78. Notification for Control Equipment Maintenance** - The permittee shall furnish notification to the Regional Air Compliance Manager of the DEQ's NRO in case of shutdown or bypassing, or both, of air pollution control equipment for necessary scheduled maintenance, which results in excess emissions for more than one hour. The intent to shut down or bypass such equipment shall be reported to the Regional Air Compliance Manager of the DEQ's NRO and local air pollution control agency, if any, at least 24 hours prior to the planned shutdown. Such prior notice shall include, but is not limited to the following information:

- a. Identification of air pollution control equipment to be taken out of service, as well as its location and registration number;
- b. The expected length of time that the air pollution control equipment will be out of service;
- c. The nature and quantity of emissions of air pollution likely to occur during the shutdown period; and
- d. Measures that will be taken to minimize the length of the shutdown or to negate the effect of the outage.

(9 VAC 5-20-180 B)

- 79. Violation of Ambient Air Quality Standard** - Regardless of any other provision of this permit, the permittee shall, upon request of the DEQ, reduce the level of operation of the facility if the DEQ determines that is necessary to prevent a violation of any primary ambient air quality standard. Under worst-case conditions, the DEQ may order that the permittee shut down the facility if there is no other method of operation to avoid a violation of the

primary ambient air quality standard. The DEQ reserves the right to prescribe the method of determining if a facility will cause such a violation. In such cases, the facility shall not be returned to operation until it and the associated air pollution control equipment are able to operate without violation of any primary ambient air quality standard.  
 (9 VAC 5-20-180 I)

80. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the DEQ of the change of ownership within 30 days of the transfer.  
 (9 VAC 5-80-1985 E and 9 VAC 5-80-1240 B)

81. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
 (9 VAC 5-80-1180, 9 VAC 5-80-1985 E and 9 VAC 5-80-2050)

**STATE ONLY ENFORCEABLE REQUIREMENTS**

The following terms and conditions are included to implement the requirements of 9 VAC 5-60-300 et seq. and are enforceable only by the Virginia Air Pollution Control Board. Neither their inclusion in this permit nor any resulting public comment period make these terms federally enforceable.

82. **Emission Limits** – Emissions from the electric power generation facility shall not exceed the limits specified below:

<u>Pollutant</u>	<u>CAS#</u>	<u>lb/hr</u>	<u>Tons/yr</u>
Acrolyn	107-02-8	2.03E-02 <sup>a</sup> /2.06 E-02 <sup>b</sup>	8.76E-02 <sup>a</sup> / 8.88E-02 <sup>b</sup>
Formaldehyde	50-00-0	7.65E-01 <sup>a</sup> /7.54E-01 <sup>b</sup>	3.09E-00 <sup>a</sup> / 3.11E-00 <sup>b</sup>
Cadimum	7440-43-9	6.31E-03 <sup>a</sup> /5.95E-03 <sup>b</sup>	2.25E-02 <sup>a</sup> /2.25E-02 <sup>b</sup>
Chromium	7440-47-3	8.04E-03 <sup>a</sup> /7.57E-03 <sup>b</sup>	2.86E-02 <sup>a</sup> /2.86E-02 <sup>b</sup>
Nickel	7440-02-0	1.21E-02 <sup>a</sup> /1.14E-02 <sup>b</sup>	4.29E-02 <sup>a</sup> /4.29E-02 <sup>b</sup>

<sup>a</sup> Emissions based on GE 7FA.05

<sup>b</sup> Emissions based on Siemens SGT6-5000F5

Annual emissions shall be calculated monthly as the sum of each consecutive 12-month period.  
 (9 VAC 5-60-320 and 9 VAC 5-80-1625G)

83. **Onsite Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Northern Regional Office. These records shall include, but are not limited to the average hourly, monthly, and annual emissions (in pounds and tons) listed in Condition 82 for each toxic compound using the appropriate emission factor from AP-42, (Section 3-1 dated 4/2000 for stationary gas turbines), (Section 1.4 dated 7/1998 for natural gas combustion), (Section 3.3 dated 4/2000 for gasoline and diesel industrial engines) and (Section 3.4 dated 4/2000 for large stationary dual fuel engines) times the appropriate fuel usage for the period.. Hourly emissions shall be calculated monthly. Annual emissions shall be calculated monthly as the sum of each

consecutive 12-month period. These records shall be available for inspection by the DEQ and current for at least the most recent five years.  
(9 VAC 5-50-50 and 9 VAC 5-80-1625G)

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**SOURCE TESTING REPORT FORMAT**

**Report Cover**

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Test Dates.
4. Tester; name, address and report date

**Certification**

1. Signed by team leader/certified observer (include certification date)
2. Signed by responsible company official
3. \*Signed by reviewer

**Copy of approved test protocol**

**Summary**

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. \*For each emission unit, a table showing:
  - a. Operating rate
  - b. Test Methods
  - c. Pollutants tested
  - d. Test results for each run and the run average
  - e. Pollutant standard or limit
5. Summarized process and control equipment data for each run and the average, as required by the test protocol
6. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
7. Any other important information

**Source Operation**

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Sampling port location and dimensioned cross section Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

**Test Results**

1. Detailed test results for each run
2. \*Sample calculations
3. \*Description of collected samples, to include audits when applicable

**Appendix**

1. \*Raw production data
2. \*Raw field data
3. \*Laboratory reports
4. \*Chain of custody records for lab samples
5. \*Calibration procedures and results
6. Project participants and titles
7. Observers' names (industry and agency)
8. Related correspondence
9. Standard procedures

\* Not applicable to visible emission evaluations



NRO-113-13

## COMMONWEALTH of VIRGINIA

Douglas W. Domenech  
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY  
NORTHERN REGIONAL OFFICE  
13901 Crown Court, Woodbridge, Virginia 22193-1453  
(703) 583-3800 Fax (703) 583-3821  
www.deq.virginia.gov

David K. Paylor  
Director

Thomas A. Faha  
Regional Director

May 31, 2013

Mr. John A. Andrews  
Green Energy Partners / Stonewall, LLC  
39100 East Colonial Highway  
Hamilton, Virginia 20158

Location: Loudoun County  
Registration Number: 73826

Dear Mr. Andrews:

Attached is a minor amendment to your PSD/Non-Attainment New Source Review permit to construct and operate an electric power generation facility in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This permit amendment reflects the new facility design (reduction in CT/HRSG stack height from 140 feet to 130 feet above grade) as presented in the permit application dated May 10, 2013. This change is reflected on Page 1 (Signature page) and Page 2 of the permit ("Introduction" section) and are the only affected pages of the permit issued April 30, 2013. Please replace Pages 1 and 2 of the permit issued April 30, 2013, with the attached.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on May 23, 2013. Public participation was not required for this minor amendment under 9 VAC 5-80-1170, 9 VAC 5-80-1945 and 9 VAC 5-80-2220.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to construct and operate shall not relieve Green Energy Partners / Stonewall, LLC of the responsibility to comply with all other local, state, and federal permit regulations.

Please note that any engine-generator set constructed on or after April 1, 2006 may be an affected facility under 40 CFR 60, New Source Performance Standard (NSPS) Subpart IIII (Stationary Compression Ignition Internal Combustion Engine). Also, any engine-generator set on site, regardless of the date constructed, may be subject to 40 CFR 63, National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT) Subpart ZZZZ (Stationary Reciprocating Internal Combustion Engines). Consequently, the proposed units may be subject to owner/operator requirements of the MACT and NSPS and would need to comply with certain federal emission standards and operating limitations over their useful life. The

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DEQ advises you, as the owner/operator of any affected unit, to review the NSPS and MACT to ensure compliance with applicable emission standards, operational limitations, and the monitoring, notification, reporting and recordkeeping requirements. Applicable notifications shall be sent to the EPA, Region III. Both the NSPS and MACT can be found at [www.ecfr.gov](http://www.ecfr.gov).

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within 30 days after this case decision notice was mailed or delivered to you. 9 VAC 5-170-200 provides that you may request direct consideration of the decision by the Board if the Director of the DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

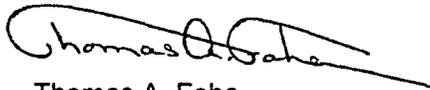
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, Director  
Department of Environmental Quality  
P. O. Box 1105  
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact the regional office at (703) 583-3800.

Sincerely,



Thomas A. Faha  
Regional Director

TAF/JBL/TMV/73826PSD.docx

Attachment: Amended April 30, 2013 PSD/NANSR Permit Pages 1 and 2

cc: Director, OAPP (electronic file submission)  
Manager, Data Analysis (electronic file submission)  
Chief, Office of Air Enforcement and Compliance Assistance, U.S. EPA, Region III  
(electronic file submission)  
Manager, Air Compliance



NRO-113-13

# COMMONWEALTH of VIRGINIA

Douglas W. Domenech  
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY  
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David K. Paylor  
Director

Thomas A. Faha  
Regional Director

## PREVENTION OF SIGNIFICANT DETERIORATION PERMIT NON-ATTAINMENT NEW SOURCE REVIEW PERMIT STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

**This permit includes designated equipment subject to New Source Performance Standards (NSPS).**

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Green Energy Partners / Stonewall, LLC  
P.O. Box 660  
Hamilton, Virginia 20158  
Registration Number: 73826  
Plant ID No. 51-107-01019

is authorized to construct and operate:

An electric power generation facility

located at:

20077 Gant Lane  
Leesburg, VA 20175 (Loudoun County)  
(approximately 4 miles south/south east of  
Leesburg & north of Dulles Toll Road (SR 267)  
39.058° N Latitude, 77.545° W Longitude

in accordance with the conditions of this permit

Approved on: April 30, 2013 and amended on May 31, 2013

Thomas A. Faha  
Regional Director

Permit consists of 37 pages  
Permit Conditions 1 to 83.  
Source Testing Report Format

130920105

## INTRODUCTION

This permit approval is based on the permit application dated July 19, 2012, with additional information submitted on August 16, 2012, and the modeling analysis and revised application which were both submitted on October 5, 2012, November 15, 2012, and May 10, 2013. Any changes in the permit application specifications, or any existing facilities which alter the impact of the facility on air quality, may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-80-1110, 9 VAC 5-80-2010, and 9 VAC 5-10-20 of the Commonwealth of Virginia State Air Pollution Control Board's (Board's) Regulations (Regulations) for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the Department of Environmental Quality (DEQ) or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the Board's Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

## PROCESS REQUIREMENTS

### 1. Equipment List

Equipment to be constructed at this facility consists of:

- Two (2) combined-cycle electric power generating units (Ref. No. CCT1 & CCT2) where each unit includes the following emission units:
  - One (1) General Electric natural gas-fired combustion turbine (CT) generator, Model GE 7FA.05, rated at 2,230 million Btu per hour heat input (Ref. No. CT1 & CT2) with inlet evaporative coolers (NSPS Subpart KKKK) and,
  - One (1) 650 million Btu per hour duct fired (Ref. No. DB1 & DB2) heat recovery steam generator (HRSG) that provides steam to a common steam turbine generator (NSPS Subpart KKKK).

OR

- One (1) Siemens natural gas-fired combustion turbine (CT) generator, Model SGT6-5000F5, rated at 2,260 million Btu per hour heat input (Ref. No. CT1 & CT2) with

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U.S. Army Corps of Engineers-Norfolk District  
 Northern Virginia Field Office  
 18139 Triangle Plaza, Suite 213  
 Dumfries, VA 22026

RECEIVED

January 9, 2013

JAN 10 2013

130920105

Project Number: 2010-1543

Waterway: Sycolin Creek tributaries

1. Participant:

Green Energy Partners/Stonewall LLC  
 Attn: Mr. William Caudle  
 Post Office Box 660  
 Hamilton, VA 20159

2. Authorized Agent:

Bowman Consulting Group Ltd.  
 Attn: Ms. Jessica Fleming  
 14020 Thunderbolt Place, Suite 300  
 Chantilly, VA 20151

3. Project Location:

The project is located on 4 parcels and a portion of another parcel totaling approximately 100-acres on the south side of Gant Lane, the north side of Sycolin Road (Route 643), and west of the Goose Creek Reservoir south of Leesburg in Loudoun County, Virginia.

4. Project Description:

The project consists of the discharge of fill material into waters of the United States associated with the development of the subject tract. The project is called Stonewall Energy Park. The work includes improvements to an existing pond and construction of a stormwater pond outfall.

5. Findings

This is in reference to your request to perform work in the waters of the United States as described above. This activity has been reviewed and found to satisfy the criteria contained in the Corps Nationwide Permit Number 43. (The Reissuance of the Corps Nationwide Permits was published in the Federal Register (72 FR 11092) on February 21, 2012 and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991. The Nationwide Permit enclosures can be found at <http://www.nao.usace.army.mil/Regulatory/nationwides.htm>.)

Provided the conditions are met, an individual Department of the Army Permit will not be required. In addition, the Virginia Department of Environmental Quality has provided 401 certification for Nationwide Permit Number 43. You may contact the Virginia Marine Resources Commission at 757-247-2200 for further information concerning their permit requirements.

This verification is valid until March 18, 2017, unless the Norfolk District Engineer uses discretionary authority to modify, suspend or revoke this verification. The Chief of Engineers will periodically review the nationwide permits and their conditions and will decide to modify, reissue or revoke the permits. If the nationwide permit verified in this letter is reissued without modification or if your activity complies with any subsequent nationwide permit, the expiration date of this verification will not change. However, if the nationwide permit verified in the letter is modified or revoked so that the activity listed above would no longer be authorized and you have commenced or are under contract to commence the work, you will have twelve months from the date of that permit change to complete the activity. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit. It is your responsibility to remain informed of changes to the nationwide permits. We will issue a special public notice announcing any changes to the nationwide permits when they occur.

6. Corps Contact: Mr. Ron Stouffer at 703-221-6967 or [ron.h.stouffer@usace.army.mil](mailto:ron.h.stouffer@usace.army.mil)

Richard E. Henderson  
 Acting Chief, Northern Virginia Regulatory Section



U.S. Army Corps  
Of Engineers  
Norfolk District

130920105

**CERTIFICATE OF COMPLIANCE  
WITH  
U.S. ARMY CORPS OF ENGINEERS' PERMIT**

Permit Number: 2010-1543

Name of Permittee: Green Energy Partners/Stonewall LLC

Date of Issuance: January 9, 2013

Permit Type: Nationwide permit 43

Within 30 days of completion of the activity authorized by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers - Norfolk District  
Northern Virginia Field Office  
Attn: Mr. Ronald H. Stouffer, Jr.  
18139 Triangle Plaza, Suite 213  
Dumfries, Virginia 22026

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit.

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Signature of Permittee

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Date

**Nationwide Permit (43) Stormwater Management Facilities (3/19/2012)**

Discharges of dredged or fill material into non-tidal waters of the United States for the construction of stormwater management facilities, including stormwater detention basins and retention basins and other stormwater management facilities; the construction of water control structures, outfall structures and emergency spillways; and the construction of low impact development integrated management features such as bioretention facilities (e.g., rain gardens), vegetated filter strips, grassed swales, and infiltration trenches. This NWP also authorizes, to the extent that a section 404 permit is required, discharges of dredged or fill material into non-tidal waters of the United States for the maintenance of stormwater management facilities. Note that stormwater management facilities that are determined to be waste treatment systems under 33 CFR 328.3(a)(8) are not waters of the United States, and maintenance of these waste treatment systems generally does not require a section 404 permit.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize discharges of dredged or fill material for the construction of new stormwater management facilities in perennial streams.

**Notification:** For the construction of new stormwater management facilities, or the expansion of existing stormwater management facilities, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) Maintenance activities do not require pre-construction notification if they are limited to restoring the original design capacities of the stormwater management facility. (Section 404)

**REGIONAL CONDITIONS:**

- 1. Conditions for Anadromous Fish Use Areas:** To ensure that activities authorized by this Nationwide Permit (NWP) do not impact waterways documented to provide spawning habitat or a migratory pathway for anadromous fish, a check for anadromous fish use areas must be conducted via the Norfolk District's Regulatory GIS (for reporting permits) and/or the Virginia Department of Game and Inland Fisheries (VDGIF) Information System (by applicant for non-reporting permits) at <http://vafwis.org/fwis/>. If the project is located in an area documented as an anadromous fish use area (confirmed or potential), a time-of-year restriction (TOYR) prohibiting all in-water work will be required from February 15 to June 30 of any given year or any TOYR specified by VDGIF and/or Virginia Marine Resources Commission (VMRC). For permits requiring a PCN, if the Norfolk District determines that the work is minimal and the TOYR is unnecessary, informal consultation will be conducted with NOAA Fisheries Service (NOAA) to obtain concurrence that the TOYR would not be required for the proposed activity.
- 2. Conditions for Designated Critical Resource Waters, which include National Estuarine Research Reserves:** This NWP cannot be used to authorize the discharge of dredged or fill material in the Chesapeake Bay National Estuarine Research Reserve in Virginia. This multi-site system along a salinity gradient of the York River includes Sweet Hall Marsh, Taskinas Creek, Catlett Island, and Goodwin Islands. More information can be found at: <http://www.vims.edu/cbnerr/>.
- 3. Conditions for Federally Listed Species and Designated Critical Habitat:** Notification for this NWP will be required for any project that may affect a federally listed threatened or endangered species or designated critical habitat. The U.S. Fish and

Wildlife Service (Service) has developed an online system that allows users to find information about sensitive resources that may occur within the vicinity of a proposed project. This system is named "Information, Planning and Conservation System," (IPaC), and is located at: <http://ecos.fws.gov/ipac/>. This system provides information regarding federally listed and proposed candidate, threatened, and endangered species, designated critical habitats, and Service refuges that may occur in the identified areas, or may be affected by the proposed activities. The applicant may use this system to determine if any federally listed species or designated critical habitat may be affected by their proposed project, ensuring compliance with the Endangered Species Act.

- 4. Conditions for Waters with Federally Listed Endangered or Threatened Species, Waters Federally Designated as Critical Habitat, and One-mile Upstream (Including Tributaries) of Any Such Waters:** A pre-construction notification (PCN) is required for work in the areas listed below for the Counties of Lee, Russell, Scott, Tazewell, Wise, and Washington in Southwestern Virginia within the following specific waters and reaches:
  - 1) Powell River - from the Tennessee-Virginia state line upstream to the Route 58 Bridge in Big Stone Gap and one mile upstream of the mouth of any tributary adjacent to this portion of the River.**
  - 2) Clinch River - from the Tennessee-Virginia state line upstream to Route 632 at Plagah in Tazewell County and one mile upstream of the mouth of any tributary adjacent to this portion of the River, the Little River to its confluence with Malden Spring Creek, and one mile upstream of the mouth of any tributary adjacent to this portion of the River.**
  - 3) North Fork Holston River - from the Tennessee-Virginia state line upstream to the Smyth County/Bland County line and one mile upstream of any tributary adjacent to this portion of the River.**
  - 4) Copper Creek - from its junction with the Clinch River upstream to the Route 58 bridge at Dickensonville in Russell County and one mile upstream of any tributary adjacent to this portion of the Creek.**
  - 5) Indian Creek - from its junction with the Clinch River upstream to the fourth Norfolk and Western Railroad bridge at Van Dyke in Tazewell County and one mile upstream of the mouth of any tributary adjacent to this portion of the Creek.**
  - 6) Middle Fork Holston River - from the Tennessee-Virginia state line to its junction with Walker Creek in Smyth County near Marion, Virginia.**
  - 7) South Fork Holston River - from its junction with Middle Fork Holston River upstream to its junction with Beech Creek in Washington County.**

For activities requiring a PCN to work in specific waters and reaches, as described above, in the counties of Lee, Russell, Scott, Smyth, Tazewell, Wise, and Washington in southwestern Virginia, it is recommended that the prospective permittee first contact the applicable Norfolk District Field Office, found at this web link: [http://www.nao.usace.army.mil/Regulatory\\_Branch/contact\\_geo\\_southwest.asp](http://www.nao.usace.army.mil/Regulatory_Branch/contact_geo_southwest.asp), to determine if the PCN procedures would apply. If required, the PCN must be submitted in writing and include the following information (the Joint Permit Application may also be used - be sure to mark it with the letters PCN at the top of the first page):

- Name, address, and telephone number of the prospective permittee.
- Location of the proposed project.
- Vicinity map and project drawings on 8.5-Inch by 11-Inch paper (including a plan view, profile, & cross-sectional view).
- Brief description of the proposed project and the project purpose.
- Where required by the terms of the NWP, a delineation of affected special aquatic sites, including wetlands.

When all required information is received by the appropriate field office, the Corps will notify the prospective permittee within 45 days whether the project may proceed under the NWP permit or whether an Individual permit is required. If, after reviewing the notification, the District Commander determines that the proposed activity would have more than a minimal individual or cumulative adverse impact on the aquatic environment or otherwise may be contrary to the public interest, then he/she will either condition the nationwide permit authorization to reduce or eliminate the adverse impacts, or notify the prospective permittee that the activity is not authorized by the nationwide permit and provide the prospective permittee with instructions on how to seek authorization under an individual permit.

Non-federal applicants shall notify the District Commander if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the District Commander that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the PCN must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The District Commander will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete PCN. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

6. **Conditions for Designated Trout Waters:** Notification is required for work in the areas listed below for this NWP. This condition applies to activities occurring in two categories of waters: Class V (Put and Take Trout Waters) and Class VI (Natural Trout Waters), as defined by the Virginia State Water Control Board Regulations, Water Quality Standards (VR-680-21-00), dated January 1, 1991, or the most recently updated publication. The Virginia Department of Game and Inland Fisheries (VDGIF) designated these same trout streams into six classes. Classes I-IV are considered wild trout streams. Classes V and VI are considered stockable trout streams. Information on designated trout streams can be obtained via their Virginia Fish and Wildlife Information Service's (VAFWIS's) Cold Water Stream Survey database. Basic access to the VAFWIS is available via <http://vafwis.org/twls/>.

The waters, occurring specifically within the mountains of Virginia, are within the following river basins:

- 1) Potomac-Shenandoah River Basins
- 2) James River Basin
- 3) Roanoke River Basin
- 4) New River Basin
- 5) Tennessee and Big Sandy River Basins
- 6) Rappahannock River Basin

VDGIF recommends the following time-of-year restrictions (TOYR) for any in-stream work within streams identified as wild trout waters in its Cold Water Stream Survey database. The recommended TOYR for trout species are:

- Brook Trout: October 1 through March 31
- Brown Trout: October 1 through March 31
- Rainbow Trout: March 15 through May 15

This condition applies to the following counties and cities: Albemarle, Allegheny, Amherst, Augusta, Bath, Bedford, Bland, Botetourt, Bristol, Buchanan, Buena Vista, Carroll, Clarke, Covington, Craig, Dickenson, Floyd, Franklin, Frederick, Giles, Grayson, Greene, Henry, Highland, Lee, Loudoun, Madison, Montgomery, Nelson, Page, Patrick, Pulaski, Rappahannock, Roanoke City, Roanoke Co., Rockbridge, Rockingham, Russell, Scott, Shenandoah, Smyth, Staunton, Tazewell, Warren, Washington, Waynesboro, Wise, and Wythe.

Any discharge of dredged and/or fill material authorized by this NWP, which would occur in the designated waterways or adjacent wetlands of the specified counties, requires notification to the appropriate Corps of Engineers field office, and written approval from that office prior to performing the work. The Norfolk District recommends that prospective permittees first contact the appropriate field office by telephone to determine if the notification procedures would apply. The notification must be in writing and include the following information (the standard Joint Permit Application may also be used):

- Name, address, and telephone number of the prospective permittee.
- Location of the proposed project.
- Vicinity map and project drawings on 8.5-inch by 11-inch paper (plan view, profile, & cross-sectional view).
- Brief description of the proposed project and the project purpose.
- Where required by the terms of the nationwide permit, a delineation of affected special aquatic sites, including wetlands.

When all required information is received by the appropriate field office, the Corps will notify the prospective permittee within 45 days whether the project can proceed under the NWP or whether an individual permit is required. If, after reviewing the notification, the District Commander determines that the proposed activity would have more than minimal individual or cumulative adverse impacts on the aquatic environment or otherwise may be contrary to the public interest, then he/she will either condition the nationwide permit authorization to reduce or eliminate the adverse impacts, or notify the prospective permittee that the activity is not authorized by the NWP and provide instructions on how to seek authorization under an individual permit. If the prospective permittee is not notified otherwise within the 45-day period the prospective permittee may assume that the project can proceed under the NWP.

7. **Conditions Regarding Invasive Species:** Plant species listed by the most current *Virginia Department of Conservation and Recreation's Invasive Alien Plant List* shall not be used for re-vegetation for activities authorized by any NWP. The list of invasive plants in Virginia may be found at: [http://www.dcr.virginia.gov/natural\\_heritage/documents/invlst.pdf](http://www.dcr.virginia.gov/natural_heritage/documents/invlst.pdf).
8. **Conditions Pertaining to Countersinking of Pipes and Culverts in Nontidal Waters:**

**NOTE: COUNTERSINKING IS NOT REQUIRED IN TIDAL WATERS.** However, replacement pipes/culverts in tidal waters must be installed with invert elevations no higher than the existing pipe/culvert invert elevation, and a new pipe/culvert must be installed with the invert no higher than the stream bottom elevation.

- a. Following consultation with the Virginia Department of Game and Inland Fisheries (DGIF), the Norfolk District has determined that fish and other aquatic organisms are most likely present in any stream being crossed, in the absence of site-specific evidence to the contrary. Although prospective permittees have the option of providing such evidence, extensive efforts to collect such information is not encouraged, since countersinking will in most cases be required except as outlined in the conditions below.

