Minor Source Plan Approval Application

Bradford County Real Estate Partners LLC

Natural Gas Processing Plant

Wyalusing Township, Bradford County, Pennsylvania

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1.0 INTRODUCTION

Bradford County Real Estate Partners LLC (Applicant) is seeking authorization to construct a natural gas processing plant (the NGP Plant or the Project) in Wyalusing Township, Bradford County, Pennsylvania. The Applicant is the owner in fee simple of 10 parcels of real property measuring in excess of 220 acres on which it will locate the NGP Plant. The NGP Plant will receive stranded natural gas by pipeline from local production areas and process it to a quality appropriate for distribution to commercial markets. The processed natural gas will be suitable for a variety of end uses, including power generation and transportation fuels. This state-of-the-art NGP Plant will include a logistics hub for transport and distribution of the natural gas by truck and rail to commercial markets. This project will create new jobs and will make Bradford County a leader in the commercial distribution of local natural gas without adding pipeline transportation infrastructure.

The Applicant is an affiliate of New Fortress Energy (NFE), a global leader in the energy infrastructure business. The Fortress group of companies has invested in over $25 billion of transportation and infrastructure assets. NFE has developed and now operates energy infrastructure facilities both inside the United States and internationally. This expertise gives NFE great insight into the necessary logistics and transportation networks needed to move natural gas from wellhead to commercial markets.

This document is organized as follows:

Section 2 – Project Description and Emissions Estimation Basis
Provides a detailed project description, a summaries of the Project's air emissions and documentation of the basis for the emission estimates;

Section 3 –Regulatory Evaluation
Identifies the federal and state regulations and standards applicable to the Project, and summarizes the requirements of the applicable regulations;

Section 4 – Technology Evaluation
Provides a comparison of the proposed limits to verify that proposed emission limits meet Pennsylvania Department of Environmental Protection (PADEP) regulation (25 Pa. Code § 127.12(a)(5)) requiring use of the best available technology (BAT).

2.0 PROJECT DESCRIPTION AND EMISSION ESTIMATES

The operations at the NGP Plant will: (1) receive local natural gas transported by pipeline, (2) process this natural gas by removing heavier hydrocarbons and certain impurities to meet the requirements for various commercial uses and then cool the natural gas to below its condensation point to obtain a liquefied quality appropriate for distribution to commercial markets, and (3) load the liquefied natural gas (LNG) for distribution by truck and rail. The NGP Plant will also include customary supporting functions necessary to natural gas processing, such as generation of power, production of nitrogen for use in the NGP Plant's refrigerant cycle, production of compressed air for equipment controls, and withdrawal of potable well water for drinking and sanitary purposes. The Applicant anticipates that the NGP Plant will produce a nominal daily average of up to roughly 4 million gallons of LNG and store up to six million gallons on site. The NGP Plant will include loading racks capable of loading LNG into 18 trucks for delivery to commercial markets.

Detailed engineering of the Project is still in progress. Make and model information presented in this application support document is subject to change, but specifications for final equipment selections will be equivalent or better.

The proposed site plan is shown on Figure B-2. Figure B-3 provides an overview of the facility process and the associated sources of emissions.

2.1 Process Description

The following describes how the NGP Plant processes the natural gas and liquefies it for distribution to commercial markets.

2.1.1 Inlet Facilities

Natural gas will be supplied to the facility through the metering and odorant area. An underground pipeline would connect the NGP Plant to a nearby gas gathering system. Metered natural gas entering the facility would be first routed to an inlet filter separator to remove small particles to protect downstream boost compression and the pre-treatment system. Natural gas entering the NGP Plant can vary between 600 and 1200 pounds per square inch gage (psig). A High Integrity Pressure Protection System ("HIPPS") will be installed downstream of the metering station. Additionally, an electric feed inlet heater will provide heating of the high pressure feed gas on cold days to prevent formation of natural gas hydrates resulting from Joule-Thomson cooling when gas pressure is let down by the pressure reduction unit which functions as an inlet pressure control station before the gas enters the gas conditioning unit.

2.1.2 Gas Conditioning System

Natural gas entering the NGP Plant will be composed primarily of methane, but will also contain ethane, propane, butane, and other heavy end hydrocarbons. In addition, quantities of nitrogen, carbon dioxide (CO_2), sulfur compounds (H_2S and mercaptans), and water may be present in the feed gas stream entering the NGP plant. CO_2 and water must be removed to sufficient levels to avoid freezing within the liquefaction process that would damage process equipment. Although measurable quantities of mercury are not anticipated in the feed gas, even small quantities can aggressively attack the brazed aluminum liquefaction platefin heat exchangers and must be removed.

The NGP Plant's gas conditioning system will consist of the following:

- Mercury removal via metal sulfide adsorbent,
- Carbon dioxide ("CO_2") and other acid gases removal via an amine system, and
- Dehydration via a molecular sieve adsorbent system.

Mercury Removal

Mercury is removed via a metal sulfide adsorbent bed. The life of the mercury removal beds is designed to be approximately three years, assuming a mercury concentration in the outlet gas of less than 0.05 parts per billion by volume ("ppbv"). Spent catalyst from the mercury removal vessels will be removed periodically and sent off-site for disposal by a licensed waste management contractor.

Acid Gas Removal

Acid gas removal involves a closed-loop system that circulates a methyldiethanolamine solution to absorb CO_2 and sulfur species from the feed gas. The amine solution is stripped of the acid gases using the steam boilers to provide heat to the process. The CO_2 removed from the feed gas is to be vented to the atmosphere, but the vent stream must first be treated for co-absorbed contaminants. To limit emissions, absorbed H_2S and other sulfur species in the vent stream will be thermally oxidized. Co-absorbed hydrocarbons, including benzene, toluene, ethylbenzene, and xylenes, will also be combusted and destroyed in the thermal oxidizer.

Dehydration

The water removal system is located immediately downstream of the acid gas removal system and employs two molecular sieve adsorption beds. At any time, one bed will be in adsorption mode while the other bed is in regeneration/cooling mode. Regeneration of a bed involves passing dehydrated heated feed gas through it, in an up-flow direction, which drives the adsorbed water out of the bed. This heat is provided by a fired regeneration gas heater. The water loaded regeneration gas is then cooled to condense and remove the water, which is collected and recycled back into the acid gas removal system. This regeneration gas is then compressed and recycled upstream of the gas conditioning units. The regenerated bed will then be cooled by non-heated dehydrated feed gas until a low enough temperature is achieved to place it back into adsorption service.

2.1.3 Heavy Hydrocarbon Removal

After pretreatment, but prior to liquefaction of the natural gas, heavy hydrocarbons that may freeze at the cryogenic temperatures encountered downstream will be removed by partial refrigeration. These heavy components removed from the treated gas to be liquefied will be blended into the fuel gas, where they vaporize so no liquid firing is necessary, for use in the combustion equipment on-site.

2.1.4 Liquefaction

After the heavy hydrocarbon removal process, the natural gas will be condensed to a liquid by cooling the gas to approximately –260 degrees Fahrenheit (°F).

Treated gas from the gas conditioning train is divided between the two liquefaction trains. In each liquefaction train, the dry treated gas stream flows into a refrigerant exchanger where it is turned into liquid by cooling it to approximately -260 °F with the mixed refrigerant. The refrigerant exchanger consists of multiple brazed aluminum heat exchanger cores arranged in parallel inside a perlite insulated cold box. An aerial cooling system (fin-fan) rejects heat from the mixed refrigerant that is gained from the liquefaction of feed gas and compression. The cold box is purged with nitrogen gas to prevent moisture intrusion and eliminate the potential for a flammable atmosphere inside. The refrigeration cycle will use a direct drive centrifugal compressor and eject heat to the atmosphere via fin-fan heat exchangers. The constituents of the refrigerant will be delivered to the site by truck periodically and stored in pressurized vessels for intermittent makeup. Compressor seal leakage is recovered by a patented process to limit emissions from this equipment.

2.1.5 LNG Storage

The liquefied natural gas will be stored at less than 2 psig in a tank with capacity of six million gallons (net). The LNG storage tank will be a single containment structure consisting of a steel inner tank and a carbon steel outer tank. The tank will be surrounded by concrete walls and/or earthen berms to serve as secondary containment in the unlikely event of an unintended release of LNG. The storage tank will be vapor- and liquid- tight without losses to the environment. Insulating material will be placed between the inner and outer tanks to minimize heat gain and boil-off.

Inside the tank, vapor pressure above the liquid is kept constant so the temperature is maintained. When LNG temperature increases, vapors are created from the boiling liquid (i.e., BOG). In order to avoid pressure build-up within the tank, BOG will be collected and compressed to sufficient pressure for use as fuel gas or re-liquefaction and return to the storage tank. In the highly unlikely event that a process upset situation occurs, excess LNG vapors will be flared.

2.1.6 Truck Loading

Eighteen LNG loading bays will load product to 10,000-gallon nominal capacity tanker trucks. The loading bays will be designed to fill a tanker truck at a rate of 280 to 300 gallons per minute. The loading area will be paved and graded to carry any accidental liquid spills to a containment sump.

Each truck bay will have a liquid supply and vapor return hose. The hoses will be made from corrugated braided stainless steel with connections suited for LNG trailers. After truck loading, the liquid hose will be drained to a common, closed truck station sump connected to the facility vapor handling system where it will boil off and be used as fuel or re-liquefied. Nitrogen will be used to purge the hoses and facilitate liquid draining and will then be routed to the facility vapor handling system.

2.1.7 Flare and Relief System

Flare systems are a necessary safety feature of LNG facilities. The facility will have three separate flare systems: one for warm (wet) reliefs, one for cold, cryogenic (dry) reliefs, and one for low-pressure cryogenic reliefs from the LNG storage tanks and truck loading system. The "warm" relief loads are separated to ensure that wet fluids cannot freeze in the header if there was a cryogenic relieving event. The "cold" and "low pressure" relief loads are separated to ensure that the relief of near-atmospheric pressure vapors is not affected by back-pressure in the header if an unrelated release were to occur. However, while the fluids remain segregated to the three systems, all flares will both be within a single multi-point ground flare field surrounded by radiation fencing. Small pilots with electronic ignition are provided on each flare.

The flare system will be used only during plant-protection situations, maintenance activities, and initial commissioning/start-up.

2.2 Air Emissions

The following equipment proposed as part of the Project will have the potential for air emissions:

- Two direct drive compression turbines each rated at 509 million British thermal units per hour (MMBtu/hr)
- Three gas turbine generators rated at 142 MMBtu/hr each
- Two steam boilers rated at 58.2 MMBtu/hr each
- One regeneration gas heater rated at 36.6 MMBtu/hr
- One thermal oxidizer rated at 42.8 MMBtu/hr, with bypass vent stack
- One multipoint ground flare (flare) designed to combust purge gas and pilot gas rated at 2.6 MMBtu/hr.
- Fugitive vapor emissions from equipment leaks (i.e., valves, flanges, and seals)
- Two backup generators each rated at 3.0 MW and two firewater pumps each rated at 700 hp burning ultra-low sulfur diesel fuel.

The turbines and heaters will combust only natural gas.

Emission calculations and backup information are provided in Attachment A. Table A-1 provides the potential-to-emit (PTE) levels for the facility. As shown in the table, all PTE are below major permit threshold levels. As documented in the calculation tables and below, the PTE levels are an extremely conservative over estimation in that they are based on worst case conditions that can never occur for an entire year.

2.2.1 Refrigerant Compressor Gas Turbine Drivers

The refrigerant compressor gas turbines are direct drive simple-cycle turbines; there are no heat recovery steam generators or cooling towers in this project. The proposed units are GE Model LM6000PF+ combustion turbine. The turbines are designed to fire natural gas only. The firing rate is 508 MMBtu/hr (HHV) provided by the dry low emissions (DLE) combustor system

The exhaust from each of the gas turbine drivers is sent through an oxidation catalyst and selective catalytic reduction (SCR) system. In the oxidation catalyst section, incompletely combusted organic compounds (VOCs) and carbon monoxide (CO) are further oxidized on the catalyst and converted primarily to carbon dioxide (CO_2) and water (H_2O). The oxidation catalyst is located upstream of the SCR unit which is located just upstream of the exhaust stack.

The SCR system consists of ammonia injection (19% by weight aqueous) in the exhaust upstream of the catalyst bed. The ammonia mixes with the exhaust gas and reacts with NOx on the surface and interior of the catalyst to produce nitrogen gas (N_2) and water (H_2O). The SCR catalyst is a high temperature catalyst. Unreacted ammonia (ammonia slip) will be present in the turbine exhaust.

The turbines have various states of operation: startup, shutdown, normal operation hot/cold day, and normal operation average day with different emission factors associated with each of these various states of operation. Manufacturer emissions data for each of the aforementioned states of operation are provided in Attachment A and calculations of hourly and annual emissions are based on the following:

- Worst case hourly emissions occur on a cold day (20 F) at 100% load and are provided in Table A-2.
- The annual emissions from the turbines are calculated using the emissions from the turbines for the worst case (20 F and 100% load). These annual PTE estimates are extremely conservative; as it is not feasible that average annual temperature will ever be 20F.
- The maximum startup and shutdown hourly emissions are calculated using the startup/shutdown emissions and the remaining time in one hour as normal emissions from the cold day. Startup/shutdown is expected to take less than 10 minutes each. Therefore, an hour when a startup/shutdown occurs is 10 minutes startup/shutdown emissions and 50 minutes normal operation. For emission calculation purposes it is assumed there will be 2 startup/shutdown events per unit per month.

Potential annual (tons/yr) emission rates for each pollutant are based on the greater of either 100% base-load operation (8,760 hr/yr), or the sum of emissions from 8,736 hr/yr of normal operation and emissions from 24 hours of startup and shutdown events.

The following are the design control levels:

- SCR system reduces the NOx emissions by approximately 92% from 25 ppmvd to 2 ppmvd @ 15% O_2. Ammonia slip will be limited to 10 ppmvd @ 15% O_2.
- The oxidation catalyst reduces CO emissions by 93% (from 25 ppmvd to 2 ppmvd @ 15% O_2) and VOC reduction of 30% (from 3 ppmvd to 2.1 ppmvd @ 15% O_2 on ppm basis).

2.2.2 Gas Turbine Generators

Three gas combustion turbines will supply electricity for balance of plant operations with a peak load of 20 MW. This facility is planned to be "islanded", such that no electricity is imported from/exported to the grid; the facility is completely self-sufficient in terms of electricity from the gas turbine generators. Redundancy of three by 60% capacity is provided for maintenance outages and trip events.

The normal operating scenario is two turbines in operation at turndown (I.e. less than 100% load) to match the load demanded by the LNG facility. Three gas turbines may be run at times for heightened reliability, but all will be a turndown since maximum plant load is lower than the capability of two turbines on a cold day at 100% load.

The exhaust from each of the gas turbine drivers is sent through an oxidation catalyst and SCR system. In the oxidation catalyst section, incompletely combusted organic compounds (VOCs) and carbon monoxide (CO) are further oxidized on the catalyst and converted primarily to carbon dioxide (CO_2) and water (H_2O). The oxidation catalyst is located upstream of the SCR unit which is located just upstream of the exhaust stack.

The SCR system consists of ammonia injection (19% by weight aqueous ammonia) in the exhaust upstream of the catalyst bed. The ammonia mixes with the exhaust gas and reacts with NOx on the surface and interior of the catalyst to produce nitrogen gas (N_2) and water (H_2O). The SCR catalyst is a high temperature catalyst. Unreacted ammonia (ammonia slip) will be present in the turbine exhaust.

The turbines have various states of operation: startup, shutdown, normal operation hot/cold day, and normal operation average day with different emission factors associated with each of these various states of operation. Manufacturer emissions data for each of the aforementioned states of operation are provided Attachment A and calculations of hourly and annual emissions are based on the following:

- Worst case hourly emissions occur on a cold day (20 F) at 100% load and are provided in Table A-3.
- The annual emissions from the turbines are calculated using the emissions from the turbines for the worst case (20 F and 100% load). These annual PTE

estimates are extremely conservative; as it is not feasible that average annual temperature will ever be 20F and as noted above this is physically not possible since this would far exceed plant load with no outlet for the electricity generated.

- The maximum startup and shutdown hourly emissions are calculated using the startup/shutdown emissions and the remaining time in one hour as normal emissions from the cold day. Startup is expected to take less than 20 minutes; while shutdown will be relatively fast in less than 5 minutes. Therefore, an hour when a startup occurs is 20 minutes startup emissions and 40 minutes normal operation. Similarly, a shutdown hour is 5 minutes shutdown emissions and 55 minutes normal emissions.

Potential annual (tons/yr) emission rates for each pollutant are based on the greater of either 100% base-load operation (8,760 hr/yr), or the sum of emissions from 24 hours of startup and shutdown events and 100% base-load operations for the remaining time periods .

Each turbine generator will be equipped with the following:

- An SCR system that reduces the NOx emissions by approximately 85% from 15 ppmvd to 2 ppmvd @ 15% O_2.
- Ammonia slip will be limited to 10 ppmvd @ 15% O_2.
- Oxidation catalyst that reduces CO emissions by 80 % (from 10 ppmvd to 1.75 ppmvd @ 15% O_2) and VOC reduction of 50% (10 ppmvd to 5 ppmvd @ 15% O_2).

2.2.3 Steam Boilers

Two steam boilers will produce steam to heat the amine solution to strip out acid gases removed from the pipeline feed gas. The boilers will burn natural gas and each has a maximum rating of 58.2 MMBtu/hr. For permitting and emissions estimating purposes, this application assumes that each steam boiler will operate full time at 8,760 hr/yr as they are designed.

Boiler emissions are based on performance information from a potential vendor and the following controls:

- An SCR system that reduces the NOx emissions to less than 0.0074 lb/MMBtu.
- Ammonia slip will be limited to 10 ppmvd @ 3% O_2.
- Oxidation catalyst that reduces CO emissions to less than 0.0206 lb/MMBtu and VOC emissions to less than 0.0038 lb/MMBtu.
- Flue gas recirculation will also be used in conjunction with SCR and oxidation catalyst to meet the listed emissions factors.

2.2.4 Regeneration Gas Heater

A regeneration gas heater (rated at approximately 36.6 MMBtu/hr) will be used as needed to regenerate the molecular sieve beds which remove moisture from the natural gas

leaving the amine system. The molecular sieve beds will not have vents to the atmosphere. The wet gas liberated from the regenerating beds will be routed back to the inlet of the gas conditioning unit. Combustion emissions from the heater based on 8,760 hours operation are the only emissions for this unit.

Heater emissions are based on performance information from a potential vendor and low NOx burner system that results in NOx emissions 30 ppmvd @ 3% O_2.

2.2.5 Thermal Oxidizer

A thermal oxidizer will combust the gases exhausted from the acid gas removal system to destroy reduced sulfurs and co-absorbed hydrocarbons. The thermal oxidizer will also combust flash gases from the amine system and supplemental fuel gas. The single thermal oxidizer will operate full time except for trips or maintenance outages. The waste gas will be vented during any maintenance downtime, so for application purposes it is assumed that the un-combusted stream will be vented for 4% of the year (175 mmscf/yr).

The thermal oxidizer will produce emissions from combustion of the waste gas and supplemental fuel gas. Emission estimates are based on the heat input rate for the waste gas and the following emission factors (Table A-7):

- NOx, CO, and PM from manufacturer specifications.
- VOCs based on composition of the waste gas and destruction efficiency of 98 percent.
- SO2 from mass balance using the sulfur content of the waste gas and assuming that 100 percent is oxidized to SO_2.

