

**MARYLAND DEPARTMENT OF ENVIRONMENT  
AIR AND RADIATION ADMINISTRATION**

**FACT SHEET AND TENTATIVE DETERMINATION  
DOMINION ENERGY COVE POINT LNG, LP – CHARLES STATION**

**PROPOSED INSTALLATION OF A NATURAL GAS COMPRESSOR STATION**

**I. INTRODUCTION**

The Maryland Department of the Environment (the "Department") received an application from Dominion Energy Cove Point LNG, LP ("Dominion")-Charles Station on November 14, 2016 [supplemental information received May 10, 2017 & March 5, 2018] for a Permit to Construct for a natural gas compressor station consisting of two (2) compressor turbines, each equipped with SCR and oxidation catalysts; one (1) 1070-hp emergency generator; one (1) 5.25 MMBtu/hr boiler; and three (3) storage tanks. The proposed installation will be located at 6855 Barrys Hill Road, Bryans Road, MD 20616.

A notice was placed in the Maryland Independent on February 15<sup>th</sup> and 22<sup>nd</sup> 2017 announcing a scheduled informational meeting to discuss the permit to construct application. The informational meeting was held on March 1, 2017 at 7:00 pm at the Bryans Road Volunteer Fire Department located at 3099 Livingston Road, Bryans Road, MD 20616.

As required by law, all public notices were also provided to elected officials in all State, county, and municipality legislative districts located within a one mile radius of the facility's property boundary.

The Department has reviewed the application and has made a tentative determination that the proposed facility is expected to comply with all applicable air quality regulations. A public hearing has been scheduled for Wednesday March 28, 2018 at 6:30 PM at Bryans Road Volunteer Fire Department located at 3099 Livingston Road, Bryans Road, MD 20616 to provide interested parties an opportunity to comment on the Department's tentative determination and draft permit conditions, and/or to present other pertinent concerns about the proposed facility. Notices concerning the date, time and location of the public hearing will be published in the legal section of a newspaper with circulation in general area of the proposed facility. Interested parties may also submit written comments.

If the Department does not receive any comments that are adverse to the tentative determination, the tentative determination will automatically become a final determination. If adverse comments are received, the Department will review the comments, and will then make a final determination with regard to issuance or denial of the permit. A notice of final determination will be published in a newspaper of general circulation in the affected area. The final determination may be subject to judicial review pursuant to Section 1-601 of the Environment Article, Annotated Code of Maryland.

Please Note: On January 18, 2018, the Federal Energy Regulatory Commission (“FERC”) issued a federal certificate of convenience and public necessity (“CPCN”), 162 FERC 61,056, to Dominion Energy Cove Point, LLC for authorization to construct, install, operate, and maintain natural gas compression facilities in **Charles County, Maryland**, and Loudoun and Fairfax Counties, Virginia (Eastern Market Access Project). The CPCN covers Dominion’s proposal to construct the natural gas compressor station. Dominion obtained the CPCN under the Natural Gas Act (“NGA”), which preempts local zoning. Accordingly, the Department concluded its review of Dominion’s permit to construct application and is issuing this Tentative Determination pursuant to the decision in *Dominion Transmission, Inc. v. Summers*, 723 F.3d 238 (D.C. Cir. 2013), in which the U.S. Court of Appeals for the D.C. Circuit held that the Department must process any application if the only local laws with which an applicant failed to demonstrate compliance are preempted. Under the *Summers* decision, the court made it clear that state and local regulation is preempted by the NGA to the extent it conflicts with federal regulation, or would delay the construction and operation of facilities approved by FERC. MDE has determined that due to this ruling an applicant for a permit to construct that receives an approval from FERC has satisfied the requirements of §2-404(b)(1) as documentation “that the source meets all applicable zoning and land use requirements.”