- b. **All pipes:** All pipes and culverts placed in streams will be countersunk at both the inlet and outlet ends, unless indicated otherwise by the Norfolk District on a case-by-case basis (see below). Pipes that are 24" or less in diameter shall be countersunk 3" below the natural stream bottom. Pipes that are greater than 24" in diameter shall be countersunk 6" below the natural stream bottom. The countersinking requirement does not apply to bottomless pipes/culverts or pipe arches. All single pipes or culverts (with bottoms) shall be depressed (countersunk) below the natural streambed at both the inlet and outlet of the structure. In sets of multiple pipes or culverts (with bottoms) at least one pipe or culvert shall be depressed (countersunk) at both the inlet and outlet to convey low flows.
- c. **Exemption for extensions and certain maintenance:** The requirement to countersink does not apply to extensions of existing pipes or culverts that are not countersunk, or to maintenance to pipes/culverts that does not involve replacing the pipe/culvert (such as repairing cracks, adding material to prevent/correct scour, etc.).
- d. **Floodplain pipes:** The requirement to countersink does not apply to pipes or culverts that are being placed above ordinary high water, such as those placed to allow for floodplain flows. The placement of pipes above ordinary high water is not jurisdictional (provided no fill is discharged into wetlands).
- e. **Hydraulic opening:** Pipes should be adequately sized to allow for the passage of ordinary high water with the countersinking and invert restrictions taken into account.
- f. **Pipes on bedrock or above existing utility lines:** Different procedures will be followed for pipes or culverts to be placed on bedrock or above existing buried utility lines where it is not practicable to relocate the lines, depending on whether the work is for replacement of an existing pipe/culvert or a new pipe/culvert:
- i. Replacement of an existing pipe/culvert: Countersinking is not required provided the elevations of the inlet and outlet ends of the replacement pipe/culvert are no higher above the stream bottom than those of the existing pipe/culvert. Documentation (photographic or other evidence) must be maintained in the permittee's records showing the bedrock condition and the existing inlet and outlet elevations. That documentation will be available to the Norfolk District upon request, but notification or coordination with the Norfolk District is not otherwise required.
  - ii. A pipe/culvert is being placed in a new location: If the prospective permittee determines that bedrock or an existing buried utility line that is not practicable to relocate prevents countersinking, he/she should evaluate the use of a bottomless pipe/culvert, bottomless utility vault, span (bridge) or other bottomless structure to cross the waterway, and also evaluate alternative locations for the new pipe/culvert that will allow for countersinking. If the prospective permittee determines that neither a bottomless structure nor an alternative location is practicable, then he/she must submit a pre-construction notification (PCN) to the Norfolk District in accordance with General Condition 31 of the NWP. In addition to the information required by General Condition 31, the prospective permittee must provide documentation of measures evaluated to minimize disruption of the movement of aquatic life as well as documentation of the cost, engineering factors, and site conditions that prohibit countersinking the pipe/culvert. Options that must be considered include partial countersinking (such as less than 3" of countersinking, or countersinking of one end of the pipe), and constructing stone step pools, low rock weirs downstream, or other measures to provide for the movement of aquatic organisms. The PCN must also include photographs documenting site conditions. The prospective permittee may find it helpful to contact his/her regional fishery biologist for the Virginia Department of Game and Inland Fisheries (VDGIF), for recommendations about the measures to be taken to allow for fish movements. When seeking advice from VDGIF, the prospective permittee should provide the VDGIF biologist with all available information such as location, flow rates, stream bottom features, description of proposed pipe(s), slopes, etc. Any recommendations from VDGIF should be included in the PCN. The Norfolk District will notify the prospective permittee whether the proposed work qualifies for the nationwide permit within 45 days of receipt of a complete PCN. NOTE: Blasting of stream bottoms through the use of explosives is not acceptable as a means of providing for countersinking of pipes on bedrock.
- g. **Pipes on steep terrain:** Pipes being placed on steep terrain (slope of 5% or greater) must be countersunk in accordance with the conditions above and will in most cases be non-reporting. It is recommended that on slopes greater than 5%, a larger pipe than required be installed to allow for the passage of ordinary high water in order to increase the likelihood that natural velocities can be maintained. There may be situations where countersinking both the inlet and outlet may result in a slope in the pipe that results in flow velocities that cause excessive scour at the outlet and/or prohibit some fish movement. This type of situation could occur on the side of a mountain where falls and drop pools occur along a stream. Should this be the case, or should the prospective permittee not want to countersink the pipe/culvert for other reasons, he/she must submit a Pre-Construction Notification to the Norfolk District in accordance with General Condition 31 of the Nationwide Permits. In addition to the information required by General Condition 31, the prospective permittee must provide documentation of measures evaluated to minimize disruption of the movement of aquatic life as well as documentation of the cost, engineering factors, and site conditions that prohibit countersinking the pipe/culvert. The prospective permittee should design the pipe to be placed at a slope as steep as stream characteristics allow, countersink the inlet 3-6", and implement measures to minimize any disruption of fish movement. These measures can include constructing a stone step/pool structure, preferably using river rock/native stone rather than riprap, constructing low rock weirs to create a pool or pools, or other structures to allow for fish movements in both directions. Stone structures should be designed with sufficient-sized stone to prevent erosion or washout and should include keying-in as appropriate. These structures should be designed both to allow for fish passage and to minimize scour at the outlet. The quantities of fill discharged below ordinary high water necessary to comply with these requirements (i.e., the cubic yards of stone, riprap or other fill placed below the plane of ordinary high water) must be included in project totals. The prospective permittee may find it helpful to contact his/her regional fishery biologist for the Virginia Department of Game and Inland Fisheries (DGIF), for recommendations about the measures to be taken to allow for fish movements. When seeking advice from DGIF, the prospective permittee should provide the DGIF biologist with all available information such as location, flow rates, stream bottom features, description of proposed pipe(s), slopes, etc. Any recommendations from DGIF should be included in the PCN. The Norfolk District will notify the prospective permittee whether the proposed work qualifies for the nationwide permit within 45 days of receipt of a complete PCN.
- h. **Problems encountered during construction:** When a pipe/culvert is being replaced, and the design calls for countersinking at both ends of the pipe/culvert, and during construction it is found that the streambed/banks are on bedrock, then the permittee must stop work and contact the Norfolk District (contact by telephone and/or email is acceptable). The permittee must provide the Norfolk District with specific information concerning site conditions and limitations on countersinking. The Norfolk District will work with the permittee to determine an acceptable plan, taking into consideration the information provided by the permittee, but the permittee should recognize that the Norfolk District could determine that the work will not qualify for a nationwide permit.

- i. **Emergency pipe replacements:** In the case of an emergency situation, such as when a pipe/culvert washes out during a flood, a permittee is encouraged to countersink the replacement pipe at the time of replacement, in accordance with the conditions above. However, if conditions or timeframes do not allow for countersinking, then the pipe can be replaced as it was before the washout, but the permittee will have to come back and replace the pipe/culvert and countersink it in accordance with the guidance above. In other words, the replacement of the washed out pipe is viewed as a temporary repair, and a countersunk replacement should be made at the earliest possible date. The Norfolk District must be notified of all pipes/culverts that are replaced without countersinking at the time that it occurs, even if it is an otherwise non-reporting activity, and must provide the permittee's planned schedule for installing a countersunk replacement (it is acceptable to submit such notification by email). The permittee should anticipate whether bedrock or steep terrain will limit countersinking, and if so, should follow the procedures outlined in (f) and/or (g) above.

9. **Conditions for the Repair of Pipes:**

**NOTE: COUNTERSINKING IS NOT REQUIRED IN TIDAL WATERS.** However, replacement pipes/culverts in tidal waters must be installed with invert elevations no higher than the existing pipe/culvert invert elevation, and a new pipe/culvert must be installed with the invert no higher than the stream bottom elevation.

If any discharge of fill material will occur in conjunction with pipe maintenance, such as concrete being pumped over rebar into an existing deteriorated pipe for stabilization, then:

A. **If the existing pipe or line of pipes are NOT currently countersunk:**

- As long as the inlet and outlet invert elevations of at least one pipe located in the low flow channel are not being altered, and provided that no concrete apron is being constructed, then the work may proceed under the NWP for the other pipes, provided it complies with all other NWP General Conditions, including Condition 9 for Management of Water Flows. In such cases, notification to the Norfolk District Commander is not required, unless specified in the NWP Conditions for other reasons, and the permittee may proceed with the work.
- Otherwise, the prospective permittee must submit a pre-construction notification (PCN) to the Norfolk District Commander prior to commencing the activity. For all such projects, the following information should be provided:
  - 1) Photographs of the existing inlet and outlet;
  - 2) A measurement of the degree to which the work will raise the invert elevations of both the inlet and outlet of the existing pipe;
  - 3) The reasons why other methods of pipe maintenance are not practicable (such as metal sleeves or a countersunk pipe replacement);
  - 4) Depending on the specific case, the Norfolk District may discuss potential fish usage of the waterway with the Virginia Department of Game and Inland Fisheries.

The Norfolk District will assess all such pipe repair proposals in accordance with guidelines that can be found under "Pipe Repair Guidelines" at: [http://www.nao.usace.army.mil/technical%20services/Regulatory%20branch/Guidance/guidance\\_documents.asp](http://www.nao.usace.army.mil/technical%20services/Regulatory%20branch/Guidance/guidance_documents.asp)

- If the Norfolk District determines that the work qualifies for the NWP, additional conditions will be placed on the verification. Those conditions can be found at the web link above (in item ii).
- If the Norfolk District determines that the work does NOT qualify for the NWP, the applicant will be directed to apply for either an LOP-1 permit

(applicable only for Virginia Department of Transportation projects) or an individual permit. However, it is anticipated that the applicant will still be required to perform the work such that the waterway is not blocked or restricted to a greater degree than its current conditions.

- If the existing pipe or at least one pipe in the line of pipes is countersunk and at least one pipe located in the low flow channel will continue to be countersunk, and no concrete aprons are proposed:** No PCN to the Norfolk District is required, unless specified in the NWP Conditions for other reasons, and the permittee may proceed with the work.
- If the existing pipe or at least one pipe in the line of pipes is countersunk and no pipe will continue to be countersunk in the low flow channel:** This work cannot be performed under the NWPs. The prospective permittee must apply for either a Letter of Permission 1 (LOP-1) permit (applicable only for VDOT projects) or an individual permit. However, it is anticipated that the prospective permittee will still be required to perform the work such that the waterway is not blocked or restricted more so than its current conditions.
- Emergency situations:** In the case of an emergency situation, a prospective permittee is encouraged to follow the above guidelines at the time of repair. However, if conditions or timeframes do not allow for compliance with the procedure outlined herein, then the pipe can be repaired as it was before the washout, but the prospective permittee will have to come back and replace or reconstruct the pipe/culvert in accordance with these guidelines. In other words, the repair of the pipe is viewed as a temporary fix, and an appropriate repair should be made at the earliest possible date. The Norfolk District must be notified of all pipes/culverts that are repaired without compliance with these guidelines at the time that the repair occurs, even if it is an otherwise non-reporting activity, and that notification must provide the prospective permittee's planned schedule for following these procedures and constructing an appropriate repair (it is acceptable to submit such notification by email).

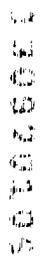
**GENERAL CONDITIONS:**

**Note:** To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

- Navigation.**
  - No activity may cause more than a minimal adverse effect on navigation.
  - Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
  - The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. **Acquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.
3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP's 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).
7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
8. **Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
9. **Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
10. **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
11. **Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
12. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.
13. **Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.
14. **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.
15. **Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.
16. **Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
17. **Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
18. **Endangered Species.**
  - a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.
  - b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.
  - c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.
  - d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.
  - e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions,

- etc.) from the U.S. FWS or the NMFS. The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.
- f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/pac> and <http://www.noaa.gov/sheries.html> respectively.
19. **Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.
20. **Historic Properties**
- a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.
- b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.
- c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.
- d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.
- e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.
21. **Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
22. **Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.
- a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP's 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.
- b) For NWP's 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWP's only after it is determined that the impacts to the critical resource waters will be no more than minimal.
23. **Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal.
- a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).
- b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.
- c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-



acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

- (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.
  - (2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.
  - (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) - (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).
  - (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.
  - (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.
- d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.
- e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.
- f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.
- g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have

marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

- h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.
24. **Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.
  25. **Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.
  26. **Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.
  27. **Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.
  28. **Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.
  29. **Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

\_\_\_\_\_  
(Transferee)

(Date)

- 30 **Compliance Certification** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:
- A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions.
  - A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(i)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
  - The signature of the permittee certifying the completion of the work and mitigation.

31 **Pre-Construction Notification**

- a) **Timing** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:
- He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
  - 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).
- b) **Contents of Pre-Construction Notification** The PCN must be in writing and include the following information:
- Name, address and telephone numbers of the prospective permittee;
  - Location of the proposed project;

- A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);
  - The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;
  - If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.
  - If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and
  - For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.
- c) **Form of Pre-Construction Notification:** The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.
- d) **Agency Coordination:**
- The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.
  - For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or



state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

- (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act
- (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification if the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

- 3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

**DISTRICT ENGINEER'S DECISION:**

- 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.
- 2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has

**FURTHER INFORMATION:**

- 1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
- 2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
- 3. NWPs do not grant any property rights or exclusive privileges.
- 4. NWPs do not authorize any injury to the property or rights of others.
- 5. NWPs do not authorize interference with any existing or proposed Federal project.

**SECTION 401 WATER QUALITY CERTIFICATION (4/18/12):**

The State Water Control Board has provided conditional §401 Water Quality Certification for the following Nationwide Permit as meeting the requirements of the Virginia Water Protection Permit Regulation, which serves as the Commonwealth's §401 Water Quality Certification provided that

any compensatory mitigation meets the requirements in the Code of Virginia, Section 62.1-44 15 23 A through C and as detailed below:

NWP 43 *Stormwater Management Facilities*, provided that the facility is not associated with a water withdrawal

The Commonwealth requests that all pre-construction notifications for any activities that fall into the excepted category be forwarded to the Department of Environmental Quality in order to accomplish their goal of individual review of certain activities.

**COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION (4/19/12):**

Based on the comments submitted by the agencies administering the enforceable policies of the Virginia Coastal Zone Management Program (VCP), the Virginia Department of Environmental Quality (DEQ) concurs that the reissuance of the 2012 NWPs and Virginia Regional Conditions, as proposed, is consistent with the VCP provided that the following conditions, discussed below, are satisfied

- 1 Prior to construction, applicants shall obtain all required permits and approvals not yet secured for the activities to be performed that are applicable to the VCP's enforceable policies and that applicants also adhere to all the conditions contained therein.
  - The Virginia Marine Resources Commission's (VMRC) concurrence of consistency with the subaqueous lands management enforceable policy is based on the recognition that prospective permittees may be required to obtain additional state and/or local approvals prior to commencement of work in waters of the United States from the VMRC and/or the local wetlands board. Such approvals must precede implementation of the projects
  - Similarly, the Department of Conservation and Recreation, Division of Stormwater Management, Local Implementation (formerly the Division of Chesapeake Bay Local Assistance) concurs that the proposed action is consistent with the coastal lands management enforceable policy provided projects are designed and constructed in a manner consistent with all state and local requirements pursuant to the Chesapeake Bay Preservation Act ("the Act") (Virginia Code §10.1-2100 et seq.) and the Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 10-20 et seq.) Applicable projects must receive local approval to be consistent with the coastal lands management enforceable policy.
- 2 The State Water Control Board has provided §401 Clean Water Act Water Quality Certification for the NWPs and Virginia Regional Conditions. Therefore, the activities that qualify for the NWPs meet the requirements of DEQ's Virginia Water Protection Permit Regulation, provided that the permittee abides by the conditions of the NWP. As to the exceptions for activities that would otherwise qualify for one of these Nationwide Permits, the State will continue to process applications for individual §401 Certification through a Virginia Water Protection General or Individual Permit pursuant to 9 VAC 25-210-10 et seq. The Commonwealth requests that the Corps forward to DEQ pre-construction notifications for any activities that fall into an excepted category for individual review of certain activities.

In accordance with the *Federal Consistency Regulations* at 15 CFR Part 930, section 930.4, this conditional concurrence is based on the applicants demonstrating to the Corps that they have obtained, or will obtain, all necessary authorizations prior to implementing a project which qualifies for a NWP. If the requirements of section 930.4, sub-paragraphs (a)(1) through (a)(3) are not met, this conditional concurrence becomes an objection under 15 CFR Part 930, section 940.43

part 4

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6



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court, Woodbridge, Virginia 22193

(703) 583-3800 Fax (703) 583-3821

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Douglas W. Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Thomas A. Faha  
Regional Director

December 6, 2012

Mr. William Caudle  
Green Energy Partners/ Stonewall, LLC  
PO Box 660  
Hamilton, Virginia 20159

RE: Joint Permit Application No. 12-1751  
Stonewall Energy Park, Loudoun County, Virginia  
Notification of No Permit Required

Dear Mr. Caudle:

The Virginia Department of Environmental Quality (DEQ) has reviewed your Joint Permit Application dated and received on November 27, 2012 to permanently impact approximately 0.05 acre of palustrine open water and 25 linear feet of stream channel, and temporarily impact 2.13 acres of palustrine open water and 195 linear feet of stream channel associated with proposed improvements to an existing pond and the construction of an outfall in Loudoun County, Virginia.

Provided that the project is authorized by the U.S. Army Corps of Engineers under Nationwide Permit (NWP) No.43 (Stormwater Management Facilities) or another NWP or Regional Permit, and meets all of the §401 Certification Conditions, a Virginia Water Protection (VWP) general or individual permit will not be required for this project. This letter constitutes the §401 Certification for this project. You are advised that this does not give you the authority to violate Virginia's State Water Quality Standards.

Please note that should the size and scope of the project change, a VWP general or individual permit may be required. If you have any questions, please do not hesitate to me at 703-583-3937 or [Elizabeth.Cooper@deq.virginia.gov](mailto:Elizabeth.Cooper@deq.virginia.gov).

Respectfully,

Elizabeth Cooper  
VWP Program Specialist

cc: Ms. Jessica Fleming, Bowman Consulting Group, Ltd – VIA EMAIL  
Mr. Ron Stouffer, U.S. Army Corps of Engineers, Dumfries Field Office – VIA EMAIL

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# COMMONWEALTH of VIRGINIA

**Marine Resources Commission**  
2600 Washington Avenue  
Third Floor  
Newport News, Virginia 23607

Douglas W. Domenech  
Secretary of Natural Resources

Jack G. Travelstead  
Commissioner

December 17, 2012

Green Energy Partners/Stonewall LLC  
c/o Bowman Consulting Group, Ltd.  
14020 Thunderbolt Place, Suite 300  
Chantilly, VA 20151

Re: VMRC #12-1751

Dear Sir or Madam:

We have received your application seeking authorization to impact 220 linear feet of unnamed tributaries to Sycolin Creek and impact 94,712 square feet of non-tidal wetlands as part of the Stonewall Energy Park in Loudoun County.

Based upon review of your request and associated documents, your proposed project does not fall within the jurisdiction of the Marine Resources Commission, therefore, no authorization will be required from this agency.

For your information, however, you may need authorization from the U. S. Army Corps of Engineers, Norfolk District, and/or DEQ, prior to commencing your project.

If we may be of further assistance, please do not hesitate to call on us.

Sincerely,

J. Michael Johnson  
Environmental Engineer

JMJ/mos  
HM  
cc: Applicant

*An Agency of the Natural Resources Secretariat*  
[www.mrc.virginia.gov](http://www.mrc.virginia.gov)

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD



Douglas W. Domenech  
Secretary of Natural Resources



David A. Johnson  
Director

130920106

**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

Division of Natural Heritage  
217 Governor Street  
Richmond, Virginia 23219-2010  
(804) 786-7951

October 10, 2012

Sean Gagnon  
Bowman Consulting Group, Ltd.  
14020 Thunderbolt Place, Suite 300  
Chantilly, VA 20151

Re: Stonewall Energy Park

Dear Mr. Gagnon:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, several rare plants typically associated with prairie vegetation inhabit semi-open diabase glades in Virginia and may occur on site if suitable habitat is present. Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinski, 1995).

In Northern Virginia, diabase supports occurrences of several global and state rare plant species: earleaf foxglove (*Agalinis auriculata*, G3/S1/NL/NL), blue-hearts (*Buchnera americana*, G3G4/S1/NL/NL), purple milkweed (*Asclepias purpurascens*, G4G5/S2/NL/NL) downy phlox (*Phlox pilosa*, G5T5/S2/NL/NL), stiff goldenrod (*Oligoneuron rigidum* var. *rigidum*, G5/S2/NL/NL), and marsh hedgenettle (*Stachys pilosa* var. *arenicola*, G5/S1/NL/NL).

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for the resource in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact J. Christopher Ludwig, Natural Heritage Inventory Manager, at [chris.ludwig@dcr.virginia.gov](mailto:chris.ludwig@dcr.virginia.gov) or 804-371-6206 to discuss arrangements for field work.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

A fee of \$625.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR - Division of Natural Heritage, 217 Governor Street Richmond, VA 23219. Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2008. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or [Gladys.Cason@dgif.virginia.gov](mailto:Gladys.Cason@dgif.virginia.gov)).

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA  
Coastal Zone Locality Liaison

30920106

April 12, 2013

Mr. William T. Caudle  
Green Energy Partners Stonewall, LLC.  
5275 Westview Drive,  
Frederick, Maryland 21703

**RE: Stonewall Energy Park, Loudoun County, Virginia  
Wood Turtle Habitat Assessment and Field Survey**

Dear Mr. Caudle:

As required by Condition #20 of Special Exception No. SPEX-2009-0009, Bowman Consulting Group, Ltd. (BCG) has completed a habitat assessment and field surveys for the State-listed threatened wood turtle (*Glyptemys insculpta*) for the Stonewall Energy Park Project. The field investigations were conducted on December 27, 2012 and April 1, 2013 by Mr. Philip Abell and Mr. Sean Gagnon of BCG. The following letter details the general habitat requirements for the wood turtle, the methodology employed during the field investigation, and the results of the habitat assessment and field surveys, as well as accompanying photographs and exhibits.

The approximately 88.2-acre Stonewall Energy Park property, identified as PINs 193-38-4362, 193-49-0539, 193-39-3665, 193-29-6778, and a portion of 194-48-6020, is located south of Cochran Mill Road and east of its intersection with Sycolin Road in Loudoun County, Virginia. More generally, the property is located at 39 03'32"N Latitude and -77 32'28"W Longitude on the Leesburg, VA USGS Quadrangle Map (see attached). The Project area is comprised of primarily medium-aged mixed-hardwood deciduous forest in the central and northern portions with coniferous forest located in the eastern and western portions of the Project. Two parallel utility easements transect the property from north to south. The Project drains towards Sycolin Creek, which bisects PINs 193-38-4362, 193-49-0539 and 193-39-3665 in the northern portion of the Project area.

Habitat for the wood turtle generally occurs in forested floodplains, floodplain fields, beaver ponds, and wet meadows, generally within 1,000 feet of a nearby creek or stream. Although highly terrestrial, wood turtles must remain in moist habitats as they experience a greater evaporative water loss than the more terrestrial box turtles. Wood turtles also generally prefer a variety of different habitat types rather than solid stands of a single type (Center for Reptile Conservation, 2010). It should be noted that wood turtles typically utilize meadows containing wet and or marshy areas adjacent to streams as feeding habitat; based on a preliminary Habitat Assessment and Threatened and Endangered Species Evaluation conducted by BCG in December 2012 this habitat type is present within the Project adjacent to Sycolin Creek. Additionally, potential suitable habitat was identified within the two existing ponds located within the Project area.

The detailed habitat assessment and field surveys for the wood turtle were conducted by BCG following the general techniques outlined in *Survey of Loudoun County, Virginia for the State Threatened Wood Turtle, Clemmys insculpta* (Bruenderman, 1993), and *Tentative Guidelines for Surveying and Monitoring Wood Turtles* (Buech, 1991), as well as the conditions of our Threatened Endangered Species Permit No. 046847 issued by DGIF on November 19, 2012 and No. 047034 issued by DGIF on December 12, 2012. Sycolin Creek, its adjacent floodplain smaller side tributaries, and the two onsite ponds were visually assessed to identify potential suitable habitat for the wood turtle, and all potential wintering habitat areas (such as the bottom of deep pools) were carefully inspected. Long-handled dip-nets and visual observation were used within aquatic habitat areas to search the stream banks, log jams, woody debris overhanging root systems, and other potential instream habitats that were encountered. The field surveys were conducted in the late morning and early afternoon, with the first on a cold day with recent snow cover on the ground and strong stream flow (December 27, 2012), and the second on a relatively clear and warm day with moderate stream flow when wood turtles may also be basking out of the water (April 1, 2013). During the April 1, 2013 field survey, potential basking areas were approached carefully and visually pre-surveyed with binoculars.

As shown on the attached Exhibit, several areas of potential suitable habitat for the wood turtle were identified by BCG during the detailed habitat assessment completed on December 27, 2012. These areas are concentrated along Sycolin Creek and its immediate floodplain, several smaller side tributaries located within its floodplain, and around the ponds. These potential areas were thoroughly surveyed on December 27, 2012, and then re-surveyed on April 1, 2013.

An area of woody debris and an overhanging root system along Sycolin Creek in the northwestern corner of the Project was identified as potential suitable habitat for wood turtle (Photos #1 and #2). This feature was investigated visually and with a long-handled dip-net; no wood turtles were observed in this area during either field survey. Potential suitable habitat for wood turtle was identified within a side ox-bow channel to Sycolin Creek; during both field surveys, this area was observed with binoculars, and a long-handled dip-net was used to examine deeper pools (Photos #3 and #4). Flow within this feature was much lower during the April 1, 2013 field survey than during the previous field survey conducted on December 27, 2012, and no wood turtles were observed within this area during either field survey. A second side channel is located offsite and north of Sycolin Creek (Photo #5). This feature was identified as potential suitable habitat for wood turtle during the December 27, 2012 field survey; however, water was stagnant within this feature during the April 1, 2013 field survey, and no wood turtles were observed. Photos #6 through #9 depict a third area adjacent to Sycolin Creek that was identified as potential suitable habitat for wood turtle. The adjacent bank was carefully observed from a distance with binoculars, and deep pools were investigated with a long-handled dip-net; no wood turtles were observed in this area. The two maintained utility easements adjacent to Sycolin Creek were observed from a distance with binoculars; no overhanging root systems or log-jams are present in this area (Photo #10 and #11). The maintained nature of the easements makes the presence of wood turtles unlikely, and no individuals were observed in these areas during the field surveys.

Letter to Mr. William T. Caudle, Green Energy Partners/Stonewall, LLC.  
Stonewall Energy Park – Wood Turtle Habitat Assessment and Field Survey  
April 12, 2013  
Page 3 of 4

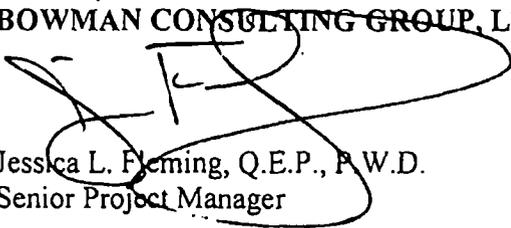
Portions of two onsite ponds were also considered potential suitable habitat for wood turtle (Photos #12, #14 and #15). According to Bowen and Gillingham (2004), the wood turtle spring "pre-nesting" period is characterized by individuals spending time near streams and basking on the banks. Wood turtle populations in Virginia and Pennsylvania are most active in late morning and early afternoon; the April 1, 2013 field survey was conducted during this time period. As shown in Photos #13 and #16, numerous eastern painted turtles (*Chrysemys picta picta*) were observed within the two ponds during the April 1, 2013 field survey. The obvious presence of this other turtle species basking within the pond areas suggests that temperature and climatic conditions were suitable for this activity, and that wood turtles would have been observed had they been present. Overhanging root systems and an active beaver lodge are located along the large pond's northern embankment. Photos #17 and #18 provide representative views along the large pond's eastern edge, which was identified as potential suitable habitat during the field surveys. No wood turtles were identified within either of the two ponds during the field surveys.