2.2.6 Multi-Point Ground Flare

The multi-point ground flare will accept relieved vapors during the unlikely event of overpressure under upset conditions.

The only “routine” expected emissions from the flare are the pilot and flare header purge gas since it is otherwise only used for emergency upset conditions or infrequent maintenance events. The three flare systems (warm, cold, low pressure) will normally combust 2.6 MMBtu/hr combined in the common radiation-fenced multi-point burner field.

For emission estimating purposes we have included annual maintenance events that will result in maximum of 167 million scf per year being sent to the flare. This gas is assumed to have same composition as fuel gas as worst-case emissions.

2.2.7 Fugitives from Equipment Leaks

Process fugitive VOC emissions can occur from leaks in valves, pump seals, flanges, connectors, and compressor seals. There will be a seal leak recovery system for the

refrigerant compressor that captures the leak losses. In addition, there are valves, relief valves, and flanged connectors for conveyance of various process fluids that have the potential for fugitive leaks. Component counts by fluid service are provided in the calculations in Attachment A.

Emission factors and control efficiencies are based on the EPA Protocol for Equipment Leak Emission Estimates (SOCMI) and were used to estimate all potential fugitive VOC emissions. Since the Project will be subject to Leak Detection and Repair (LDAR) requirements under 40 CFR Part 60 Subpart VVa; a 60 % control level was applied per PADEP's recently (June 2018) issued technical support document (TSD) for General Plan Approval GP-5.

2.2.8 Diesel Fired Equipment

Other sources of Project emissions include two diesel engine-powered backup generators and two diesel engine-powered firewater pumps. The diesel engine-powered backup generators, rated at 3,000 kilowatts (kW) each, will allow maintenance of vital plant loads during power outages or maintenance. The backup generators will not be used for peak shaving. The firewater pumps will be used for emergency purposes in the event of a fire and for routine testing as required by the National Fire Prevention Association Code. The diesel firewater pumps are rated at a maximum 700 horsepower (hp) each.

The diesel engine backup generators will only be operated during power interruptions to provide power, lighting, and critical safety functions when the gas turbine generators are not operating and, at most, once per week for less than 30 minutes for operational testing purposes. The Project is proposing to accept operating restrictions on the backup generators and firewater pumps through the air quality permit that will limit annual cumulative nonemergency operation (e.g., engine testing) to less than 100 hours per consecutive 12 months for each engine. The 100-hour operational restriction for each engine will not apply toward operation during actual emergency situations. Potential emissions from each diesel engine have been estimated based on 100-hr/yr operation.

Potential emissions of regulated pollutants from the backup generators and firewater pump are summarized in Tables A-6. The vendor(s) have not yet been selected; however the diesel engines will be certified as specified in NSPS Subpart IIII. As such, NOx, CO, VOC, PM, PM10, and PM2.5 emissions from this equipment are based on emission factors from potential vendors and/or the applicable NSPS emission standards for stationary compression ignition (CI) reciprocating internal combustion engines (RICE) specified in 40 CFR 60, Subpart IIII. PM10 and PM2.5 emissions are assumed to equal PM emissions.

The emission factors assume operation of the backup generator at full load, which is reasonable given its expected use. SO_2 emissions are based on a mass balance using a maximum sulfur content of ultra-low sulfur diesel (ULSD) fuel (0.0015% by weight), and assuming 100% conversion of the sulfur in the fuel to SO_2. HAP emissions are based on AP-42 emission factors.

As noted there is a 5,000 gallon diesel oil tank to fuel these sources. For completeness, emissions were estimated utilizing EPA TANKS program, based on fuel usage for the 100 hours operation. Emissions are less than 1 lb per year and the TANKS report is included in Attachment A.

2.2.9 Fugitive Road Dust

As discussed, product will leave the facility by tanker truck. For completeness we have included estimates of the fugitive road dust based on utilizing EPA's AP-42, Chapter 13, Section 13.2.1 Paved Roads.

3.0 REGULATORY EVALUATION

This section provides an air quality regulatory review for the proposed Project. A regulatory applicability analysis has been conducted to determine the applicability of the following permitting requirements:

- Classification of Ambient Air Quality (40 CFR 81)
- Prevention of Significant Deterioration (PSD) Regulations (40 CFR 52.21)
- Non-Attainment New Source Review (NSR) Regulations (40 CFR 52.24)
- New Source Performance Standards (NSPS) (40 CFR 60)
- National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61)
- Federal Acid Rain Program (40 CFR 72 and 75)
- Pennsylvania Code Title 25 Environmental Protection Air Quality Regulations (25 Pa Code 121.1 et.seq)

Wyalusing Township is in Bradford County, Pennsylvania an area that is designated as attainment or unclassifiable with respect to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutant. All of Pennsylvania is also included in the northeast Ozone Transport Region (OTR). In accordance with 25 Pa Code 127.203(b)(1), facilities in the OTR are treated as moderate non-attainment for ozone for Nonattainment New Source Review (NA-NSR). Based on potential emission levels from the proposed facility (i.e.Tables in Appendix B) the following analyzes the applicability of the various relevant state and federal regulations.

3.1 Prevention of Significant Deterioration (PSD)

The PADEP implements the Federal PSD program as part of the requirements of 25 Pa Code 127 Subchapter D, Prevention of Significant Deterioration. The PSD program is a new source review process used to ensure that a new source will not cause a significant deterioration of local ambient air quality. PSD applies only to "major" new sources or "major" modifications to an existing major source locating in areas attaining the NAAQS. A major stationary source is defined as either one of the 28 source categories identified in 40 CFR 52.21 which has a potential to emit 100 tons or more per year of any regulated criteria pollutant, or any other stationary source which has the potential to emit 250 tons or more per year of a regulated criteria pollutant.

The 28 source categories include the following:

- Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input.
- Fuel Conversion Plants.

- Petroleum storage and transfer unit with a total storage capacity exceeding 300,000 barrels.
- Fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input (MMBtu/hr).

None of the above categories are applicable to the Project. The facility will not have a steam electric plant rated at more than 250 MMBtu/hr, nor will it have boilers with total rated capacity at 250 MMBtu/hr. In a September 26, 2017 letter, U.S. Environmental Protection Agency (EPA) determined that LNG facilities do not meet definition of Fuel Conversion or Petroleum Storage facilities.

The proposed facility has potential emissions of less than 250 tons per year of all criteria pollutants and therefore, PSD regulations are not triggered.

3.2 Nonattainment Permitting

25 Pa Code Section 127.203 applies to the construction of a new major facility or modification at an existing major facility in a nonattainment area, an ozone transport region, or an attainment or unclassifiable area which impacts a nonattainment area in excess of certain significance levels. Per the definitions in 25 Pa Code 121.1, a major facility is one which emits or has the potential to emit 100 tons per year or more of a regulated New Source Review (NSR) pollutant[1], except that lower emissions thresholds apply for VOCs in certain areas.[2] Specifically, the threshold for VOCs is:

- Fifty tons per year in serious nonattainment areas for ozone;
- Fifty tons per year in an area within an ozone transport region except for a severe or extreme nonattainment area for ozone;
- Twenty-five tons per year in a severe nonattainment area for ozone; and
- Ten tons per year in an extreme nonattainment area for ozone.

Per 25 Pa. Code 127.203(a)(4)(i)(A), fugitive emissions are included toward applicability totals. Because the Project is located in the OTR, and because the Project emissions are under 100 tons NOx and under 50 tons VOC,[3] the project does not trigger Nonattainment NSR review.

Per 25 Pa Code Section 127.203a(a)(4)(i)(A) fugitive emissions are included toward applicability totals for nonattainment applicability.

[1] NSR pollutants include (i) NOx or VOCs, (ii) a pollutant for which the EPA has promulgated a NAAQS, (iii) a pollutant that is a constituent or precursor of any of those pollutants listed in (i) or (ii) if the constituent or precursor may only be regulated under NSR as part of regulation of the pollutant listed in (i) or (ii), and (iv) PM2.5 and PM-1 emissions.
[2] *See* 25 PA Code § 121.1.
[3] *See* Appendix B tables.

3.3 New Source Performance Standards

New Source Performance Standards (NSPS) in 40 CFR Part 60 regulate certain emissions from specific source categories. Emission units proposed as part of the Project include equipment in some source categories that could be subject to NSPS requirements as discussed below.

3.3.1 NSPS for Steam Generators

The NSPS below do not apply to this facility since (i) the compression turbines will be direct drive and not produce steam and (ii) the generator turbines will be subject to the requirements of 40 CFR Part 60 Subpart KKKK and therefore not subject to 40 CFR Part 60 Subpart D, Da or Db.

- 40 CFR Part 60 Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators;
- 40 CFR Part 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units; and
- 40 CFR Part 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

3.3.2 40 CFR Part 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Subpart Dc establishes emission limits for steam generating units constructed, modified or reconstructed after June 9, 1989 with a heat input capacity of 10 - 100 MMBtu/hr. The Project will include two natural gas fired steam boilers with a heat input capacity of 58.2 MMBtu/hr each. The units will be fired with natural gas only. Since the units will combust natural gas exclusively, compliance with Subpart Dc only requires maintaining monthly fuel consumption records and submitting an annual report to EPA summarizing those records.

The regenerative gas heater will not produce steam and therefore is not subject to this requirement.

3.3.3 NSPS Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984)

NSPS Subpart Kb—Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984—applies to all storage vessels with a capacity greater than or equal to 75 cubic meters (approximately 20,000

gallons) that are used to store volatile organic liquids unless otherwise exempted. One exemption (40 CFR 60.110b(b)) is for storage tanks with a capacity greater than or equal to 151 cubic meters (approximately 40,000 gallons) and that store a liquid with a maximum true vapor pressure of less than 3.5 kPa (approximately 0.5 psia). The LNG storage tank will have a working capacity of 6 million gallons. By definition, the maximum true vapor pressure is the equilibrium partial pressure exerted by the VOCs in the stored volatile organic liquid. The partial pressure of the volatile components of LNG maintained at –260°F is less than 3.5 kPa (0.5 psia). Therefore, the Subpart Kb NSPS does not apply to the LNG storage tank.

As part of the proposed project, the facility will have one 5,000-gallon storage tank that will hold diesel fuel for use in the diesel engines. The approximate vapor pressure of diesel fuel oil is 0.22 psia at the worst case ambient temperature of 100 F; therefore the storage tank is not subject to Subpart Kb.

The refrigerant storage vessel is pressurized (in excess of 204.9 kPa) without emissions to the atmosphere and therefore exempt from Subpart Kb per 40 CFR 60.110b(d)(2).

There are no other VOC storage vessels.

3.3.4 NSPS Subpart GG (Standards of Performance for Stationary Gas Turbines)

NSPS Subpart GG does not apply to the proposed combustion turbines at this facility. The proposed turbine units will be subject to NSPS Subpart KKKK and are therefore exempt from NSPS Subpart GG per 40 CFR 60.4305(b).

3.3.5 NSPS Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)

NSPS Subpart IIII applies to the proposed backup generator and fire water pump diesel-fired engines. Per 40 CFR 60.4200(a)(2), the provisions of this subpart are applicable to, "Owners and operators of stationary compression ignition internal combustion engines that commence construction after July 11, 2005, where the stationary compression ignition internal combustion engines are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or
(ii) Manufactured as a certified National Fire Protection Association fire pump engine after July 1, 2006."

Backup Generator Engine

The backup generator engine will commence construction (be ordered) after July 11, 2005, and will be manufactured after April 1, 2006; therefore, the backup generator engine is subject to Subpart IIII. Per 40 CFR 60.4205(b), owners and operators of 2007 model year and later emergency stationary compression ignition

internal combustion engines with a displacement of less than 30 liters per cylinder must comply with emissions standards in 40 CFR 60.4202. Per 40 CFR 60.4202(a)(2), engines greater than 50 brake-horsepower (bhp) must be certified to the emissions standards in 40 CFR 89.112 and 113 for all pollutants. Per 40 CFR 89.112, the applicable certification standards for units greater than 560 kW are 6.4 grams per kilowatt-hour (g/kW-hr) NOx + nonmethane hydrocarbon (NMHC), 3.5 g/kW-hr CO, and 0.20 g/kW-hr PM.

Fire Water Pump Engine

The fire water pump engine will commence construction after July 11, 2005, and will be a certified National Fire Protection Association fire water pump engine manufactured after July 1, 2006; therefore, the fire water pump engine is subject to Subpart IIII. Per 40 CFR 60.4205(c), owners and operators of fire water pump engines with a displacement less than 30 liters per cylinder must comply with the emissions standards in Table 4 of Subpart IIII. For units between 600 and 750 hp, the applicable emissions standards are 3.0 g/bhp-hr NMHC + NOx and 0.15 g/bhp-hr PM for model years 2009 and later.

Engine manufacturers are required to certify new engines for prescribed NOx, PM, CO, and VOC emission standards, and operators are required to follow manufacturers' operation and maintenance instructions. Subpart IIII also limits emergency engines to 100 hours per year of non-emergency operation (e.g., maintenance and testing). Emergency use is not restricted. The Project's emergency engines will be purchased new, will be certified for NSPS Subpart IIII compliance, and will operate a maximum of 100 hours per year for non-emergency purposes.

3.3.6 NSPS Subpart KKKK (Standards of Performance for Stationary Gas Turbines)

Stationary combustion turbines with a heat input rate at peak load of 10 MMBtu/hr or greater that commence construction, modification, or reconstruction after February 18, 2005 are regulated under Subpart KKKK. Subpart KKKK limits emissions of NOx as well as the sulfur content of fuel that is combusted from subject units. For units rated at greater than 50 MMBtu/hr and less than or equal to 850 MMBtu/hr and that fire natural gas the following limits apply:

- NOx emission limit of 25 ppmvd at 15% O_2.
- For SO_2 emissions, each turbine must comply with either limiting emissions to less than 110 ng/J gross output (0.90 pounds per megawatt-hour gross output) or burning fuel that contains total potential sulfur equal to or less than 26 ng/J (0.060 pound per million British thermal units [lb/MMBtu] SO_2) heat input.

The turbines (both the drivers compression and electrical generation units) will comply with the NOx level through use of dry low emissions (DLE) burner technology. Although not relevant to the Project's compliance with Subpart KKKK (which requires DLE technology for compliance), NOx will be further reduced by SCR to further limit

plant-wide NOx emissions. The SO2 emissions limitations will be meet by combusting natural gas with sulfur content less than 1.25 grain per 100 standard cubic feet (gr/100 scf) based an annual averaging period.

In addition to keeping records of the current, valid purchase contract, tariff sheet, or transportation contract obtained from the natural gas supplier, the Project will sample and analyze the sulfur content on an annual basis in accordance with 25 Pa. Code §127.12b.

Per 40 CFR 60.4333(a), the Project will operate and maintain the stationary turbines, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times, including during startup, shut- down, and malfunction.

To demonstrate compliance with NOx emissions limits, the Project will install continuous emissions monitoring systems (CEMS) for NOx on the gas turbines subject to subpart KKKK, thereby satisfying the requirements specified in 40 CFR 60.4340(b)(l). The Project will comply with CEMS requirements specified in 40 CFR 60.4345 and excess emissions requirements specified in 40 CFR 60.4350.

3.3.7 NSPS Subpart TTTT (Standards of Performance for GHG Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units)

NSPS Subpart TTTT is applicable to any steam generating unit, integrated gasification combined-cycle, or stationary combustion turbine that commenced construction after January 8, 2014, or commenced modification or reconstruction after June 18, 2014, that:

- Has a base load rating greater than 250 MMBtu/hr of fossil fuel; and
- Serves a generator(s) capable of selling greater than 25 MW of electricity to a utility power distribution system.

The Project's steam generating units do not meet either of these requirements and therefore are not subject to this Subpart.

3.3.8 NSPS Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

NSPS Subpart OOOOa—Standards of Performance for Crude Oil and Natural Gas Production Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015 applies to certain equipment within the crude oil and natural gas source category that are constructed, modified, or reconstructed after September 18, 2015. The term "crude oil and natural gas source category" is defined in relation to natural gas as "[n]atural gas production, processing, transmission, and storage, which include the well and extend to, but do not include, the local distribution company custody transfer station." The term "local distribution company (LDC) custody transfer

station" is defined as "a metering station where the LDC receives a natural gas supply from an upstream supplier, which may be an interstate transmission pipeline or a local natural gas producer, for delivery to customers through the LDC's intrastate transmission or distribution lines." As these terms demonstrate, the Subpart OOOOa NSPS applies from natural gas wellhead to immediately upstream of the local distribution company custody transfer station. Because the Project will receive gas from a gathering line, it is situated upstream of the local distribution company custody transfer station. Therefore, NSPS Subpart OOOOa is applicable to the Project.

Subpart OOOOa, is applicable to specific "affected sources" at certain oil and gas facilities. The following provides a discussion of Subpart OOOOa affected sources and applicability to this Project:

	Affected Source	**Applicability**
1	Well Completions (for hydraulically fractured wells)	**NOT APPLICABLE** - No Wells
2	Wet seal centrifugal compressors	**NOT APPLICABLE** – Not present
3	Reciprocating compressors	**NOT APPLICABLE** – No reciprocating compressors used for gas processing.
4	Pneumatic controllers	**NOT APPLICABLE** - No continuous bleed gas-driven pneumatic controllers.
5	Natural gas driven pumps	**NOT APPLICABLE** – No natural gas-driven diaphragm pump
6	Storage Vessels	**NOT APPLICABLE** – Vessel will not contain crude oil, condensate, intermediate hydrocarbon liquids or produced water.[4]
7	Fugitive emissions components at well site or compressor station.	**NOT APPLICABLE** – Facility is not a well site or compressor station.
8	Equipment Leaks at natural gas processing plants	**Applicable** – Liquefied Natural Gas Unit present.
9	Sweetening units at natural gas processing plants	**Applicable** – Sweetening Unit present.[5]

As can be seen from the above, affected sources at the proposed facility include fugitive emission leaks from the Liquefied Natural Gas operations and the sweetening unit.

The regulations establish a Leak Detection and Repair Program (LDAR) program for natural gas processing plants that reflects the procedures and leak thresholds established in the NSPS for Equipment Leaks of VOCs in the Synthetic Organic Chemicals Manufacturing Industry (40 CFR part 60, subpart VVa). Subpart VVa establishes leak definitions and monitoring frequencies for equipment, such as valves, connectors, pumps,

[4] 40 C.F.R. § 60.5430a defines "storage vessel" as "a tank or other vessel that contains an accumulation of crude oil, condensate, intermediate hydrocarbon liquids, or produced water, and that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provide structural support. A well completion vessel that receives recovered liquids from a well after startup of production following flowback for a period which exceeds 60 days is considered a storage vessel under this subpart."

[5] 40 C.F.R. § 60.5430a defines "sweetening unit" as "a process device that removes hydrogen sulfide and/or carbon dioxide from the sour natural gas stream."

pressure relief devices and open-ended valves or lines. The facility will institute an LDAR program that complies with these requirements.

Sweetening units that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H2S) in the acid gas are required to comply only with recordkeeping and reporting requirements outlined in §60.5423a(c) and have no control or emission reduction requirements. §60.5365a(g)(3). The proposed unit is less than 2 LT/D of H_2S long ton per day and the facility will keep the appropriate records.