## **II. CURRENT STATUS AND PROPOSED INSTALLATION**

### **Proposed Installation**

Dominion is proposing to install a natural gas compressor station consisting of the two (2) natural gas compressor turbines: Solar Model Mars 90 Turbine compressor (13,220 hp (ISO)) and Solar Model Taurus 70 Gas Turbine compressor (11,150 hp (ISO)). Emissions controlled by selective catalytic reduction (SCR) system/oxidation catalyst system; one (1) Hurst LPW Series 5.25 million Btu per hour heat input natural gas fired boiler; one (1) Caterpillar emergency generator rated at 750-kW (1070 horsepower) auxiliary generator; and three (3) storage tanks: 2500-gallon accumulator storage tank, 13,000-gallon ammonia tank; and 1,000-gallon hydrocarbon storage tank

The proposed compressor turbines will employ SoLoNO<sub>x</sub> combustion technology designed to limit emissions of as follows (all emissions rates are in terms of parts per million dry volume (ppmvd) @ 15% O<sub>2</sub> and ambient temperatures above 0°F (3-hr averaging time) except during periods of startup and shutdown):

- Nitrogen oxides (NO<sub>x</sub>) (Solar Mars 90) – 15 ppmvd;
- Nitrogen oxides (NO<sub>x</sub>) (Solar Taurus 70) – 9 ppmvd;
- Carbon Monoxide (CO) – 25 ppmvd;
- Unburned Hydrocarbons (UHC) – 25 ppmvd; and
- Volatile Organic Compounds (VOC) – 2.5 ppmvd.

The compressor turbines shall also be equipped with Selective Catalytic Reduction (SCR) technology to further reduce the emissions of nitrogen oxides (NO<sub>x</sub>) during

operation to 3.75 ppmvd @15% O<sub>2</sub> and ambient temperatures above 0 °F (3-hr averaging time), except during periods of startup and shutdown. The compressor turbines will also be fitted with an oxidation catalyst to reduce carbon monoxide (CO) emissions to 5 ppmvd @ 15% O<sub>2</sub> and volatile organic compounds (VOC) emissions to 1.25 ppmvd @ 15% O<sub>2</sub>. These emissions rates apply when ambient temperatures are above 0 °F (3-hr averaging time), except during periods of startup and shutdown.

The SCR systems will inject aqueous ammonia into the exhaust streams to reduce NO<sub>x</sub> to inert nitrogen (N<sub>2</sub>). It is anticipated that some ammonia may go un-reacted (i.e. ammonia slip). However, the expected ammonia emissions will be minimized to 10 ppmvd @ 15% O<sub>2</sub> or less.

The SCR systems will limit the NO<sub>x</sub> emissions to a level that will allow unrestricted operation of the two (2) compressor turbines, boiler and emergency generator without exceeding the major source NO<sub>x</sub> threshold of 25 tons per year.

### III. APPLICABLE REGULATIONS

The proposed installation is subject to all applicable Federal and State air quality control regulations, including, but not limited to the following:

*Condition (a) applies to the Compressor Turbines:*

- (a) All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in federal New Source Performance Standards (NSPS) promulgated under 40 CFR 60, Subparts A, KKKK - Standards of Performance for Stationary Combustion Turbines for which Construction, Modification or Reconstruction commenced after February 18, 2005;

Emission Limits

**§60.4315** - What pollutants are regulated by this subpart?

The pollutants regulated by this subpart are nitrogen oxide (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>).

**§60.4320** - What emission limits must I meet for nitrogen oxides (NO<sub>x</sub>)?

You must meet the emission limits for NO<sub>x</sub> specified in Table 1 to this subpart.

<b>Table 1 to Subpart KKKK of Part 60—Nitrogen Oxide Emission Limits for New Stationary Combustion Turbines</b>		
<b>Combustion turbine type</b>	<b>Combustion turbine heat input at peak load (HHV)</b>	<b>NO<sub>x</sub> emission standard</b>
New turbine firing natural gas	> 50 MM Btu/h and ≤ 850 MM Btu/h	25 ppm at 15 percent O <sub>2</sub> or 150 ng/J of useful output (1.2 lb/MWh).