While potential suitable habitat is present along Sycolin Creek, its adjacent floodplain and side channels, and the two onsite ponds, no wood turtles were observed within the Project area during the December 27, 2012 and April 1, 2013 field surveys,.

Please note that the wood turtle field surveys are limited to conditions prevailing at the time the surveys were conducted; the fact that this species was not sighted during the December 27, 2012 and April 1, 2013 field surveys does not entirely eliminate the possibility that it may appear in subsequent surveys and/or that the DGIF may require additional surveys.

If you have any questions concerning the results of the habitat investigation, please feel free to contact me at 703.464.1000 or [jfleming@bowmancg.com](mailto:jfleming@bowmancg.com)

Sincerely,  
**BOWMAN CONSULTING GROUP, LTD.**



Jessica L. Fleming, Q.E.P., F.W.D.  
Senior Project Manager

Enclosure: USGS Quadrangle Map  
Wood Turtle Habitat Assessment and Field Survey Exhibit  
Wood Turtle Survey Photographs

Letter to Mr. William T. Caudle, Green Energy Partners/Stonewall, LLC.  
Stonewall Energy Park – Wood Turtle Habitat Assessment and Field Survey  
April 12, 2013  
Page 4 of 4

**References:**

Bowen, Keneth D., & Gillingham, James C., (2004). *R9 Species Conservation Assessment for Wood Turtle – Glyptemys insculpta (LeConte 1830)*. Retrieved from [http://www.fs.fed.us/r9/wildlife/tes/ca-overview/docs/reptile\\_Clemmys\\_insculpta-Wood\\_Turtle.pdf](http://www.fs.fed.us/r9/wildlife/tes/ca-overview/docs/reptile_Clemmys_insculpta-Wood_Turtle.pdf)

Bruenderman, Sue A. (1993). Survey of Loudoun County, Virginia for the State Threatened Wood Turtle, *Clemmys insculpta*. Retrieved from <http://www.virginiaherpetologicalsociety.com/Catesbeiana-pdf/cat13n2/cat13n2-survey%20of%20Loudoun%20Co.pdf>

Buech, Richard R. (1991). Tentative Guidelines for Surveying and Monitoring Wood Turtles. Retrieved from [http://files.dnr.state.mn.us/eco/nongame/projects/consgrant\\_reports/1991/1991\\_buech\\_nolocations.pdf](http://files.dnr.state.mn.us/eco/nongame/projects/consgrant_reports/1991/1991_buech_nolocations.pdf)

Center for Reptile and Amphibian Conservation and Management, Purdue University, (2010). Retrieved from [http://herpcenter.ipfw.edu/outreach/accounts/reptiles/turtles/Wood\\_Turtle/WoodTurtleFactSheet.pdf](http://herpcenter.ipfw.edu/outreach/accounts/reptiles/turtles/Wood_Turtle/WoodTurtleFactSheet.pdf)



Scale: 1"=2000'

Source: USGS (1994)

# Bowman CONSULTING

Bowman Consulting Group, Ltd.  
14020 Thunderbolt Place Suite 300  
Chantilly, Virginia 20151

Phone: (703) 464-1000  
Fax: (703) 481-9720  
[www.bowmanconsulting.com](http://www.bowmanconsulting.com)

USGS Quadrangle Map  
**Stonewall Energy Park**  
39°03'32"N, -77°32'28"W Leesburg, VA USGS Quadrangle Map  
PL15 (Sycolin Creek), HUC 02070008 (Middle Potomac-Catoctin)  
Loudoun County, Virginia

Prepared for:  
**Green Energy Partners/Stonewall, LLC**  
P.O. Box 660  
Hamilton, Virginia 20159



Map 130920106  
 The State listed this stream  
 as a wood turtle (*Pseudemys floridana*)  
 habitat. The stream and its habitat  
 were assessed during the habitat  
 assessment survey. The survey  
 was conducted by the staff and Sean  
 Karyak of BOWMAN CONSULTING on  
 4/12/13 and April 15/13.

**WOOD TURTLE HABITAT ASSESSMENT  
 AND FIELD SURVEY CORRIDOR**

**STONEWALL ENERGY PARK**  
 Loudoun County, Virginia

SCALE: 1"=50' DATE: APRIL 12, 2013

**Bowman  
 CONSULTING**

Bowman Consulting Group, LLC  
 1817 Cornerstone Drive, Suite 300  
 Chantilly, VA 20151  
 Phone (703) 444-2200  
 Fax (703) 444-4145  
 www.bowmanconsulting.com

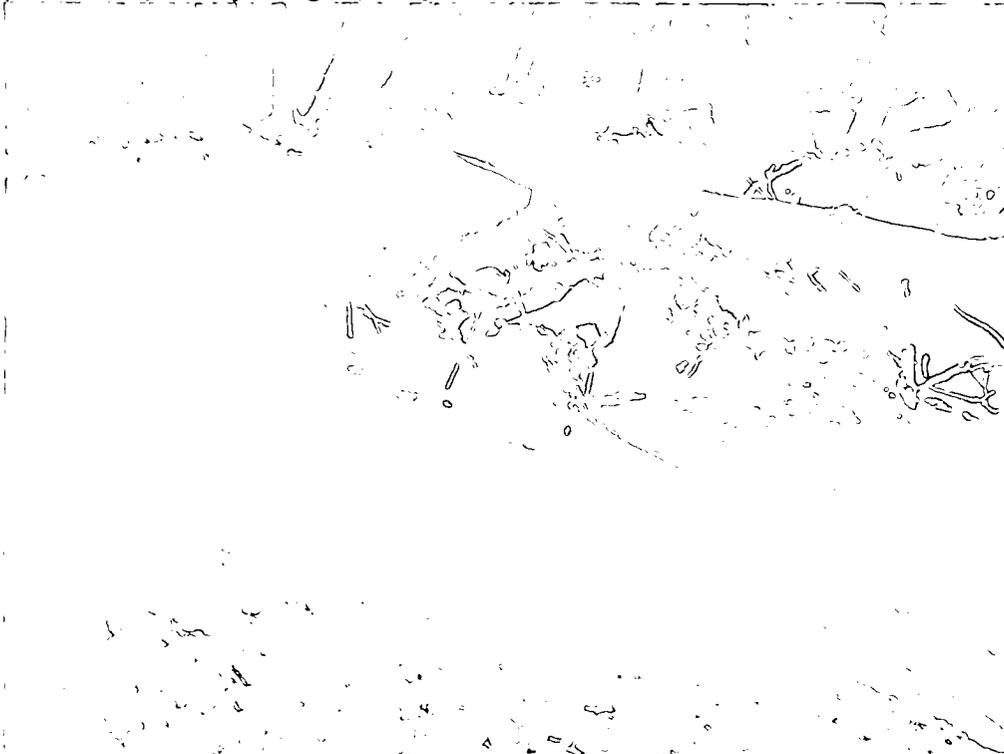
**Legend**

- Potential Wood Turtle Habitat
- Clean Channel (RL, RC)
- Pelvicine Wetlands (PCM, PCS, PFD)
- Ditch/Pond
- Photographs





**Photo #1:** Downstream view of Sycolin Creek in the northwestern portion of the Project, showing woody debris and an overhanging root system; no wood turtles were observed in this area (December 27, 2012, by S. Gagnon, BCG).



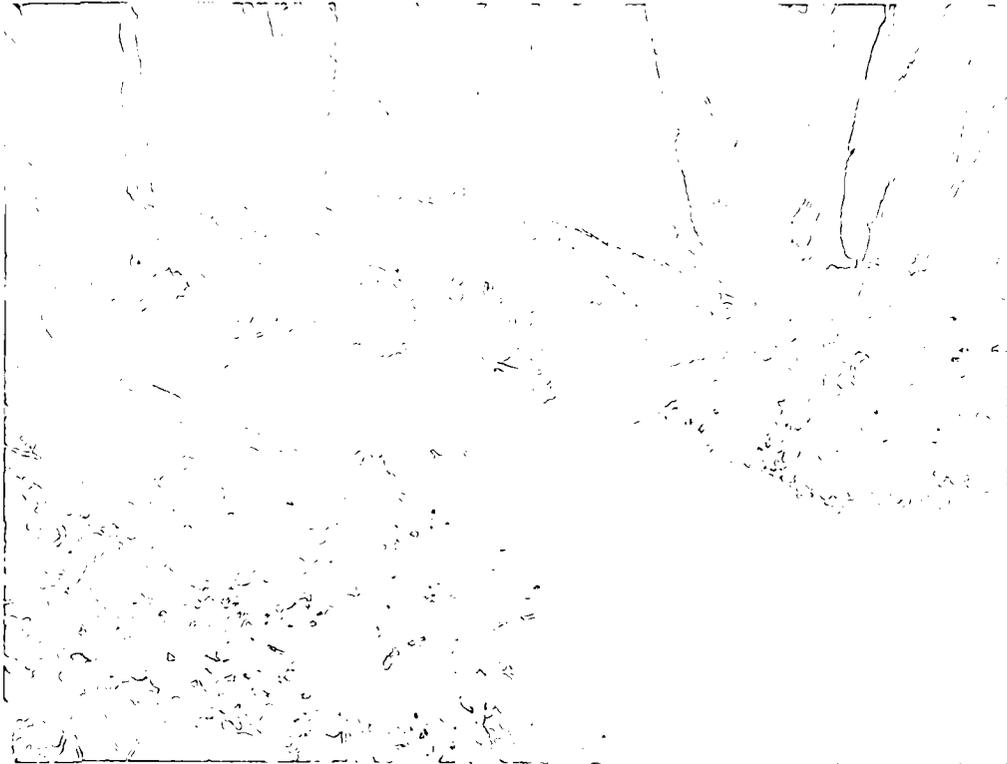
**Photo #2:** Same downstream view of Sycolin Creek showing woody debris and an overhanging root system; no wood turtles were observed in this area (April 1, 2013, by S. Gagnon, BCG).



**Photo #3:** Upstream view of an unnamed side or ox-bow tributary to Sycolin Creek in the northwestern portion of the Project where potential suitable habitat for wood turtle was identified. No wood turtles were observed in this area (December 27, 2012, by S. Gagnon, BCG).



**Photo #4:** Upstream view of the same unnamed side or ox-bow tributary to Sycolin Creek in the northwestern portion of the Project, where potential suitable habitat for wood turtle was previously identified; no wood turtles were observed in this area (April 1, 2013, by S. Gagnon, BCG).



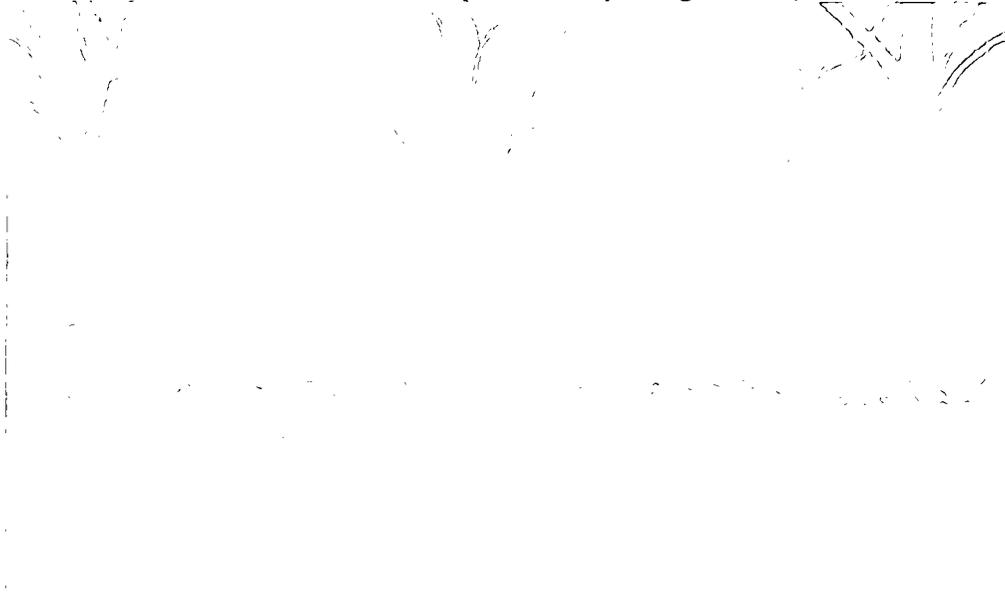
**Photo #5:** Upstream view of an unnamed side tributary to Sycolin Creek just north of the Project, where potential suitable habitat for wood turtle was previously identified; no wood turtles were observed in this area (April 1, 2013, by S. Gagnon, BCG).



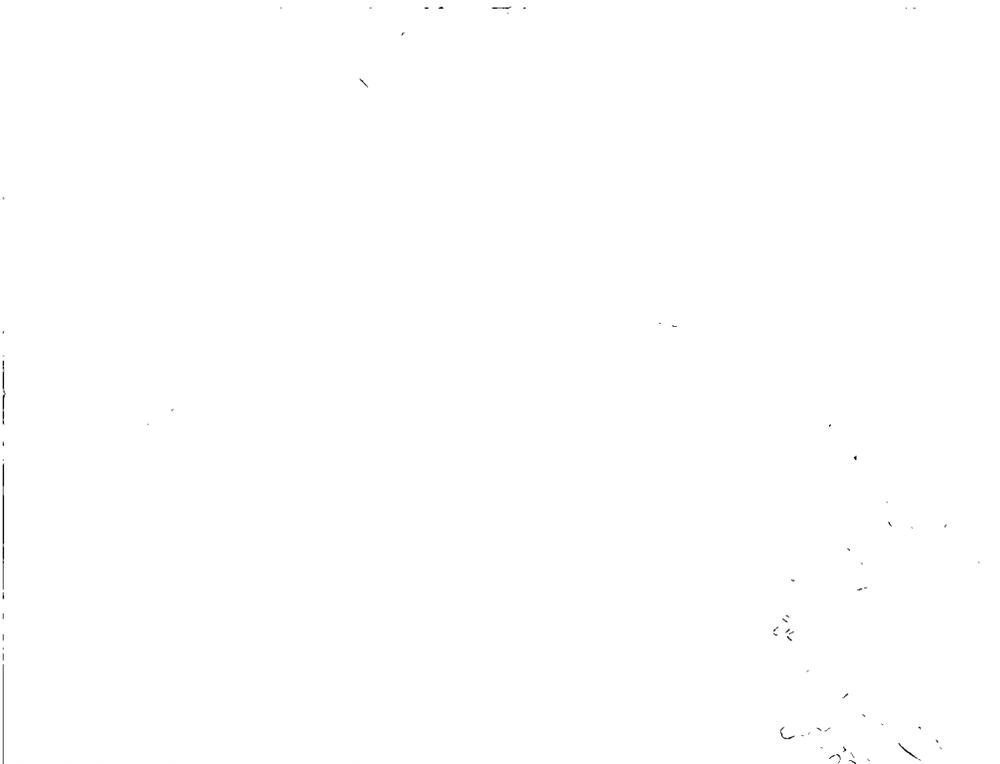
**Photo #6:** View to the south of a small side channel adjacent to Sycolin Creek in the northern portion of the Project where potential suitable habitat for wood turtle was identified. No wood turtles were observed in this area (December 27, 2012, by S. Gagnon, BCG).



**Photo #7:** Upstream view of a small side channel adjacent to Sycolin Creek in the northern portion of the Project, where potential suitable habitat for wood turtle was previously identified; no wood turtles were observed in this area (April 1, 2013, by S. Gagnon, BCG).



**Photo #8:** View to the south of Sycolin Creek and its right bank and associated floodplain in the northern portion of the Project. This floodplain area was identified as potential suitable habitat for wood turtle; no wood turtles were observed in this area (December 27, 2012, by S. Gagnon, BCG).



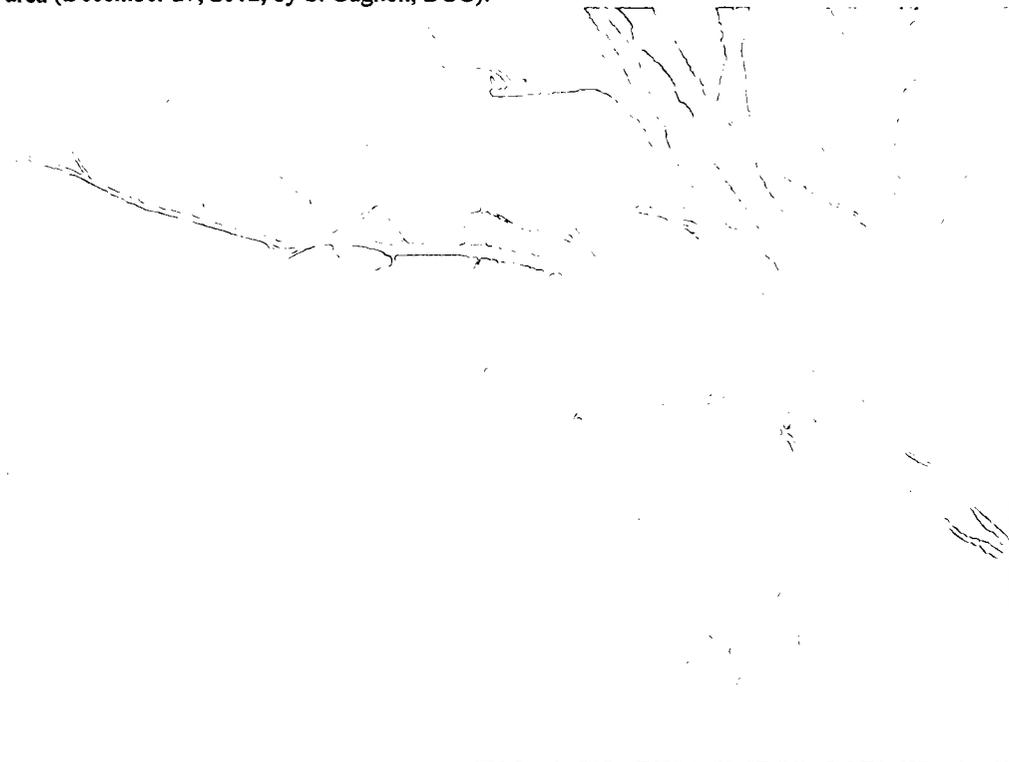
**Photo #9:** : Upstream view of Sycolin Creek in the northern portion of the Project, showing an adjacent floodplain meadow area identified as potential suitable habitat for wood turtle; no wood turtles were observed in this area (April 1, 2013, by S. Gagnon, BCG).



**Photo #10:** Upstream view of Sycolin Creek in the northern portion of the Project, showing an adjacent floodplain meadow area; the maintained nature of the two utility easements makes the presence of wood turtles unlikely in this area (April 1, 2013, by S. Gagnon, BCG).



**Photo #11:** View to the east of a portion of the Sycolin Creek floodplain located just offsite that was identified as potential suitable habitat for wood turtle; no wood turtles were observed in this area (December 27, 2012, by S. Gagnon, BCG).



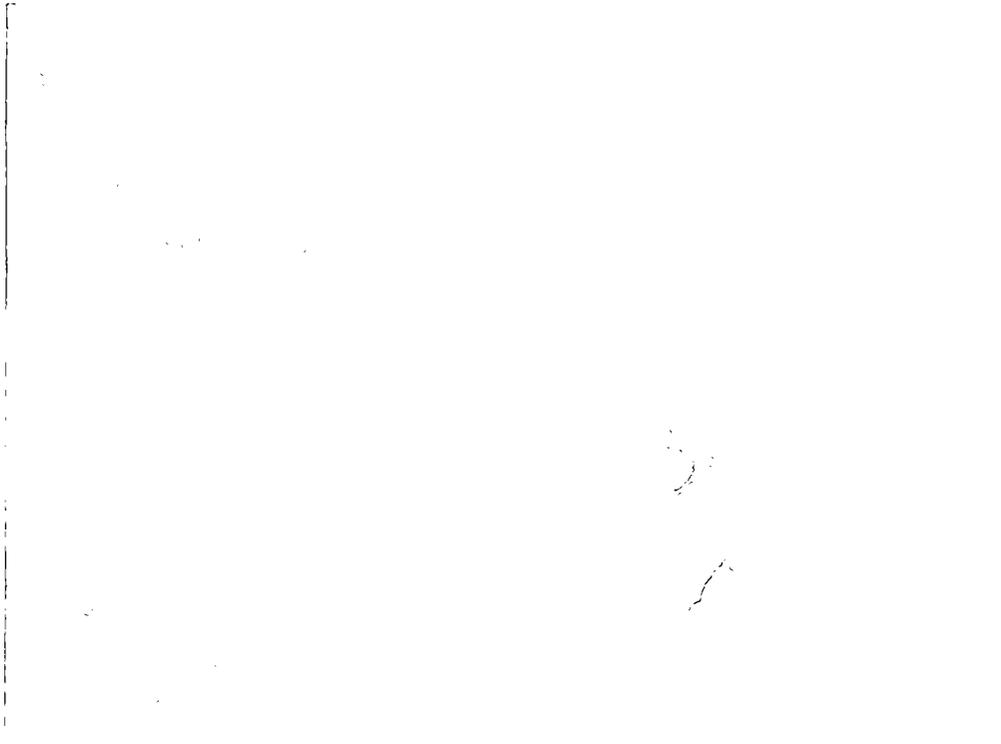
**Photo #12:** View to the southeast of the small pond located within the northern portion of the Project. This area was identified as potential suitable habitat for wood turtle; no wood turtles were observed within this area (December 27, 2012, by S. Gagnon, BCG).



Photo #13: View to the north of an eastern painted turtle (*Chrysemys picta picta*) sunning in an area identified as potential suitable wood turtle habitat in the small pond in the northern portion of the Project; no wood turtles were observed in this area (April 1, 2013, by P. Abell, BCG).



Photo #14: View to the northeast of the large pond's embankment. A beaver lodge and overhanging root systems were identified as potential suitable habitat in this area; no wood turtles were observed in this area (December 27, 2012, by S. Gagnon, BCG).



**Photo #15:** View to the east along the large pond's northern bank. This area was identified as potential suitable habitat for wood turtle; no wood turtles were observed in this area (April 1, 2013, by S. Gagnon, BCG).



**Photo #16:** Numerous (15-20) eastern painted turtles were observed sunning within areas identified as potential suitable habitat for wood turtle within the pond located in the central portion of the Project; no wood turtles were observed in this area (April 1, 2013, by P. Abell, BCG).



**Photo #17:** View to the north along the large pond's eastern edge. Potential suitable habitat for wood turtle is located in this area; no wood turtles were observed in this area (December 27, 2012, by S. Gagnon, BCG).



**Photo #18:** View to the south along the eastern edge of the large pond, which was identified as potential suitable habitat for wood turtle; no wood turtles were observed in this area (April 1, 2013, by S. Gagnon, BCG).

30920106



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE  
6669 SHORT LANE  
GLOUCESTER, VA 23061  
PHONE: (804)693-6694 FAX: (804)693-9032  
URL: [www.fws.gov/northeast/virginiafield/](http://www.fws.gov/northeast/virginiafield/)



130920106

Consultation Tracking Number: 05E2VA00-2013-SLI-0044

October 11, 2012

Project Name: Stonewall Energy Park

**Subject:** List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Stonewall Energy Park

130920106

## Official Species List

**Provided by:**

VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE

6669 SHORT LANE

GLOUCESTER, VA 23061

(804) 693-6694

<http://www.fws.gov/northeast/virginiafield/>

**Consultation Tracking Number:** 05E2VA00-2013-SLI-0044

**Project Type:** Power Generation

**Project Description:** The approximately 88.2-acre Project is comprised of the construction of a combined cycle natural gas power plant facility south of Cochran Mill Road and east of its intersection with Sycolin Road, and is generally located at 3903'32"N latitude and 7732'28"W longitude in Loudoun County, Virginia.





United States Department of Interior  
Fish and Wildlife Service  
Project name: Stonewall Energy Park

## Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

There are no listed species identified for the vicinity of your project.

Douglas W. Domenech  
Secretary of Natural Resources



David A. Johnson  
Director

**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

Division of Natural Heritage  
217 Governor Street  
Richmond, Virginia 23219-2010  
(804) 786-7951

October 10, 2012

Sean Gagnon  
Bowman Consulting Group, Ltd.  
14020 Thunderbolt Place, Suite 300  
Chantilly, VA 20151

Re: Stonewall Energy Park

Dear Mr. Gagnon:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, several rare plants typically associated with prairie vegetation inhabit semi-open diabase glades in Virginia and may occur on site if suitable habitat is present. Diabase glades are characterized by historically fire-dominated grassland vegetation on relatively nutrient-rich soils underlain by Triassic bedrock. Diabase flatrock, a hard, dark-colored volcanic rock, is found primarily in northern Virginia counties and is located within the geologic formation known as the Triassic Basin. Where the bedrock is exposed, a distinctive community type of drought-tolerant plants occurs. Diabase flatrocks are extremely rare natural communities that are threatened by activities such as quarrying and road construction (Rawinski, 1995).

In Northern Virginia, diabase supports occurrences of several global and state rare plant species: earleaf foxglove (*Agalinis auriculata*, G3/S1/NL/NL), blue-hearts (*Buchnera americana*, G3G4/S1/NL/NL), purple milkweed (*Asclepias purpurascens*, G4G5/S2/NL/NL) downy phlox (*Phlox pilosa*, G5T5/S2/NL/NL), stiff goldenrod (*Oligoneuron rigidum* var. *rigidum*, G5/S2/NL/NL), and marsh hedgenettle (*Stachys pilosa* var. *arenicola*, G5/S1/NL/NL).

Due to the potential for this site to support populations of natural heritage resources, DCR recommends an inventory for the resource in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact J. Christopher Ludwig, Natural Heritage Inventory Manager, at [chris.ludwig@dcr.virginia.gov](mailto:chris.ludwig@dcr.virginia.gov) or 804-371-6206 to discuss arrangements for field work.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

A fee of \$625.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 217 Governor Street Richmond, VA 23219**. Payment is due within thirty days of the invoice date. Please note the change of address for remittance of payment as of July 1, 2008. Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or [Gladys.Cason@dgif.virginia.gov](mailto:Gladys.Cason@dgif.virginia.gov)).

Should you have any questions or concerns, feel free to contact me at (804) 692-0984. Thank you for the opportunity to comment on this project.

Sincerely,



Alli Baird, LA, ASLA  
Coastal Zone Locality Liaison

Literature Cited

Rawinski, T.J. 1995. Natural communities and ecosystems: Conservation priorities for the future. Unpublished report for DCR-DNH.