The facility will also institute a monitoring program to comply with the requirements of 40 CFR 60.5407a as well as the recordkeeping and reporting requirements in 40 CFR 60.5423a.

3.4 National Emission Standards for Hazardous Air Pollutants

The EPA has established National Emission Standards for Hazardous Air Pollutants (NESHAP) for specific pollutants and industries in 40 CFR Part 61. The Project does not include any of the specific sources for which NESHAP have been established in Part 61. Therefore, Part 61 NESHAP requirements will not apply to the project.

The EPA has also established NESHAP requirements in 40 CFR Part 63 for various source categories. The Part 63 NESHAP applies to certain emission units at facilities that are both major and non-major sources (area sources) sources of hazardous air pollutants (HAP). As shown in Appendix A, the Project will not have the potential to emit 10 tpy of any one HAP or a total of 25 tpy of all HAPs combined. Therefore, the Project is considered an area source of HAP emissions under the NESHAP requirements and NOT a major source. The applicability of the relevant NESHAP requirements is discussed in the following subsections.

3.4.1 NESHAP Subpart YYYY—Stationary Combustion Turbines

NESHAP Subpart YYYY applies to stationary combustion turbines located at major HAP emissions sources. The Project is not a major source of HAPs, this subpart does not apply.

3.4.2 NESHAP Subpart ZZZZ—Stationary Reciprocating Internal Combustion Engines

NESHAP Subpart ZZZZ applies to new and existing internal combustion engines located at major and area sources. Subpart ZZZZ contains emissions and operating limits for HAPs emitted from stationary reciprocating internal combustion engines and is applicable to the emergency fire water pump engine and backup generator. Per 40 CFR 63.6590(c), the requirements of Subpart ZZZZ are met by compliance with 40 CFR 60, Subpart IIII.

3.4.3 NESHAP Subpart DDDDD – Industrial, Commercial, and Institutional Boilers and Process Heaters

40 CFR Part 63 Subpart DDDDD applies to boilers and process heaters located at major sources of HAP emissions. Because the Project is not a major source of HAPs, this subpart does not apply.

3.4.4 NESHAP Subpart JJJJJJ - Industrial, Commercial, and Institutional Boilers and Process Heaters for Area Sources

40 CFR Part 63 Subpart JJJJJJ does not apply to the auxiliary boilers or heater since they will only combust natural gas. Per 40 C.F.R. § 63.11195(e), gas-fired boilers are exempt from this subpart.

3.4.5 NESHAP Subpart UUUUU—Mercury and Air Toxics Standards Rule

40 CFR Part 63 Subpart UUUUU is also known as the Mercury and Air Toxics Standard (MATS) applies to coal-fired and oil-fired electric utility steam generating units. The proposed facility will only burn natural gas. Therefore, the proposed facility is not subject to the MATS Rule pursuant to 40 CFR 63.9983(b).

3.5 40 CFR 72 AND 75 — Acid Rain Program

Pursuant to 40 CFR 72.6(a)(4), the federal Acid Rain Program (ARP) applies to new (i.e., commenced operation after November 15, 1990) **utility units**. The definition of a **Utility Unit** in 40 CFR 72.2 states:

> (4) Notwithstanding paragraphs (1) and (2) of this definition, a unit that cogenerates steam and electricity is not a utility unit for purposes of the Acid Rain Program, unless the unit is constructed for the purpose of supplying, or commences construction after November 15, 1990 and supplies, more than one-third of its potential electrical output capacity and more than 25 MWe output to any power distribution system for sale.

The Project will NOT be subject to the ARP as the turbines will not generate electricity for sale and the steam boilers have a capacity less than 25 MWe.

3.6 40 CFR 64 — Compliance Assurance Monitoring

Compliance assurance monitoring (CAM) applies to pollutant-specific emissions units at major sources that are required to obtain a Part 70 or 71 (i.e. Title V). Per Section 3.8 the facility will not be required to obtain a Title V permit.

3.7 40 CFR 68— Chemical Accident Prevention Provisions

CAA Section 112(r) and EPA's Risk Management Program (RMP) regulations (40 CFR 68) require owners and operators to submit a Risk Management Plan and to conduct certain analyses of worst-case release scenarios[6] if the stationary source has more than a threshold quantity of a regulated substance in a process.[7]

The Project will store aqueous ammonia, which is a controlled substance when the concentration of ammonia is greater than 20 percent.[8] Because the aqueous ammonia that will be stored at the Project will have a maximum ammonia concentration of 19 percent, it is not a regulated substance under the RMP regulations.

The Project will have more than the threshold quantities of LNG and refrigerants that are regulated substances, as listed in 40 C.F.R. § 68.130, in its processes. Accordingly, a Risk Management Plan will be prepared for the facility and emergency response procedures will be coordinated with local emergency planning and response organizations.

3.8 40 CFR Part 70 - Operating Permit

PADEP has adopted EPA's Part 70 – Operating Permit Program (Title V) which is codified as 25 Pa. Code Chapter 127, Subchapter G. A Title V permit is required for major sources. For Title V applicability, a major source is defined as source that has the potential to emit 10 tons per year of any hazardous air pollutant (HAP), 25 tons per year of a combination of HAPs, 50 tpy of VOC and 100 tpy for any other regulated air pollutant. Based on potential emissions as presented in Section 2 and Attachment A, the Project is NOT a major source and therefore is NOT subject to Title V permitting.

3.9 40 CFR 97 — Cross-State Air Pollution Rule (CSAPR)

The applicability criteria and definitions in CSAPR program generally applies to any stationary fossil-fuel-fired boiler or stationary, fossil-fuel-fired combustion turbine serving a generator with nameplate capacity of more than 25 MWe producing electricity for sale. The Project will not be subject to CSAPR as the turbines will not generate electricity for sale and the steam boilers have a capacity less than 25 MWe.

[6] *See* 40 C.F.R. § 68.12 (describing the general requirements of the risk management program regulations).
[7] 40 C.F.R. § 68.10 (describing which stationary sources are subject to the risk management program regulations).
[8] *See* 40 C.F.R. § 68.130 (listing ammonia at concentrations of 20 % or greater and establishing a threshold quantity of 20,000 lbs.).

3.10 40 CFR 98 — Mandatory Greenhouse Gas Reporting

The Mandatory Greenhouse Gas (GHG) Reporting Rule requires facilities that emit greater than 25,000 metric tons per year of CO2e to report their GHG emissions. As the proposed Project will exceed this threshold, reporting under 40 CFR 98 will be required. The requirements for the electricity generation category are outlined in Subpart D of 40 CFR 98.

3.11 Pennsylvania State Air Quality Requirements

The following presents a discussion of pertinent Pennsylvania Air Quality regulations.

3.11.1 25 Pa Code §123.1 and §123.2 Prohibition of Certain Fugitive Emissions and Fugitive Particulate Matter

This regulation applies to the construction operations in general. The project will comply with these requirements by ensuring proper operation of the construction equipment and other reasonable measures to prevent particulate matter from becoming airborne.

3.11.2 25 Pa Code §123.11 Combustion Units (Particulate Emissions)

Combustion units are defined in §121.1 as stationary equipment used to burn fuel primarily for the purpose of producing power or heat by indirect heat transfer such as boilers. This definition does not apply to the combustion turbines of the proposed Project, but does apply to the Steam Boilers. The Steam Boilers are rated at 58.2 MMBtu/hr each and therefore the prescribed particulate emission limit is 0.37 lb/MMBtu. The projected particulate emissions from combusting natural gas is below this limit.

3.11.3 25 Pa. Code §123.12 Incinerator Units (Particulate Emissions)

The thermal oxidizer meets the PADEP definition of incinerator and the applicable particulate matter limitation is 0.1 grain/dscf at 12% CO_2. Particulate emission levels are well below this limit.

3.11.4 25 Pa Code §123.13 Process (Particulate Emissions)

25 Pa. Code §123.13 relating to particulate matter emissions from processes applies to all processes except combustion units, incinerators, and pulp mill smelt dissolving tanks. This section applies to the turbines, regenerative heater, diesel-fired engines, and flare.

For processes excluded from Table 1 of §123.13(b), particulate emissions are limited to (i) 0.04 grain per dry standard cubic foot (gr/dscf) when the effluent gas volume is less than 150,000 dry standard cubic feet per minute and (ii) 0.02 gr/dscf when the effluent gas volume is greater than greater than 300,000 dscfm. Particulates from equipment with exhaust flow rates between 150,000 dscfm and 300,000 dscfm are limited to the allowable emission rate calculated using the formula in §123.13(c)(1)(ii). Potential particulate emissions from the combustion sources proposed for the proposed equipment will be well below these levels since they will combust only natural gas or fuel oil.

3.11.5 25 Pa Code §123.21 Sulfur Compound Emissions.

This regulation restricts the concentration of SO2 in the emissions from any source to 500 parts per million (ppm). The regulation does not specify the type of source and as a result, it generally applies to all sources. Since units will combust natural gas, the SO2 concentrations will be well below the standard.

Additionally, 25 Pa. Code §123.22 limits the maximum allowable percentage of sulfur in No. 2 and lighter fuel oils to 0.05 percent. The maximum percentage of sulfur in the fuel oil will be 15 ppm pursuant to the requirements of NSPS Subpart IIII.

3.11.6 25 Pa Code §123.31 Odor Emissions

This regulation prohibits the emission of malodorous air contaminants from any source that are detectable outside the facility fence line. Based on the closed nature of the plant odors are not expected to be an issue.

3.11.7 25 Pa Code §123.41 Visible Emissions

This regulation prohibits the visible emissions from any source from exceeding 20% opacity for a period (or periods aggregating) more than three minutes in any one hour or 60% opacity at any time. The use of natural gas as fuel will ensure compliance with this requirement.

3.11.8 25 Pa. Code §123.51 (Standards for Contaminants - Nitrogen Compound Emissions)

25 Pa. Code §123.51 requires continuous NOx monitoring systems for combustion units with rated heat input capacities of 250 MMBtu/hr or greater that have an annual average capacity factor of greater than 30 percent. The continuous monitoring systems must be installed, operated, and maintained in accordance with the requirements of 25 Pa. Code §139, Subchapter C.

PADEP regulations define a Combustion Unit as "*stationary equipment used to burn fuel primarily for the purpose of producing power or heat by* ***indirect heat transfer***." The compression turbines are the only proposed units rated at greater than 250 MMBtu/hr and they do not meet the definition of combustion units (because they are not employed for the purpose of producing power or heat by indirect heat transfer) and therefore this section is not applicable to the project.

3.11.9 25 PA Code §129.91 Reasonably Available Control Technology (RACT) program

This regulation establishes control standards for major stationary sources of NOx and VOC under the Reasonably Available Control Technology (RACT) program. Major stationary sources of NOx and VOC are defined in 25 PA Code §121.1. The proposed combustion equipment will not exceed major source thresholds and is therefore not a major source under that definition.

25 Pa Code §129.202 and §129.203 contain additional NOx requirements for stationary combustion turbines and stationary internal combustion engines. However, these additional requirements do not apply to the equipment in Bradford County.[9] Nevertheless, all new sources proposed will meet Best Available Technology (BAT) requirements for NOX and VOC,[10] which would otherwise meet or exceed RACT requirements if these requirements were applicable.

3.11.10 25 Pa. Code Section 129.56 and 129.57 Storage Tanks Containing VOC

Section 129.56 applies to storage tanks with capacities greater than 40,000 gallons containing volatile organic compounds (VOCs) with a vapor pressure of greater than 1.5 psia. Section 129.57 applies to storage tanks greater than 2,000 gallons containing VOC with a vapor pressure of greater than 1.5 psia.

Diesel fuel has a vapor pressure less than 1.5 psia and, as discussed, the LNG will also have vapor pressure less than 1.5 psia. Accordingly, sections 129.56 and 129.57 do not apply.

[9] Only certain sources in Bucks, Chester, Delaware, Montgomery and Philadelphia counties are subject to these requirements. *See* 25 Pa Code §129.202(a).
[10] Pennsylvania requires that all new sources show that emissions will be the minimum attainable through BAT. See 25 Pa. Code. §127.1, 127.12(a)(6).

4.0 CONTROL TECHNOLGY EVALUATION

Based upon the estimated potential emissions, the proposed Project is considered a minor source for all pollutants. As such the project is not subject to control technology evaluations for best available control technology (BACT) or lowest achievable emission rate (LAER). The PADEP regulations (25 Pa. Code § 127.12(a)(5)) require a showing that emissions from a new source will be the minimum attainable through the use of the best available technology (BAT). The following provides a demonstration that the Project will employ BAT for the proposed emission sources.

PADEP has recently (June 2018) issued technical support document (TSD) for General Plan Approval and General Operating Permit for Natural Gas Compression Stations, Processing Plants, and Transmission Stations (GP-5). This document included detailed BAT determinations that are applicable to many of the same sources proposed for this Project. Although Applicant is not applying for the GP-5, the technical rationale that PADEP utilized to develop BAT for the individual sources is instructive here. Applicant has utilized the TSD in the following analysis as a baseline, and in some instances (i.e. the turbines) has proposed technology beyond what the TSD BAT would require.

4.1 Best Available Technology for Combustion Turbines (Compression and Generation)

As stated, the Project is proposing to utilize two gas-fired refrigerant compressor gas turbines and three combustion turbines to supply electricity. All five units operate only in the simple-cycle mode. A simple cycle turbine is an internal combustion engine that operates with rotary rather than reciprocating motion and produce the same emission as any combustion source. The following provides rationale as to BAT for the turbines.

4.1.1 NOx BAT Analysis for Compression and Generation Turbines

NOx emissions are generally classified as either thermal NOx or fuel-related NOx. Thermal NOx results when atmospheric nitrogen is oxidized at high temperatures to yield NO, NO_2 and other oxides of nitrogen. Fuel-related NOx is formed from oxidizing the chemically bound nitrogen in the fuel. For natural gas combustion, thermal NOx formation is the dominant mechanism since there is little or no nitrogen bound in the fuel.

The rate of formation of thermal NOx is a function of residence time and free oxygen, and increases exponentially with peak flame temperature. “Front-end” NOx control techniques are aimed at controlling one or more of these variables. “Add-on” controls attempt to chemically reduce the NOx emissions after they are created, by using catalytic or non-catalytic techniques.

Available technologies for combustion turbines include combustion process modifications such as water or steam injection and dry low-NOx combustor design. Post combustion add-on equipment includes a catalyst system. As stated in Section 2, the Project is proposing to utilize both dry low-NOx combustor design and add-on SCR. This is the highest level of control for combustions turbines and these technologies are discussed below.

Dry Controls (Staged Combustion Control)

Low NOx combustors that operate without steam or water injection are referred to as dry low-NOx combustors. The combustion chamber, or combustor, is the space inside or adjacent to the gas turbine where fuel and compressed air are burned. In conventional combustors, the fuel and air are injected into the combustor separately and mix in small, localized zones. The zones burn hot and produce significant amounts of NOx. In contrast, dry low-NOx combustors minimize combustion temperatures by providing a lean premixed air/fuel mixture, where air and fuel are mixed before entering the combustor. This minimizes fuel-rich pockets and allows the excess air to act as a heat sink. The lower temperatures reduce NOx formation. However, because the mix is so lean, the flame must be stabilized with a pilot flame.

Current dry low-NOx combustor technology can typically achieve NOx exhaust concentrations of approximately 9 to 25 ppmvd using natural gas fuel, depending on the turbine vendor.

Catalytic Reduction

Selective catalytic reduction (SCR) systems selectively reduce NOx emissions by injecting ammonium (NH_3) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH3, and O_2 react on the surface of the catalyst to form N_2 and H_2O. The exhaust gas must contain a minimum amount of O_2 and be within a particular temperature range (typically 450 ˚F to 850 ˚F) in order for the SCR system to operate properly. The removal efficiency of an SCR system in good working order is typically from 65 to 90 percent. Exhaust gas temperatures greater than the upper limit (850 ˚F) cause NOx and NH_3 to pass through the catalyst unreacted. Ammonia emissions, called NH3 slip, also are a consideration when specifying an SCR system. For turbines that operate in the simple cycle mode, there are high temperature catalysts that can operate above the 850 degree range or systems can employ attemperating air to reduce exhaust temperatures.

Proposed BAT for Compression Turbines

The dry low-NOx combustor design will reduce NOx emissions to 25 ppmvd and the SCR further reduces the NOx emissions by approximately 92% from 25 ppmvd to 2 ppmvd @ 15% O2 based on a 3-hour block average. This limit has been permitted as both BACT and even LAER for recent projects. This is the lowest values found in the EPA's RACT/BACT/LAER Clearinghouse (RBLC) database and has been permitted as LAER in recent PA power projects (Moxie, Calpine, Tenaska and others) for much larger turbines.

In the TSD PADEP grouped their BAT determination based on bhp size. The BAT limit for NOx from the TSD is 9.0 ppm uncontrolled or 2.0 ppmvd NOx @ 15% O_2 for turbines greater than or equal to 15,900 bhp. The turbines proposed for the Project are all greater than 15,900 bhp and will meet the limit PADEP determined as BAT in the as issued June 2018 GP-5 TSD.

BAT for NOx for the proposed turbines for normal operation is to 2 ppmvd @ 15% O_2 based on a 3-hour block average. This ***does not*** include periods of startup or shutdown.

4.1.2 CO and VOC BAT Analysis for Compression and Generation Turbines

There are two generally accepted ways to control emissions of CO (and to a lesser extent VOC) from combustion systems, good combustion control practices and installing an add-on catalyst.

Good combustion practices typically entail maintaining the unit in accordance with the manufacture's specifications and procedures, i.e. maintenance tune-ups and proper fuel/air mixture.

Oxidation catalysts can be used on turbines to achieve control of CO and VOC emissions. The catalyst is usually made of a precious metal such as platinum, palladium, or rhodium. The oxidation catalyst promotes the oxidation of CO and hydrocarbon compounds to carbon dioxide (CO_2) and water (H_2O) as the emission stream passes through the catalyst bed. The oxidation process takes place spontaneously, without the requirement for introducing reactants. The performance of these oxidation catalyst systems on combustion turbines results in 80-plus percent control of CO and approximately 60% control for VOC.

The Project is proposing to utilize the highest control level of good combustion with the addition of an oxidation catalyst. BAT for will meet the limits for turbines greater than or equal to 15,900 bhp from the TSD of 10 ppm uncontrolled or1.8 ppm with control (@ 15% O_2) for CO and 5.0 ppm (@ 15% O_2 for VOC.

4.1.3 Particulate Emissions BAT Analysis for Combustion Turbines

The source of particulate emissions is the combustion of natural gas which produces very little primary particle emissions. The Project is proposing the following particulate emission rates as BAT

	lb/hr
Refrigeration turbines (LM 6000)	6.53
Generation turbines (SGT -400)	2.03

The Project is proposing the rates in lb/hr as that is the manner in which the vendor has provided its guarantee. The guarantee covers all projected operating scenarios so the lb/MMBtu values vary greatly with the load. The turbine particulate emission rates proposed consider the effect of added particulate due to SO_2 oxidation which is not accounted for in the BAT determination set forth in PADEP's June 2018 GP-5 TSD. Attachment A contains the load analysis performance data for particulate emissions with and without considering the effect of catalysts.