*Condition (b) applies to Compressor Turbines and the boiler*

- (b) COMAR 26.11.09.05 - Visible Emissions.  
“A. Fuel Burning Equipment.  
(1) Areas I, II, V, and VI. In Areas I, II, V, and VI, a person may not cause or permit the discharge of emissions from any fuel burning equipment, other than water in an uncombined form, which is greater than 20 percent opacity.  
(3) Exceptions. Section A(1) and (2) of this regulation do not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if:  
(a) The visible emissions are not greater than 40 percent opacity; and  
(b) The visible emissions do not occur for more than 6 consecutive minutes in any sixty minute period.

*Conditions (c) & (d) applies to the Emergency Generator*

- (c) All applicable terms, provisions, emissions standards, testing, monitoring, record keeping, and reporting requirements included in federal New Source Performance Standards (NSPS) promulgated under 40 CFR 60, Subparts A, **JJJJ** – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines for which Construction, Modification or Reconstruction commenced after June 12, 2006.

#### **Emission Standards for Owners and Operators**

#### **§60.4233 - What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?**

“(e) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified.”

**Table 1 to Subpart JJJJ of Part 60—NO<sub>x</sub>, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP**

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards <sup>a</sup>					
			g/HP-hr			ppmvd at 15% O <sub>2</sub>		
			NO <sub>x</sub>	CO	VOC <sup>d</sup>	NO <sub>x</sub>	CO	VOC <sup>d</sup>
Emergency	HP≥130		2.0	4.0	1.0	160	540	86

<sup>a</sup> Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O<sub>2</sub>.

<sup>d</sup> For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

(d) COMAR 26.11.09.05E - Stationary Internal Combustion Engine Powered Equipment.

“(2) Emissions During Idle Mode. A person may not cause or permit the discharge of emissions from any engine, operating at idle, greater than 10 percent opacity.

(3) Emissions During Operating Mode. A person may not cause or permit the discharge of emissions from any engine, operating at other than idle conditions, greater than 40 percent opacity.

(4) Exceptions.

(a) Section E(2) of this regulation does not apply for a period of 2 consecutive minutes after a period of idling of 15 consecutive minutes for the purpose of clearing the exhaust system.

(b) Section E(2) of this regulation does not apply to emissions resulting directly from cold engine start-up and warm-up for the following maximum periods:

(i) Engines that are idled continuously when not in service: 30 minutes;

(ii) All other engines: 15 minutes.

(c) Section E(2) and (3) of this regulation do not apply while maintenance, repair, or testing is being performed by qualified mechanics.”

(e) COMAR 26.11.02.19C & D, which require that the Permittee submit to the Department annual certifications of emissions, and that the Permittee maintain sufficient records to support the emissions information presented in the submittals.

(f) COMAR 26.11.06.08 and 26.11.06.09, which generally prohibit the discharge of emissions beyond the property line in such a manner that a nuisance or air pollution is created.

#### IV. GENERAL AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) for six (6) criteria pollutants, i.e., sulfur dioxide, particulate matter, carbon monoxide, nitrogen dioxide, ozone, and lead. The primary standards were established to protect public health, and the secondary standards were developed to protect against non-health effects such as damage to property and vegetation.

The Department utilizes a statewide air monitoring network, operated in accordance with EPA guidelines, to measure the concentrations of criteria pollutants in Maryland's ambient air. The measurements are used to project statewide ambient air quality, and currently indicate that with the exception of ozone, Charles County is in attainment for all other National Ambient Air Quality Standards (NAAQS) criteria pollutants. Therefore, emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter with particle size equal to or less than 10 microns in size (PM<sub>10</sub>), fine particulate matter equal to or less than 2.5 microns in size (PM<sub>2.5</sub>), and lead (Pb) must be evaluated subject to Prevention of Significant (PSD) regulations promulgated in 40 CFR 52.21.