**VaFWIS Search Report**Compiled on 10/11/2012, 8:45:27 AM

[Help](#)

Known or likely to occur within a 2 mile radius around point 39.0588888888889  
77.5411111111111  
in 107 Loudoun County, VA

[View Map of Site Location](#)

451 Known or Likely Species ordered by Status Concern for Conservation  
(displaying first 21) (21 species with Status\* or Tier I\*\* or Tier II\*\*)

<u>BOVA Code</u>	<u>Status*</u>	<u>Tier**</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Confirmed</u>	<u>Database(s)</u>
030062	ST	I	<u>Turtle, wood</u>	Glyptemys insculpta	<u>Potential</u>	BOVA,Habitat,HU6
040129	ST	I	<u>Sandpiper, upland</u>	Bartramia longicauda		BOVA
040293	ST	I	<u>Shrike, loggerhead</u>	Lanius ludovicianus		BOVA,HU6
040379	ST	I	<u>Sparrow, Henslow's</u>	Ammodramus henslowii		BOVA
040093	FSST	II	<u>Eagle, bald</u>	Haliaeetus leucocephalus		BOVA,HU6
060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>	BOVA,TEWaters,Habitat,HU6
040292	ST		<u>Shrike, migrant loggerhead</u>	Lanius ludovicianus migrans		BOVA
100248	FS	I	<u>Fritillary, regal</u>	Speyeria idalia idalia		BOVA,HU6
100166	FS	II	<u>Skipper, Dotted</u>	Hesperia attalus slossonae		BOVA,HU6
060029	FS	III	<u>Lance, yellow</u>	Elliptio lanceolata		HU6
030063	CC	III	<u>Turtle, spotted</u>	Clemmys guttata		BOVA
030012	CC	IV	<u>Rattlesnake, timber</u>	Crotalus horridus		BOVA,HU6
040372		I	<u>Crossbill, red</u>	Loxia curvirostra		BOVA
040225		I				BOVA

130920106

			<u>Sapsucker, yellow-bellied</u>	Sphyrapicus varius		
040319		I	<u>Warbler, black-throated green</u>	Dendroica virens		BOVA
040306		I	<u>Warbler, golden-winged</u>	Vermivora chrysoptera		BOVA
040052		II	<u>Duck, American black</u>	Anas rubripes		BOVA,HU6
040213		II	<u>Owl, northern saw-whet</u>	Aegolius acadicus		BOVA,HU6
040105		II	<u>Rail, king</u>	Rallus elegans		BOVA
040320		II	<u>Warbler, cerulean</u>	Dendroica cerulea		BOVA,HU6
040266		II	<u>Wren, winter</u>	Troglodytes troglodytes		BOVA

To view **All 451 species** [View 451](#)

\*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

\*\* I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

[View Map of All Query Results from All Observation Tables](#)

**Bat Colonies or Hibernacula: Not Known**

**Anadromous Fish Use Streams**

N/A

**Impediments to Fish Passage** (1 records)

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
1216	GOOSE CREEK DAM	GOOSE CREEK	Yes

130920106

**Colonial Water Bird Survey**

N/A

**Threatened and Endangered Waters ( 1 Reach )**

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE*	BOVA Code, Status*, Tier**, Common & Scientific Name					
<a href="#">Goose Creek (02070008)</a>	ST	060081	ST	II	<a href="#">Floater, green</a>	Lasmigona subviridis	<a href="#">Yes</a>

**Managed Trout Streams**

N/A

**Bald Eagle Concentration Areas and Roosts**

N/A

**Bald Eagle Nests**

N/A

**Species Observations ( 15 records )**

[View Map of All Query Results Species Observations](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
<a href="#">62557</a>	SppObs	May 1 1999	Richard H. Efthim (Principle Permittee), Smithsonian Institute, Naturalist Center	1		IV	<a href="#">Yes</a>
<a href="#">332209</a>	SppObs	Jan 1 1956	VPI-VA. TECH	13		IV	<a href="#">Yes</a>
<a href="#">332215</a>	SppObs	Jan 1 1956	VPI-VA. TECH	7		IV	<a href="#">Yes</a>

130920106

<u>363837</u>	SppObs	Dec 30 1899		1		IV	<u>Yes</u>
<u>609607</u>	SppObs	May 25 2010	Sean; Sipple  Ally; St. Onge  Caitlin; Kelliher  Chelsea; Trant	0			<u>Yes</u>
<u>609605</u>	SppObs	Mar 10 2010	Sean; Sipple  Ally; St. Onge  Caitlin; Kelliher  Chelsea; Trant	0			<u>Yes</u>
<u>604426</u>	SppObs	Sep 2 2008	Richard; Eftim	1			<u>Yes</u>
<u>300635</u>	SppObs	Jun 18 2001	ROGER B. CLAPP	1			<u>Yes</u>
<u>300230</u>	SppObs	May 16 2001	Mark F. Causey, Ken H. Bass, Liam J. McGranaghan	1			<u>Yes</u>
<u>63294</u>	SppObs	Jul 24 1998	Billy M. Teels, NRCS Wetland Science Institute	23			<u>Yes</u>
<u>58864</u>	SppObs	Apr 29 1998	Roger B. Clapp (PRINCIPLE PERMITTEE), MILENSKI, SCHMIDT, USGS/PWRC NATIONAL MUSEUM OF NATURAL HISTORY	1			<u>Yes</u>
<u>54543</u>	SppObs	May 3 1997	R. B. CLAPP	1			<u>Yes</u>
<u>51006</u>	SppObs	Apr 19 1997	Mike Mulligan, Chesapeake Bay Foundation	4			<u>Yes</u>
<u>11560</u>	SppObs	Oct 5 1989	ANGERMEIER ET AL	13			<u>Yes</u>
<u>363930</u>	SppObs	Dec 30 1899		1			<u>Yes</u>

Displayed 15 Species Observations

**Habitat Predicted for Aquatic WAP Tier I & II Species ( 4 Reaches )**

[View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species](#)

Stream Name	Highest TE*	Tier Species					View Map
		BOVA Code, Status*, Tier**, Common & Scientific Name					
(20700081)	ST	030062	ST	I	<u>Turtle, wood</u>	Glyptemys insculpta	<u>Yes</u>
Beaverdam Run (20700081)	ST	030062	ST	I	<u>Turtle, wood</u>	Glyptemys insculpta	<u>Yes</u>
	ST	030062	ST	I			<u>Yes</u>

130920106

Sycolin Creek (20700081)					<u>Turtle, wood</u>	Glyptemys insculpta	
Goose Creek (20700081)	ST	060081	ST	II	<u>Floater, green</u>	Lasmigona subviridis	<u>Yes</u>

**Habitat Predicted for Terrestrial WAP Tier I & II Species**

N/A

**Virginia Breeding Bird Atlas Blocks (5 records)**

[View Map of All Query Results](#)  
[Virginia Breeding Bird Atlas Blocks](#)

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE *	Highest Tier **	
50214	<u>Leesburg, CE</u>	63		IV	<u>Yes</u>
50213	<u>Leesburg, CW</u>	46		IV	<u>Yes</u>
50212	<u>Leesburg, NE</u>	58		IV	<u>Yes</u>
50216	<u>Leesburg, SE</u>	69		IV	<u>Yes</u>
50215	<u>Leesburg, SW</u>	57		IV	<u>Yes</u>

**Public Holdings:**

N/A

**Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:**

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
107	<u>Loudoun</u>	438	FSST	I

**USGS 7.5' Quadrangles:**

Leesburg

**USGS NRCS Watersheds in Virginia:**

N/A

130920106

**USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:**

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
PL14	<u>Goose Creek-Big Branch</u>	57	FSST	I
PL15	<u>Sycolin Creek</u>	54	FSST	I
PL16	<u>Goose Creek-Cattail Branch</u>	55	FSST	I
PL19	<u>Broad Run-Beaverdam Run</u>	52	FSST	I

Compiled on 10/11/2012, 8:45:28 AM 1429296.0 report=all searchType=R dist=3218.688 poi=39.0588888888889 77.5411111111111  
 PixelSize=64; Anadromous=0.023563; BBA=0.088788; BECAR=0.023366; Bats=0.025291; Buffer=0.178428; County=0.075352; HU6=0.985965; Impediments=0.025874; Init=0.214914; PublicLands=0.036905; Quad=0.047931; SppObs=0.782557; TEWaters=0.062218; TierReaches=0.110021; TierTerrestrial=0.049257; Total=2.635401; Trout=0.036988; hury=0.044281

**Site Location**

39,03,32.0 -77,32,28.0  
is the Search Point

Display  Search Point is not in center

**Show Position Rings**  
 Yes  No  
1/2 mile and 1/8 mile at the Search Point

**Show Search Area**  
 Yes  No  
2 Search distance miles radius

Search Point is at map center

**Base Map Choices**  
Topography

**Map Overlay Choices**  
Current List: Position, Search, BECAR, BAEANests, TEWaters, TierII, Habitat, Trout, Anadromous

**Map Overlay Legend**

**T & E Waters**

Federal

State

**Predicted Habitat WAP Tier I & II**

Aquatic

Terrestrial

**Trout Waters**

Class I - IV

Class V - VI

**Anadromous Fish Reach**

Confirmed

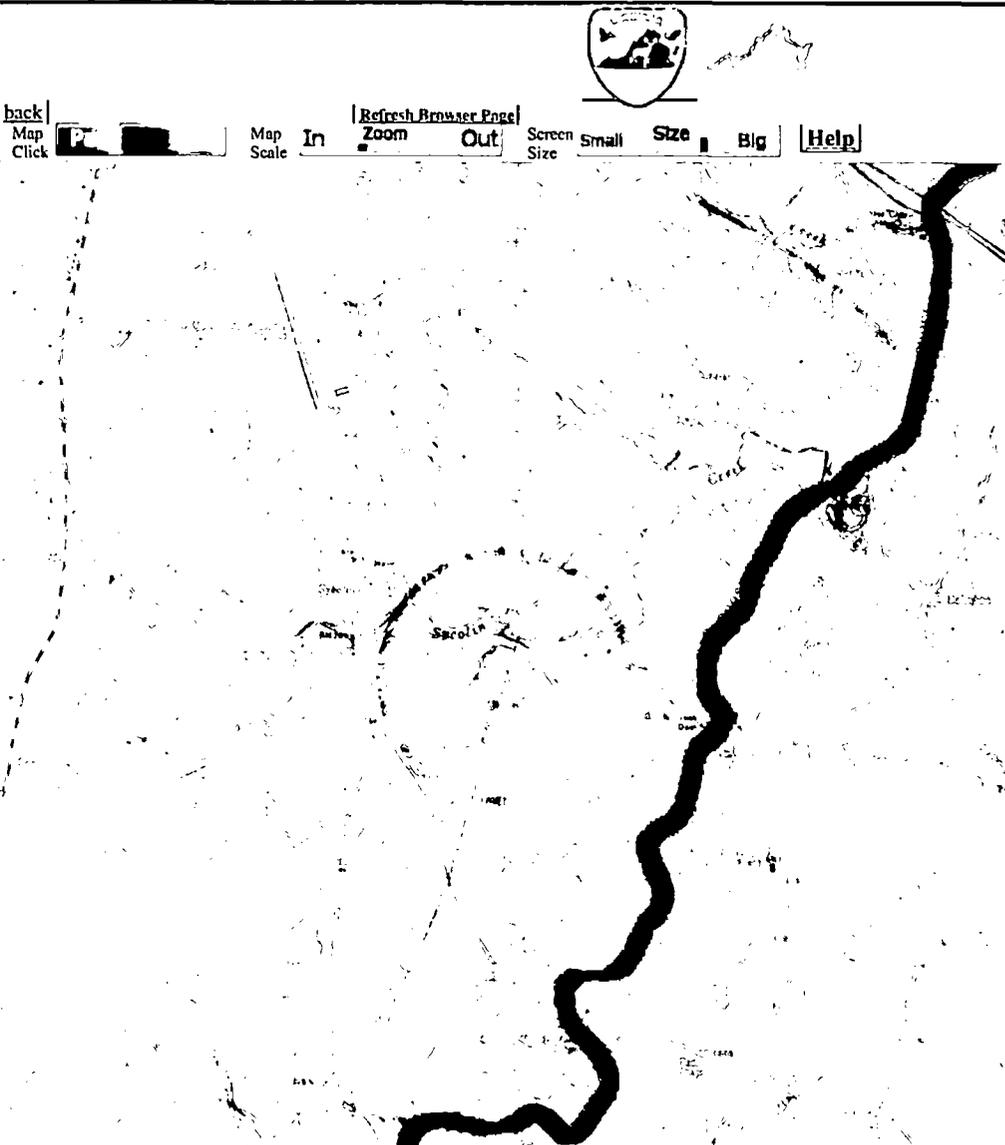
Potential

**Impediment**

Position Rings 1/2 mile and 1/8 mile at the Search Point

2 mile radius Search Area

**Bald Eagle Concentration Areas and Roosts**



back Map Click  Map Scale In Zoom Out Screen Size Small Size Big Help

© Commonwealth of Virginia Dept. of Game and Inland Fisheries, November 23, 2002

N

500 0 500 1000 1500 2000 Meters  
2000 0 2000 4000 6000 Feet

Point of Search 39,03,32.0 -77,32,28.0  
Map Location 39,03,32.0 -77,32,28.0

Select Coordinate System:  Degrees, Minutes, Seconds Latitude - Longitude  
 Decimal Degrees Latitude - Longitude  
 Meters UTM NAD83 East North Zone  
 Meters UTM NAD27 East North Zone

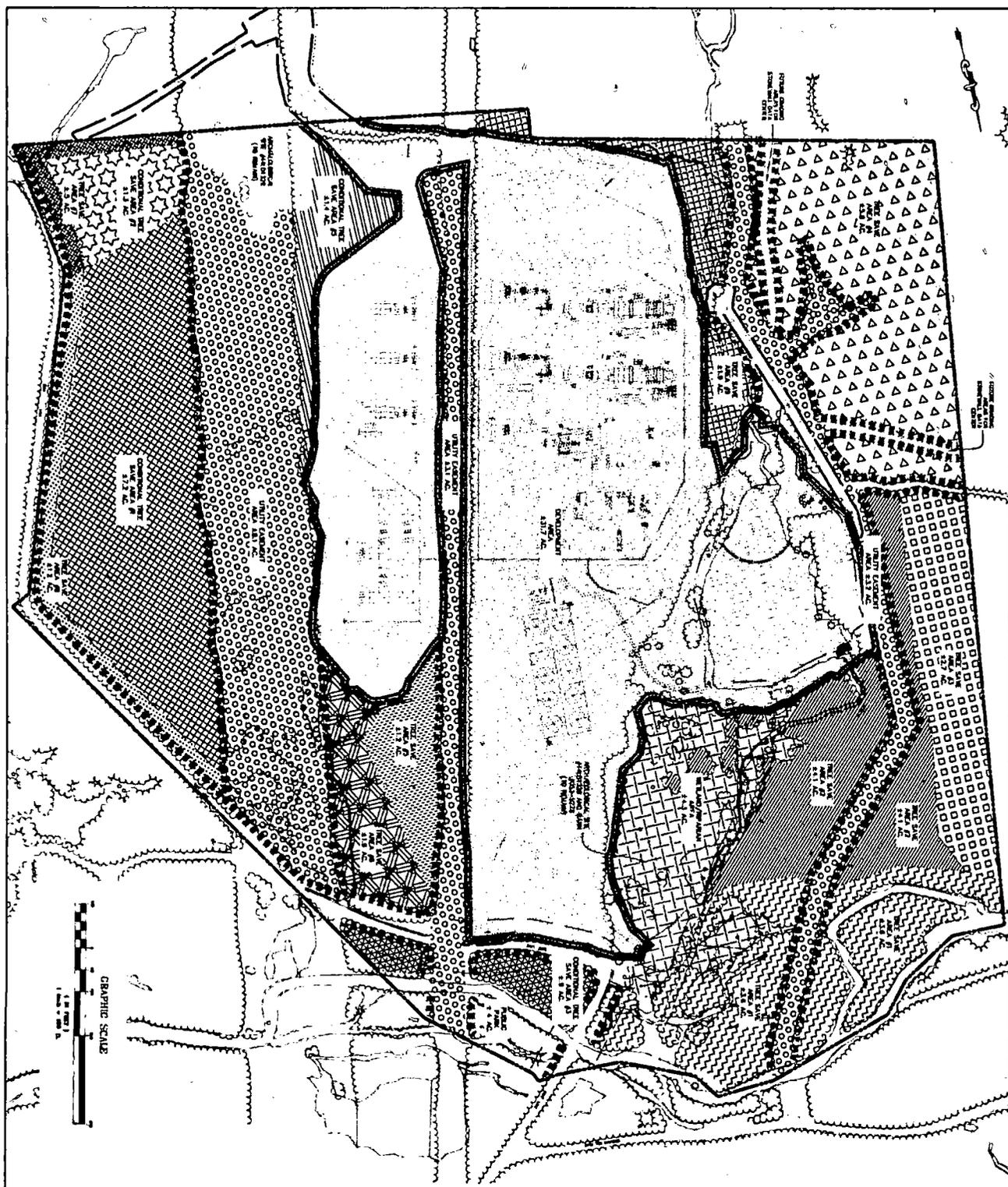
Base Map source: Topographic maps from TOPO! copyright 2006 (see [National Geographic Maps](#) for details)

Map projection is UTM Zone 18 NAD 1983 with left 276930 and top 4329585. Pixel size is 8 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West. Map is currently displayed as 800 columns by 800 rows for a total of 640000 pixels. The map display represents 6400 meters east to west by 6400 meters north to south for a total of 40.9 square kilometers. The map display represents 21000 feet east to west by 21000 feet north to south for a total of 15.8 square miles.

Topographic maps and Black and white aerial photography for year 1990+







**LEGEND**

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- CONSTRUCTION SITE (SEE PLAN 100)

**STONEMOUNT ENERGY SERVICES, INC.**

10000 WOODBURY ROAD  
 WOODBURY, VIRGINIA 22193  
 TEL: 703-443-2000  
 FAX: 703-443-2001  
 WWW.STONEMOUNTENERGY.COM

**STONEMOUNT ENERGY SERVICES, INC.**

10000 WOODBURY ROAD  
 WOODBURY, VIRGINIA 22193  
 TEL: 703-443-2000  
 FAX: 703-443-2001  
 WWW.STONEMOUNTENERGY.COM

NATURAL RESOURCE & FOREST MANAGEMENT PLAN (1 OF 3)

**STONEWALL ENERGY PARK**

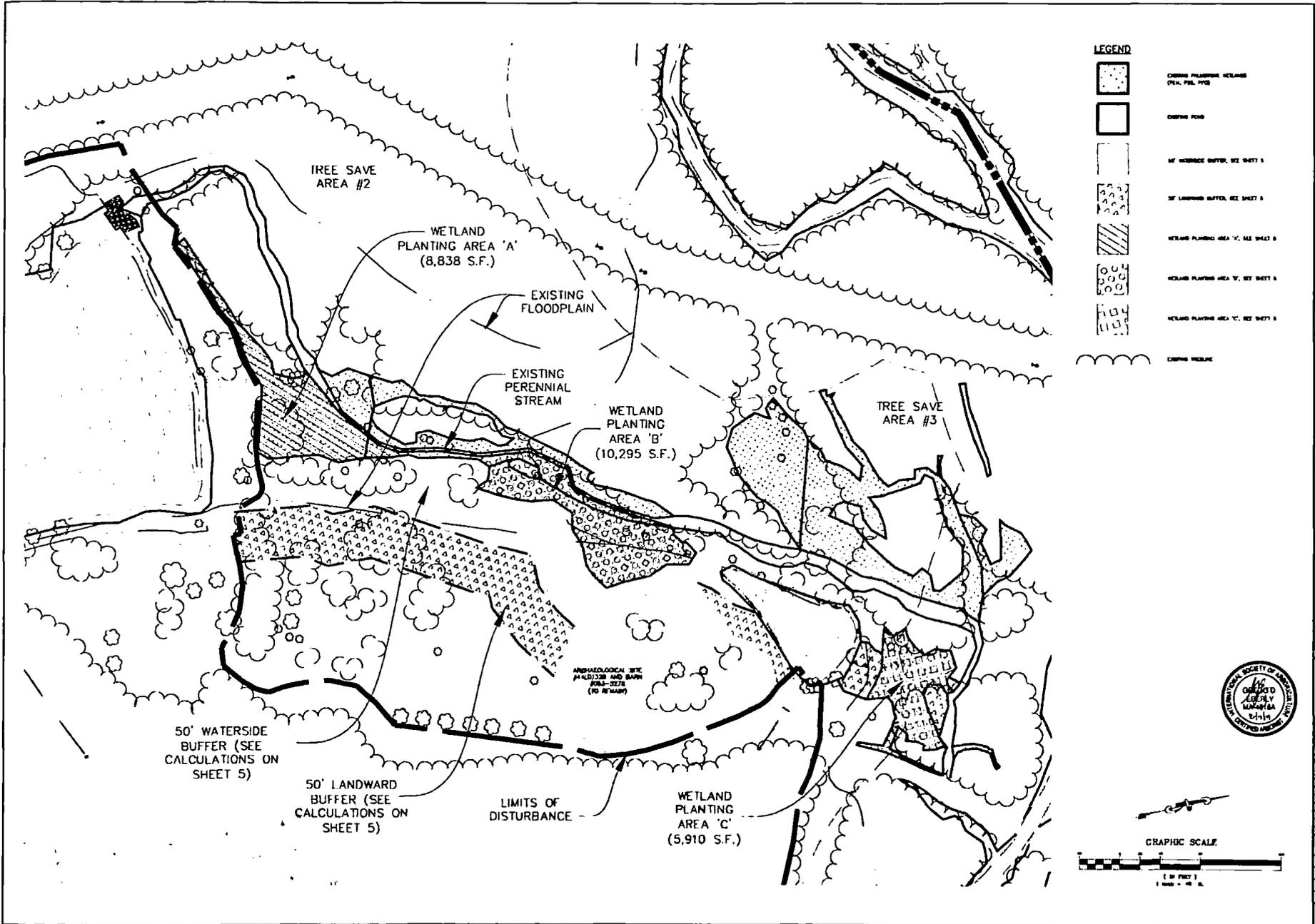
SITE PLAN

CATOCTIN ELECTION DISTRICT LOUDOUN COUNTY, VIRGINIA

Survey/Designing Dates: 11/11/11, 12/14/11, 1/10/12, 1/17/12, 2/13/12, 2/20/12, 2/27/12, 3/6/12, 3/13/12, 3/20/12, 3/27/12, 4/3/12, 4/10/12, 4/17/12, 4/24/12, 5/1/12, 5/8/12, 5/15/12, 5/22/12, 5/29/12, 6/5/12, 6/12/12, 6/19/12, 6/26/12, 7/3/12, 7/10/12, 7/17/12, 7/24/12, 7/31/12, 8/7/12, 8/14/12, 8/21/12, 8/28/12, 9/4/12, 9/11/12, 9/18/12, 9/25/12, 10/2/12, 10/9/12, 10/16/12, 10/23/12, 10/30/12, 11/6/12, 11/13/12, 11/20/12, 11/27/12, 12/4/12, 12/11/12, 12/18/12, 12/25/12, 1/1/13, 1/8/13, 1/15/13, 1/22/13, 1/29/13, 2/5/13, 2/12/13, 2/19/13, 2/26/13, 3/5/13, 3/12/13, 3/19/13, 3/26/13, 4/2/13, 4/9/13, 4/16/13, 4/23/13, 4/30/13, 5/7/13, 5/14/13, 5/21/13, 5/28/13, 6/4/13, 6/11/13, 6/18/13, 6/25/13, 7/2/13, 7/9/13, 7/16/13, 7/23/13, 7/30/13, 8/6/13, 8/13/13, 8/20/13, 8/27/13, 9/3/13, 9/10/13, 9/17/13, 9/24/13, 10/1/13, 10/8/13, 10/15/13, 10/22/13, 10/29/13, 11/5/13, 11/12/13, 11/19/13, 11/26/13, 12/3/13, 12/10/13, 12/17/13, 12/24/13, 1/7/14, 1/14/14, 1/21/14, 1/28/14, 2/4/14, 2/11/14, 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PLANTING PLAN (1 OF 3)  
**STONEWALL ENERGY PARK**  
 SITE PLAN  
 CALOCTIN ELECTION DISTRICT LOUDOUN COUNTY, VIRGINIA



DATE	DESCRIPTION
07/22/13	ISSUED FOR PERMIT
07/22/13	REVISED
07/22/13	REVISED
07/22/13	REVISED

DATE	DESCRIPTION
07/22/13	ISSUED FOR PERMIT
07/22/13	REVISED
07/22/13	REVISED
07/22/13	REVISED

**RIPARIAN BUFFER AREA**

LOCATED DIRECTLY TO THE EAST OF TREE SAVE AREA #2, THERE ARE APPROXIMATELY 4.3 ACRES OF RELATIVELY OPEN, NON-WOODED RIPARIAN AREA/ZONE. BOG PROPOSES THE INTRODUCTION OF A 100'-FOOT VEGETATED PERENNIAL STREAM BUFFER TO INCLUDE CANOPY TREES, UNDERSTORY TREES, SHRUBS AND HERBACEOUS SEED MIX TO THE EAST OF THE EXISTING PERENNIAL STREAM.