4.2 Best Available Technology for Steam Boilers and Regenerative Heaters

For the steam boilers, the Project has proposed the utilization of SCR and oxidation catalysts. This proposed configuration is well beyond the PADEP BAT for similar size boilers as set forth in the 2018 GP-5 TSD (i.e., the Project's steam boiler is 58 MMBtu/hr, which is essentially the same range as what PADEP considered in the 2018 GP-5 TSD.

Below is a table comparing PADEP vs. Project BAT levels. This comparison shows that the Project will meet and in most cases exceed recent BAT levels as determined by PADEP.

		NOX (ppmvd @ 3% O_2)	**CO (ppmvd @ 3% O_2)**	**PM (lb/MMBtu)**
PADEP BAT	GP-1	30	300	NA
	GP-5	30	130	0.4
Project Equipment BAT	Steam Boilers	0.0074 lb/MMBtu	0.0206 lb/MMBtu	0.0113
	Regenerative Heater	30	50	0.0130

4.3 Best Available Technology for Flare and Oxidizer

The flare and the thermal oxidizer are used as a control devices to provide for the safe and efficient destruction of combustible gas streams during both normal operations and upset conditions. Potential emissions from the flare are associated with a continuous natural gas pilot during all operations and from process gas streams of varying qualities and quantities. Potential NOx, VOC, and CO emissions from flare/oxidizer operations are impacted by the efficiency and combustion characteristics of the flare.

No potential post-combustion emission controls for these devices has ever been identified. As such, in the TSD, PADEP focused the BAT discussion on the VOC destruction efficiency of these devises. PADEP's June 2018 BAT determination set forth in the TSD required utilized a 95% destruction efficiency level to enable the owners or operators to comply with the Subpart OOOOa and use manufacturer-tested models to minimize the amount of performance tests required. The proposed Flare and Oxidizer will meet these requirements.

4.4 Best Available Technology for Diesel Fired Equipment

Applicant is proposing that BAT for the backup generator engines and fire pump engines are state of the art design with good combustion practices. For NOx, CO, and PM this is compliance with the Tier standards contained in 40 CFR Part 60 Subpart IIII for emergency engines of the sizes proposed (as listed in Section 3.3.5). For VOC (HC – hydrocarbons), vendor provided estimates are less than the 1.0 g/bhr-hr as provided by PADEP's General Plan Approval and General Operating Permit for Diesel or No. 2 Fuel-fired Internal Combustion Engines (BAQ-GPA/GP-9) as BAT. All engines will fire ultra-low sulfur diesel with a maximum sulfur content of 0.0015%.

These limits are realistic and obtainable in operation/practice and consistent with recent permits issued for BACT/LAER/BAT for other projects in PA. In addition operating hours for routine maintenance and testing will be limited to 100 hours per year.

4.5 Best Available Technology for SO_2 and H_2SO_4 Emissions

Oxides of sulfur and sulfuric acid mist (SAM) are the byproduct of combustion of a fuel that contains sulfur. In the Marcellus Shale region, natural gas typically does not contain sulfur above trace amounts. In the TSD, PADEP determined that for a typical combustion process using natural gas, SO_2 emissions are of minor significance. Therefore, PADEP has not included any emission limitations or SO_2 stack testing requirements for combustion sources in their BAT determination for the GP5.

The same rationale applied to sweetening units, where the lowest applicable limit from Subpart OOOOa is two long tons per day. The Project is well under this level.

SO_2 emissions are based on a very worst case sulfur level of 1.25 grains/100 scf. SAM emissions are based on 45 to 80% conversion of SO_2 to SO_3 across the catalysts systems in the turbines and boilers; however as a conservative estimate, no reduction is taken in the SO2 levels for this conversion.

4.6 Best Available Technology for CO2e

For completeness, we have provided a discussion of BAT for CO2e, although it is not clear that this is required based upon the lack of guidance and precedent following review of recent PADEP general permits for similar type sources. For the proposed project,

there are two types of potential sources of CO2e emissions: from combustion sources and potential leaks of natural gas.

All of the combustion sources (turbines, boilers, heaters, flare and oxidizers) except the emergency equipment will fire only natural gas, which has a lower potential CO_2 emission rate per unit of energy than other fossil fuels. Also, all of these units will be new, state-of-the-art combustion systems designed to maximize fuel to energy conversion for their intended service. Use of natural gas is deemed to be BAT for CO2e emissions. Therefore, Applicant proposes that use of natural gas is BAT for CO2e emissions.

Potential leaks of natural gas are another source of CO2e (methane) emissions and they will be minimized by implementation of the LDAR program.

4.7 BAT Summary

The following is a summary of the BAT proposed for the sources

Pollutant	Process Turbines (LM6000PF+)	Gas Turbine Generators (STG-400)	Steam Boilers	Regeneration Gas Heater	Thermal Oxidizer	Flares	Generators	Fire Pumps	Fugitives
NO_x	2 ppmvd @ 15% O_2 based on 3-hour block average	2 ppmvd @ 15% O_2 based on 3-hour block average	30 ppmvd @ 3 % O_2 based on 3-hour block average (0.0074 lb/MMBtu)	30 ppmvd @ 3% O_2 based on 3-hour block average (0.040 lb/MMBtu)	Operate per manufacturer recommendations and achieve minimum 95% reduction	Operate per manufacturer recommendations and achieve minimum 95% reduction	Compliance with NSPS	Compliance with NSPS	
CO	10 ppm uncontrolled or 1.8 ppm @ 15% O2 based on a 3-hour block average	10 ppm uncontrolled or 1.8 ppm @ 15% O2 based on a 3-hour block average	130 ppmvd @ 3 % O_2 based on 3-hour block average (0.0206 lb/MMBtu)	130 ppmvd @ 3 % O_2 based on 3-hour block average (0.041 lb/MMBtu)					
VOC	5.0 ppm for VOC @ 15% O2 (1.4 lb/hr as CH4)	5.0 ppm for VOC @ 15% O2 (1.4 lb/hr as CH4)	Good Combustion Practices	Good Combustion Practices			1.0 g/bhr-hr	1.0 g/bhr-hr	Quarterly LDAR Program
PM-10/PM-2.5	Use of natural gas fuel and Good Combustion Practices						ULSD at 0.0015% S		
SO_x and H_2SO_4	Use of Natural Gas fuel with Sulfur content of 1.25 gr/100 scf						ULSD at 0.0015% S		
NH_3	10 ppmvd @ 15% O_2 (6.78 lb/hr)	10 ppmvd @ 15% O_2 (1.9 lb/hr)	10 ppmvd @ 3% O_2 (0.77 lb/hr)						

ATTACHMENT A

Emission Calculations

Bradford County Real Estate Partners LLC
Natural Gas Processing Plant

Table A-1 Summary of Potential Emissions

		Controlled Potential Annual Emissions (TPY)								
Pollutant	**Facility Annual Emissions (TPY)**	**Process Turbines (LM6000PF+) [1]**	**Gas Turbine Generators (SGT-400) [1]**	**Steam Boilers [1]**	**Regeneration Gas Heater**	**Generators**	**Fire Pumps**	**Thermal Oxidizer**	**Flares**	**Fugitives**
NO_x	99.87	32.98	13.46	3.75	6.41	8.82	0.53	27.37	6.55	
CO	87.7	17.83	7.29	10.50	6.57	1.79	0.27	16.50	26.99	
VOC	48.7	12.03	8.97	1.92	3.05	0.36	0.02	2.36	2.49	17.46
PM/PM-10/PM-2.5	99.47	57.15	26.64	8.41	2.08	0.11	0.03	2.44	2.51	0.09
SO_x	83.2	16.93	7.10	1.94	0.61	0.00	0.001	55.86	0.75	
GHG (CO2e)	1,108,111	524,532	219,981	60,105	18,899	3,088	236	266,454	14,815	
NH_3	91.0	59.34	24.86	6.78						
Total HAPs [2]	15.53									
H2SO4	25.9	18.38	6.17	1.33						

1. Potential emission estimates are extremely conservative in that emission based on 100% operation. Units are design with redundancy - i.e. not needed to operate full load all year.
2. Largest single HAPs emitted are formaldehyde at 4.55 TPY and Hexane at 1.1 TPY. Therefore facility not major for HAPs

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Natural Gas Processing Plant

Table A-2 Process Turbines (LM6000PF+) Emissions

ID# 101, 102

Unit parameters

Heat Input Capacity (HHV) at Average Operation Conditions	509.2	MMBtu/hr
Heat Input Capacity (HHV) at Maximum Operating Conditions	509.2	MMBtu/hr
Maximum Annual Operation	8,752	hr/yr
Number of Units	2	

	Annual Emissions (based on 20F and 100% load case; except PM. Worst Case PM at 59F and 100%)					
	Uncontrolled Potential Emissions			Controlled Potential Emissions		
Pollutant	**Emission Factor (lb/MMBTU (Input))**	**Emission Rate (lb/hr/unit)**	**Total Annual Emissions for all units (TPY)**	**Emission Factor (lb/MMBTU (Input))**	**Emission Rate (lb/hr/unit)**	**Total Annual Emissions for all units (TPY)**
NO_x	0.0926	47.15	412.67	0.0074	3.77	32.98
CO	0.0564	28.72	251.35	0.0040	2.04	17.83
VOC (as methane)	0.0039	1.99	17.38	0.0027	1.37	12.03
PM/PM-10/PM-2.5*	--	--	--	--	6.53	57.15
SO_x	--	--	--	0.0038	1.93	16.93
GHG (CO2e)	117.7	59,933	524,532	117.7	59,933	524,532
NH_3	--	--	--	0.0133	6.78	59.34
H_2SO_4	--	--	--	--	2.10	18.38

*Particulates are increased across the SCR/Ox catalyst

Start Up and Shut Down Emissions

	Time (min/event)	Events per Year per unit	Time per Unit per year (hr/unit/yr)
Start Up Time	10	24	4
Shut Down Time	10	24	4

	Start Up and Shut Down Emissions				
Pollutant	**Emissions per Start Up (lb)**	**Emissions per Shut Down (lb)**	**Total Annual SUSD Emissions for all units (TPY)**	**Hourly Emissions per Start Up (lb/hr)**	**Hourly Emissions per Shut Down (lb/hr)**
NO_x	3.8	3.70	0.180	6.9	6.8
CO	11.5	12.80	0.583	13.2	14.5
VOC	1.6	1.80	0.082	2.7	2.9
PM/PM-10/PM-2.5	0.4	3.30	0.089	5.8	8.7

Notes:

1 Potential hourly and annual emission rate based on max case (20F and 100% load - See Load Analysis).
2 Emission factors for NOx, CO, VOC, PM and CO2e based on manufacturer's data.
3 Control is based on following:

NOx	2 ppmv or 92% destruction on ppm basis
CO	1.8 ppmv or 93% destruction on ppm basis
VOC	2.1 ppmv or 30% destruction on ppm basis

4 SOx Assumes 1.25 gr/100 SCF of sulfur in feed gas based on engineer estimate of worst case sulfur in fuel gas and oxidation effect of catalyst.
5 NH3 based on 10 ppmvd @ 15% O2 slip.
6 Potential annual hours of operation based on 8760 minus time for start ups and shut downs.
7 Hourly emissions per start up (or shut down) is the start up emissions plus average emissions for remainder of hour.
8 Note that PM, SO2 and H2SO4 are extreme overestimates based on following:
-80% conversion of SO2-to-SO3 on oxidation catalyst;
-100% of SO3-to-Ammonium Sulfate (PM) and 100% SO3-to-H2SO4 conversion.
-No reduction taken for SO2 due to conversion on catalyst for conservatism. Load analysis does reflect lower SO2 for conversion

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Natural Gas Processing Plant

Table A-3 Gas Turbine Generators (SGT-400) Emissions

ID# 103, 104, 105

Unit parameters

Heat Input Capacity (HHV) at Average Operation Conditions	142.4	MMBtu/hr
Heat Input Capacity (HHV) at Maximum Operating Conditions	142.4	MMBtu/hr
Maximum Annual Operation	8,750	hr/yr
Number of Units	3	

	Annual Emissions (based on 20F and 100% load case; except PM. Worst Case PM at 59F and 100%)					
	Uncontrolled Potential Emissions			Controlled Potential Emissions		
Pollutant	**Emission Factor (lb/MMBTU (Input))**	**Emission Rate (lb/hr/unit)**	**Total Annual Emissions for all units (TPY)**	**Emission Factor (lb/MMBTU (Input))**	**Emission Rate (lb/hr/unit)**	**Total Annual Emissions for all units (TPY)**
NO_x	0.0539	7.68	100.74	0.0072	1.03	13.46
CO	0.0219	3.12	40.93	0.0039	0.56	7.29
VOC (as methane)	0.0125	1.78	23.36	0.0048	0.68	8.97
PM/PM-10/PM-2.5*	--	--	--	--	2.03	26.64
SO_x	--	--	--	0.0038	0.54	7.10
GHG (CO2e)	117.7	16,760	219,981	117.7	16,760	219,981
NH_3	--	--	--	0.0133	1.89	24.86
H_2SO_4	--	--	--	--	0.47	6.17

*Particulates are increased across the SCR/Ox catalyst

Start Up and Shut Down Emissions

	Time (min/event)	Events per Year per unit	Time per Unit per year (hr/unit/yr)
Start Up Time	20	24	8
Shut Down Time	5	24	2

	Start Up and Shut Down Emissions				
Pollutant	**Emissions per Start Up (lb)**	**Emissions per Shut Down (lb)**	**Total Annual SUSD Emissions for all units (TPY)**	**Hourly Emissions per Start Up (lb/hr)**	**Hourly Emissions per Shut Down (lb/hr)**
NO_x	0.8	0.30	0.040	1.5	1.0
CO	62.8	2.40	2.347	63.2	2.8
VOC	82.1	0.30	2.966	82.6	0.8

Notes:

1 Potential hourly and annual emission rate based on max case (20F and 100% load - See Load Analysis).
2 Emission factors for NOx, CO, VOC, PM and CO2e based on manufacturer's data.
3 Control is based on following:

NOx	2 ppmv or 85% destruction on ppm basis
CO	1.75 ppmv or 80% destruction on ppm basis
VOC	5 ppmv or 50% destruction on ppm basis

4 SOx Assumes 1.25 gr/100 SCF of sulfur in feed gas based on engineer estimate of worst case sulfur in fuel gas and oxidation effect of catalyst.
5 NH3 based on 10 ppmvd @ 15% O2 slip.
6 Potential annual hours of operation based on 8760 minus time for start ups and shut downs.
7 Hourly emissions per start up (or shut down) is the start up emissions plus average emissions for remainder of hour.
8 Note that PM, SO2 and H2SO4 are extreme overestimates based on following:
-63% conversion of SO2-to-SO3 on oxidation catalyst,
-100% of SO3-to-Ammonium Sulfate (PM) and 100% SO3-to-H2SO4 conversion.
-No reduction taken for SO2 due to conversion on catalyst for conservatism. Load analysis does reflect lower SO2 for conversion

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Natural Gas Processing Plant

Table A-4 Steam Boilers Emissions

ID# 031, 032

Unit parameters

Heat Input Capacity (HHV)	58.2	MMBtu/hr
Maximum Annual Operation	8,760	hr/yr
Number of Units	2	

	Uncontrolled Potential Emissions			Controlled Potential Emissions		
Pollutant	**Emission Factor (lb/MMBTU (Input))**	**Emission Rate (lb/hr/unit)**	**Total Annual Emissions for all units (TPY)**	**Emission Factor (lb/MMBTU (Input))**	**Emission Rate (lb/hr/unit)**	**Total Annual Emissions for all units (TPY)**
NO_x	0.0490	2.85	25.0	0.0074	0.43	3.75
CO	0.0824	4.79	41.99	0.0206	1.20	10.50
VOC	0.0054	0.31	2.75	0.0038	0.22	1.92
PM/PM-10/PM-2.5	--	--	--	0.0165	0.96	8.41
SO_x	--	--	--	0.0038	0.22	1.94
GHG (CO2e)	117.8904	6,861	60,105	118	6,861	60,105
NH_3	--	--	--	0.0133	0.77	6.78
H_2SO_4	--	--	--	0.0026	0.15	1.33

Notes:

1 HHV based on energy balance.

2 Emission factors for NOx, CO, VOC, PM and CO2e based on manufacturer's data.

3 Destruction efficiencies per manufacturer's data.

NO_x	85%
CO	75%
VOC	30%

4 SOx Assumes 2.5 gr/100 SCF of sulfur in feed gas based on engineer estimate of worst case sulfur in fuel gas and oxidation effect of catalyst.

5 NH3 based on 10 ppm

9 Note that PM, SO2 and H2SO4 are extreme overestimates based on following:
-45% conversion of SO2-to-SO3 on oxidation catalyst, and 100% of SO3-to-Ammonium Sulfate (PM) conversion.
-100% of SO3-to-Ammonium Sulfate (PM) conversion.
-No reduction taken for SO2 or H2SO4 due to conversion on catalyst for conservatism.