Effective April 12, 2010, EPA established a new 1-hour primary and secondary NO<sub>2</sub> NAAQS. EPA set the level of this new 1-hour NO<sub>2</sub> standard at 100 parts per billion (ppb). Final area designations with respect to this new 1-hour NO<sub>2</sub> standard have not been finalized; however, facilities subject to PSD applicability for NO<sub>2</sub> must demonstrate compliance with the 1-hour NO<sub>2</sub> NAAQS.

Effective August 23, 2010, EPA established a new 1-hour primary SO<sub>2</sub> NAAQS that will eventually replace the current 24-hour and annual NAAQS. EPA set the level of this new 1-hour SO<sub>2</sub> standard at 75 ppb. Final area designations with respect to the new 1-hour SO<sub>2</sub> standard have not been finalized; however, facilities subject to PSD applicability for SO<sub>2</sub> must demonstrate compliance with this 1-hour SO<sub>2</sub> NAAQS.

Ground level ozone continues to present a problem for the entire Baltimore-Washington metropolitan area, which is classified as a non-attainment area for ozone. The primary contributors to the formation of ozone are emissions of oxides of nitrogen, primarily from combustion equipment, and emissions of Volatile Organic Compounds (VOC) such as paint solvents and gasoline vapors. Charles County is included in the non-attainment area for ozone.

With regard to toxic air pollutants (TAPs), screening levels (i.e., acceptable ambient concentrations for toxic air pollutants) are generally established at 1/100 of allowed worker exposure levels (TLVs)<sup>1</sup>. The Department has also developed additional screening levels for

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<sup>1</sup> TLVs are threshold limit values (exposure limits) established for toxic materials by the American Conference of Governmental Industrial Hygienists (ACGIH). Some TLVs are established for short-term exposure (TLV – STEL), and some are established for longer-term exposure (TLV – TWA), where TWA is an acronym for time-weight average.

carcinogenic compounds. The additional screening levels are established such that continuous exposure to the subject TAP at the screening level for a period of 70 years is expected to cause an increase in lifetime cancer risk of no more than 1 in 100,000.

## V. COMPLIANCE DEMONSTRATION AND ANALYSIS

The proposed installation must comply with all State imposed emissions limitations and screening levels, as well as the NAAQS. The Department has conducted an engineering and air quality review of the application. The emissions were projected based on vendor data, manufacturer emission guarantees and EPA emission factors. The US EPA's AERMOD (v16216r) dispersion model was also used to project the maximum ground level concentrations from the facility, which was then compared to the screening levels and the NAAQS.

- A. **Estimated Emissions** - The maximum emissions of air pollutants of concern from the proposed installation are listed in Table I.
- B. **Compliance with National Ambient Air Quality Standards** - The maximum ground level concentrations for nitrogen dioxide, carbon monoxide, sulfur dioxide, particulate matter (PM<sub>10</sub>) based on the emissions from the projected facility-wide are listed in column 2 of Table II. The combined impact of the projected contribution from the proposed installation and the ambient background concentration for each pollutant shown in column 3 of Table II is less than the NAAQS for each pollutant shown in column 4.
- C. **Compliance with Air Toxics Regulations** – No Taps were evaluated from the proposed installations because fuel burning equipment is specifically exempt under the COMAR 26.11.15. However, ammonia emissions impact from the SCR system were analyzed and compared to the screening levels. The ammonia emissions are not a product of combustion.

## VI. TENTATIVE DETERMINATION

Based on the above information, the Department has concluded that the proposed installation will comply with all applicable Federal and State air quality control requirements. In accordance with the Administrative Procedure Act, Department has made a tentative determination to issue the Permit to Construct.

Enclosed with the tentative determination is a copy of the draft Permit to Construct.