RIPARIAN BUFFERS FULFILL MANY FUNCTIONS ON SEVERAL DIFFERENT LEVELS WHILE REQUIRED BY THE CHESAPEAKE BAY PRESERVATION ACT FOR WATER QUALITY BENEFITS, THE ADVANTAGES REALIZED BY A NATURAL OR ESTABLISHED FORESTED BUFFER GO WELL BEYOND CLEAN WATER, EROSION CONTROL AND CONTROL OF RUNOFF. THE PRESENCE OF PROPERLY VEGETATED BUFFERS PROVIDES BIOLOGICALLY DIVERSE HABITATS BOTH IN THE WATER AND ON LAND. THEY ARE COMPLEX ECOLOGICAL SYSTEMS THAT CONNECT THE UPLAND AREAS WITH SURFACE WATERS PROVIDING A TRANSITIONAL AREA THROUGH WHICH BOTH THE SURFACE AND GROUND WATERS FLOW. PROTECTING RIPARIAN BUFFERS PROTECTS HUMAN HEALTH AND WELFARE BY PROTECTING WATER SUPPLIES AND MAY CREATE ECONOMIC ADVANTAGES THROUGH INCREASED PROPERTY VALUES. THE ABILITY OF THE BUFFER TO REDUCE THE SPEED AND VOLUME OF STORMWATER AND FLOODWATERS ENCOURAGES THEIR RETENTION IN THE SOIL HELPING PREVENT THE LOSS OF PROPERTY AND LIVES IN SLIDING THE PROGRESS OF THE FLOODWATERS. THE BUFFER ALSO REDUCES THE VELOCITY OF THE STREAM, ALLOWING SEDIMENT AND ATTACHED NUTRIENTS AND TOXINS TO FILTER OUT AND SETTLE. THE WOODY VEGETATION WITH ASSOCIATED LITTER SLOWS STORMWATER RUNOFF, REDUCING EROSION AND PERMITTING INFILTRATION OF WATER TO RECHARGE THE GROUND WATER SYSTEM. DETENTION WITHIN THE BUFFER OF BOTH SURFACE AND GROUND WATERS ALLOWS THE RETENTION OR TRANSFORMATION OF POLLUTANTS BEFORE THEY CAN REACH OPEN WATERS. THE VEGETATION ALONG STREAMS AND COASTAL SHORES HOLDS THE BANKS IN PLACE WITH THEIR ROOTS, MINIMIZING THE ADDITION OF FURTHER SEDIMENTATION THROUGH BANK FAILURE, AS PART OF GREENWAYS AND OPEN SPACE WITHIN A COMMUNITY. RIPARIAN FOREST BUFFERS PROVIDE NUMEROUS OPPORTUNITIES FOR RECREATION AND EDUCATION. HIKERS, BIRDWATCHERS, AND BICYCLISTS CAN ALL ENJOY THE VARIETY OF LANDSCAPES AND HABITATS IN A BUFFER. SPORTING ENTHUSIASTS ALSO ENJOY THE FISHING AND SMALL GAME OPPORTUNITIES AVAILABLE IN FORESTED BUFFERS. AS PART OF THE QUALITY OF LIFE IN A COMMUNITY, A SYSTEM OF BUFFERS MAY ADD TO THE ECONOMY OF AN AREA AS WELL THROUGH AESTHETICS AND LAND VALUE. RIPARIAN FOREST BUFFERS ADD A VARIETY OF BENEFITS TO A WATERSHED AND ITS ADJACENT COMMUNITIES. WHILE ITS PRIMARY VALUE IS DERIVED FROM ITS WATER QUALITY CONTROL AND EROSION CONTROL FUNCTIONS, FORTUNATE SIDE EFFECTS OF A FUNCTIONING BUFFER ARE THE BENEFITS TO FISHERIES AND WILDLIFE AND TO THE QUALITY OF LIFE FOR COMMUNITIES' CITIZENS.

Chapter 3 - Buffer Establishment, Maintenance and Restoration

**RESTORATION/ESTABLISHMENT TABLE B**

Greenway Class X, acres of buffer  
More than 10,000 square feet

A. 1/3rd of the area is to be 10' wide or less.

B. The average 1/3rd of the area is to be 10' wide or less. For every 400 square feet (40' x 10') = 0.005 acres on these plans.

For every 100' x 100' = 0.25' x 100' = 0.0025 acres  
For every 100' x 50' = 0.125' x 100' = 0.00125 acres  
For every 100' x 25' = 0.0625' x 100' = 0.000625 acres  
For every 100' x 12.5' = 0.03125' x 100' = 0.0003125 acres

The standard 1/3rd of the area is to be 10' wide or less.

1. 3 GALLON CONTAINER TREES  
Minimum 50% survival after 2 years of growth. 7500 plants

C. 25% of the area of the greenway is to be 10' wide or less. 25% of the area is to be 10' wide or less. 25% of the area is to be 10' wide or less. 25% of the area is to be 10' wide or less.

**100' RIPARIAN BUFFER ESTABLISHMENT CALCULATIONS**

TOTAL AREA: 04,761 S.F.

WATERSIDE 50% OF BUFFER: 30,908 S.F.

CANOPY TREES (1.5"-2") REQUIRED: 190 TREES (2 PER 400 S.F.)

UNDERSTORY TREES (.75"-1.5") REQUIRED: 98 TREES (1 PER 400 S.F.)

SHRUBS (15"-18") REQUIRED: 292 SHRUBS (3 PER 400 S.F.)

LANDWARD 50% OF BUFFER: 23,853 S.F. OR .59 AC.

CONTAINER GROWN TREES REQUIRED: 416 TREES (700 PER ACRE)

TREE SURVIVABILITY REQUIRED: 75% OR 312 TREES

NOTE: PLANTING REQUIREMENTS HAVE BEEN TAKEN FROM THE RIPARIAN BUFFERS MODIFICATION AND MITIGATION GUIDANCE MANUAL PUBLISHED BY THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION. SEE RESTORATION/ ESTABLISHMENT TABLE B ATTACHED.

**RIPARIAN BUFFER PLANT SCHEDULE (PART -) - 100' S.F.**

Botanical Name	Common Name	Stock Type/Size	Quantity
Aster sp. (var.)	Starwort	3 GAL. CONT. 1.5" x 2" cal.	22
Coreopsis grandiflora	Annual Sunflower	3 GAL. CONT. 1.5" x 2" cal.	22
Coreopsis lanceolata	Annual Sunflower	3 GAL. CONT. 1.5" x 2" cal.	22
Coreopsis verticillata	Annual Sunflower	3 GAL. CONT. 1.5" x 2" cal.	22
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**From:** Malone, Dana [<mailto:Dana.Malone@loudoun.gov>]  
**Sent:** Tuesday, August 13, 2013 10:37 AM  
**To:** Gregg Eberly  
**Subject:** Stonewall Energy Park Natural Resource Management Plan (NRMP)

Gregg,

This is to inform you that I have approved the most recent draft of the NRMP for Stonewall Energy Park. I look forward to receiving the updated drawing set in the near future.

Dana Malone  
Loudoun County Urban Forester/Arborist  
Department of Building & Development  
[dana.malone@loudoun.gov](mailto:dana.malone@loudoun.gov)  
703/771-5991

30920196

**Hessler Associates, Inc.**  
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130920106

**REPORT NO. 1922-080612-H**

DATE OF ISSUE: SEPTEMBER 5, 2013

**ACOUSTICAL DESIGN ASSESSMENT  
OPERATIONAL AND CONSTRUCTION SOUND EMISSIONS**

**STONEWALL ENERGY PROJECT**

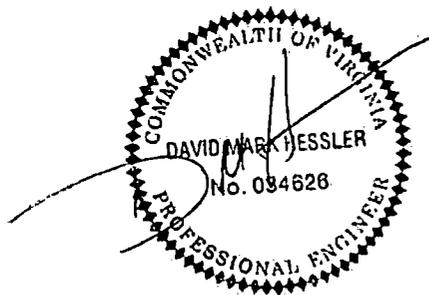
LOUDOUN COUNTY, VIRGINIA

PREPARED FOR:

**Green Energy Partners / Stonewall, LLC**

Prepared by:

David M. Hessler, P.E., INCE  
Principal Consultant  
Hessler Associates, Inc.





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**Plot 1**            Predicted Sound Contours during Steady-state Operation

**Appendix A**    Operational Sound Testing Protocol

**Figure A1**     Operational Sound Test Measurement Locations

## 1.0 INTRODUCTION

Hessler Associates, Inc. has been retained by Green Energy Partners/Stonewall, LLC (GEP/S) to carry out a noise modeling and design assessment for the proposed Stonewall Energy Project near Leesburg in Loudoun County, VA in order to determine what, if any, non-standard noise abatement features might need to be incorporated in the facility design to meet the applicable regulatory noise limits.

As currently envisioned, the plant is a 2 on 1 outdoor combined cycle facility based on "F" class combustion turbines with a plume-abated, counterflow cooling tower.

## 2.0 APPLICABLE REGULATORY NOISE LIMITS

There are no State or Federal noise regulations that would apply to the project but Section 5-1507 of the Loudoun County Zoning Ordinance limits the overall sound level to **55 dBA** at the property line to the north of the plant adjoining land zoned as JLMA-20 and to **70 dBA** at the industrially zoned parcels surrounding the project site in all other directions.

In addition to these operational noise limits, the Conditions of Approval for the project (Special Exemption Use) also require quarterly sound testing to verify compliance with the Ordinance limits. A recommended test protocol for this testing is attached as **Appendix A** to this report.

## 3.0 OPERATIONAL SOUND LEVELS AND ABATEMENT

### 3.1 MODELING METHODOLOGY

The noise emissions from the facility during steady state operation have been evaluated through analytical noise modeling, using the Cadna/A<sup>®</sup>, ver. 4.2 software program developed specifically for power generation applications by DataKustik, GmbH. The software allows the facility and its surroundings, including the local topography, to be realistically recreated in three dimensions. Once sound power levels are added for each discrete noise source, the program calculates far field sound pressure levels at any point of interest in strict accordance with ISO 9613-2 *Acoustics – Attenuation of Sound during Propagation Outdoors*<sup>1</sup>. Sound level contour plots are also produced.

All input sound power levels to the models, the most critical ingredient with respect to accuracy and usefulness, have been developed from first-hand field measurements of similar or identical equipment in operation at numerous existing combined cycle plants. In this case, GE 7FA combustion turbines are assumed and modeled based on extensive near field testing of this turbine model at dozens of sites. It is not expected that the sound emissions from the next generation of this turbine (planned for this project but not yet in commercial service), the Model 7FA.05, would vary to any meaningful degree from the field data collected at 7FA.03 sites<sup>1</sup>. Comparable Siemens combustion turbines are also being considered for this project but, based on similar first-hand field testing at Siemens plants, the sound emissions from these units would be generally comparable to or possibly lower than the GE units that are being assumed for analysis purposes.

The somewhat hilly local topography around the site area is accounted for in the model. A ground absorption coefficient ( $A_g$  from ISO 9613-2) of 0.75 (on a scale of 0 to 1; 1 being completely absorptive) is assumed because the site is surrounded by dense woods, which are typically

---

<sup>1</sup> The GE Model 7FA.04 has only recently entered commercial service at one or two sites and has not yet been surveyed.



associated with above average losses due to ground absorption. No specific additional loss for foliage has been taken, since the forest is mostly deciduous in nature.

The basic approach to the modeling is to first develop a "baseline" model in which all of the noise sources are represented as producing a "standard" sound level. This model essentially quantifies the sound emissions from the facility that would be likely to occur if the plant were built in the conventional way.

If the model results indicate that such a plant meets the relevant design targets, then no special noise controls are required. On the other hand, if the design target is not met by the baseline model then the individual sources are rank ordered at relevant positions to identify which sources would require abatement and how much to bring the overall level down to the objective. Mitigation is then analytically applied to these sources by reducing their sound power levels, by a degree consistent with practical noise mitigation measures, until a satisfactory performance is achieved. These reduced levels then become the target design performance for each piece of equipment that is realized either through purchase specifications or by the implementation of some external noise abatement measure, such as a noise barrier or enclosure.

### 3.2 MODEL RESULTS – STEADY STATE OPERATION

The results of the baseline noise model are illustrated in **Plot 1** as the facility-only sound contours plotted over an aerial photograph of the site vicinity. This graphic shows that during normal full load operation the applicable regulatory limit of 55 dBA is expected to be met at the northern property line abutting land zoned as JLMA-20.

The 70 dBA County noise limit at bordering industrial land uses (to the west, south and east) is also met at the project site boundaries. The areas with sound levels higher than 70 dBA essentially appear as the white region inside the closest contour lines within the power block and near the cooling tower, all of which are within the property limits.

It should be noted that Plot 1 represents the sound emissions from the facility operating normally at base load and does not specifically include the back-up diesel generator, which would not be running under such circumstances. The generator's primary purpose is to provide emergency power to the site in the event of a trip or unexpected shutdown. Consequently, when in use the generator would be essentially operating on its own. The sound emissions from this source, which is a fairly small, pre-packaged unit, would be at least an order of magnitude lower than the sound level produced by the entire facility, so the resulting sound levels at the site boundaries would be well below the levels in Plot 1. One other circumstance when the generator would run is during intermittent tests to exercise the machine and maintain its lubrication. This could occur with the remainder of the plant operating; however, under this circumstance generator noise would be only a minor additional source and would not affect the total facility sound level at any boundary.

### 3.3 NOISE ABATEMENT

Although the baseline design sound levels satisfy the Loudoun County noise standard, one noise mitigation measure that may be needed to realize the modeled baseline performance is to acoustically lag the HRSG duct burner fuel skid piping from the main pressure letdown valve up to the vertical distribution manifold – or specifically to where each fuel line ties into a burner. The noise generated by the normally large pressure drop over the burner gas pressure control valves can be on the order of more than 105 dBA in the near field, which, despite being high frequency in nature, has the potential to affect the overall facility sound level at the site boundaries. Because the magnitude of this noise is not readily predictable in advance this source has been intentionally left out of the model. The working assumption is that these gas lines can be lagged on a retrofit basis if the noise ends up being detrimental to regulatory compliance.

In addition to this potential retrofit, the following noise abatement measures are currently planned to mitigate noise during both normal and transient operation:

- Acoustical enclosures around the combustion turbines
- Combustion turbine inlet silencers
- An acoustical enclosure around the steam turbine
- HP, IP and LP start-up vents – Atmospheric vent silencers will be supplied by the HRSG manufacturer
- Vacuum pump discharge vents – Vent silencers will be provided by the pump manufacturer
- Steam turbine bypass valves will be strategically designed and/or located to minimize far field noise

Aside from steady-state operation, higher sound levels can occur during the start-up of a combined cycle plant (after an overnight or lengthier outage), if only on a short-term basis. A number of noise sources that are otherwise dormant become active for a period of a few minutes to a few hours in a complex, time dependent sequence that is never exactly the same at any two plants. Any additional mitigation measures that may be utilized to minimize the impact from these sources cannot be detailed the present time and will need to be developed as the plant design progresses.

#### **4.0 CONSTRUCTION NOISE**

Assessing and quantifying noise from plant construction is somewhat difficult because the various pieces of equipment and diverse activities produce noise in an irregular and intermittent manner, in terms of time, location and magnitude leading to variable sound levels at any given point.

Construction of the project is anticipated to consist of several principal phases:

- Excavation and earthworks
- Foundation work and concrete pouring
- Steel erection and component installation
- Commissioning

The individual pieces of equipment likely to be used for each of these phases and their typical sound levels as reported in the *Roadway Construction Noise Model Guide*<sup>2</sup> from the Federal Highway Administration are shown below in Table 4.0.1. These sound levels, in the second column of the table, are the actual measured values over dozens or hundreds of samples. The next column gives the estimated total sound level that might realistically result at a distance of 50 ft. with most or all of these individual pieces of equipment in simultaneous operation. This design level is then projected out to the nearest property boundary in each cardinal direction based on the distance from the nearest major plant component to the property line, as illustrated in Figure 4.0.1 on the following page. For example, Position N to the north is 1020 ft. from the cooling tower and Position S to the south is only 360 ft. from the southern CTG/HRSG powertrain.

**Table 4.0.1 Estimated Construction Equipment Sound Levels by Phase at the Site Boundaries**

Equipment Description	Typ. Sound Level at 50 ft., dBA <sup>2</sup>	Est. Maximum Total Level at 50 ft. per Phase, dBA <sup>1</sup>	Est. Max. Sound Level at Pos. N (1020'), dBA	Est. Max. Sound Level at Pos. W (720'), dBA	Est. Max. Sound Level at Pos. S (360'), dBA	Est. Max. Sound Level at Pos. E (1140'), dBA	Compliance with Relevant Ordinance Limits?
<b>Nominal Ordinance Noise Limit:</b>			55 dBA	70 dBA	70 dBA	70 dBA	
<b>Excavation and Earthworks</b>							
Dozer	82						
Front End Loader	79	84	54	58	66	53	Yes
Gradall Excavator	83						
<b>Foundation Work and Concrete Pouring</b>							
Piling Auger Excavator	84	85	55	59	67	54	Yes
Concrete Pump	81						
<b>Steel Erection and Component Installation</b>							
Flat Bed Truck	74						
Welder/Torch	74	81	51	55	63	50	Yes
Mobile Crane	81						
<b>Commissioning</b>							
Steam Blow <sup>ii</sup> (with Silencer)	85	85	51	58	60	53	Yes

<sup>i</sup> Not all equipment is likely to be in simultaneous operation. Maximum level represents the highest level realistically likely at any given time.

<sup>ii</sup> The steam blow silencer is likely to be located near the steam turbine close to the center of the site and somewhat further from the boundary criterion points. The distances used in the calculation (for this phase only) are 1475 ft. to N, 840 ft. to W, 660 ft. to S and 1260 ft. to E.

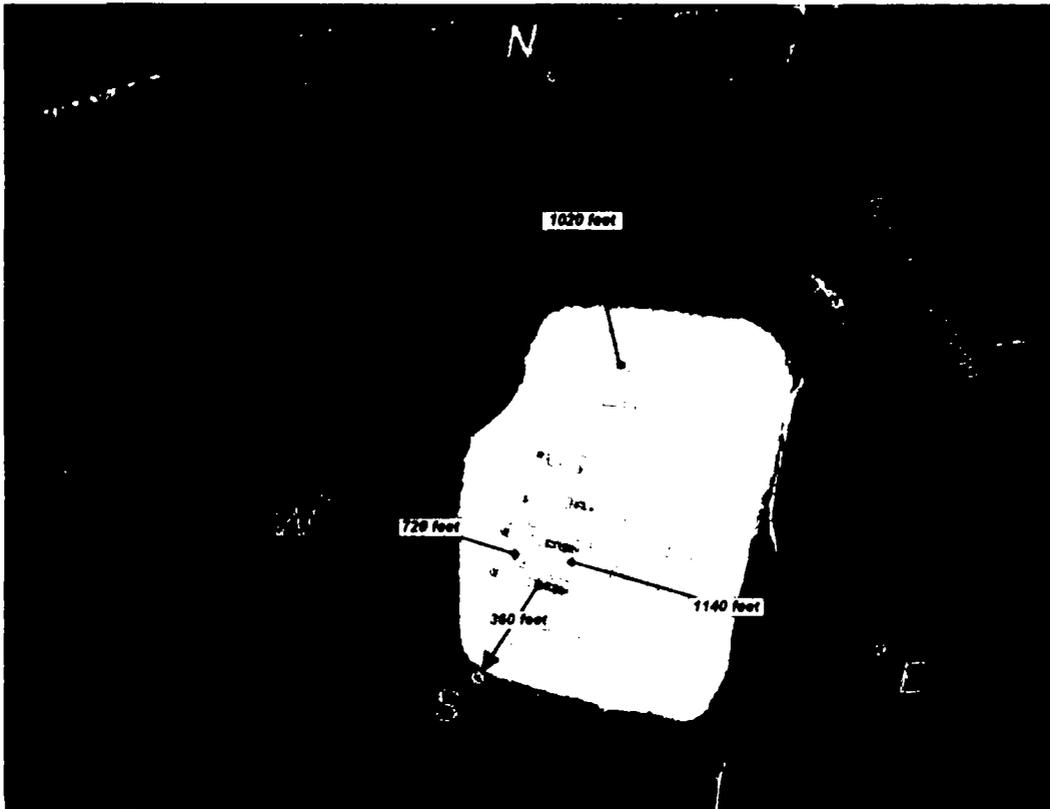


Figure 4.0.1 Site Property Showing Derivation of Construction Noise Analysis Points

Construction noise is customarily exempted from most regulatory noise limits. Certain construction activities such as blasting and pile driving would only be conducted during daylight hours. What the values in Table 4.0.1 suggest is that noise during project construction will remain in general compliance with the Ordinance limits. Sizeable wooded buffers between the power block area and the W, N and E boundaries will also contribute to noise mitigation.

## 5.0 CONCLUSIONS

An analytical noise model of the Stonewall Energy Project was developed to evaluate operational sound levels at the nearest site boundaries for compliance with the 55 dBA (residential)/70 dBA (industrial) noise limits contained in Section 5-1507 of the Loudoun County Zoning Ordinance.

The noise modeling results indicate that during normal full load operation the 55 dBA County limit is expected to be met at the nearest JLMA-20 (residential) boundary to the north of the plant. The 70 dBA industrial zoning noise limit applicable at all other boundaries will also be met.

Noise abatement measures will be implemented on certain sources, such as the combustion and steam turbines to reduce noise during all operating conditions. Operation of the emergency diesel generator either by itself or while the facility is otherwise in operation will not have any appreciable effect on the site boundary sound levels.



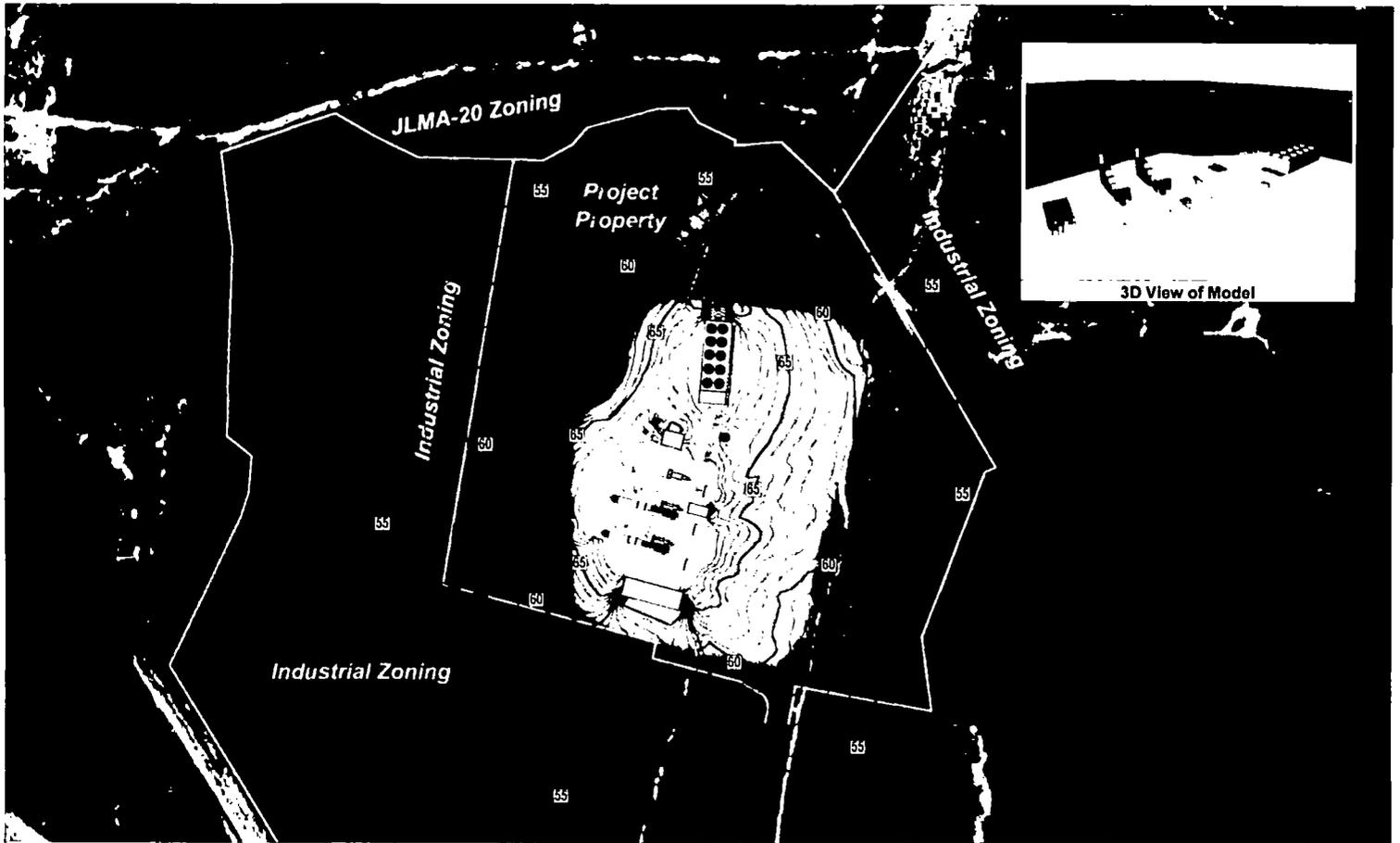
Sound levels during project construction have been calculated at the site boundaries based on FHWA data for construction equipment for four different phases: excavation and earthworks, foundation work, erection and commissioning. The resultant sound levels are expected to remain below the 55/70 dBA County Ordinance limits for normal operation.

END OF REPORT TEXT

**References**



- 
- <sup>1</sup> *Acoustics – Attenuation of Sound during Propagation Outdoors, Part 2, “A General Method of Calculation,”* ISO 9613-2, International Organization for Standardization, Geneva, Switzerland, 1989.
- <sup>2</sup> U. S. Dept. of Transportation, Federal Highway Administration, *Roadway Construction Noise Model User’s Guide*, Table 1, Jan. 2006.



Project: **Stonewall Energy Project**  
 Prepared for: **GEP/S**  
 Date: **August 2, 2012**  
 Drawing #: **STW-Rev-C-1-2**

Description: **Plot 1**  
**Predicted Sound Contours (dBA) of**  
**Baseline Plant in Steady State Operation**

Legend:  
 Property Boundary  
 55 dBA or Higher

Hessler Associates, Inc.

3882 Clifton Manor Place, Suite B  
 Haymarket VA, 20169  
 www.hesslernoise.com  
 (703) 753-2291 (703) 753-1602





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## Appendix A

### Operational Sound Testing Protocol Stonewall Energy Project

#### 1.0 INTRODUCTION

Condition 5 of the Conditions of Approval for the Special Exception Use (i.e. the Project) mandates that "the Applicant shall conduct quarterly noise testing to ensure that noise levels do not exceed the performance standards set forth in Section 5-1507 of the Revised 1993 [Loudoun County] Zoning Ordinance." This document outlines the procedures to be used in carrying out these tests.

#### 2.0 REGULATORY REQUIREMENTS

There are no State or Federal noise regulations that would apply to the project but Section 5-1507 of the Loudoun County Zoning Ordinance limits the overall sound level to **55 dBA** at the property line to the north of the plant adjoining land zoned as JLMA-20 and to **70 dBA** at the industrially zoned parcels surrounding the project site in all other directions.

#### 3.0 MEASUREMENT POSITIONS

**Figure A1** shows the site property line and an approximate measurement location on the property boundary in each cardinal direction. Measurements shall be taken at or near each of these locations, designated as Positions N, W, S and E. The precise locations shall be established and fixed during the first field survey considering such issues as accessibility, terrain, the avoidance of local contaminating noises, etc.

At each location the microphone shall be positioned 5 ft. above ground level and away from any large vertical reflecting surfaces.

#### 4.0 INSTRUMENTATION AND MEASUREMENT METHODOLOGY

An integrating sound level meter meeting either Type 1 or Type 2 precision per ANSI S1.4-1983 (R2006) shall be used for the measurements. The meter shall be field calibrated at the beginning and end of the survey and any drift shall be reported. The meter shall have been laboratory calibrated within the past 2 year period preceding the test. A standard 3", or larger, windscreen must be used for all measurements.

The measurements shall be taken as 15 second averages, or  $Leq(15 s)$ , in the absence of any obvious contaminating noise events, such as from traffic, wind gusts, planes flying over, etc. Any contaminated measurements shall be disregarded and repeated. A minimum of 3 valid samples shall be collected at each location and the arithmetic average of all such measurements shall be considered the result.