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Table A-5 Regeneration Gas Heater Emissions
ID# 033

Unit parameters

Heat Input Capacity (HHV)	36.6	MMBtu/hr
Maximum Annual Operation	8,760	hr/yr
Number of Units	1	

Pollutant	Potential Emissions		
	Emission Factor (lb/MMBTU (Input))	Emission Rate (lb/hr/unit)	Total Annual Emissions (TPY)
NO_x	0.04	1.46	6.41
CO	0.041	1.50	6.57
VOC	0.019	0.70	3.05
PM/PM-10/PM-2.5	0.013	0.48	2.08
SO_x	0.0038	0.14	0.61
GHG (CO2e)	118	4,315	18,899

Notes:

1 No catalyst on regeneration gas heater.

2 Emission factors for NOx, CO, VOC, PM and CO2e based on manufacturer's data.

3 SOx Assumes 1.25 gr/100 SCF of sulfur in feed gas based on engineer estimate of worst case sulfur in fuel gas.

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Table A-6 Backup Sources
Generator Emissions
ID# 106, 107

Unit parameters

Maximum Annual Operation	100	hr/yr
Number of Units	2	
Engine Power	4423	BHP

Pollutant	Potential Emissions		
	Emission Rate		Total Annual Emissions (TPY)
	grams/bhp-hr	lb/hr/unit	
NO_x	9.05	88.20	8.82
CO	1.83	17.85	1.79
VOC	0.37	3.59	0.36
PM/PM-10/PM-2.5	0.12	1.13	0.11
SO_x	0.005	0.044	0.00
GHG (CO2e)	3,170	30,878	3,088

Fire Pump Emissions
ID# 108, 109

Unit parameters

Maximum Annual Operation	100	hr/yr
Number of Units	2	
Engine Power	700	BHP

Pollutant	Potential Emissions		
	Emission Rate		Total Annual Emissions (TPY)
	grams/bhp-hr	lb/hr/unit	
NO_x	3.44	5.31	0.53
CO	1.74	2.68	0.27
VOC	0.10	0.15	0.02
PM/PM-10/PM-2.5	0.19	0.30	0.03
SO_x	0.007	0.01	0.00
GHG (CO2e)	1,533	2,363	236

Notes:
Emission rate (grams/bhp-hr) from potential vendor

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Table A-7 Thermal Oxidizer

Unit parameters

Heat Input Capacity (HHV)	42.8	MMBtu/hr
Maximum Annual Operation	8,760	hr/yr
Estimated Bypass Hours (uncont	350	hr/yr

Pollutant	Total Annual Emissions (TPY)					
	Controlled				Uncontrolled	Thermal Oxidizer Total
	Combustor	Acid Gas	Flash Gas	Fuel Gas		
NO_x	27.37					27.37
CO	16.50					16.50
VOC		0.36	0.23	0.20	1.58	2.36
PM/PM-10/PM-2.5	2.44					2.44
SO_x	55.86					55.86
GHG (CO2e)	22,421				9,386	266,454
HAPs		0.16	0.02	0.022	0.40	0.60
1. Total GHG includes combustion and CO2 vented from amine system			234,647			

Combustor Emissions

Pollutant	Potential Emissions		
	Emission Factor [1] (lb/MMBTU (Input))	Emission Rate (lb/hr)	Annual Emissions (TPY)
NO_x	0.146	6.25	27.37
CO	0.088	3.77	16.50
PM/PM-10/PM-2.5	0.0130	0.56	2.44
SO_x	0.2980	12.75	55.86
GHG (CO2e)	120	5,119	22,421

Gas Streams to Thermal Oxidizer

Acid Gas Emissions **DRE = 98%**

Pollutant		Emission Rate (lb/hr)		Uncontrolled Emissions (lb/yr)	Controlled Emissions (lb/yr)	Annual Emissions (TPY)
		Uncontrolled (By Pass)	Controlled			
C3-C5		2.25	0.045	790	395	0.59
Hexane (incl C6-C13)		0.02	0.0004	8	4	0.01
Toluene		0.57	0.011	201	100	0.15
Xylenes		0.64	0.013	225	113	0.17
Ethylbenzene		0.08	0.002	29	14	0.02
Benzene		0.49	0.010	170	85	0.13
Total VOCs		4.06	0.08	1,422	711	1.07
Total HAPs		1.78	0.04	632.46	316.23	0.47

Flash Gas Emissions **DRE = 98%**

Pollutant		Emission Rate (lb/hr/unit)		Uncontrolled Emissions (lb/yr)	Controlled Emissions (lb/yr)	Annual Emissions (TPY)
		Uncontrolled (By Pass)	Controlled			
C3-C5		2.431	0.049	852	426	0.64
Hexane (incl C6-C13)		0.119	0.002	42	21	0.03
Toluene		0.032	0.001	11	6	0.01
Xylenes		0.029	0.001	10	5	0.01
Ethylbenzene		0.004	0.0001	1	1	0.00
Benzene		0.031	0.001	11	5	0.01
Total VOCs		2.65	0.05	927	464	0.70
Total HAPs		0.10	0.004	75.45	37.72	0.06

Fuel Gas Emissions **DRE = 98%**

Pollutant		Emission Rate (lb/hr/unit)		Uncontrolled Emissions (lb/yr)	Controlled Emissions (lb/yr)	Annual Emissions (TPY)
		Uncontrolled (By Pass)	Controlled			
C3-C5		2.039	0.041	715	357	0.54
Hexane (incl C6-C13)		0.227	0.005	80	40	0.06
Toluene		0.007	1.45E-04	3	1	0.00
Xylenes		0.009	1.74E-04	3	2	0.00
Ethylbenzene		0.001	2.67E-05	0	0	0.00
Benzene		0.002	4.42E-05	1	0	0.00
Total VOCs		2.29	0.05	801	401	0.60
Total HAPs		0.02	0.005	86.47	43.24	0.06

Total Acid, Flash & Fuel Gas VOC Emissions	3,150	1,575	2.36
Total Acid, Flash & Fuel Gas HAP Emissions	794	397	0.60

Notes:
1. CO, NOx, PM, SO2, & GHG emission factors from similar project
2. Waste gas composition and flow from mass balance and total normal flow to flare of: 8,333 scf/min
3. Bypass venting per year 175,200,000 scf/yr
4. C6-C13 included as HAPs to be conservative

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Natural Gas Processing Plant

Table A-8 Flares

Unit parameters

Pilot Heat Input Capacity (HHV)	2.6	MMBtu/hr
Maximum Annual Operation	8,760	hr/yr
Number of Units	1	

Unit parameters for Maintenance

Flare is only used for emergency and periodic maintenance	80	hours/yr
Estimate of gas sent to flare for maintenance (mmscf) per year	167	mmscf
Heating Value for Flares Gas (Btu/scf)	1,020	Btu/scf

Pollutant	Pilot				Total Annual Emissions (TPY)
	Emission Factor (lb/MMBTU (Input))	Emission Rate (lb/hr/unit)	Annual Emissions from Pilot (TPY)	Annual Emissions from Maintenance (TPY)	
NO_x	0.068	0.18	0.77	5.78	6.55
CO	0.280	0.73	3.19	23.80	26.99
VOC				2.49	2.49
PM/PM-10/PM-2.5	0.026	0.07	0.30	2.21	2.51
SO_x	0.0078	0.02	0.09	0.66	0.75
HAPs				0.28	0.28
GHG (CO2e)	154	400	1,750	13,065	14,815

Notes:

1 HHV and emission factors for NOx, CO and PM based on manufacturer's data.

2 Heating value for flare gas based on engineering estimate.

3 Worst case composition estimates

VOC	2.74	wt% VOC
HAPs	0.31	wt % C6+ assume this is all HAP
	21	lb/lb mole for weight of fuel gas
	0.98	Destruction Efficiency, %

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Table A-9 HAP Emissions

Maximum Operating Parameters

Annual Operating Hours	8760	
LM6000PF+ (2)	1018.4	MMbtu/hr
STG-400 (3)	427.2	MMbtu/hr
Regeneration Gas Heater (1)	36.6	MMbtu/hr
Steam Boilers (2)	116.4	MMbtu/hr
Generators (2)	22.5	MMbtu/hr
Fire Pumps (2)	3.6	MMbtu/hr

Hazardous Air Pollutants (HAPs)	Turbines Table 3.1-3			Diesel Engines Table 3.3-2			Natural Gas Heater EF Basis [1]			Natural Gas Boiler EF Basis [2]			Total
	lb/MMBtu	Max lb/hr	Ton/yr	lb/MMBtu	Max lb/hr	Ton/yr	lb/MMCF	Max lb/hr	Ton/yr	lb/MMCF	Max lb/hr	Ton/yr	PTE tons/yr
VOC-HAP													
1,1,2,2-Tetrachloroethane													
1,1,2-Trichloroethane													
1,3-Butadiene	4.30E-07	6.22E-04	2.72E-03	3.91E-05	1.02E-03	1.02E-04							2.82E-03
1,3-Dichloropropene													
2,2,4-Trimethylpentane													
2-Methylnaphthalene							2.40E-05	8.61E-07	3.77E-06	2.40E-05	2.74E-06	1.20E-05	1.58E-05
3-Methylchloranthrene							1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	1.18E-06
7,12-Dimethylbenz(a)anthracene							1.60E-05	5.74E-07	2.51E-06	1.60E-05	1.83E-06	8.00E-06	1.05E-05
Acenaphthene				1.42E-06	3.70E-05	3.70E-06	1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	4.88E-06
Acenaphthylene				5.06E-06	1.32E-04	1.32E-05	1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	1.44E-05
Acetaldehyde	4.00E-05	5.78E-02	2.53E-01	7.67E-04	2.00E-02	2.00E-03							2.55E-01
Acrolein	6.40E-06	9.25E-03	4.05E-02	9.25E-05	2.41E-03	2.41E-04							4.08E-02
Anthracene				1.87E-06	4.88E-05	4.88E-06	2.40E-06	8.61E-08	3.77E-07	2.40E-06	2.74E-07	1.20E-06	6.45E-06
Benz(a)anthracene				1.68E-06	4.38E-05	4.38E-06	1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	5.56E-06
Benzene	1.20E-05	1.73E-02	7.60E-02	9.33E-04	2.43E-02	2.43E-03	2.10E-03	7.54E-05	3.30E-04	2.10E-03	2.40E-04	1.05E-03	7.98E-02
Benzo(a)pyrene				1.88E-07	4.90E-06	4.90E-07	1.20E-06	4.31E-08	1.89E-07	1.20E-06	1.37E-07	6.00E-07	1.28E-06
Benzo(b)fluoranthene							1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	1.18E-06
Benzo(g,h,i)perylene				4.89E-07	1.27E-05	1.27E-06	1.20E-06	4.31E-08	1.89E-07	1.20E-06	1.37E-07	6.00E-07	2.06E-06
Benzo(k)fluoranthene				1.55E-07	4.04E-06	4.04E-07	1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	1.59E-06
Biphenyl													
Carbon Tetrachloride													
Chlorobenzene													
Chloroform													
Chrysene				3.53E-07	9.20E-06	9.20E-07	1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	2.10E-06
Dibenzo(a,h)anthracene				7.83E-07	2.04E-05	2.04E-06	1.20E-06	4.31E-08	1.89E-07	1.20E-06	1.37E-07	6.00E-07	2.83E-06
Dichlorobenzene							1.20E-03	4.31E-05	1.89E-04	1.20E-03	1.37E-04	6.00E-04	7.88E-04
Ethylbenzene	3.20E-05	4.63E-02	2.03E-01										2.03E-01
Ethylene Dibromide													
Fluoranthene				7.61E-06	1.98E-04	1.98E-05	3.00E-06	1.08E-07	4.71E-07	3.00E-06	3.42E-07	1.50E-06	2.18E-05
Fluorene				2.92E-05	7.61E-04	7.61E-05	2.80E-06	1.00E-07	4.40E-07	2.80E-06	3.20E-07	1.40E-06	7.80E-05
Formaldehyde	7.10E-04	1.03E+00	4.50E+00	1.18E-03	3.08E-02	3.08E-03	7.50E-02	2.69E-03	1.18E-02	7.50E-02	8.56E-03	3.75E-02	4.55E+00
Hexane							1.80E+00	6.46E-02	2.83E-01	1.80E+00	2.05E-01	9.00E-01	1.18E+00
Indeno(1,2,3-cd)pyrene				3.75E-07	9.78E-06	9.78E-07	1.80E-06	6.46E-08	2.83E-07	1.80E-06	2.05E-07	9.00E-07	2.16E-06
Methanol													
Methylene Chloride													
Naphthalene	1.30E-06	1.88E-03	8.23E-03	8.48E-05	2.21E-03	2.21E-04	6.10E-04	2.19E-05	9.59E-05	6.10E-04	6.96E-05	3.05E-04	8.85E-03
PAH	2.20E-06	3.18E-03	1.39E-02										1.39E-02
Phenanthrene				2.94E-05	7.66E-04	7.66E-05	1.70E-05	6.10E-07	2.67E-06	1.70E-05	1.94E-06	8.50E-06	8.78E-05
Propylene Oxide	2.90E-05	4.19E-02	1.84E-01	2.58E-03	6.73E-02	6.73E-03							1.90E-01
Phenol													
Pyrene				4.78E-06	1.25E-04	1.25E-05	5.00E-06	1.79E-07	7.86E-07	5.00E-06	5.71E-07	2.50E-06	1.57E-05
Styrene													
Toluene	1.30E-04	1.88E-01	8.23E-01	4.09E-04	1.07E-02	1.07E-03	3.40E-03	1.22E-04	5.34E-04	3.40E-03	3.88E-04	1.70E-03	8.26E-01
Xylenes	6.40E-05	9.25E-02	4.05E-01	2.85E-04	7.43E-03	7.43E-04							4.06E-01
Metal-HAPs													
Arsenic							2.00E-04	7.18E-06	3.14E-05				3.14E-05
Beryllium							1.20E-05	4.31E-07	1.89E-06				1.89E-06
Cadmium							1.10E-03	3.95E-05	1.73E-04				1.73E-04
Chromium							1.40E-03	5.02E-05	2.20E-04				2.20E-04
Cobalt							8.40E-05	3.01E-06	1.32E-05				1.32E-05
Lead							5.00E-04	1.79E-05	7.86E-05				7.86E-05
Manganese							3.80E-04	1.36E-05	5.97E-05				5.97E-05
Mercury							2.60E-04	9.33E-06	4.09E-05				4.09E-05
Nickel							2.10E-03	7.54E-05	3.30E-04				3.30E-04
Selenium							2.40E-05	8.61E-07	3.77E-06				3.77E-06
Total HAPs			6.50			0.017			0.297				7.76

Notes:
Emission Factor References -
(1) U.S. EPA AP-42 Emission Factor Guidance Document, Section 1.4 (Natural Gas Combustion), Tables 1.4-2, 1.4-3, and 1.4-4.
(2) Natural Gas Heating Value **1020**
(3) No reduction credit for organic HAPs is taken for Oxidation Catalyst on Turbines and Boilers

Bradford County Real Estate Partners LLC
Natural Gas Processing Plant

Table A-10.a Fugitive Emissions: Natural Gas Equipment Leaks

Components	Phase	TOC/VOC Emission Factor (lb/hr/component)		Actual Component Count	Hourly CH_4 Emissions [(a),(b)] (lb/hr)	Annual CH_4 Emissions [(d)] (tons/yr)	Hourly CO_2 Emissions [(a),(b)] (lb/hr)	Annual CO_2 Emissions [(d)] (tons/yr)	Hourly VOC Emissions [(a),(c)] (lb/hr)	Annual VOC Emissions [(d)] (tons/yr)	
Valves	Gas/Vapor	9.9E-03	(1)	1414	13.72	60.09	0.00	0.01	0.32	0.57	
Pressure Relief Valves	Gas/Vapor	1.9E-02	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.00	*No PSVs vented to atmosphere*
Pump Seals		2.9E-03	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Flanges	Gas/Vapor	8.6E-04	(1)	1275	1.07	4.70	2.2E-04	9.6E-04	2.5E-02	4.4E-02	
Compressor Seals		1.9E-02	(1)	10	0.19	0.83	3.9E-05	1.7E-04	4.5E-03	7.8E-03	
Sampling Connections		3.3E-02	(2)	2	2.80	12.28	5.8E-04	0.00	0.07	0.12	
Total						**77.89**		**0.02**		**0.73**	

Calculations:

(a) Hourly Emissions (lb/hr) = [Emission Factor (lb TOC/hr/component)] x [Count (component)] x [CH_4/CO_2//VOC Content (Mass %)] / [TOC Content (Mass %)]

(b) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)] x [CH_4/CO_2 Content (Mass %)] / [VOC Content (Mass%)]

(c) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)]

CH_4 Content (mass %) = 97.5

CO_2 Content (mass %) = 0.02

VOC Content (mass %) = 2.30

TOC Content (mass %) = 99.70

(d) Annual Emissions (tons/yr) = [Hourly Emissions (lb/hr)] x [Hours of Operation (hr/yr)] / [2,000 lb/ton]

Hours of Operation (hr/yr) = 8,760

LDAR Program Reduction = 60% Based on 60% reduction for quarterly LDAR per PADEP GP5 support Document

(e) HAPS estimated at percent as for Thermal Oxidizer 10.80% **0.08 TPY**

Notes:

(1) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-4. Oil and Gas Production Operations Average Emission Factors (page 2-15), total organic compounds emission factors (TOC).

(2) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-2. Refinery Average Emission Factors (page 2-13), non-methane organic compounds emission factor (VOC).

Bradford County Real Estate Partners LLC
Natural Gas Processing Plant

Table A-10.b Fugitive Emissions: LNG Equipment Leaks

Components	Phase	TOC/VOC Emission Factor (lb/hr/component)		Actual Component Count	Hourly CH_4 Emissions [(a),(b)] (lb/hr)	Annual CH_4 Emissions [(d)] (tons/yr)	Hourly CO_2 Emissions [(a),(b)] (lb/hr)	Annual CO_2 Emissions [(d)] (tons/yr)	Hourly VOC Emissions [(a),(c)] (lb/hr)	Annual VOC Emissions [(d)] (tons/yr)	
Valves	Liquid	5.5E-03	(1)	634	3.42	14.97	0.00	0.00	0.08	0.14	
Pressure Relief Valves	Liquid	1.7E-02	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.00	*No PSVs vented to atmosphere*
Pump Seals		2.9E-03	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Flanges	Liquid	2.4E-04	(1)	321	0.08	0.33	1.6E-05	6.8E-05	1.8E-03	3.1E-03	
Compressor Seals		1.9E-02	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sampling Connections	All	3.3E-02	(2)	1	1.40	6.14	2.9E-04	0.00	0.03	0.06	
Total						**21.44**		**0.00**		**0.20**	

Calculations:

(a) Hourly Emissions (lb/hr) = [Emission Factor (lb TOC/hr/component)] x [Count (component)] x [CH_4/CO_2//VOC Content (Mass %)] / [TOC Content (Mass %)]

(b) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)] x [CH_4/CO_2 Content (Mass %)] / [VOC Content (Mass%)]

(c) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)]

CH_4 Content (mass %) = 97.5

CO_2 Content (mass %) = 0.02

VOC Content (mass %) = 2.30

TOC Content (mass %) = 99.70

(d) Annual Emissions (tons/yr) = [Hourly Emissions (lb/hr)] x [Hours of Operation (hr/yr)] / [2,000 lb/ton]

Hours of Operation (hr/yr) = 8,760

LDAR Program Reduction = 60% Based on 60% reduction for quarterly LDAR per PADEP GP5 support Document

(e) HAPS not expexted to be present

Notes:

(1) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-4. Oil and Gas Production Operations Average Emission Factors (page 2-15), total organic compounds emission factors (TOC).

(2) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-2. Refinery Average Emission Factors (page 2-13), non-methane organic compounds emission factor (VOC).

Bradford County Real Estate Partners LLC
Natural Gas Processing Plant

Table A-10.c Fugitive Emissions: Refrigerated Vapor Equipment Leaks

Components	Phase	TOC/VOC Emission Factor (lb/hr/component)		Actual Component Count	Hourly CH_4 Emissions [(a),(b)] (lb/hr)	Annual CH_4 Emissions [(d)] (tons/yr)	Hourly CO_2 Emissions [(a),(b)] (lb/hr)	Annual CO_2 Emissions [(d)] (tons/yr)	Hourly VOC Emissions [(a),(c)] (lb/hr)	Annual VOC Emissions [(d)] (tons/yr)	
Valves	Gas/Vapor	9.9E-03	(1)	423	0.66	2.90	0.00	0.00	3.53	6.19	
Pressure Relief Valves	Gas/Vapor	1.9E-02	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0	*No PSVs vented to atmosphere*
Pump Seals		2.9E-03	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0	
Flanges	Gas/Vapor	8.6E-04	(1)	901	0.12	0.54	0.0E+00	0.0E+00	6.5E-01	1.14	
Compressor Seals		1.9E-02	(1)	4	0.01	0.05	0.0E+00	0.0E+00	6.5E-02	0.11	
Sampling Connections		3.3E-02	(2)	2	0.01	0.05	0.0E+00	0.00	0.07	0.12	
Total						**3.55**		**0.00**		**7.56**	

Calculations:

(a) Hourly Emissions (lb/hr) = [Emission Factor (lb TOC/hr/component)] x [Count (component)] x [CH_4/CO_2//VOC Content (Mass %)] / [TOC Content (Mass %)]

(b) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)] x [CH_4/CO_2 Content (Mass %)] / [VOC Content (Mass%)]

(c) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)]

CH_4 Content (mass %) = 15.0

CO_2 Content (mass %) = 0.00

VOC Content (mass %) = 80.00

TOC Content (mass %) = 95.00

(d) Annual Emissions (tons/yr) = [Hourly Emissions (lb/hr)] x [Hours of Operation (hr/yr)] / [2,000 lb/ton]

Hours of Operation (hr/yr) = 8,760

LDAR Program Reduction = 60% Based on 60% reduction for quarterly LDAR per PADEP GP5 support Document

(e) Refigerant not a HAP

Notes:

(1) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-4. Oil and Gas Production Operations Average Emission Factors (page 2-15), total organic compounds emission factors (TOC).