**TABLE I**  
**PROJECTED MAXIMUM EMISSIONS FROM THE PROPOSED INSTALLATION**

POLLUTANT	PROJECTED MAXIMUM EMISSIONS FROM PROPOSED INSTALLATION	
	(lbs/day)	(tons/year)
Nitrogen Dioxide (NO <sub>2</sub> )	93.04	16.95
Sulfur Dioxide (SO <sub>2</sub> )	30.68	5.60
Carbon Monoxide (CO)	201.53	36.78
Volatile Organic Compounds (VOC)	75.12	13.71
Particulate Matter (PM <sub>10</sub> )/(PM <sub>2.5</sub> )	81.04	14.79
HAPs	7.67	1.4
Ammonia	67.62	12.34
GHGs (CO <sub>2e</sub> )	772,246	140,935

**TABLE II**  
**PROJECTED IMPACT OF EMISSIONS OF CRITERIA POLLUTANTS FROM THE PROPOSED INSTALLATION ON**  
**AMBIENT AIR QUALITY**

<b>POLLUTANTS</b>	<b>MAXIMUM OFF-SITE GROUND LEVEL CONCENTRATIONS CAUSED BY EMISSIONS FROM PROPOSED PROCESS (µg/m<sup>3</sup>)</b>	<b>BACKGROUND AMBIENT AIR CONCENTRATIONS (µg/m<sup>3</sup>)*</b>	<b>COMBINED IMPACT (µg/m<sup>3</sup>)</b>	<b>NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) (µg/m<sup>3</sup>)</b>
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour. → 92.6 <sup>(7)</sup>	1-hour. → 89	1-hour. → 181.5	1-hour. → 188
Carbon Monoxide (CO)	1-hour → 550.62 <sup>(1)</sup> 8-hour → 116.59 <sup>(1)</sup>	1-hour → 2185 8-hour → 2070	1-hour → 2735.62 8-hour → 2186.59	1-hour. → 40,000 8-hour. → 10,000
Sulfur Dioxide (SO <sub>2</sub> )	1-hour → 7.46 <sup>(2)</sup>	1-hour. → 26.5	1-hour. → 33.96	1-hour. → 196
Particulate Matter (PM <sub>10</sub> )	24-hour → 4.79 <sup>(3)</sup>	24-hour → 28	24-hour → 32.79	24-hour → 150
Particulate Matter (PM <sub>2.5</sub> )	24-hour → 2.97 <sup>(5)</sup> Annual → 0.73 <sup>(6)</sup>	24-hour → 19.6 Annual → 8.2	24-hour → 22.57 Annual → 8.93	24-hour → 35 Annual → 12

Notes:

- (1) 2<sup>nd</sup> High, not be exceeded more than once per year.
- (2) 99<sup>th</sup> (4<sup>th</sup> high) over five (5) years.
- (3) 6<sup>th</sup> year over five (5) years.
- (5) 98<sup>th</sup> percentile (8<sup>th</sup>) averaged over five (5) years.
- (6) 1<sup>st</sup> High averaged over five (5) years.
- (7) 98<sup>th</sup> percentile (8<sup>th</sup> high) over five (5) years.

**TABLE III  
 PREDICTED MAXIMUM OFF-SITE AMBIENT CONCENTRATIONS FOR  
 TOXIC AIR POLLUTANTS EMITTED FROM THE PROPOSED INSTALLATION**

<b>TOXIC AIR POLLUTANTS</b>	<b>SCREENING LEVELS (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>PROJECTED WORST-CASE FACILITY-WIDE EMISSIONS (lbs/hr)</b>	<b>PREDICTED MAXIMUM OFF-SITE GROUND LEVEL CONCENTRATIONS (<math>\mu\text{g}/\text{m}^3</math>)</b>
Ammonia	1-hour→ 243.78 8-hour→ 174.13	2.82	1-hour→ 8.1 8-hour→ 7.8

The values represent maximum facility-wide emissions of toxic air pollutants during any 1-hour period of facility operation. The values are based on worst-case emissions from the proposed facility and were predicted by US EPA AERMOD (v16216r) dispersion model.