The wind speed during the test shall be 11 mph or less as recommended in ANSI S12.9-1993 (R2008) Part 3, and no precipitation shall be occurring during or within 2 hours prior to the test.



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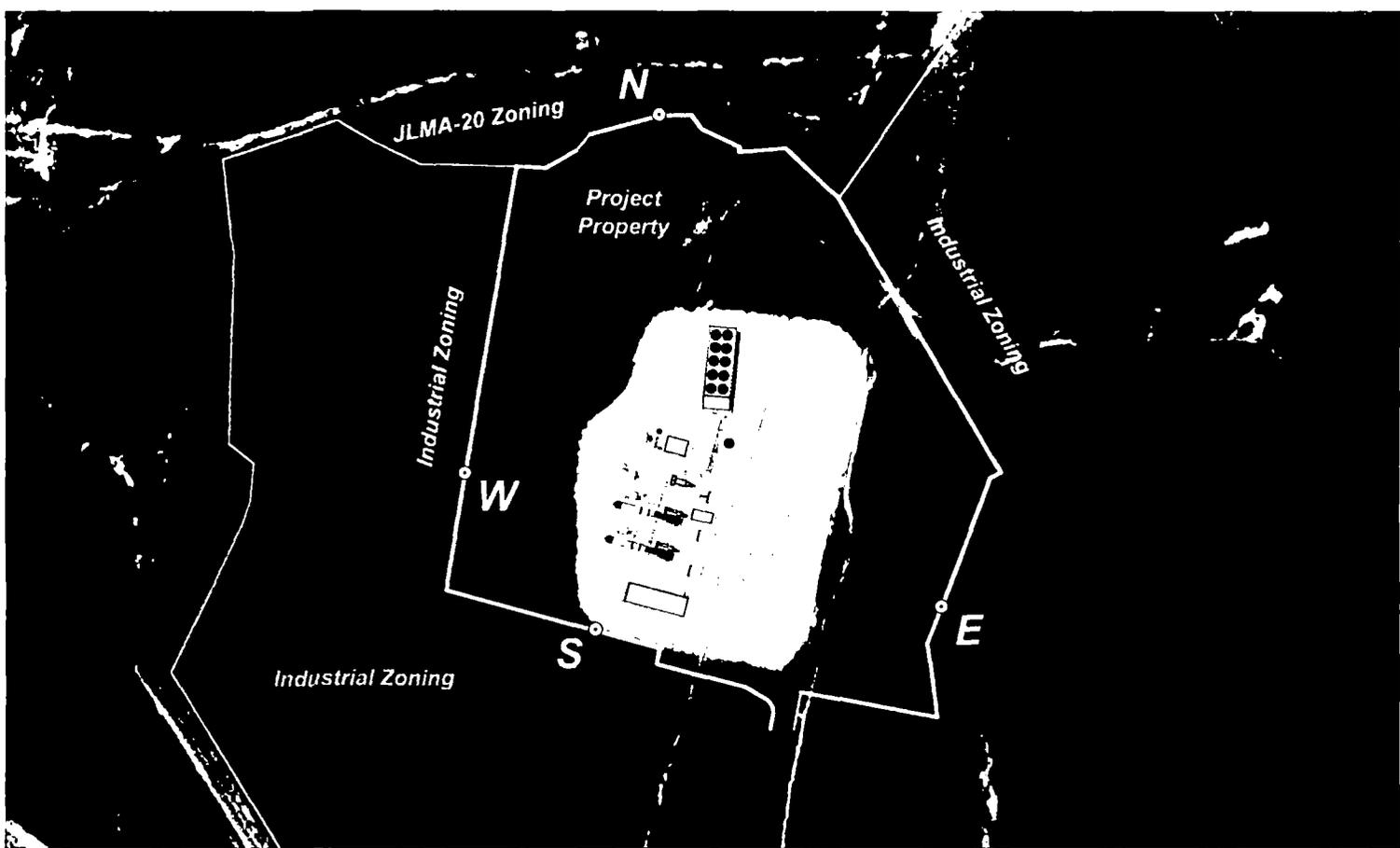
**5.0 SCHEDULE AND FACILITY OPERATING CONDITIONS**

As mandated in the Conditions of Approval, the testing shall be carried out on a quarterly basis. Consequently, testing shall generally take place 4 times in a rolling 12 month period.

During the survey the plant shall be operating at full load with both combustion turbines at 100% load in order to capture the maximum continuous noise from the facility.

**7.0 REPORTING**

A test report shall be prepared following each field survey describing the test conditions including the facility's operating configuration, test positions and the instrumentation used along with the survey results. If the measured sound levels are found to be equal to or less than the applicable noise limits then the facility shall be considered in compliance with the Zoning Ordinance and Special Exception Use permit. On the other hand, if an overage is found, diagnostic measurements will be taken to identify the source(s) responsible for the non-compliant levels with a view towards developing appropriate remediation measures. In such a case, the Zoning Administrator will be notified and informed of the project's plans to resolve the issue.



<p><i>Project:</i> Stonewall Energy Project</p> <p><i>Prepared for:</i> GEP/S</p> <p><i>Date:</i> August 7, 2013</p> <p><i>Drawing #:</i> STW-Rev-E-1-A1-1</p>	<p><i>Description:</i></p> <p align="center"><b>Figure A-1</b></p> <p align="center"><b>Nominal Measurement Locations For Operational Sound Tests</b></p>	<p><i>Legend:</i></p> <ul style="list-style-type: none"> <li>⊙ Measurement Location</li> <li>▬ Property Boundary</li> </ul>
<p align="center">Hessler Associates, Inc.</p>	<p align="center">3862 Clifton Manor Place, Suite B Haymarket VA, 20169 www.hesslemoise.com (703) 753-2291 (703) 753-1602</p>	





COMMONWEALTH of VIRGINIA  
DEPARTMENT OF TRANSPORTATION

GREGORY A. WHIRLEY  
COMMISSIONER

4975 Alliance Drive  
Fairfax, VA 22030

130920106

August 27, 2013

Neelam Henderson  
Project Manager  
County of Loudoun  
Office of Transportation Services MS#60A  
1 Harrison Street, S.E.  
P.O. Box 7000  
Leesburg, Virginia 20177-7000

**Re: Stonewall Hybrid Energy Park  
STPL 2012-0003**

Dear Mr. Henderson,

We have reviewed the referenced application that was received on August 20, 2013. All our comments have been addressed and we have no further comment. VDOT does not have any objection to approval.

If you have any questions, please call me at (703) 259-2414.

Sincerely,

*Alex Faghri*

Alex Faghri

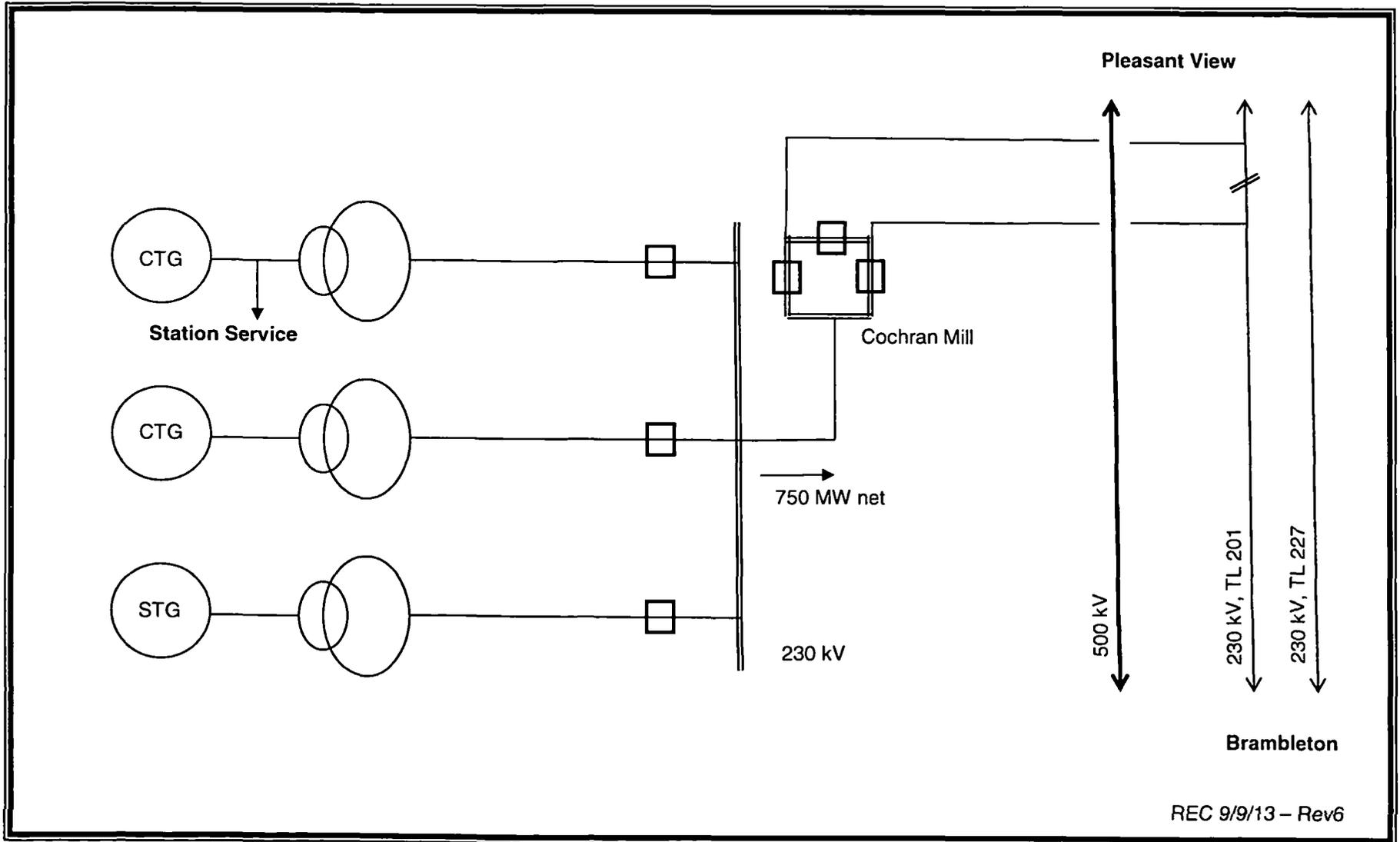
Cc: VDOT Northern Virginia District Permits – Loudoun County

130920107

Part 5

# GEP/S 750 MW, 2x1 CC Project – PJM Queue X4-039

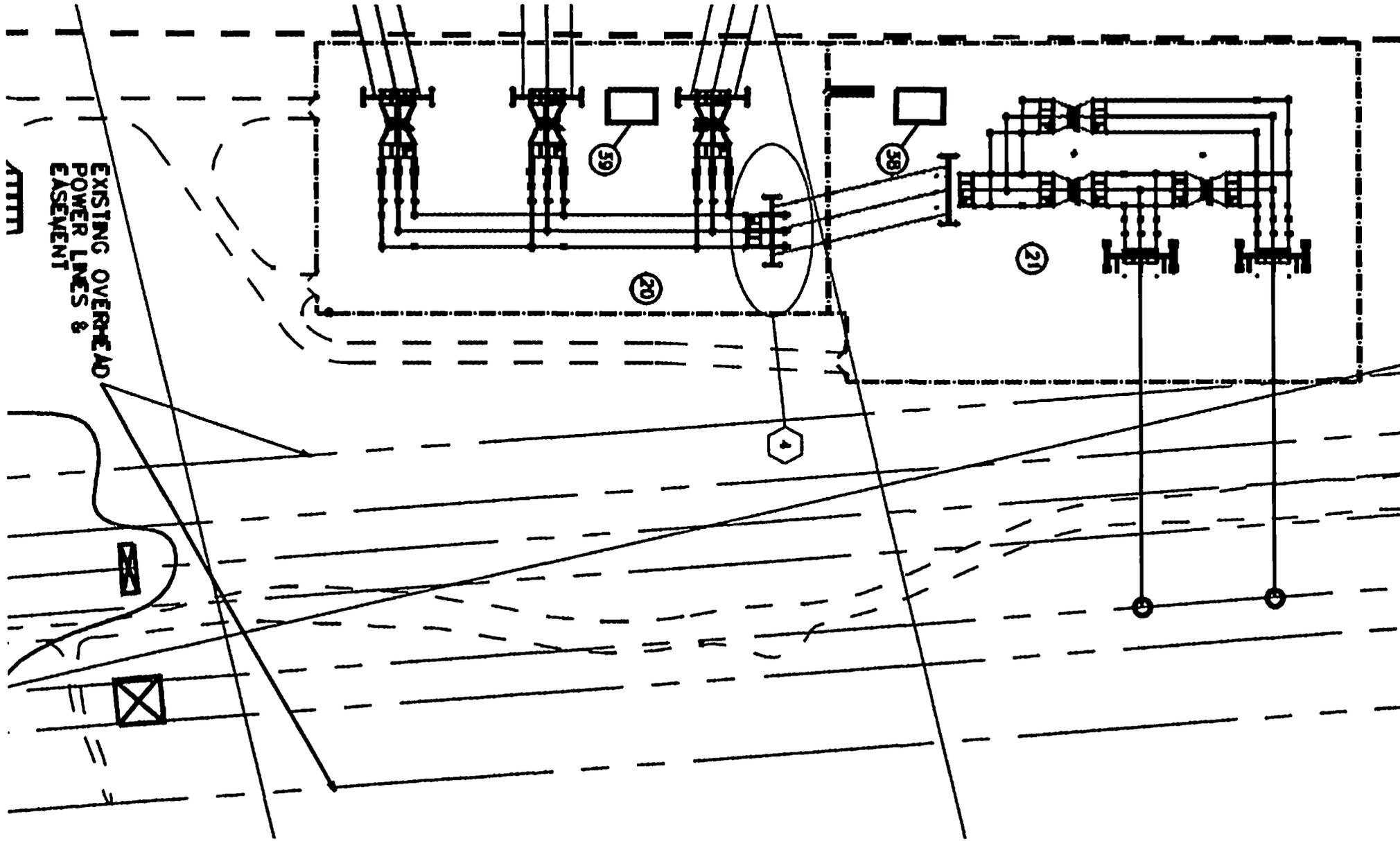
## Proposed Interconnection circa Pleasant View 230 kV



130920107

Exhibit 10

130920107





**PJM Generator Interconnection**  
**X4-039 Pleasant View - Brambleton 230 kV**  
**750 MW Capacity / 800 MW Energy**  
**Feasibility Study Report**

May 2012  
DMS #693780v1A

**Introduction**

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, §36.2, as well as the Feasibility Study Agreement between Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company.

**Preface**

The intent of this Feasibility Study is to determine a plan, with preliminary cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by IC. As a requirement for interconnection, IC may be responsible for the cost of constructing Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM and the underlying system. All facilities required for interconnection of a generation interconnection project must be designed to meet ITO technical specifications.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. IC is responsible for its right of way, real estate, and construction permit issues.

**General**

The queue project X4-039 was studied as a 800 MW (Capacity 750 MW) injection in to the ITO area. Project X4-039 was evaluated for compliance with reliability criteria for summer peak conditions in 2015. Potential network impacts were as follows:

**Summary**

Upgrade Type	Option 1			Option 2		
	A	B	Max Duration	C	D	Max Duration
Attachment Facilities	1	1	24	1	1	24
Direct Connection Upgrades	3.2	1.5 0.4 4	30	8	1.5 0.4 8.8	30
Non-Direct Connection Upgrades						
Thermal Overloads	3	3		3	3.4	
New Breakers*	2.03	2.03	36	3.43	3.43	36
Pleasant View	2	15**		2	15**	
<b>Total</b>	<b>11.23</b>	<b>26.93</b>	<b>36</b>	<b>17.43</b>	<b>33.53</b>	<b>36</b>

\* excludes contribution to other breakers

\*\* excludes GIS alternative

**Primary Option**

The following contingencies resulted in overloads for the primary option:

Option 1 Impactful Contingencies	
Contingency Name	File Description
2278274	CONTINGENCY '2278274' /* LN 227 8 274 PLEASNT VIEW - BEAUMEADE OPEN BRANCH FROM BUS 314171 TO BUS 314006 CKT 1 /* 227 BRAMBLETON - ASHBURN OPEN BRANCH FROM BUS 314006 TO BUS 314010 CKT 1 /* 227 ASHBURN - BEAUMEADE OPEN BRANCH FROM BUS 314072 TO BUS 314004 CKT 1 /* 274 PLEASNT VIEW - ASHBURN OPEN BRANCH FROM BUS 314004 TO BUS 314010 CKT 1 /* 274 ASHBURN - BEAUMEADE END
AP_CS_19	CONTINGENCY 'AP_CS_19' /BRIGHTON LOOP - WITH PATH OPEN BRANCH FROM BUS 200003 TO BUS 235632 CKT 1 OPEN BRANCH FROM BUS 200003 TO BUS 235632 CKT 2 END

**Network Impacts:**

**Generator Deliverability**

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

X4-039 Opt. 1 ###	Contingency		Affected Area	Facility Description	Bus		Circuit	Analyses Type	Loading		Rating		MW Contribution
	Type	Name			To	From			Before	After	Type	MVA	
001	Non	Non	PJM	01KEMPTON-EMORY GR500 500 kV line	235632	200101	1	DC	99.6	105.54	NR	2338	118.69

For X4-039 option 1 overload 001, the two breaker bay at Conastone for the Brighton line is over the continuous rating. Upgrade Conastone bay with two 4000A breakers, four 4000A breaker disconnects and a 4000 A line switch need to be either. \$3M take 24-36 months to complete. New rating 3710 MVA.

**Multiple Facility Contingency**

(Double Circuit Tower Line Contingencies only with full energy output. Stuck Breaker and Bus Fault contingencies will be applied during the Impact Study)

X4-039 Opt. 1 ###	Contingency		Affected Area	Facility Description	Bus		Circuit	Analyses Type	Loading		Rating		MW Contribution
	Type	Name			To	From			Before	After	Type	MVA	
002	DCTL	2278274	Dominion	6BRAMBL-6GREENW 230 KV line	314171	314098	1	DC	99.53	100.24	NR	948	41.54

For the X4-039 option 1 overload 002 overload of 230kV transmission Line #2095 section from Brambleton to Greenway identified above will be resolved when the proposed PJM Baseline Projects # b1503.1, b1503.2, b1503.3, b1503.4 are constructed. The in-service target date is November 2013.

**Contribution to Previously Identified Overloads**

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have % allocation of cost responsibility which will be calculated and reported for the Impact Study.)

X4-039 Opt. 1 ###	Contingency		Affected Area	Facility Description	Bus		Circuit	Analyses Type	Loading		Rating		MW Contribution
	Type	Name			To	From			Before	After	Type	MVA	
003	DCTL	AP_CS_19	PJM	01KEMPTOWN-EMORY GR500 500 kv line	235632	200101	1	DC	104.44	107.89	NR	2901	100.33

For the X4-039 option 1 overload 003, is covered by X4-039 option 1 overload 001 overload.

**Short Circuit**  
(Report Overdrifted breakers here)

BUS_NO	BUS	BREAKER	Rating Type	Duty Percent With X4-039 opt1	Duty Percent Without X4-039 opt1	Duty Percent Difference	Note
314072	PLEASANTVIEW 230.KV	HIT201	S	115.80%	99.00%	16.80%	New Over-duty
314072	PLEASANTVIEW 230.KV	203T274	S	106.20%	89.40%	16.80%	New Over-duty
314061	LODDOUN 230.KV	L152	S	103.80%	99.60%	4.20%	New Over-duty
314061	LODDOUN 230.KV	L252	S	103.80%	99.60%	4.20%	New Over-duty
3070	BRAMBLETON 230.KV	201T2045	S	103.00%	96.00%	7.00%	New Over-duty
42	OX 230.KV	206342	S	100.70%	99.70%	1.00%	New Over-duty
314074	POSSUM POINT 230.KV	202292	S	100.20%	99.80%	0.40%	New Over-duty
314074	POSSUM POINT 230.KV	252T2022	S	100.20%	99.80%	0.40%	New Over-duty
314072	PLEASANTVIEW 230.KV	HIT274	S	119.10%	101.50%	17.60%	Over 100%, > 3% contribution
125	LODDOUN CAP 230.KV	5C352	S	116.80%	113.00%	3.80%	Over 100%, > 3% contribution
1371	PLEASANT CAP 230.KV	5C322	S	114.80%	101.50%	13.30%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	200852	S	113.60%	109.10%	4.50%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	2008T2094	S	113.60%	109.10%	4.50%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	29552	S	112.20%	107.50%	4.70%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	295T2030	S	112.20%	107.50%	4.70%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	204552	S	111.90%	108.10%	3.80%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	209452	S	111.90%	108.10%	3.80%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	WT2045	S	111.90%	108.10%	3.80%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.KV	22702	S	109.50%	102.70%	6.80%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.KV	227T2094	S	109.50%	102.70%	6.80%	Over 100%, > 3% contribution
314061	LODDOUN 230.KV	203052	S	107.40%	102.70%	4.70%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.KV	2045T2095	S	107.20%	100.70%	6.50%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.KV	2094T2095	S	107.20%	100.70%	6.50%	Over 100%, > 3% contribution
314913	LODDOUN 500.KV	HIT569	S	106.10%	102.40%	3.70%	Over 100%, > 3% contribution
314913	LODDOUN 500.KV	H2T558	S	106.10%	102.40%	3.70%	Over 100%, > 3% contribution
314913	LODDOUN 500.KV	H2T559	S	106.10%	102.40%	3.70%	Over 100%, > 3% contribution

- The estimated cost to replace two overdutied 230 kV breakers H1T201 and 203T274 at Pleasant View substation with 63 kA breakers will be \$205,000 per breaker and will take 12 months including equipment order time.
- The estimated cost to replace two overdutied 230 kV breakers L152 and L252 at Loudoun substation with 63 kA breakers will be \$205,000 per breaker and will take 12 months including equipment order time.
- The estimated cost to replace one overdutied 230 kV breaker 201T2045 at Brambleton substation with 63 kA breaker will be \$205,000 and will take 12 months including equipment order time.
- The estimated cost to replace one overdutied 230 kV breaker 206342 at Ox substation with 63 kA breaker will be \$205,000 and will take 12 months including equipment order time.
- The estimated cost to replace two overdutied 230 kV breakers 202292 and 252T2022 at Possum Point substation with 80 kA breakers will be \$500,000 per breaker and will take 20 months including equipment order time.
- For the all of the contribution breakers, PJM will provide allocations if any at the System Impact Study:
  - Breakers 203052, SC352, 200852, 2008T2094, 209452, WT2045,29552, 295T2030, 22702, 227T2094 appear to be baseline projects, which this queue will not have to contribute;
  - Breakers H1T569, H2T558, H2T559, H1T274, SC322, 204552, 2045T2095, 2094T2095 appear to be caused by X3 projects; this determination requires retool of the X3-case, which will occur at the System Impact Study. If these all were to become higher-order queue project(s) responsibility, X4-039 would receive an allocation. It is estimated that each breaker will cost \$205,000 and take 12 months to replace.

#### ITO Analyses

ITO assessed the impact of the proposed queue #X4-039 interconnection as a 800 MW Energy (750 MW Capacity) injection on to the ITO system. The system was assessed using the summer 2015 RTEP case provided to ITO by PJM, where the proposed generation capacity was injected on ITO 230kV transmission system. For the primary option the proposed generation capacity was injected on the 230kV transmission line at Cohran Mill between the Pleasant View and Brambleton substations. This analysis did include the impacts of the generation output for all higher order queue generators within the ITO system. When performing a generation analysis, ITO main analysis will be load flow study results under single contingency (both normal and stressed system conditions) and import/export system conditions. ITO criterion considers a transmission

facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. For import/export studies ITO considers a transmission facility overloaded if it exceeded 100% of its emergency rating. A full listing of ITO planning criteria and interconnection requirements can be found in the ITO facility connection requirements which are publicly available at: <http://www.dom.com>.

For the primary option, the proposed generation capacity was injected on the 230kV transmission line at Cohran Mill between the Pleasant View and Brambleton substations. As part of its generation impact analysis Dominion routinely evaluates the impact that a proposed new generation resource will have under maximum generation conditions and stressed system conditions. For the X4-039 Option #1 evaluation, three different assessments were conducted.

1. The first being when local generation including the proposed X4-039 facility is operated at their maximum capability. The result of this study is shown below in Table A.

Table A: PMax System Conditions

Overloaded Element	Cont. Loading(MVA)	Base Loading (MVA)	Rating (MVA)	Cont. Loading(%)	Contingency Description
314072 6PL VIEW 230314170 6COHMIL 230 2	1000.7	818.3	1057.0	94.7	314072 6PL VIEW 230 314925 8PL VIEW 500 1
314072 6PL VIEW 230 314170 6COHMIL 230 2	1086.0	818.3	1057.0	102.7	314925 8PL VIEW 500 314933 8BRAMBLETON 500 1

As shown above in Table A, the impact of the X4-039 generator under single contingency conditions results in:

- a. Thermal overload of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View for the N-1 outage of the Pleasant View 500/230kV transformer.

- b. Thermal overload of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View for the N-1 outage of the 500kV transmission Line #558 from Pleasant View to Brambleton.
2. The second being a stressed system condition where the largest generator in the area is unavailable. With the X4-039 generator geographically located in Northern Virginia, Possum Pt. Unit #5 is considered the most critical generating unit in the area. The impact of X4-039 was studied with the outage of Possum Point Unit #5. The result of this study is shown below in Table B.

Table B: Stressed System Conditions

Overloaded Element.	Cont. Loading (MVA)	Base Loading (MVA)	Rating (MVA)	Cont. Loading (%)	Contingency Description
314072 6PL VIEW 230 314170 6COHMIL 230 2	1054.6	802.3	1057.0	99.8	314925 8PL VIEW 500 314933 8BRAMBLETON 500 1

As shown above in Table B, the impact of the X4-039 generator under single contingency conditions results in:

- a. Thermal overload of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View for the N-1 outage of the 500kV transmission Line #558 from Pleasant View to Brambleton.
3. The third being import and export conditions into and out of the Dominion System. Any new facility that is interconnected with the Dominion System should not significantly decrement First Contingency Incremental Transfer Capability between utilities. The results of these studies can be found in Tables C and D.

**Table C: Import Study Results**

Import Study Results			
Area	Summer 2015	Summer 2015 with X4-039	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

**Table D: Export Study Results**

Export Study Results			
Area	Summer 2015	Summer 2015 with X4-039	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

ITO planning criteria indicates a need to have approximately 2000 MW of import and export capability. The results of these import and export studies are indicate that the proposed generation facility will not impact ITO import or export capability. Note the results for the studies with X4-039 included are based on the proposed reliability deficiencies noted below. Since facilities are overloaded for single contingency conditions the First Contingency Incremental Transfers would be negative without the inclusion of these proposed solutions.