(2) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-2. Refinery Average Emission Factors (page 2-13), non-methane organic compounds emission factor (VOC).

Bradford County Real Estate Partners LLC
Natural Gas Processing Plant

Table A-10.d Fugitive Emissions: Refrigerated Liquid Equipment Leaks

Components	Phase	TOC/VOC Emission Factor (lb/hr/component)		Actual Component Count	Hourly CH_4 Emissions [(a),(b)] (lb/hr)	Annual CH_4 Emissions [(d)] (tons/yr)	Hourly CO_2 Emissions [(a),(b)] (lb/hr)	Annual CO_2 Emissions [(d)] (tons/yr)	Hourly VOC Emissions [(a),(c)] (lb/hr)	Annual VOC Emissions [(d)] (tons/yr)	
Valves	Liquid	5.5E-03	(1)	1059	0.92	4.04	0.00	0.00	4.92	8.61	
Pressure Relief Valves	Liquid	1.7E-02	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.00	*No PSVs vented to atmosphere*
Pump Seals		2.9E-03	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Flanges	Liquid	2.4E-04	(1)	962	0.04	0.16	0.0E+00	0.0E+00	2.0E-01	0.34	
Compressor Seals		1.9E-02	(1)	0	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sampling Connections	All	3.3E-02	(2)	0	0.00	0.00	0.0E+00	0.00	0.00	0.00	
Total						**4.20**		**0.00**		**8.96**	

Calculations:

(a) Hourly Emissions (lb/hr) = [Emission Factor (lb TOC/hr/component)] x [Count (component)] x [CH_4/CO_2//VOC Content (Mass %)] / [TOC Content (Mass %)]

(b) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)] x [CH_4/CO_2 Content (Mass %)] / [VOC Content (Mass%)]

(c) Hourly Emissions (lb/hr) = [Emission Factor (lb VOC/hr/component)] x [Count (component)]

CH_4 Content (mass %) = 15.0

CO_2 Content (mass %) = 0.00

VOC Content (mass %) = 80.00

TOC Content (mass %) = 95.00

(d) Annual Emissions (tons/yr) = [Hourly Emissions (lb/hr)] x [Hours of Operation (hr/yr)] / [2,000 lb/ton]

Hours of Operation (hr/yr) = 8,760

LDAR Program Reduction = 60% Based on 60% reduction for quarterly LDAR per PADEP GP5 support Document

(e) Refigerant not a HAP

Notes:

(1) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-4. Oil and Gas Production Operations Average Emission Factors (page 2-15), total organic compounds emission factors (TOC).

(2) EPA-453/R-95-017 Protocol for Equipment Leak Emission Estimates, EPA, November 1995. Table 2-2. Refinery Average Emission Factors (page 2-13), non-methane organic compounds emission factor (VOC).

Bradford County Real Estate Partners LLC
Natural Gas Processing Plant

Table A-11 Fugitive Emissions from Roads

Vehicle Type	Daily Onsite Vehicular Traffic (Veh)	Days	Average Daily Travel Distance per Vehicle (VMT/vehicle/day)	Distance Traveled (VMT)	Vehicle Weight (tons)		
					Full	Empty	Average
LNG Trucks	400	365	0.47	68,620	40	21	30

Parameter	PM10	PM2.5
Uncontrolled Emission Factor (lb/VMT)	0.003	0.0006
Control Efficiency for dust suppression activities	0%	0%
Controlled Emission Factor (lb/VMT)	0.003	0.001
Fugitive Roadways Emissions (tons)	0.09	0.02

[1] The emission factor for paved roads was estimated using USEPA's AP-42 (1/11) Section 13.2.1 "Paved Roads" and the following:

A. Emission factor (E) is calculated using Equation (2) in Section 13.2.1: E =(k x (sL)^0.91 x (W)^1.02) x (1 - P/4N)

B. Table 13.2.1-1 specifies following k factors.

PM-10	0.0022	lb/VMT
PM2.5	0.00054	lb/VMT

C. AP-42 default sL value for limited access road ways is 0.03 g/m2 Lowest range to retain A for PM10 - AP42 text recommends 0.015 g/m2 for limited access

D. Figure 13.2.1-2 estimates that days of precipitation >0.01 inch per year (P) is approximately 150; N is 365 days.

P	150
N	365

TANKS 4.0.9d
Emissions Report - Summary Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Horizontal Tank
City:	Williamsport
State:	Pennsylvania
Company:	New Fortress Energy
Type of Tank:	Horizontal Tank
Description:	5,000 gal diesel fuel tank

Tank Dimensions

Shell Length (lt):		13.00
Diameter (lt):		8.00
Volume (gallons):		5,000.00
Turnovers:		5.00
Net Throughput(gaVyr):		25,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (yin):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Williamsport, Pennsylvania (Avg Atmospheric Pressure= 14.47 psia)

TANKS 4.0.9d
Emissions Report - Summary Format
Liquid Contents of Storage Tank

Horizontal Tank- Horizontal Tank
Williamsport, Pennsylvania

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Ma><.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Ma><.	Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	MoL Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	51.52	46.58	56.46	49.92	0.0048	0.0040	0.0058	130.0000			188.00	Option 1: VP50 = .0045 VPSO = .0065

TANKS 4.0.9d
Emissions Report - Summary Format
Individual Tank Emission Totals

Emissions Report for: Annual

Horizontal Tank- Horizontal Tank
Williamsport, Pennsylvania

	Losses (lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	0.37	0.60	0.97

PROJECT NAME:Bradford County Real Estate Partners LLC
PROJECT NUMBER: 400165 | REVISION: C | DATE: 30-NOV-2018

CASE NUMBER	MAX	2	3	4	AVERAGE	5	6	7	8	9
Ambient Dry Bulb Temperature, oF	20.0	20.0	20.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	83.5	75.0	50.0	100.0	75.0	50.0
Configuration	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC
CTG Manufacturer	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE
CTG Model	LM6000PF+	LM6000PF+	LM6000PF+	LM6000PF+	LM6000PF+	LM6000PF+	LM6000PF+	LM 6000PF+	LM6000PF+	LM6000PF+
CTG Combustor Type	OLE	OLE	OLE	OLE	OLE	OLE	OLE	OLE	OLE	OLE
CTG Fuel Type	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas
CTG Inlet Air Cooling Type	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CTG Inlet Air Cooling Status, On/Off	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Post Combustion NOx Emissions Control	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR
Post Combustion CO Emissions Control	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst
AMBIENT CONDITIONS										
Ambient Dry Bulb Temperature, °F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
Ambient Relative Humidity,%	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Atmospheric Pressure, psia	14.200	14.200	14.200	14.200	14.200	14.200	14.200	14.200	14.200	14.200
COMBUSTION TURBINE PERFORMANCE										
Inlet Loss, in. H20	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Exhaust Loss, in. H20	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
CTG Load Level, percent of base load	100.0	75.0	50.0	100.0	83.5	75.0	50.0	100.0	75.0	50.0
Gross CTG Output, kW	57,376	43,032	28,688	51,150	42,717	38,363	25,575	43,603	32,702	21,801
Gross CTG Heat Rate, Btu/kWh (LHV)	7,988	8,796	10,729	8,113	8,973	8,991	11,132	8,440	9,449	11,908
Gross CTG Heat Rate, Btu/kWh (HHV)	8,874	9,772	11,920	9,014	9,951	9,989	12,368	9,377	10,498	13,230
CTG Heat Input, MBtu/h (LHV)	458.3	378.5	307.8	415.0	383.3	344.9	284.7	368.0	309.0	259.6
CTG Heat Input, MBtu/h (HHV)	509.2	420.5	342.0	461.1	425.1	383.2	316.3	408.9	343.3	288.4
CTG Exhaust Flow, lb/h	1,133,280	971,604	812,088	1,039,824	976,373	897,444	739,620	929,196	804,744	668,520
CTG Exhaust Temperature, °F	920	915	923	951	948	946	978	984	989	1028
COMBUSTION TURBINE FUEL										
Total CTG Fuel Flow, lb/h	22,250	18,380	14,950	20,150	18,581	16,750	13,820	17,870	15,000	12,610
CTG Fuel Temperature, °F	105	105	105	105	105	105	105	105	105	105

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CASE NUMBER	MAX	2	3	4	AVERAGE	5	6	7	8	9
Ambient Dry Bulb Temperature, · F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	83.5	75.0	50.0	100.0	75.0	50.0
CTG Fuel LHV, Btu/lb	20,595	20,595	20,595	20,595	20,595	20,595	20,595	20,595	20,595	20,595
CTG Fuel HHV, Btu/lb	22,882	22,882	22,882	22,882	22,882	22,882	22,882	22,882	22,882	22,882
HHV/LHV Ratio	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110
CTG Fuel Composition (Ultimate Analysis by Weight)										
Ar,% wt.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C,% wt.	71.75	71.75	71.75	71.75	71.75	71.75	71.75	71.75	71.75	71.75
H2,% wt.	24.05	24.05	24.05	24.05	24.05	24.05	24.05	24.05	24.05	24.05
N2,% wt.	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19
02, %wt.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S,% wt.	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043
Total,% wt.	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fuel Sulfur Content (grains/100 standard cubic feet)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25

COMBUSTION TURBINE EXHAUST

CTG EXHAUST ANALYSIS (VOLUME BASIS- WET)

Ar, %vol.	0.94	0.95	0.95	0.94	0.94	0.94	0.94	0.92	0.92	0.92
C02, %vol.	3.34	3.22	3.14	3.29	3.29	3.17	3.18	3.24	3.15	3.18
H20, %vol.	6.90	6.66	6.49	7.58	7.58	7.35	7.35	9.33	9.14	9.21
N2,% vol.	75.27	75.36	75.43	74.70	74.70	74.79	74.78	73.29	73.37	73.34
02, %val.	13.54	13.81	14.00	13.49	13.49	13.76	13.75	13.21	13.43	13.35
Total,% val.	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Molecular Wt, lb/mol	28.51	28.53	28.54	28.43	28.43	28.45	28.45	28.24	28.25	28.25
Specific Volume, ft 3/lb	11.88	11.87	11.87	11.91	11.91	11.91	11.91	11.99	11.99	11.99
Specific Volume, scf/lb	13.31	13.30	13.29	13.34	13.34	13.34	13.34	13.44	13.43	13.43
Exhaust Gas Flow, acfm (estimated)	667,453	569,565	478,707	627,496	588,223	539,770	455,003	578,316	501,978	428,406
Exhaust Gas Flow, scfm	251,399	215,372	179,877	231,188	217,081	199,532	164,442	208,140	180,129	149,637

STACK EMISSIONS

STACK NOX EMISSIONS WITHOUT THE EFFECTS OF SELECTIVE CATALYTIC REDUCTION (SCR)

NOx, ppmvd (dry, 15% 02)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
NOx, ppmvd (dry)	26.9	25.9	25.1	26.7		25.6	25.7	26.8	25.9	26.3
NOx, ppmvw (wet)	25.0	24.1	23.5	24.6		23.8	23.8	24.3	23.6	23.8
NOx, lb/h as N02	47.2	39.0	31.7	42.7	39.4	35.5	29.3	37.9	31.8	26.7

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CASE NUMBER	MAX	2	3	4	AVERAGE	5	6	7	8	9
Ambient Dry Bulb Temperature, • F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	83.5	75.0	50.0	100.0	75.0	50.0
NOx, lb/MBtu (LHV) as N02	0.1030	0.1030	0.1030	0.1029	0.1029	0.1029	0.1029	0.1030	0.1029	0.1029
NOx, lb/MBtu (HHV) as N02	0.0927	0.0927	0.0927	0.0926	0.0926	0.0926	0.0926	0.0927	0.0926	0.0926

t Note: includes NOx massflow added to match CTG manufacturer estimate.

STACK NOX EMISSIONS WITH THE EFFECTS OF SELECTIVE CATALYTIC REDUCTION (SCR) t

NOx, ppmvd (dry, 15% 02)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NOx,ppmvd (dry)	2.2	2.1	2.0	2.1		2.1	2.1	2.1	2.1	2.1
NOx, ppmvw (wet)	2.0	1.9	1.9	2.0		1.9	1.9	1.9	1.9	1.9
NOx, lb/h as N02	3.8	3.1	2.5	3.4	3.1	2.8	2.3	3.0	2.5	2.1
NOx, lb/MBtu (LHV) as N02	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082
NOx, lb/MBtu (HHV) as N02	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074
5CR NH3 slip, ppmvd (dry, 15% 02)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
5CR NH3 slip, lb/h	6.78	5.60	4.56	6.14	5.67	5.11	4.21	5.45	4.57	3.84

t Note: includes NOx massflow added to match CTG manufacturer estimate.

STACK CO EMISSIONS WITHOUT THE EFFECTS OF CATALYTIC REDUCTION (CO CATALYST) t

CO, ppmvd {dry, 15% 02)	25.0	36.0	70.0	25.0	25.0	36.0	70.0	25.0	36.0	70.0
CO, ppmvd (dry)	26.9	37.3	70.3	26.7		36.9	72.0	26.8	37.3	73.6
CO, ppmvw (wet)	25.0	34.7	65.8	24.6		34.3	66.6	24.3	34.0	66.6
CO, lb/h	28.7	25.6	27.0	26.0	24.0	23.3	24.9	23.1	21.0	22.8
CO, lb/MBtu (LHV)	0.0626	0.0676	0.0878	0.0627	0.0627	0.0676	0.0875	0.0628	0.0678	0.0879
CO, lb/MBtu (HHV)	0.0564	0.0609	0.0790	0.0564	0.0564	0.0609	0.0788	0.0565	0.0610	0.0791

t Note: includes CO massflow added to match CTG manufacturer estimate.

STACK CO EMISSIONS WITH THE EFFECTS OF CATALYTIC REDUCTION (CO CATALYST) t

CO, ppmvd (dry, 15% 02)	1.75	2.5	4.9	1.75	1.75	2.5	4.9	1.75	2.5	4.9
CO, ppmvd (dry)	1.88	2.6	4.9	1.87		2.6	5.0	1.88	2.6	5.2
CO, ppmvw (wet)	1.75	2.4	4.6	1.72		2.4	4.7	1.70	2.4	4.7
CO, lb/h	2.0	1.8	1.9	1.8	1.7	1.6	1.7	1.6	1.5	1.6
CO, lb/MBtu (LHV)	0.0044	0.0047	0.0061	0.0044	0.0044	0.0047	0.0061	0.0044	0.0047	0.0062
CO, lb/MBtu (HHV)	0.0039	0.0043	0.0055	0.0039	0.0039	0.0043	0.0055	0.0040	0.0043	0.0055

t Note: includes CO massflow added to match CTG manufacturer estimate.

STACK S02 EMISSIONS WITH THE EFFECTS OF S02 OXIDATION

Assumed 502 oxidation rate on Catalyst, vol%	710	72.0	73.0	80.0	80.0	81.0	81.0	83.0	82.0	84.0
502, ppmvd (dry, 15% 02)	0.20	0.19	0.19	0.14	0.14	0.13	0.13	0.12	0.12	0.11

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CASE NUMBER	MAX	2	3	4	AVERAGE	5	6	7	8	9
Ambient Dry Bulb Temperature, • F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	83.5	75.0	50.0	100.0	75.0	50.0
S02, lblh	0.55	0.44	0.34	0.34	0.32	0.27	0.22	0.26	0.23	0.17
S02, lbiMBtu (LHV)	0.0012	0.0012	0.0011	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007
S02, lbiMBtu (HHV)	0.0011	0.0010	0.0010	0.0007	0.0007	0.0007	0.0007	0.0006	0.0007	0.0006
STACK UHC EMISS ON t										
UHC, ppmvd (dry, 15% 02)	15.0	15.0	42.0	15.0	15.0	15.0	42.0	15.0	15.0	42
UHC, ppmvd (dry)	16.1	15.5	42.3	16.0		15.4	43.1	16.1	15.6	44.2
UHC, ppmvw (wet)	15.0	14.5	39.5	14.8		14.3	40.0	14.6	14.1	40.0
UHC, lblh as CH4	9.8	8.1	18.5	8.9	8.2	7.4	17.1	7.9	6.6	15.7
UHC, lbiMBtu (LHV) as CH4	0.0214	0.0214	0.0600	0.0214	0.0214	0.0215	0.0600	0.0215	0.0214	0.0604
UHC, lbiMBtu (HHV) as CH4	0.0192	0.0193	0.0540	0.0193	0.0193	0.0193	0.0540	0.0193	0.0192	0.0544
STACK VOC EM SS ONS WITHOUT THE EFFECT OF OX DAT ON NCO CATALY ST t										
VOC, ppmvd (dry, 15% 02)	3.0	3.0	9.0	3.0	3.0	3.0	9.0	3.0	3.0	9.0
VOC, ppmvd (dry)	3.2	3.1	9.0	3.2		3.1	9.3	3.2	3.1	9.6
VOC, ppmvw (wet)	3.0	2.9	8.4	3.0		2.9	8.7	2.9	2.8	8.7
VOC, lblh as CH4	2.0	1.6	4.0	1.8	1.6	1.5	3.7	1.6	1.3	3.4
VOC, lbiMBtu (LHV) as CH4	0.0043	0.0043	0.0129	0.0043	0.0043	0.0043	0.0129	0.0043	0.0043	0.0129
VOC, lbiMBtu (HHV) as CH4	0.0038	0.0039	0.0116	0.0039	0.0039	0.0039	0.0116	0.0039	0.0038	0.0117
STACK VOC EM SS NS WITH THE EFFECTS OF CATALYT C REDUCTION (CO CATALY ST) t										
VOC, ppmvd (dry, 15% 02)	2.1	2.1	6.3	2.1	2.1	2.1	6.3	2.1	2.1	6.3
VOC, ppmvd (dry)	2.3	2.2	6.3	2.2		2.2	6.5	2.3	2.2	6.7
VOC, ppmvw (wet)	2.1	2.0	5.9	2.1		2.0	6.1	2.0	2.0	6.1
VOC, lblh as CH4	1.4	1.1	2.8	1.2	1.1	1.0	2.6	1.1	0.9	2.4
VOC, lbiMBtu (LHV) as CH4	0.0030	0.0030	0.0090	0.0030	0.0030	0.0030	0.0090	0.0030	0.0030	0.0091
VOC, lbiMBtu (HHV) as CH4	0.0027	0.0027	0.0081	0.0027	0.0027	0.0027	0.0081	0.0027	0.0027	0.0082
STACK PART CULATE MATIER WITHOUT THE EFFECTS OF S02 O XIDATION										
PM / PM10 / PM2.5 (FRONT AND BACK HALF CATCH), lblh	3.7	3.2	2.7	3.7	3.5	3.2	2.6	3.7	3.2	2.7
PM / PM10 / PM2.5 (FRONT AND BACK HALF CATCH), lbiMBtu (LHV)	0.0081	0.0084	0.0086	0.0089	0.0091	0.0093	0.0092	0.0101	0.0104	0.0103
PM / PM10 / PM2.5 (FRONT AND BACK HALF CATCH), lbiMBtu (HHV)	0.0073	0.0075	0.0078	0.0080	0.0082	0.0083	0.0083	0.0090	0.0093	0.0092
STACK PARTICULATE MATIER WITH THE EFFECTS OF S02 O X DAT ION										
PM / PM10 / PM2.5 (FRONT AND BACK HALF CATCH), lblh	6.48	5.50	4.57	6.53	6.09	5.58	4.60	6.31	5.37	4.52
PM / PM10 / PM2.5 (FRONT AND BACK HALF CATCH), lbiMBtu (LHV)	0.0141	0.0145	0.0148	0.0157	0.0159	0.0162	0.0162	0.0171	0.0174	0.0174
PM / PM10 / PM2.5 (FRONT AND BACK HALF CATCH), lbiMBtu (HHV)	0.0127	0.0131	0.0134	0.0142	0.0143	0.0146	0.0145	0.0154	0.0156	0.0157
STACK C02 EMISSI S										