**Primary Option Upgrades:****Attachment Facilities:**

Figures A and B below illustrate the proposed layout and attachment facilities for the X4-039 interconnection. Figure A illustrates the layout of X4-039 primary option with the Non-Direct Connection network upgrade option 1A, and Figure B illustrates the layout of X4-039 primary option with the Direct Connection network upgrade option 1B.

The estimated cost of these Attachment Facilities which includes metering, protection equipment along with one 0.5 mile 230kV line is \$1.0 Million dollars and is estimated to take 24 to 30 months to complete.

If the customer would like to separate the gas and steam units, it will require one additional 230kV breaker plus one additional 0.5 mile 230kV transmission line with associated metering and protection equipment. The estimated cost of these additional Attachment Facilities is \$1.8 Million dollars and is estimated to take 24 to 30 months to complete.

**Direct Connection Network Upgrades:**

ITO identified two alternatives to connect X4-039, listed as option 1A and option 1B. The Direct Connect Network Facilities needed to reliably interconnect the proposed generation with the Dominion Transmission System for X4-039 option 1 are as follows:

- For X4-039 with Non-Direct Connection upgrade option 1A, described under Non-Direct Connection Network Upgrades, it will be necessary to build a three breaker 230kV ring bus at the customer's site as shown below in Figure A. The 230kV transmission Line #201 (Pleasant View to Brambleton) will then be looped (approximately 0.5 miles) into the new 230kV switching substation as shown in the Figure A below. The estimated cost of this work is \$3.2 Million and is estimated to take 24 to 30 months.

- For X4-039 Direct Connection Upgrade Option 1B, ITO could build a new 230kV transmission line approximately one mile from the new 230kV switching station that is needed to interconnect X4-039 and the Pleasant View Substation. This new transmission line will be constructed for a capacity of 1047 MVA:
  - i. One feasible option for the construction of this new transmission line would be to expand the existing right-of-way and build a new single circuit 230kV transmission line approximately one mile from the new X4-039 230kV switching station to Pleasant View Substation. Excluding the cost for additional right-of-way, the cost of the transmission line work is estimated be \$1.5 Million dollars and is expected 24 to 36 months to complete; or
  - ii. another construction option for this new transmission line would be to advance the existing project to rebuild the 500kV transmission Line #558 from Pleasant View to Loudon (PJM Baseline Project #b1694), and utilize the 230kV under-build of the 5-2 transmission line structures to construct a new transmission line approximately one mile from the new X4-039 230kV switching station to Pleasant View Substation. The estimated cost of the transmission line work for this option is approximately \$400,000 dollars and is expected to take 24 to 36 months to complete. This estimate does not include the cost to advance the rebuild project of the 500kV transmission Line #558.
- In addition, it will be necessary to build a four breaker 230kV ring bus at the customer's site as shown below in Figure B. The 230kV transmission Line #201 (Pleasant View to Brambleton) will then be looped (approximately 0.5 miles) into the new 230kV switching substation as shown in the Figure B below. The estimated cost of this work is \$4.0 Million and is estimated to take 24 to 30 months.

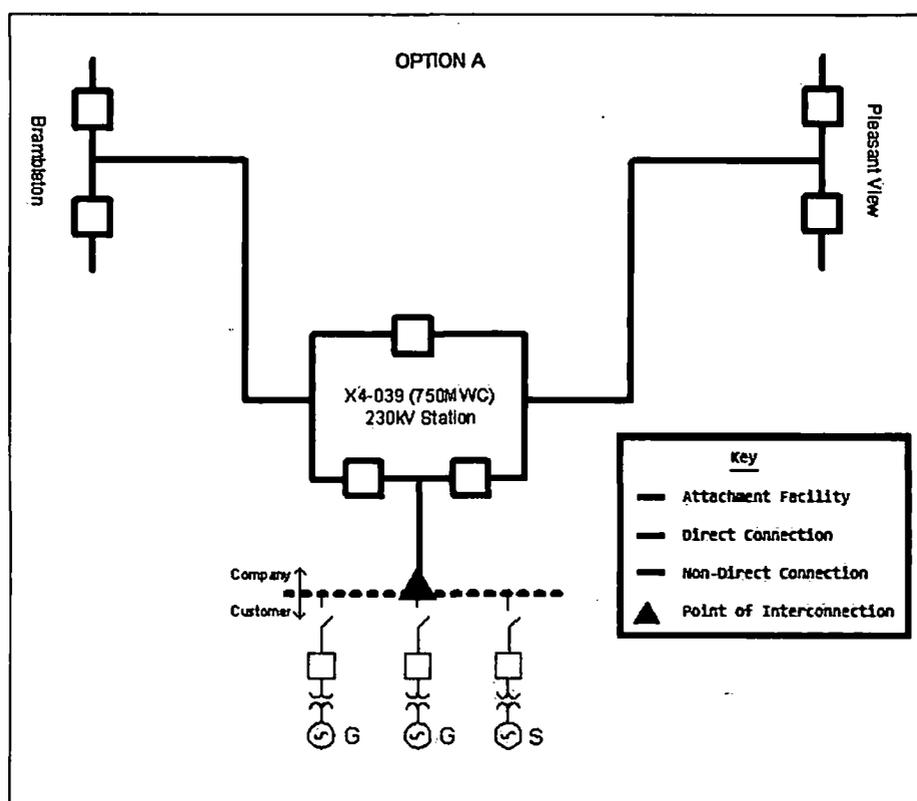
**Non-Direct Connection Network Upgrades:**

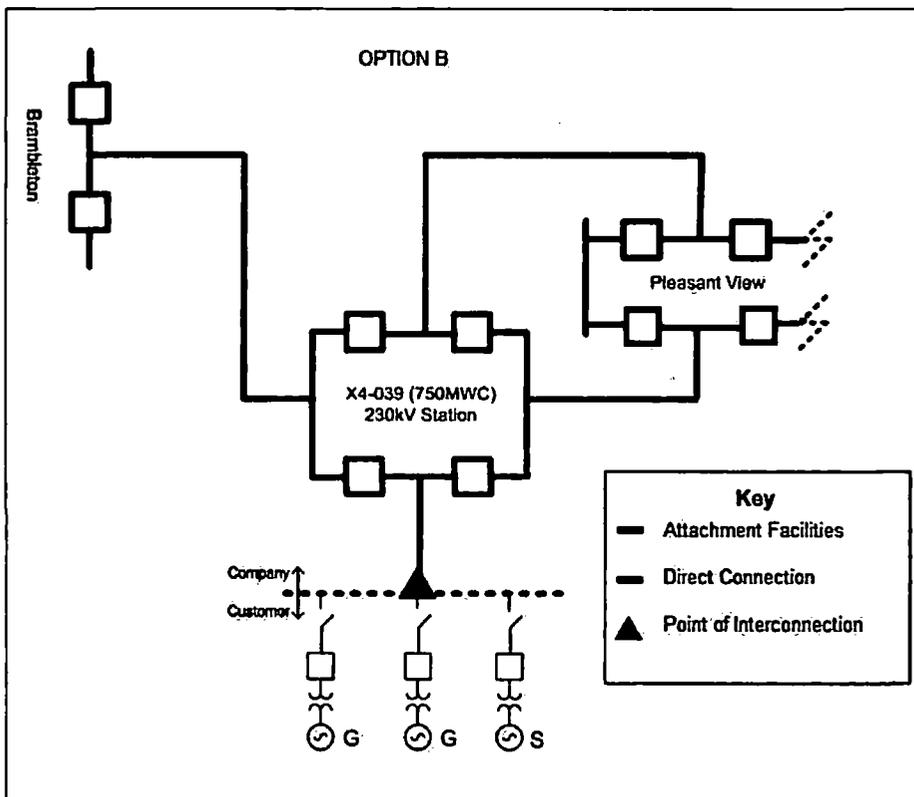
The following Non-Direct Connection network upgrade options have been identified to resolve the overload of the 230kV transmission Line #201 from Cohran Mill to Pleasant View associated with the X4-039 interconnection option 1.

- Non-Direct Option A: Wreck and rebuild approximately one mile of the existing 230kV Line #201 and Line #227 double circuit transmission line between Cohran Mill Substation and Pleasant View Substation for a higher capacity of approximately 1386 MVA. This is estimated to cost \$2.0 Million dollars and is expected to take 24 to 36 months to complete.
- Non-Direct Option B: In order to accommodate a new 230kV transmission line at Pleasant View, it will be necessary to expand the existing 230kV substation, rearrange the existing six breaker 230kV ring bus to a six breaker 230kV breaker-and-a-half bus, and install three new 230kV circuit breakers in a breaker-and-a-half bus arrangement. If it is possible to use conventional switchgear, the proposed rearrangement and installation of these breakers and associated equipment is estimated to cost \$15 million and take 24 to 36 months to complete. However, due to space limitations it is possible that these new facilities will need to be Gas Insulated Switchgear (GIS). If GIS is required, the installation of these breakers and associated equipment is estimated to cost \$30 million and take 24 to 36 months to complete.

If IC elects to move forward with option 1, the two alternatives will be evaluated further at the System Impact Study.

Primary Option One-line:





**Secondary Option:**

The following contingencies resulted in overloads for the secondary option:

Option 2 Impactful Contingencies	
Contingency Name	File Description
LN 201	CONTINGENCY 'LN 201' /* BRAMBLETON - PLEASANT VIEW(NORTHERN 201) OPEN BRANCH FROM BUS 314171 TO BUS 314170 CKT 2 /* BRAMBLETON COCHRAN MILL DP OPEN BRANCH FROM BUS 314170 TO BUS 314072 CKT 2 /* COCHRAN MILL DP PLEASANT VIEW END
227&274_X4-039A	CONTINGENCY '227&274_X4-039A' /* LN 227 & 274 PLEASNT VIEW - BEAUMEADE OPEN BRANCH FROM BUS 314171 TO BUS 912290 CKT 1 /* 227 BRAMBLETON - ASHBURN OPEN BRANCH FROM BUS 314006 TO BUS 314010 CKT 1 /* 227 ASHBURN - BEAUMEADE OPEN BRANCH FROM BUS 314072 TO BUS 314004 CKT 1 /* 274 PLEASNT VIEW - ASHBURN OPEN BRANCH FROM BUS 314004 TO BUS 314010 CKT 1 /* 274 ASHBURN - BEAUMEADE END
AP_CS_19	CONTINGENCY 'AP_CS_19' /BRIGHTON LOOP - WITH PATH OPEN BRANCH FROM BUS 200003 TO BUS 235632 CKT 1 OPEN BRANCH FROM BUS 200003 TO BUS 235632 CKT 2 END

**Network Impacts:**

**Generator Deliverability**

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

X4-039 Opt. 2 ###	Contingency		Affected Area	Facility Description	Bus		Circuit	Analyses Type	Loading		Rating		MW Contribution
	Type	Name			To	From			Before	After	Type	MVA	
001	Non	Non	PJM	01KEMPTOWN-EMORY GR500 500 kV line	235632	200101	1	DC	99.61	105.53	NR	2338	118.58
002	Non	Non	PJM	01KEMPTOWN-EMORY GR500 500 kV line	235632	200101	1	DC	99.61	105.54	NR	2338	118.58
003	N-1	LN 201	Dominion	X4-039 TAP-6ASHBRNA 230 kV line	912290	314006	1	DC	67.02	131.36	NR	470	302.42

For X4-039 option 1 overload 001 and 002, the two breaker bay at Conastone for the Brighton line is over the continuous rating. Upgrade Conastone bay with two 4000A breakers, four 4000A breaker disconnects and a 4000 A line switch need to be either. \$3M take 24-36 months to complete. New rating 3710 MVA.

For item X4-039 option 2 overload 003 please see the discussion of Option 2 below in the ITO analysis section. The overload of 230kV transmission Line #227 section from Cohran Mill to Ashburn is identified, and the feasible solutions are discussed.

**Multiple Facility Contingency**

(Double Circuit Tower Line contingencies only with full energy output. Stuck Breaker and Bus Fault contingencies will be applied during the Impact Study)

X4-039 Opt. 2 ###	Contingency		Affected Area	Facility Description	Bus		Circuit	Analyses Type	Loading		Rating		MW Contribution
	Type	Name			To	From			Before	After	Type	MVA	
004	DCTL	227&274_X4-039A	Dominion	6BRAMB1-6GREENW 230 kV line	314171	314098	1	DC	99.31	100.02	NR	948	41.54

The X4-039 option 2 overload 004 overload of 230kV transmission Line #2095 section from Brambleton to Greenway identified above will be resolved when the proposed PJM Baseline Project # b1503.1, b1503.2, b1503.3, b1503.4 is constructed. The in-service target date is November 2013.

**Contribution to Previously Identified Overloads**

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue.)

X4-039 Opt. 2 ###	Contingency		Affected Area	Facility Description	Bus		Circuit	Analyses Type	Loading		Rating		MW Contribution
	Type	Name			To	From			Before	After	Type	MVA	
005	DCTL	AP_CS_19	PJM	01KEMPTOWN-EMORY GR500 500 kV line	235632	200101	1	DC	104.43	107.91	NR	2901	100.95
006	DCTL	AP_CS_19	PJM	01KEMPTOWN-EMORY GR500 500 kV line	235632	200101	1	DC	104.43	107.91	NR	2901	100.95

For items X4-039 option 2 overload 005 and 006, are mitigated by option 001 upgrade.

**Short Circuit**

(Report over-dutied breakers.)

Analysis found new breakers for the secondary option to be over-duty in the ITO transmission area.

BUS_NO	BUS	BREAKER	Rating Type	Duty Percent With X4-039 DOM_opt2	Duty Percent Without X4-039 DOM_opt2	Duty Percent Difference	Note
314072	PLEASANTVIEW 230.kv	H1T201	S	120.40%	99.00%	21.40%	New Over-duty
314072	PLEASANTVIEW 230.kv	203T274	S	117.60%	89.40%	28.20%	New Over-duty
3070	BRAMBLETON 230.kv	20102	S	112.60%	95.50%	17.10%	New Over-duty
3070	BRAMBLETON 230.kv	201T2045	S	112.60%	96.00%	16.60%	New Over-duty
314061	LOUDOUN 230.kv	L152	S	106.70%	99.60%	7.10%	New Over-duty
314061	LOUDOUN 230.kv	L252	S	106.70%	99.60%	7.10%	New Over-duty
42	OX 230.kv	206342	S	101.10%	99.70%	1.40%	New Over-duty
314074	POSSUM POINT 230.kv	202292	S	100.40%	99.80%	0.60%	New Over-duty
314074	POSSUM POINT 230.kv	252T2022	S	100.40%	99.80%	0.60%	New Over-duty
314074	POSSUM POINT 230.kv	21592	S	100.10%	99.50%	0.60%	New Over-duty
314072	PLEASANTVIEW 230.kv	H1T274	S	123.70%	101.50%	22.20%	Over 100%, > 3% contribution
125	LOUDOUN CAP 230.kv	5C352	S	118.90%	113.00%	5.90%	Over 100%, > 3% contribution
1371	PLEASANT CAP 230.kv	5C322	S	118.40%	101.50%	16.90%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	200852	S	116.30%	109.10%	7.20%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	2008T2094	S	116.30%	109.10%	7.20%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	29552	S	115.00%	107.50%	7.50%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	295T2030	S	115.00%	107.50%	7.50%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	204552	S	113.80%	108.10%	5.70%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	209452	S	113.80%	108.10%	5.70%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	WT2045	S	113.80%	108.10%	5.70%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.kv	2045T2095	S	113.20%	100.70%	12.50%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.kv	2094T2095	S	113.20%	100.70%	12.50%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kv	203052	S	110.30%	102.70%	7.60%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.kv	227T2094	S	109.90%	102.70%	7.20%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.kv	22702	S	109.80%	102.70%	7.10%	Over 100%, > 3% contribution
314913	LOUDOUN 500.kv	H1T569	S	106.70%	102.40%	4.30%	Over 100%, > 3% contribution
314913	LOUDOUN 500.kv	H2T558	S	106.70%	102.40%	4.30%	Over 100%, > 3% contribution
314913	LOUDOUN 500.kv	H2T559	S	106.70%	102.40%	4.30%	Over 100%, > 3% contribution

- The estimated cost to replace two overdutied 230 kV breakers H1T201 and 203T274 at Pleasant View substation with 63 kA breakers will be \$205,000 per breaker and will take 12 months including equipment order time.
- The estimated cost to replace two overdutied 230 kV breakers L152 and L252 at Loudoun substation with 63 kA breakers will be \$205,000 per breaker and will take 12 months including equipment order time.
- The estimated cost to replace two overdutied 230 kV breakers 20102 and 201T2045 at Brambleton substation with 63 kA breakers will be \$205,000 per breaker and will take 12 months including equipment order time.
- The estimated cost to replace one overdutied 230 kV breaker 206342 at Ox substation with 63 kA breaker will be \$205,000 and will take 12 months including equipment order time.
- The estimated cost to replace four overdutied 230 kV breakers 202292, 252T2022, 21592 and G5T215 at Possum Point substation with 80 kA breakers will be \$500,000 per breaker and will take 22 months including equipment order time.
- For the all of the contribution breakers, PJM will provide allocations if any at the System Impact Study:
  - Breakers 203052, SC352, 200852, 2008T2094, 209452, WT2045,29552, 295T2030, 22702, 227T2094 appear to be baseline projects, which this queue will not have to contribute, however, the project may have to advance them if the project in-service date is in advance of the baseline project. The baselines are respectively: b0328.5, b0888, b1188.1, b1188.2, b1188.4, b1188.5, b1538, b1651, b1809, b1810; and
  - Breakers H1T569, H2T558, H2T559, H1T274, SC322, 204552, 2045T2095, 2094T2095 appear to be caused by X3 projects; this determination requires retool of the X3-case, which will occur at the System Impact Study. If these all were to become higher-order queue project(s) responsibility, X4-039 would receive an allocation. It is estimated that each breaker will cost \$205,000 and take 12 months to replace.

### ITO Analyses

ITO assessed the impact of the proposed queue X4-039 interconnection as a 800 MW Energy (750 MW Capacity) injection on to the ITO system. The system was assessed using the summer 2015 RTEP case provided to ITO by PJM, where the proposed generation capacity was injected on ITO 230kV transmission system. For secondary option, the proposed generation capacity was injected at Cohran Mill on the 230kV transmission line between the Pleasant View and Brambleton substations and at Cohran Mill on the transmission line between the Ashburn and Brambleton substations. This analysis did include the impacts of the generation output for all higher order queue generators within the ITO system. When performing a generation analysis, ITO main analysis will be load flow study results under single contingency (both normal and stressed system conditions) and import/export system conditions. ITO criterion considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. For import/export studies ITO considers a transmission facility overloaded if it exceeded 100% of its emergency rating. A full listing of ITO planning criteria and interconnection requirements can be found in the ITO facility connection requirements which are publicly available at: <http://www.dom.com>.

For the secondary option, the proposed generation capacity was injected at Cohran Mill on the 230kV transmission line between the Pleasant View and Brambleton substations and at Cohran Mill on the transmission line between the Ashburn and Brambleton substations. As part of its generation impact analysis Dominion routinely evaluates the impact that a proposed new generation resource will have under maximum generation conditions and stressed system conditions. For the X4-039 secondary option evaluation, three different assessments were conducted.

1. The first being when local generation including the proposed X4-039 Facility is operated at their maximum capability. The result of this study is shown below in Table E.

**Table E: PMax System Conditions**

Overloaded Element	Cont. Loading (MVA)	Base Loading (MVA)	Rating (MVA)	Cont. Loading (%)	Contingency Description
314072 6PL VIEW 230 314170 6COHMIL 230 2	1008.8	718.6	1057.0	95.4	314072 6PL VIEW 230 314925 8PL VIEW 500 1
314072 6PL VIEW 230 314170 6COHMIL 230 2	1139.0	718.6	1057.0	107.8	314925 8PL VIEW 500 314933 8BRAMBLETON 500 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	451.9	337.0	470.0	96.1	314004 6ASHBURN 230 314010 6BEAMEAD 230 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	449.6	337.0	470.0	95.7	314004 6ASHBURN 230 314072 6PL VIEW 230 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	644.0	337.0	470.0	137.0	314072 6PL VIEW 230 314170 6COHMIL 230 2

As shown above in Table e, the impact of the X4-039 generator under single contingency conditions results in:

- a. Thermal overload of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View for the N-1 outage of the Pleasant View 500/230kV transformer.
- b. Thermal overload of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View for the N-1 outage of the 500kV transmission Line #558 from Pleasant View to Brambleton.
- c. Thermal overload of the 230kV transmission Line #227 section from Cohran Mill to Ashburn for the N-1 outage of the 230kV transmission Line #274 from Pleasant View to Beaumeade.
- d. Thermal overload of the 230kV transmission Line #227 section from Cohran Mill to Ashburn for the N-1 outage of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View.

2. The second being a stressed system condition where the largest generator in the area is unavailable. With the X4-039 generator geographically located in Northern Virginia, Possum Pt. Unit #5 is considered the most critical generating unit in the area. The impact of X4-039 was studied with the outage of Possum Point Unit #5. The result of this study is shown below in Table F.

**Table F: Stressed System Conditions**

Overloaded Element	Cont. Loading (MVA)	Base Loading (MVA)	Rating (MVA)	Cont. Loading (%)	Contingency Description
314072 6PL VIEW 230 314170 6COHMIL 230 2	1084.8	683.4	1057.0	102.6	314925 8PL VIEW 500 314933 8BRAMBLETON 500 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	445.6	356.7	470.0	94.8	313805 6SHELLHORN1 230 314098 6GREENWAY1 230 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	457.3	356.7	470.0	97.3	313805 6SHELLHORN1 230 314171 6BRAMBL 230 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	485.0	356.7	470.0	103.2	314004 6ASHBURN 230 314010 6BEAMEAD 230 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	483.2	356.7	470.0	102.8	314004 6ASHBURN 230 314072 6PL VIEW 230 1
314006 6ASHBRNA 230 314170 6COHMIL 230 1	650.8	356.7	470.0	138.5	314072 6PL VIEW 230 314170 6COHMIL 230 2

As shown above in Table F, the impact of the X4-039 generator under single contingency conditions results in:

- Thermal overload of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View for the N-1 outage of the 500kV transmission Line #558 from Pleasant View to Brambleton.
- Thermal overload of the 230kV transmission Line #227 section from Cohran Mill to Ashburn for the N-1 outage of the 230kV transmission Line #2137 from Brambleton to Beco with load restored from Beco.
- Thermal overload of the 230kV transmission Line #227 section from Cohran Mill to Ashburn for the N-1 outage of the 230kV transmission Line #274 from Pleasant View to Beaumeade.

- d. Thermal overload of the 230kV transmission Line #227 section from Cohran Mill to Ashburn for the N-1 outage of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View.
3. The third being import and export conditions into and out of the Dominion System. Any new facility that is interconnected with the Dominion System should not significantly decrement First Contingency Incremental Transfer Capability between utilities. The results of these studies can be found in Tables G and H.

**Table G: Import Study Results**

Import Study Results			
Area	Summer 2015	Summer 2015 with X4-039	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

**Table H: Export Study Results**

Export Study Results			
Area	Summer 2015	Summer 2015 with X4-039	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

ITO planning criteria indicates a need to have approximately 2000 MW of import and export capability. The results of these import and export studies are indicate that the proposed generation facility will not impact Dominion's import or export capability. \*\*Note the results for the studies with X4-039 included are based on the proposed reliability deficiencies noted below. Since facilities are overloaded for single contingency conditions the First Contingency Incremental Transfers would be negative without the inclusion of these proposed solutions.

**Required Interconnection Facilities:**

The Network Upgrade options identified to resolve the overload of the 230kV transmission Line #201 section from Cohran Mill to Pleasant View associated with the X4-039 interconnection Option 2 are identical to the Network Upgrade options identified above for option 1. Please see the descriptions and estimated costs above.

Should the Non-Direct Option A be constructed to resolve the overload of the Line #201 section from Cohran Mill to Pleasant View, it would also resolve the overload identified on the 230kV transmission Line #227 section from Cohran Mill to Pleasant View.

Should the Direct Connection option 1B be elected to resolve the overload of the Line #201 section from Cohran Mill to Pleasant View, it would be necessary to reconductor approximately one mile of Line #227 between Cohran Mill and Ashburn to achieve a capacity of approximately 795MVA. The estimated cost to reconductor one mile section of Line #227 from Cohran Mill to Ashburn is approximately \$400,000 dollars and is expected to take 24 months to complete. This addresses X4-039 option 2 overload 003. The transmission line structures will need to be evaluated to ensure they can accommodate the new conductor.

**Attachment Facilities:**

Figures C and D below illustrate the proposed layout and attachment facilities for the X4-039 secondary option interconnection. Figure C illustrates the layout of X4-039 secondary option with the Non-Direct Connection network upgrade option 1A and Figure D illustrates the layout of X4-039 secondary option with the network upgrade option 1B.

The estimated cost of these Attachment Facilities which includes metering, protection equipment along with one 0.5 mile 230kV line is \$1.0 Million dollars and is estimated to take 24 to 30 months to complete.

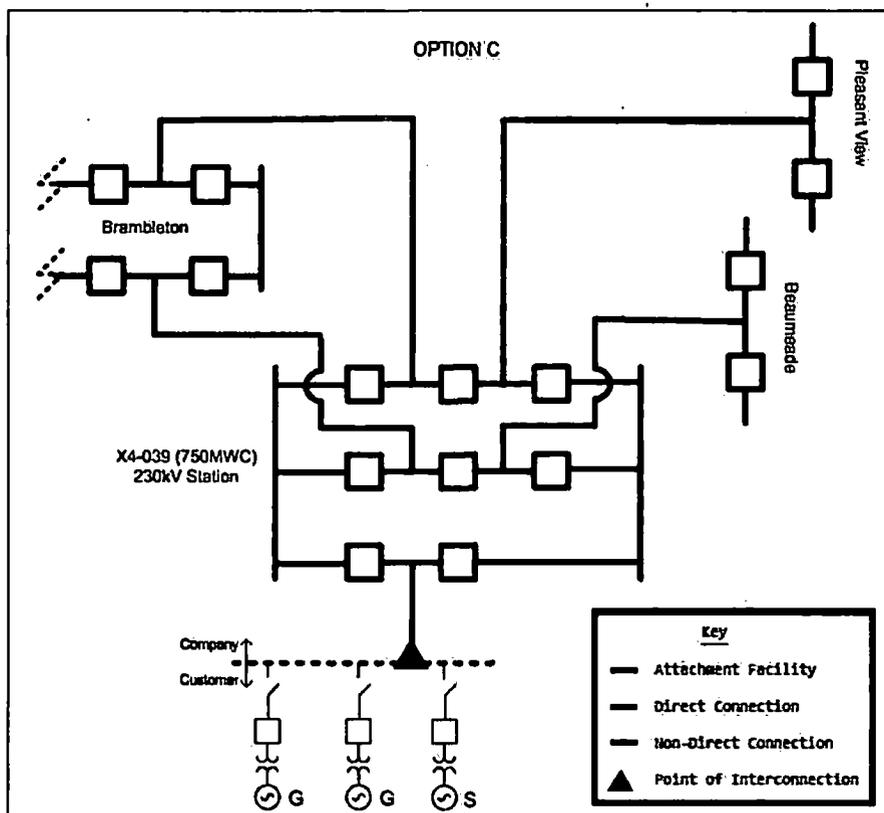
If the customer would like to separate the gas and steam units, it will require one additional 230kV breaker plus one additional 0.5 mile 230kV transmission line with associated metering and protection equipment. The estimated cost of these additional Attachment Facilities is \$1.8 Million dollars and is estimated to take 24 to 30 months to complete.