t *Note: includes VOC massflow added to match CTG manufacturer estimate.*

t *Note: includes VOC massflow added to match CTG manufacturer estimate.*

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CASE NUMBER	MAX	2	3	4	AVERAGE	5	6	7	8	9
Ambient Dry Bulb Temperature, • F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	83.5	75.0	50.0	100.0	75.0	50.0
C02, lb/h	58,499	48,324	39,306	52,978	48,884	44,039	36,335	46,983	39,438	33,154
C02, lb/MBtu (LHV)	128	128	128	128	128	128	128	128	128	128
C02, lb/MBtu (HHV)	115	115	115	115	115	115	115	115	115	115
C02e,lb/Mbtu (HHV)	117.7	117.7	118.6	117.7	117.7	117.7	118.6	117.7	117.7	118.6
TOTAL EFFECTS OF S02 OXIDATION										
Total S02 to S03 conversion rate, %vol	71.0	72.0	73.0	80.0	80.0	81.0	81.0	83.0	82.0	84.0
Total S03 from conversion, lb/h	1.7	1.4	1.2	1.7	1.6	1.4	1.2	1.6	1.3	1.1
Maximum Stack Ammonium Sulfate [(NH4)2-(504)) (assuming 100% conversion from S03), lb/h	2.8	2.3	1.9	2.8	2.6	2.4	2.0	2.6	2.2	1.9
Maximum Stack Sulfur Mist [H2S04) (assuming 100% conversion from S03 to H2S04}, lb/h	2.1	1.7	1.4	2.1	1.9	1.8	1.5	1.9	1.6	1.4
POST COMBUSTION EMISSIONS CONTROL EQUIPMENT										
CATALYTIC CONVERSION IN CO CATALYST										
CO removed in CO Catalyst, %wt	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
CO removed in CO Catalyst, lb/h	26.7	23.8	25.1	24.2	22.3	21.7	23.2	21.5	19.5	21.2
VOC removed in CO Catalyst, %wt	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
VOC removed in CO Catalyst, lb/h	0.6	0.5	1.2	0.5	0.5	0.4	11	0.5	0.4	1.0
SELECTIVE CATALYTIC REDUCTION (SCR)										
NOx Removed in SCR, %wt	92.0	92.0	92.0	92.0	92	92.0	92.0	92.0	92.0	92.0
NOx removed in SCR, lb/h	43.4	35.9	29.2	39.3	36.2	32.7	27.0	34.9	29.3	24.6
Ammonia Slip, lb/h	6.78	5.60	4.56	6.14	5.7	5.11	4.21	5.45	4.57	3.84
NH3 Reagent Type	Aqueous (19%}	Aqueous (19%)	Aqueous (19%)	Aqueous (19%)	Aqueous (19%)	Aqueous (19%}	Aqueous (19%)	Aqueous (19%)	Aqueous (19%)	Aqueous (19%)
Assumed stoichiometric ratio for NH3 consumption	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Total NH3 Reagent Consumption, lb/h	154	127	104	139	128	116	96	124	104	87

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CASE NUMBER	MAX	2	3	4	5	AVERAGE (2x)	6	AVERAGE (3x)	7	8	9
Ambient Dry Bulb Temperature, ° F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	75.0	75.0	50.0	50.0	100.0	75.0	50.0
Configuration	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC	SC
CTG Manufacturer	Siemens	Siemens	Siemens	Siemens	Siemens	Siemens	Siemens	Siemens	Siemens	Siemens	Siemens
CTG Model	SGT-400	SGT-400	SGT-400	SGT-400	SGT-400	SGT-400	SGT-400	SGT-400	SGT-400	SGT-400	SGT-400
CTG Combustor Type	OLE	OLE	OLE	OLE	OLE	OLE	OLE	OLE	OLE	OLE	OLE
CTG Fuel Type	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	NaturalGas	Natural Gas	Natural Gas
CTG Inlet Air Cooling Type	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CTG Inlet Air Cooling Status, On/Off	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Post Combustion NOx Emissions Control	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR	SCR
Post Combustion CO Emissions Control	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst	CO Catalyst
AMBIENT CONDITIONS											
Ambient Dry Bulb Temperature, ° F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
Ambient Relative Humidity,%	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Atmospheric Pressure, psia	14.280	14.280	14.280	14.280	14.280	14.280	14.280	14.280	14.280	14.280	14.280
COMBUSTION TURBINE PERFORMANCE											
Inlet Loss, in. H20	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Exhaust Loss, in. H20	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
CTG Load Level, percent of base load	100.0	75.0	50.0	100.0	75.0	50.0	50.0	50.0	100.0	75.0	50.0
Gross CTG Output, kW	13,116	9,837	6,558	11,596	8,697	8,697	5,798	5,798	9,776	7,332	4,888
Gross CTG Heat Rate,Btu/kWh (LHV)	9,774	10,969	13,474	10,156	11,227	11,452	13,932	14,211	10,738	11,956	14,982
Gross CTG Heat Rate, Btu/kWh (HHV)	10,859	12,187	14,970	11,284	12,473	12,722	15,479	15,789	11,930	13,283	16,645
CTG Heat Input,MBtu/h (LHV)	128.2	107.9	88.4	117.8	97.6	99.6	80.8	82.4	105.0	87.7	73.2
CTG Heat Input,MBtu/h (HHV)	142.4	119.9	98.2	130.9	108.5	110.6	89.8	91.5	116.6	97.4	81.4
CTG Exhaust Flow,lb/h	336,420	303,804	265,788	304,092	272,844	272,939	239,904	239,982	271,260	244,908	216,180
CTG Exhaust Temperature, °F	948	945	964	1036	987	987	1015	1015	1067	1018	1048
COMBUSTION TURBINE FUEL											
Total CTG Fuel Flow, lb/h	6,220	5,240	4,290	5,720	4,740	4835	3,920	3,998	5,100	4,260	3,560
CTG Fuel Temperature, ° F	105	105	105	105	105	105	105	105	105	105	105
CTG Fuel LHV, Btu/lb	20,595	20,595	20,595	20,595	20,595	20,595	20,595	20,595	20,595	20,595	20,595
CTG Fuel HHV, Btu/lb	22,882	22,882	22,882	22,882	22,882	22,882	22,882	22,882	22,882	22,882	22,882
HHV/LHV Ratio	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110	1.1110
CTG Fuel Composition (Ultimate Analysis by Weight)											
Ar, %wt.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C,%wt.	71.75	71.75	71.75	71.75	71.75	71.75	71.75	71.75	71.75	71.75	71.75

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PROJECT NUMBER: 400165 | REVISION: C | DATE: 30-NOV-2018

CASE NUMBER	MAX	2	3	4	5	AVERAGE (2x)	6	AVERAGE (3x)	7	8	9
Ambient Dry Bulb Temperature, • F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	75.0	75.0	50.0	50.0	100.0	75.0	50.0
H2,%wt.	24.05	24.05	24.05	24.05	24.05	24.05	24.05	24.05	24.05	24.05	24.05
N2, %wt.	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19
02, %wt.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S,%wt.	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043
Total, %wt.	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fuel Sulfur Content (grains/100 standard cubic feet)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
COMBUSTION TURBINE EXHAUST											
CTG EXHAUST ANALYSIS {VOLUME BASIS - WET)			j								
Ar, %vol.	0.95	0.95	095	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92
C02, %vol.	3.15	2.94	2.76	3.20	2.96	2.78	2.78	2.78	3.17	2.94	2.78
H20, %vol.	6.51	6.10	5.72	7.39	6.91	6.57	6.57	6.57	9.17	8.71	8.41
N2, %vol.	75.42	75.58	75.73	74.77	74.96	75.09	75.09	75.09	73.36	73.54	73.65
02,%vol.	13.97	14.43	14.84	13.70	14.24	14.62	14.62	1462	13.37	13.89	14.23
Total, %vol.	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Molecular Wt, lb/mol	28.54	28.57	28.59	28.45	28.48	28.50	28.50	28.50	28.25	28.28	28.30
Specific Volume, ftA3/lb	36.18	35.97	36.40	37.84	37.18	37.77	37.77	37.77	39.18	38.51	39.14
Specific Volume, scf/lb	13.29	13.28	13.27	13.34	13.32	13.31	13.31	13.31	13.43	13.42	13.41
Exhaust Gas Flow, acfm	202,861	182,130	161,245	191,781	169,072	151,020	151,020	151,020	177,133	157,190	141,021
Exhaust Gas Flow, scfm	74,517	67,242	58,783	67,610	60,571	53,219	53,219	53,219	60,717	54,778	48,316
STACK EMISSIONS											
STACK NOX EMISSIONS WITHOUT THE EFFECTS OF SELECTIVE CATALYTIC REDUCTION (SCR) t											
NOx, ppmvd (dry, 15% 02}	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
NOx, ppmvd (dry)	15.1	14.1	13.1	15.5	14.3		13.4		15.7	14.5	13.7
NOx, ppmvw (wet)	14.2	13.2	12.4	14.4	13.3		12.5		14.3	13.2	12.5
NOx, lb/h as N02	7.7	6.5	5.3	7.1	5.9	4.8	4.8	4.8	6.3	5.3	4.4
NOx, lb/MBtu (LHV) as N02	0.0599	0.0600	0.0600	0.0600	0.0600	0.0599	0.0599	0.0599	0.0600	0.0600	0.0600
NOx, lb/MBtu (HHV) as N02	0.0539	0.0540	0.0540	0.0540	0.0540	0.0539	0.0539	0.0539	0.0540	0.0540	0.0540
t Note: includes NOx massflow added to match CTG manufacturer estimate.											
STACK NOX EMISSIONS WITH THE EFFECTS OF SELECTIVE CATALYTIC REDUCTION (SCR) t											
NOx, ppmvd (dry, 15% 02)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
NOx, ppmvd (dry)	2.0	1.9	1.8	2.1	1.9		1.8		2.1	1.9	1.8
NOx, ppmvw (wet)	1.9	1.8	1.7	1.9	1.8		1.7		1.9	1.8	1.7
NOx, lb/h as N02	1.0	0.9	0.7	0.9	0.8	0.6	0.6	0.6	0.8	0.7	0.6
NOx, lb/MBtu (LHV) as N02	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080
NOx, lb/MBtu (HHV) as N02	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072
SCR NH3 slip, ppmvd (dry, 15% 02)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
5CR NH3 slip, lb/h	1.90	1.60	1.31	1.74	1.44	1.44	1.19	1.19	1.55	1.30	1.09
t Note: includes NOx massf/ow added to match CTG manufacturer estimate.											
STACK CO EMISS ONS WITHOUT THE EFFECTS OF CATALYTIC REDUCTION {CO CATALYST) t			i								
CO, ppmvd (dry, 15% 02)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

PROJECT NAME:Bradford County Real Estate Partners LLC
PROJECT NUMBER: 400165 | REVISION: C | DATE: 30-NOV-2018

CASE NUMBER	MAX	2	3	4	5	AVERAGE (2x)	6	AVERAGE (3x)	7	8	9
Ambient Dry Bulb Temperature, ·F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG Load, percent of base load	100.0	75.0	50.0	100.0	75.0	75.0	50.0	50.0	100.0	75.0	50.0
CO, ppmvd (dry)	10.1	9.4	8.8	10.3	9.5		8.9		10.5	9.6	9.1
CO, ppmvw (wet)	9.4	8.8	8.3	9.6	8.9		8.3		9.5	8.8	8.3
CO, lb/h	3.1	2.6	2.2	2.9	2.4	2.0	2.0	2.0	2.6	2.1	1.8
CO, lb/MBtu (LHV)	0.0243	0.0243	0.0243	0.0243	0.0243	0.0243	0.0243	0.0243	0.0244	0.0244	0.0244
CO, lb/MBtu (HHV)	0.0219	0.0219	0.0219	0.0219	0.0219	0.0219	0.0219	0.0219	0.0219	0.0219	0.0219
t Note: includes CO mossflow added to match CTG manufacturer estimate.											
STACK CO EMISSIONS WITH THE EFFECTS OF CATALYTIC REDUCTION (CO CATALYST)t											
CO, ppmvd (dry, 15% 02}	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
CO, ppmvd (dry)	1.75	1.66	1.53	1.79	1.66		1.58		1.84	1.71	1.58
CO, ppmvw (wet}	1.66	1.53	1.44	1.66	1.53		1.44		1.66	1.53	1.44
CO, lb/h	0.53	0.48	0.39	0.48	0.44	0.43	0.35	0.36	0.44	0.39	0.31
CO, lb/MBtu (LHV)	0.0041	0.0045	0.0045	0.0041	0.0043	0.0043	0.0043	0.0043	0.0042	0.0045	0.0042
CO, lb/MBtu (HHV)	0.0037	0.0040	0.0040	0.0037	0.0039	0.0039	0.0039	0.0039	0.0038	0.0040	0.0038
t Note : includes CO mossflow added to match CTG manufacturer estimate.											
STACK S02 EMISSIONS WITH THE EFFECTS OF S02 OXIDATION											
Assumed 502 oxidation rate on Catalyst, vel%	45.0	52.0	54.0	63.0	57.0	61.0	62.0	62.0	65.0	61.0	64.0
502, ppmvd (dry, 15% 02)	0.40	0.35	0.34	0.27	0.32	0.29	0.28	0.28	0.26	0.29	0.26
502, lb/h	0.29	0.21	0.17	0.18	0.17	0.16	0.13	0.13	0.15	0.14	0.11
502, lb/MBtu (LHV)	0.0023	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
502, lb/MBtu (HHV)	0.0020	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
STACK UHC EMISSIONSt											
UHC, ppmvd (dry, 15% 02)	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
UHC, ppmvd (dry)	12.6	11.7	10.9	12.9	11.9		11.1		13.1	12.1	11.4
UHC, ppmvw (wet)	11.8	11.0	10.3	12.0	11.1		10.4		11.9	11.0	10.4
UHC, lb/h as CH4	2.2	1.9	1.5	2.1	1.7	1.4	1.4	1.4	1.8	1.5	1.3
UHC, lb/MBtu (LHV) as CH4	0.0174	0.0174	0.0174	0.0174	0.0174	0.0174	0.0174	0.0174	0.0174	0.0174	0.0174
UHC, lb/MBtu (HHV) as CH4	0.0157	0.0157	0.0157	0.0157	0.0157	0.0157	0.0157	0.0157	0.0157	0.0157	0.0157
STACK VOC EMISSIONS WITHOUT THE EFFECT OF OXIDATION IN CO CATALYSTt											
VOC, ppmvd (dry, 15% 02)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
VOC, ppmvd (dry}	10.1	9.4	8.8	10.3	9.5		8.9		10.5	9.6	9.1
VOC, ppmvw (wet)	9.4	8.8	8.3	9.6	8.9		8.3		9.5	8.8	8.3
VOC, lb/h as CH4	1.8	1.5	1.2	1.6	1.4	1.1	1.1	1.1	1.5	1.2	1.0
VOC, lb/MBtu (LHV} as CH4	0.0139	0.0139	0.0139	0.0139	0.0139	0.0139	0.0139	0.0139	0.0139	0.0140	0.0140
VOC, lb/MBtu (HHV} as CH4	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0125	0.0126	0.0126	0.0126
t Note : includes VOC massflow added to match CTG manufacturer estimate.											
STACK VOC EMISSIONS WITH THE EFFECTS OF CATALYTIC REDUCTION {CO CATALYST											
VOC, ppmvd (dry, 15% 02)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
VOC, ppmvd (dry)	4.1	3.8	3.5	4.1	3.8		3.5		4.2	3.8	3.7
VOC, ppmvw (wet)	3.8	3.5	3.3	3.8	3.5		3.3		3.8	3.5	3.3

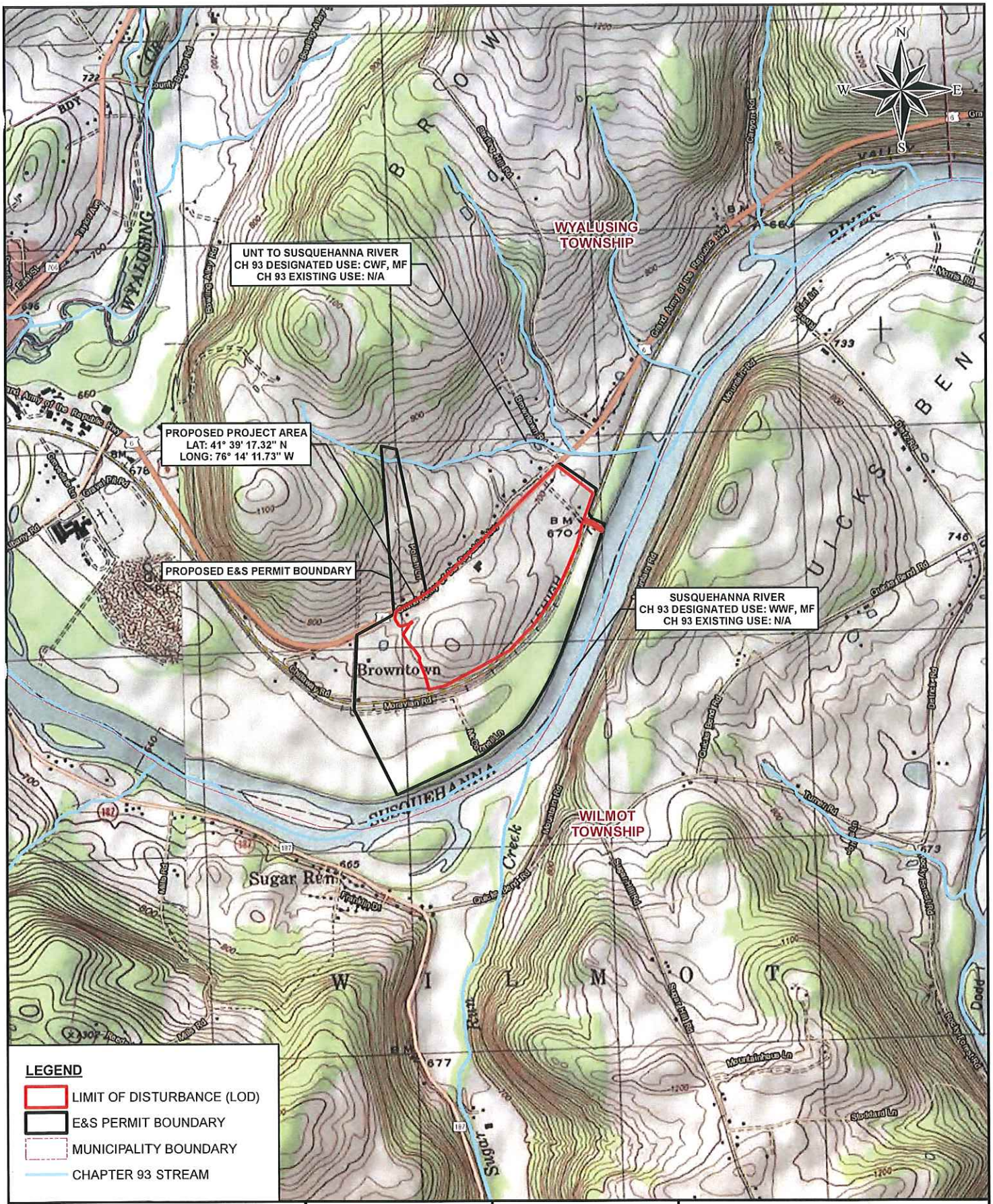
PROJECT NAME:Bradford County Real Estate Partners LLC
PROJECT NUMBER: 400165 | REVISION: C | DATE: 30-NOV-2018