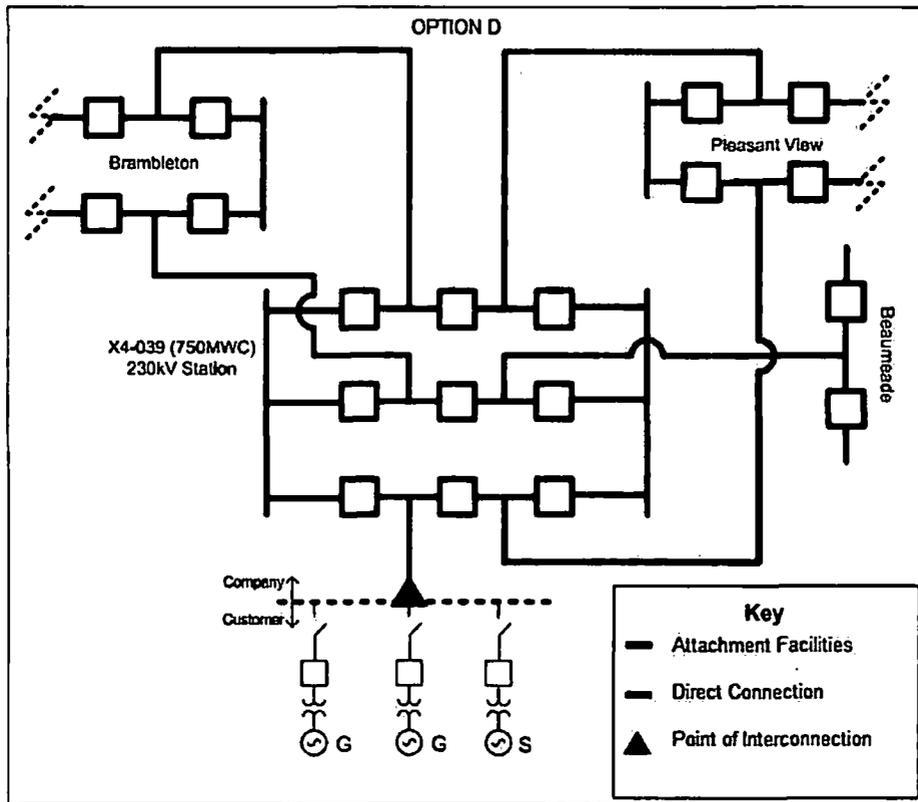
**Direct Connection Network Facilities:**

The Direct Connect Network Facilities needed to reliably interconnect the proposed generation with the Dominion Transmission System for X4-039 secondary are as follows:

- For X4-039 secondary option with Non-Direct Connection Upgrade option 1A, it will be necessary to build an eight breaker 230kV breaker-and-a-half bus at the customer's site as shown below in Figure C. The 230kV transmission Line #201 (Pleasant View to Brambleton) and transmission Line #227 (Brambleton to Beaumeade) will then be looped (approximately 0.5 miles) into the new 230kV switching substation as shown in the Figure C below. The estimated cost of this work is \$8.0 million and is estimated to take 24 to 36 months.
- For X4-039 secondary option with Direct Connection Upgrade option 1B, it will be necessary to build a nine breaker 230kV breaker-and-a-half bus at the customer's site as shown below in Figure D. The 230kV transmission Line #201 (Pleasant View to Brambleton) and transmission Line #227 (Brambleton to Beaumeade) will then be looped (approximately 0.5 miles) into the new 230kV switching substation as shown in the Figure D below. The estimated cost of this work is \$8.8 Million and is estimated to take 24 to 36 months.

Secondary Option One-Line:





130920107

Exhibit 12

**PJM Generator Interconnection**

**X4-039**

**Pleasant View - Brambleton 230 kV**

**750 MW Capacity / 750 MW Energy**

**System Impact Study Report**

*November 2012  
DMS #723513v2*

**Introduction**

This System Impact Study (SIS) has been prepared in accordance with the PJM Open Access Transmission Tariff, Section 205, as well as the System Impact Study Agreement between Green Energy Partners/Stonewall, LLC, (Interconnection Customer (IC)) and PJM Interconnection, LLC (Transmission Provider (TP)). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company.

**Preface**

The intent of System Impact Studies is to determine a plan, with cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by IC. As a requirement for interconnection, IC may be responsible for the cost of constructing Local and Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM and the underlying system. All facilities required for interconnection of a generation interconnection project must be designed to meet ITO technical specifications.

The study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. IC is responsible for its right of way, real estate, and construction permit issues.

**General**

The PJM queue project X4-039 was studied as a 750 MW (Capacity 750 MW) injection at the Cochran Mill delivery point 230 kV switchyard in the ITO area. Project X4-039 was evaluated for compliance with reliability criteria for summer peak conditions in 2015. Potential network impacts were as follows:

**Generator Deliverability**

*(Single or N-1 contingencies for the Capacity portion only of the interconnection)*

None.

**Multiple Facility Contingency**

*(Double Circuit Tower Line, Stuck breaker and Bus Fault contingencies for the full energy output)*

None.

Short Circuit

BUS_NO	BUS	BREAKER	Rating Type	Duty Percent With x4-039	Duty Percent Without x4-039	Duty Percent Difference	Note
314072	PLEASANTVIEW 230.kV	H1T274	S	107.80%	98.20%	9.60%	New Over-duty
3070	BRAMBLETON 230.kV	2045T2095	S	107.60%	98.30%	9.30%	New Over-duty
3070	BRAMBLETON 230.kV	2094T2095	S	107.60%	98.30%	9.30%	New Over-duty
1371	PLEASANT CAP 230.kV	SC322	S	106.30%	98.80%	7.50%	New Over-duty
314072	PLEASANTVIEW 230.kV	H1T201	S	105.00%	95.80%	9.20%	New Over-duty
3070	BRAMBLETON 230.kV	201T2045	S	103.30%	93.70%	9.60%	New Over-duty
314061	LOUDOUN 230.kV	L152	S	102.30%	97.10%	5.20%	New Over-duty
314061	LOUDOUN 230.kV	L252	S	102.30%	97.10%	5.20%	New Over-duty
314913	LOUDOUN 500.kV	H1T569	S	101.90%	98.20%	3.70%	New Over-duty
314913	LOUDOUN 500.kV	H2T558	S	101.90%	98.20%	3.70%	New Over-duty
314913	LOUDOUN 500.kV	H2T559	S	101.90%	98.20%	3.70%	New Over-duty
0	CLIFTON 230.kV	205182	S	101.00%	99.30%	1.70%	New Over-duty
0	CLIFTON 230.kV	2051T2063	S	101.00%	99.30%	1.70%	New Over-duty

- The estimated cost to replace breakers 201T2045, 2045T2095, 2094T2045 at Brambleton 230 kV with 63 kA breakers is \$240,000 per breaker and will take 12 months including equipment order time;
- The estimated cost to replace breakers 205182 and 2051T2063 at Clifton 230 kV with 63 kA breakers is \$240,000 per breaker and will take 12 months including equipment order time.
- The estimated cost to replace breakers L152 and L252 at Loudoun 230 kV with 63 kA breakers is \$240,000 per breaker and will take 12 months including equipment order time.
- The estimated cost to replace breakers H1T569, H2T558 and H2T559 at Loudoun 500 kV with 50 kA breakers is \$790,000 per breaker and will take about 15 month to complete including equipment order time.
- The estimated cost to replace breakers H1T201, H1T274 and SC274 at Pleasant View 230 kV with 63 kA breakers is \$240,000 per breaker and will take 12 months including equipment order time.

BUS_NO	BUS	BREAKER	Rating Type	Duty Percent With x4-039	Duty Percent Without x4-039	Duty Percent Difference	Note
3070	BRAMBLETON 230.kV	22702	S	109.70%	100.10%	9.60%	Over 100%, > 3% contribution
3070	BRAMBLETON 230.kV	227T2094	S	109.70%	100.10%	9.60%	Over 100%, > 3% contribution
314061	LOUDOUN 230.kV	203052	S	105.60%	100.00%	5.60%	Over 100%, > 3% contribution

X4-039 will get a 99% allocation to the two breakers at Brambleton and nearly 100% of the Loudoun 203052 breaker. Each breaker is estimated at \$240,000 and will take 12 months to complete. PJM is still evaluating higher order queue decisions and will revise these allocations as required in future System Impact Study retools.

#### Stability and Reactive Power Requirement

Stability will be performed as part of the Facilities Study.

#### Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None.

#### ITO Analyses

ITO assessed the impact of the proposed queue X4-039 interconnection as a 750 MW Energy (750 MW Capacity) injection on to the ITO system. The system was assessed using the summer 2015 RTEP case provided to ITO by PJM, where the proposed generation capability was injected on the 230kV transmission line at Cochran Mill between the Pleasant View and Brambleton substations.

This analysis did include the impacts of the generation capability for all higher order queue generators within the ITO system. When performing a generation analysis, ITO analysis includes load flow study results under single contingency, both normal and stressed system conditions, and import/export system conditions. ITO criteria consider a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. For import/export studies ITO considers a transmission facility overloaded if it exceeded 100% of its emergency rating. A full listing of ITO planning criteria

and interconnection requirements can be found in the ITO "Facility Connection Requirements" which are publicly available at: <http://www.dom.com>.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically NERC Category C Contingency Conditions: Bus Fault, Tower Line, N-1-1, and Stuck Breaker scenarios; allow for re-dispatch of generating units to resolve potential reliability deficiencies. For ITO planning criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

These study results are also predicated on the MAPP Project being in-service. This project has been permanently deferred by PJM. Should this facility not be in-service then it is possible that operating constraints will restrict the output of this queue request.

As part of its generation impact analysis ITO routinely evaluates the impact that a proposed new generation resource will have under maximum generation conditions, stress system conditions and import/export system conditions. The results of these studies are discussed in more detail below.

1. The first being when local generation including the proposed X4-039 Facility is operated at their maximum capability. The result of this study is shown below.

No Problems Identified.

2. The second being a stressed system condition where the largest generator in the area is unavailable. With the X4-039 generator geographically located in Northern Virginia, Possum Pt. Unit #5 is considered the most critical generating unit in the area. The impact of X4-039 was studied with the outage of Possum Point Unit #5. The result of this study is shown below.

No Problems Identified.

3. The third being import and export conditions into and out of the ITO System. Any new facility that is interconnected with the ITO System should not significantly decrement First Contingency Incremental Transfer Capability between

utilities. The results of these studies can be found in Tables A and B.

**Table A: Import Study Results**

Import Study Results			
Area	Summer 2013	Summer 2013 with V2-030	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

**Table B: Export Study Results**

Export Study Results			
Area	Summer 2013	Summer 2013 with V2-030	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

ITO's planning criteria indicates a need to have approximately 2000 MW of import and export capability. The results of these import and export studies are indicate that the proposed generation facility will not impact ITO's import or export capability.

**Attachment Facilities**

Figure A below illustrates the proposed layout and attachment facilities for the X4-039 interconnection. The estimated cost of these Attachment Facilities which includes metering, protection equipment along with one span 230kV line is \$0.4 million dollars and is estimated to take 24 to 30 months to complete.

**Direct Connection Network Upgrades**

The Direct Connect Network Facilities needed to reliably interconnect the proposed generation with the ITO Transmission System for X4-039 are shown in Figure A below. This interconnection will require a three breaker 230kV ring bus at the customer's site. The 230kV transmission line #201, Pleasant View to Brambleton, will then be looped approximately one span into the new 230kV switching substation as shown. The estimated cost of this work is \$3.0 million and is estimated to take 24 to 30 months.

**Non-Direct Connection Network Upgrades**

Upgrade number	Location (Substation Name)	Description	Voltage (Kv)	TO	TO Cost Estimate	Driver (Queue)	Cost Allocation
n3454.1, n3454.2	Loudoun	Upgrade breakers L152, L252	230	Dominion	\$480,000	X4-039	100%
n3453.1, n3453.2, n3453.3	Loudoun	Upgrade breakers H1T569, H2T558, & H2T559	500	Dominion	\$2,370,000	X4-039	100%
n3455.1, n3455.2	Clifton	Upgrade breakers 205182, 2051T2063	230	Dominion	\$480,000	X4-039	100%
n3456.1, n3456.2, n3456.3	Brambleton	Upgrade breakers 2045T2095, 2094T2095 & 201T2045	230	Dominion	\$720,000	X4-039	100%
n3457.1, n3457.2, n3457.3	Pleasant View	Upgrade breakers H1T274, SC322 & H1T201	230	Dominion	\$720,000	X4-039	100%
Pending	Brambleton	Upgrade breakers 22702, 227T2094	230	Dominion	\$475,200	V4-018	99%
n3207	Loudoun	Upgrade breakers 203052	230	Dominion	\$240,000	W3-070	100%

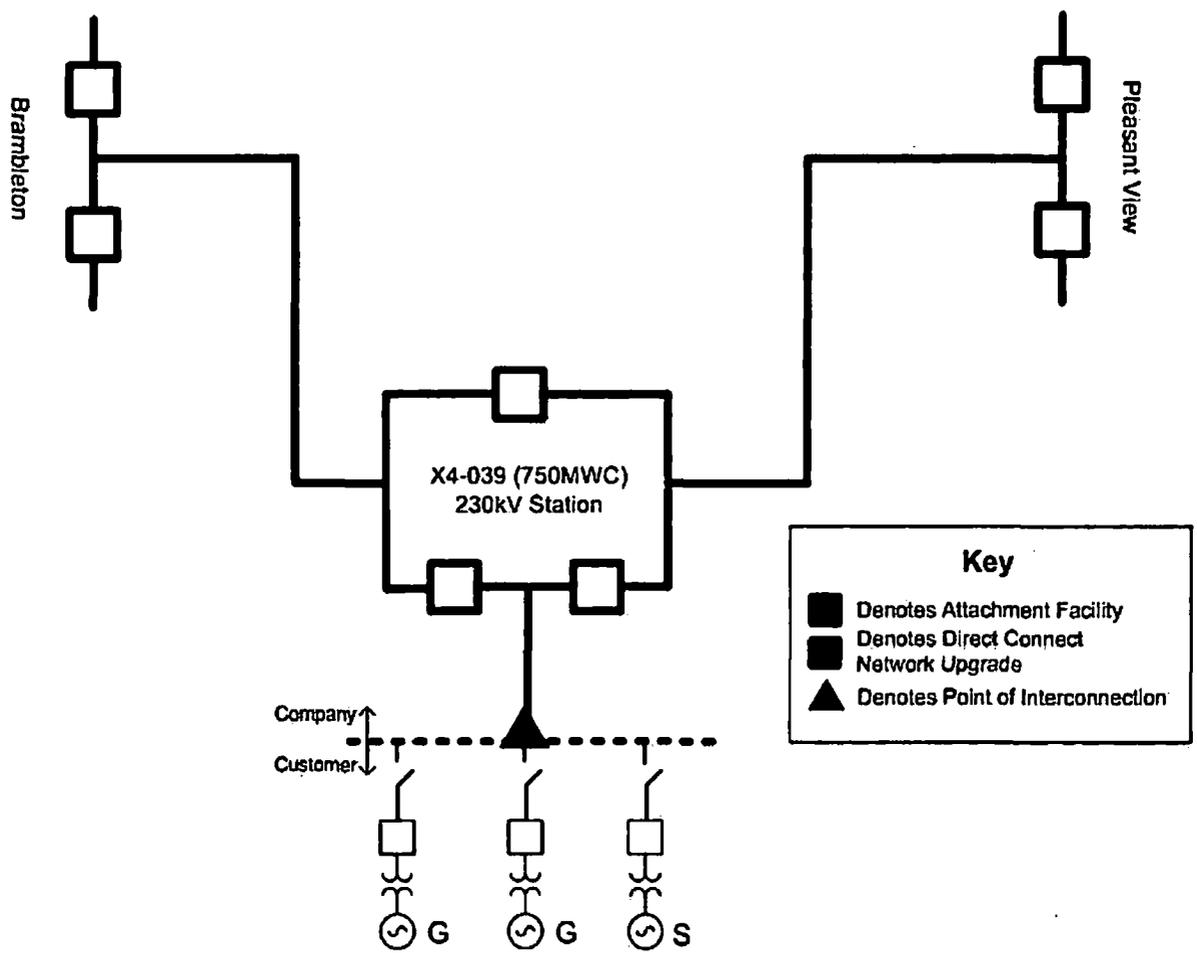


Figure A: One-Line Diagram

130920107

Exhibit 13



COMMONWEALTH OF VIRGINIA  
HOUSE OF DELEGATES  
RICHMOND

**Thomas A. "Tag" Greason**  
MAILING ADDRESS  
19309 WINMEADE DRIVE, BOX 427  
LANSLOWNE, VIRGINIA 20176  
  
THIRTY-SECOND DISTRICT

COMMITTEE ASSIGNMENTS:  
EDUCATION  
FINANCE  
GENERAL LAWS

August 15, 2013

Virginia State Corporation Commission  
P.O. Box 1197  
Richmond, Virginia 23218

Re: Stonewall Energy Center Project

Dear Commissioners,

I am writing to support the State Corporation Commission's issuance of a Certificate of Public Convenience and Necessity for Green Energy Partners/Stonewall LLC's Stonewall Energy Center.

A multilateral group of *Democrats, Republicans and Independents* voted unanimously in Loudoun County in 2010 to give this project the local stamp of approval, and for good reasons. This project is poised to create hundreds of jobs during construction, additional long-term full-time jobs once operational and millions of dollars in annual tax revenues. The project's site, which is adjacent to a quarry and municipal airport, also has access to three separate transmission lines, which allows power generated from this facility to be tied directly into our electrical grid.

Our ability to generate power locally, in this case with clean burning natural gas, will allow Loudoun County and Virginia to rely less on imported energy from coal plants located in other states and lessen the need to build new high voltage transmission lines that traverse many communities and are highly unpopular while reaping the economic development rewards closer to home.

For all the reasons stated, I support Green Energy Partners/Stonewall LLC's application and look forward to its approval.

Respectfully,

Delegate Thomas A. "Tag" Greason



COMMONWEALTH OF VIRGINIA  
HOUSE OF DELEGATES  
RICHMOND

COMMITTEE ASSIGNMENTS:  
TRANSPORTATION (CHAIRMAN)  
APPROPRIATIONS  
SCIENCE AND TECHNOLOGY

**JOE T. MAY**  
POST OFFICE BOX 2146  
LEESBURG, VIRGINIA 20177-7538

THIRTY-THIRD DISTRICT

August 14, 2013

Virginia State Corporation Commission  
P.O. Box 1197  
Richmond, Virginia 23218

Re: Stonewall Energy Center Project

Honorable Commissioners,

I am writing to support the State Corporation Commission's issuance of a Certificate of Public Convenience and Necessity for Green Energy Partners/Stonewall LLC's (GEP/S) Stonewall Energy Center project.

GEP/S' application was given a unanimous green light from our local governing board and has been supported by area residents, community groups and environmental stakeholders. At present, Loudoun County imports 100 percent of the electrical energy it uses to power our homes and businesses. Much of that power is brought into Virginia from neighboring states through power lines that line our view sheds.

This project can change some of that. While one power plant project won't make our area energy independent, we can start by generating electrical energy where we live, work and play. Green Energy Partners' use of natural gas, the cleanest fossil fuel available, also presents a cleaner alternative to other types of power generation.

Finally, an attractive benefit of this proposal is GEP/S' willingness to play a role in the Commonwealth's efforts to clean the Chesapeake Bay. The Stonewall Energy Center will purchase treated effluent, instead of other sources of water, from the Town of Leesburg to use for the plant's cooling water. This unique approach not only helps us in our goals to help clean the Potomac River and Chesapeake Bay, but also provides a crucial source of revenue for the Town of Leesburg.

For all of the reasons stated, I support this project and look forward to its approval by the State Corporation Commission. If you have any questions, feel free to give me a call (703) 777-1191.

Sincerely yours,

Joe T. May



COMMONWEALTH OF VIRGINIA  
HOUSE OF DELEGATES  
RICHMOND

JAMES M. LEMUNYON  
POST OFFICE BOX 220962  
CHANTILLY, VIRGINIA 20153-0962

SIXTY-SEVENTH DISTRICT

COMMITTEE ASSIGNMENTS:  
GENERAL LAWS  
EDUCATION  
COUNTIES, CITIES AND TOWNS

130920107

September 13, 2013

Virginia State Corporation Commission  
P.O. Box 1197  
Richmond, Virginia 23218

Re: Stonewall Energy Center Project

Dear Commissioners:

I am writing to call your attention to the Green Energy Partners / Stonewall LLC's application to the State Corporation Commission for a certificate of public convenience and the Stonewall Energy Center.

Loudoun County's Board of Supervisors and Planning Commission voted overwhelmingly in 2010 to grant local approval for Stonewall Energy Center. These County officials spent countless hours over the span of more than a year working with the applicant to ensure the project will benefit area residents. This project is poised to create hundreds of jobs during construction, additional full-time jobs once constructed and millions of dollars in annual local tax revenue.

In addition, the applicant has worked with environmental stakeholders to help the Commonwealth in its effort to clean up the Chesapeake Bay. The Stonewall Energy Center will purchase treated effluent, instead of other sources of water, from the Town of Leesburg to use for the plant's cooling water. This approach will help Virginia in its effort to clean the Potomac River and Chesapeake Bay.

For all of the reasons, it's my hope that the State Corporation Commission will give the Stonewall Energy Center's application its full consideration.

Warm regards,

Jim LeMunyon



## Loudoun County, Virginia

[www.loudoun.gov](http://www.loudoun.gov)

**Chairman Scott K. York**

Board of Supervisors

1 Harrison Street, S.E., 5<sup>th</sup> Floor, MSC #01, Leesburg, VA 20175

703.777.0204 • Fax 703.777.0421 • email: [Scott.York@loudoun.gov](mailto:Scott.York@loudoun.gov)

130920107

September 16, 2013

Virginia State Corporation Commission  
P.O. Box 1197  
Richmond, Virginia 23218

Re: Stonewall Energy Center Project

Dear Commissioners:

During the first quarter of 2010, as Chairman of the Loudoun County Board of Supervisors, I joined a bi-partisan and unanimous Board of Supervisors in granting land-use approval to Green Energy Partners / Stonewall, LLC in its efforts to construct a natural gas power plant. Stonewall Energy Center will benefit our residents in multiple ways. Most importantly, Loudoun County will for the first time be generating power within its borders and the project will be a significant addition to our commercial tax base.

The developers of Stonewall Energy Center worked diligently with residents, stakeholders and the community at large to address or alleviate all potential issues. The site is located in an industrial area, near Leesburg Airport and Luck Stone Quarry, an ideal location of other industrial uses. The applicant's site-selection, environmental protections and ability to address community concerns led to one of the few unanimous land-use decisions of this scale in Loudoun County.

I am writing to you to express my continued support for the Stonewall Energy Center. Loudoun County's elected officials, professional staff, economic development leaders and community groups continue to look forward to this project coming to fruition. Please act favorably on the application by Green Energy Partners/Stonewall, LLC for a certificate of public convenience and necessity for the Stonewall Energy Center.

Regards,

Scott K. York, Chairman  
Loudoun County Board of Supervisors

12092013

**Stevens R. Miller**  
21646 Stillbrook Farm Drive  
Broadlands, Virginia 20148-3612

August 15, 2013

Virginia State Corporation Commission  
P.O. Box 1197  
Richmond, Virginia 23218

Re: Stonewall Energy Center Project

Dear Commissioners:

During my four years on the Loudoun County Board of Supervisors, it was rare that an applicant was able to win broad-based public support and unanimous approval from our Board. Green Energy Partners/Stonewall LLC (GEP/S) was able to do that by working with the community and elected leaders as partners to ensure the end product had buy-in from the local community.

I was intrigued by this project when it was only an idea put forward by Loudoun County resident John Andrews. Mr. Andrews saw a need for local energy production and identified a location in the County that ideally fit the use he proposed. GEP/S's idea gained ground as even locally known environmentalists came to support the project, many of whom discussed the need for local power generation closer to where we live and prefer energy from clean-burning natural gas versus the traditional practice of importing from coal-burning facilities.

This proposal comes with the additional benefit of being an economic engine for Loudoun County, generating millions in tax revenues annually. That benefit is compounded when one considers that the construction and operation of the power plant will not create additional burdens on the County's roads, schools or other infrastructure.

I support the project and the State Corporation Commission's issuance of the certificate of public convenience and necessity for the Stonewall Energy Center.

Sincerely,



Former Loudoun County Supervisor, Dulles District

Cliff Keirce  
21454 Basil Court  
Broadlands, VA 20148

130920107

Virginia State Corporation Commission  
P.O. Box 1197  
Richmond, Virginia 23218

Re: Stonewall Energy Center Project

Dear Commissioners:

I am writing to support Green Energy Partners/Stonewall LLC's application with the Virginia State Corporation Commission for a certificate of public convenience and necessity for the Stonewall Energy Center.

I served on the Loudoun County Planning Commission during this group's local approval. I spent hours with the applicant, asking questions, touring the site and working to ensure that all community concerns were addressed and resolved. I found that the applicant was willing to pro-actively engage the community, its stakeholders and elected officials to ensure the final project had broad-based community support.

Green Energy Partners' project has some intriguing aspects, including its location and reuse of effluent. By using only natural gas, and treated effluent for cooling, the plant won't produce thick billows of black smoke. Instead, this power plant will emit steam vapor, which is far superior for our environment than the pollution that comes from coal powered plants.

Our community will also derive economic benefits from this project. Real estate taxes will allow Loudoun County to broaden its tax base by taking some of the pressure off of homeowners. During construction and full-operation, Green Energy Partners' plant will bring good-paying jobs to the community.

It's my hope that the State Corporation Commission grants approval to Green Energy Partners' application for a certificate of public convenience and necessity.

Warmest Regards,



Cliff Keirce  
Former Planning Commissioner, Dulles District