CASE NUMBER	MAX	2	3	4	5	AVERAGE (2x)	6	AVERAGE (3x)	7	8	9
Ambient Dry Bulb Temperature ,• F	20.0	20.0	20.0	59.0	59.0	59.0	59.0	59.0	90.0	90.0	90.0
CTG load, percent of base load	100.0	75.0	50.0	100.0	75.0	75.0	50.0	50.0	100.0	75.0	50.0
VOC, lblh as CH4	0.7	0.6	0.5	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.4
VOC, lbiMBtu (LHV) as CH4	0.0053	0.0058	0.0058	0.0053	0.0059	0.0059	0.0057	0.0057	0.0054	0.0059	0.0055
VOC, lbiMBtu (HHV) as CH4	0.0048	0.0052	0.0052	0.0048	0.0053	0.0053	0.0051	0.0051	0.0049	0.0053	0.0049
t Note: includes VOC massf/ow added to match CTG manufacturer estimate.											
STACK PARTICULATE MATTER WITHOUT THE EFFECTS OF S02 OXIDATION											
PM / PM10 / PM2.5 {FRONT AND BACK HALF CATCH), lblh	1.4	1.2	0.9	1.4	1.2	1.2	0.9	0.9	1.3	1.1	0.9
PM / PM10 / PM2.5 {FRONT AND BACK HALF CATCH), lbiMBtu (LHV)	0.0109	0.0111	0.0102	0.0119	0.0123	0.0120	0.0111	0.0109	0.0124	0.0125	0.0123
PM / PM10 / PM2.5 (FRONT AND BACK HALF CATCH), lbiMBtu (HHV)	0.0098	0.0100	0.0092	0.0107	0.0111	0.0108	0.0100	0.0098	0.0111	0.0113	0.0111
STACK PARTICULATE MATTER WITH THE EFFECTS OF S02 OXIDATION											
PM / PM10 / PM2.5 {FRONT AND BACK HALF CATCH). lblh	1.89	1.68	1.31	2.03	1.67	1.72	1.33	1.34	1.88	1.56	1.30
PM / PM10 / PM2.5 {FRONT AND BACK HALF CATCH), lbiMBtu {LHV)	0.0148	0.0156	00148	0.0173	0.0172	0.0173	0.0164	0.0162	0.0179	0.0177	0.0178
PM / PM10 / PM2.5 {FRONT AND BACK HALF CATCH). lbiMBtu {HHV)	0.0133	0.0140	0.0133	0.0155	0.0154	0.0155	0.0148	0.0146	0.0161	0.0160	0.0160
STACK C02 EMISSIONS											
C02, lb h	16,354	13,777	11,279	15,039	12,462	12,711	10,306	10,512	13,409	11,200	9,360
C02, lbiMBtu {LHV)	128	128	128	128	128	128	128	128	128	128	128
C02, lbiMBtu {HHV)	115	115	115	115	115	115	115	115	115	115	115
C02e, lbiMbtu (HHV)	117.4	117.4	117.4	117.4	117.4	117.4	117.3	117.4	117.5	117.5	117.5
TOTAL EFFECTS OF 502 OXIDATION											
Total 502 to 503 conversion rate, %vol	45.0	52.0	54.0	63.0	57.0	61.0	62.0	62.0	65.0	61.0	64.0
Total Amount of 502 converted to 503, lblh	0.30	0.29	0.25	0.38	0.29	0.31	0.26	0.26	0.35	0.28	0.24
Maximum Stack Ammonium Sulfate [{NH4)2-(S04)] (assuming 100% conversion from S03), lblh	0.49	0.48	0.41	0.63	0.47	0.52	0.43	0.44	0.58	0.46	0.40
Maximum Stack Sulfur Mist [H2S04] (assuming 100% conversion from S03 to H2S04), lb h	0.37	0.36	0.30	0.47	0.35	0.38	0.32	0.32	0.43	0.34	0.30
POST COMBUSTION EMISSIONS CONTROL EQUIPMENT											
CATALYTIC CONVERSION IN CO CATALYST											
CO removed in CO Catalyst, %wt	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
CO removed in CO Catalyst, lblh	2.6	2.1	1.8	2.4	2.0	1.6	1.7	1.6	2.2	1.7	1.5
VOC removed in CO Catalyst, %wt	61.9	58.1	57.1	60.7	59.2	48.1	58.4	58.4	61.9	57.1	60.0
VOC removed in CO Catalyst, lblh	1.1	0.9	0.7	1.0	0.8	0.5	0.6	0.6	0.9	0.7	0.6
SELECTIVE CATALYTIC REDUCTION (SCR											
NOx Removed in SCR, %wt	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7
NOx removed in SCR, lb h	6.7	5.6	4.6	6.1	5.1	4.2	4.2	4.2	5.5	4.6	3.8
Ammonia Slip, lblh	1.9	1.6	13	1.7	1.4	1.2	1.2	1.2	16	1.3	1.1
NH3 Reagent Type	Aqueous {19%)	Aqueous { 19%)	Aqueous (19%)	Aqueous {19%)	Aqueous { 19%)	Aqueous {19%)	Aqueous {19%)	Aqueous (19%)	Aqueous {19%)	Aqueous {19%)	Aqueous {19%)
Assumed stoichiometric ratio for NH3 consumption	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Total NH3 Reagent Consumption, lblh	28	24	19	26	21	18	18	18	23	19	16

ATTACHMENT B

Figures

- **Topographic Location Map**
- **Process Flow Diagram**
- **Site Layout**



SCALE: 1"=2000'

TOPO SOURCE: SEAMLESS DIGITAL RASTER GRAPHIC-N.P.S. NATURAL PHYSICAL MAP & U.S.G.S TOPOGRAPHIC MAP 2013, NATIONAL GEOGRAPHIC SOCIETY, I-CUBED USGS QUADRANGLE: LACEYVILLE, PA

AECOM
715 WASHINGTON BOULEVARD
WILLIAMSPORT, PA 17701

BRADFORD COUNTY REAL ESTATE PARTNERS LLC
111 WEST 19TH STREET,
NEW YORK, NY 10011

NATURAL GAS PROCESSING PLANT

FIGURE 1
SITE LOCATION MAP

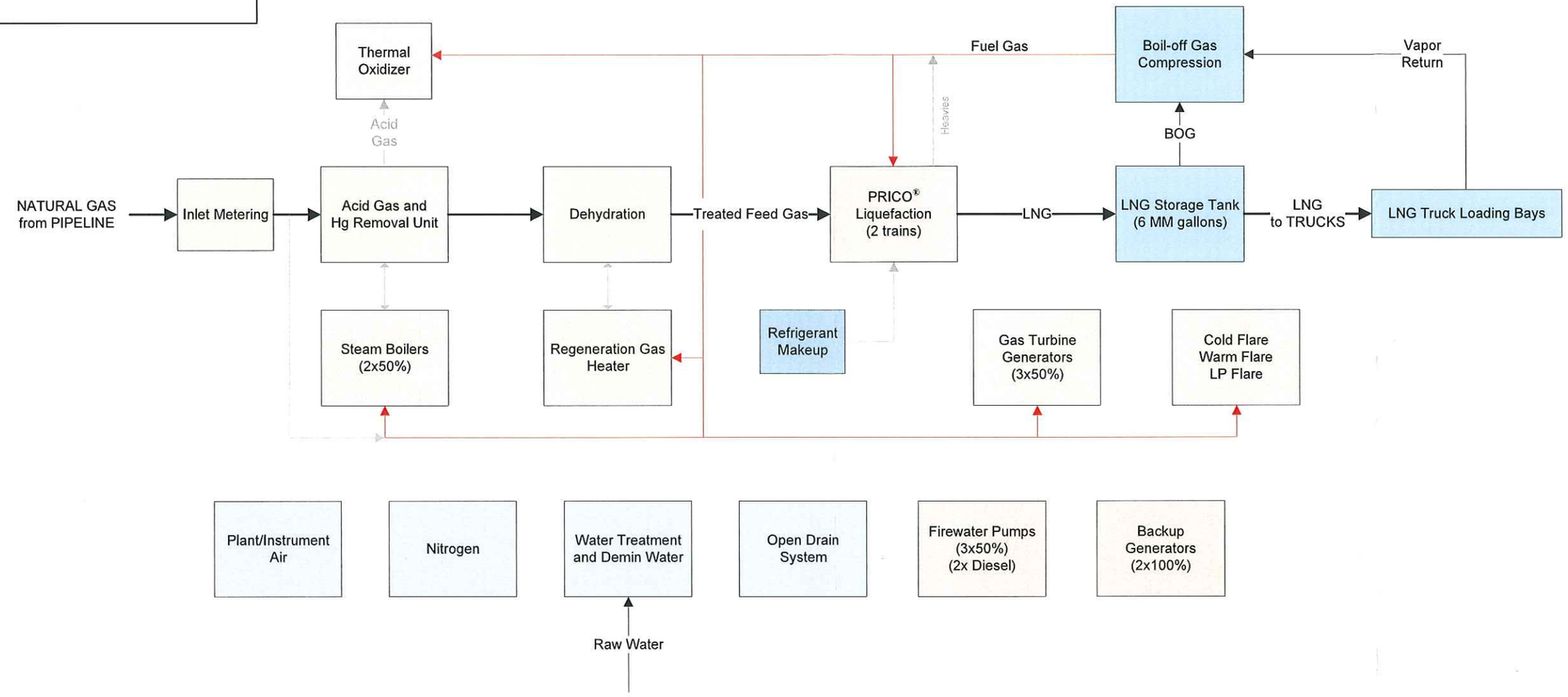
41° 39' 17.32" N and 76° 14' 11.73" W
WYALUSING TOWNSHIP,
BRADFORD COUNTY, PA

DRAWN BY: KFS

DATE: 12/7/2018

Natural Gas Processing
3MM GPD LNG

Simplified Block Flow Diagram



ITEM	FACILITY LEGEND
01	GAS ENGINES (THREE NUMBER)
02	PIPELINE METERING
03	GAS TREATING
04	LIQUEFACTION
05	PIPERACK
06	DELETED
07	BOG COMPRESSION AREA
08	REFRIGERANT MAKE-UP
09	EMERGENCY BACKUP GENERATOR
10	LNG STORAGE / PUMPS
11	LNG TRUCK/TANKER LOADING (18 LOADING STATIONS)
12	DELETED
13	UTILITIES
14	FIREWATER STORAGE/PUMPS
15	FLARE KO DRUMS
16	MULTI-POINT GROUND FLARE
17	FLARE EXCLUSION FENCE
18	HYDROCARBON IMPOUND BASIN
19	WETLANDS
20	WETLAND SET BACK
21	ROADS
22	DELETED
23	PARKING
24	SECURITY FENCE
25	TANKER STAGING
26	POND
27	SANITARY WATER PACKAGE
28	POWERHOUSE/TRANSFORMERS

ITEM	OCCUPIED BUILDING LEGEND
A	ADMIN BUILDING
B	WAREHOUSE
C	WORKSHOP
D	CONTROL BUILDING
E	GUARD HOUSE

200' 100' 0 300' 600'

1"=200'

CONFIDENTIAL

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

GIL62871
ATAS-028
10/25/14 10:37:09
D1
1=1
ACAD 18.2s (LMS Tech)

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
H	03OCT2018	ISSUED FOR CLIENT REVIEW	RVN	RM	SPH	JE	TA
G	20SEP2018	ISSUED FOR REVIEW	RVN	RM	–	JE	BAB
F	17AUG2018	ISSUED FOR REVIEW	RVN	RM	–	JE	BAB
E	02AUG2018	ISSUED FOR REVIEW	RVN	RM	–	JE	BAB
D	20JUL2018	ISSUED FOR REVIEW	RVN	RM	–	JE	BAB
C	19JUL2018	ISSUED FOR REVIEW	RVN	RM	–	JE	BAB
B	17JUL2018	ISSUED FOR REVIEW	RVN	RM	–	JE	BAB
A	25JUN2018	ISSUED FOR REVIEW	RGG	RGG	–	JE	BAB

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF

SIGNED:

DATE: REG NO.

BLACK & VEATCH

ENGINEER	JE	DRAWN	RGG
CHECKED	–	DATE	17AUG2018

NEW FORTRESS ENGERGY

LIBERTY LOGISTICS CENTER LNG FACILITY
SITE LAYOUT – 3mmtpa – FULL CONTAINMENT TANK

PROJECT	DRAWING NUMBER	REV
905703-3155-G2000		H
CODE		
AREA		

ATTACHMENT C

PADEP Application Forms

- **General Information Form**
- **Plan Approval Forms**
- **Air Pollution Control Act Compliance Review**

General Information Form

RECEIVED
DEC 10 2018
AIR QUALITY

0210-PM-PIO0001 4/2018
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

Related ID#s (If Known)		DEP USE ONLY
Client ID#	APS ID#	Date Received & General Notes
Site ID#	Auth ID#	
Facility ID#		

CLIENT INFORMATION

DEP Client ID#	Client Type / Code
	LLC

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#
Bradford County Real Estate Partners LLC		

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2
111 West 19th Street	8th Floor

Address Last Line – City	State	ZIP+4	Country
New York	NY	10011	USA

Client Contact Last Name	First Name	MI	Suffix
McElmurray	Brannen		

Client Contact Title	Phone	Ext
Chief Development Officer	516-268-7413	

Email Address	FAX
BMcElmurray@newfortressenergy.com	

SITE INFORMATION

DEP Site ID#	Site Name
	Natural Gas Processing Plant

EPA ID#	Estimated Number of Employees to be Present at Site	50

Description of Site

Bradford County Real Estate Partners LLC ("BCRP") is planning to build and operate a natural gas processing facility. The proposed natural gas processing facility will receive local natural gas transported by pipeline; process this natural gas by removing heavier hydrocarbons, such as ethene and propane, as well as certain impurities such as mercury and sulfur, in order to meet the requirements for various commercial uses; cool the natural gas to below its condensation point to obtain a liquefied quality appropriate for distribution to commercial markets; and load the liquefied natural gas for distribution to commercial markets by truck and rail.

County Name	Municipality	City	Boro	Twp	State
Bradford	Wyalusing	☐	☐	☒	PA
County Name	Municipality	City	Boro	Twp	State
		☐	☐	☐	

Site Location Line 1	Site Location Line 2

Site Location Last Line – City	State	ZIP+4

Detailed Written Directions to Site

From Wyalusing Borough, head east on state route 6 approximately 2 miles. The site will be on the right.

Site Contact Last Name	First Name	MI	Suffix

Site Contact Title	Site Contact Firm

Mailing Address Line 1	Mailing Address Line 2
Mailing Address Last Line – City	State ZIP+4
Phone Ext FAX	Email Address
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)

Client to Site Relationship
Owner

FACILITY INFORMATION

Modification of Existing Facility	Yes	No
1. Will this project modify an existing facility, system, or activity?	☐	☒
2. Will this project involve an addition to an existing facility, system, or activity?	☐	☒

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	DEP Fac ID#		Facility Type	DEP Fac ID#
☐	Air Emission Plant		☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	Mine Drainage Trmt/Land Recy Proj Location	
☐	Coal Ash Beneficial Use Operation		☐	Municipal Waste Operation	
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Oil & Gas Wastewater Storage Impoundment	
☐	Deep Mine Safety Operation -Anthracite		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Bituminous		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Residual Waste Operation	
☐	Encroachment Location (water, wetland)		☐	Storage Tank Location	
☐	Erosion & Sediment Control Facility		☐	Water Pollution Control Facility	
☐	Explosive Storage Location		☐	Water Resource	
			☐	Other:	

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
	41	39	17.32	-76	14	11.73

Horizontal Accuracy Measure	Feet	--or--	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☒ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code	EMAP		
Reference Point Code			
Altitude	Feet	--or--	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			
Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

PROJECT INFORMATION

Project Name
Natural Gas Processing Plant

Project Description
Bradford County Real Estate Partners LLC ("BCRP") is planning to build and operate a natural gas processing facility. The proposed natural gas processing facility will receive local natural gas transported by pipeline; process this natural gas by removing heavier hydrocarbons, such as ethene and propane, as well as certain impurities such as mercury and sulfur, in order to meet the requirements for various commercial uses; cool the natural gas to below its

condensation point to obtain a liquefied quality appropriate for distribution to commercial markets; and load the liquefied natural gas for distribution to commercial markets by truck and rail.

Project Consultant Last Name	First Name	MI	Suffix
Byler	Jefferson		

Project Consultant Title	Consulting Firm
Project Manager	AECOM

Mailing Address Line 1	Mailing Address Line 2
715 Washington Boulevard	

Address Last Line – City	State	ZIP+4
Williamsport	PA	17701

Phone	Ext	FAX	Email Address
570-505-1674	204	570-505-1682	jefferson.byler@aecom.com

Time Schedules	Project Milestone (Optional)

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** ☒ Yes ☐ No

2. **Is your project funded by state or federal grants?** ☐ Yes ☒ No
   Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
   Aspect of Project Related to Grant
   Grant Source: _____
   Grant Contact Person: _____
   Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** ☒ Yes ☐ No
   Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
   If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

Note: Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1. **Is there an adopted county or multi-county comprehensive plan?** ☒ Yes ☐ No
2. **Is there an adopted municipal or multi-municipal comprehensive plan?** ☒ Yes ☐ No
3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** ☒ Yes ☐ No
   Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
   If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.
4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** If zoning approval has been received, attach documentation. ☒ Yes ☐ No
5. **Have you attached Municipal and County Land Use Letters for the project?** ☒ Yes ☐ No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 and the accompanying Cultural Resource Notice Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	☐	Yes	☒	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?**	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?**	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?**	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?**	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	☐	Yes	☒	No
2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?**	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?**	☐	Yes	☐	No
2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?**	☐	Yes	☐	No
2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No

3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	☐	Yes	☒	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?**	☐	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*.	☐	Yes	☐	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☐	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage. **4.0.1 Total Disturbed Acreage** 119.4	☒	Yes	☐	No
5.0	**Does the project involve any of the following?** If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	☒	Yes	☐	No
5.1	**Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?**	☒	Yes	☐	No
5.2	**Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?**	☒	Yes	☐	No
5.3	**Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?**	☐	Yes	☒	No
6.0	**Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?**	☒	Yes	☒	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☒	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. **8.0.1 Estimated Proposed Flow (gal/day)**	☐	Yes	☒	No
9.0	**Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?**	☐	Yes	☒	No
	9.0.1 Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	☐	Yes	☐	No
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). **10.0.1 Gallons Per Year (residential septage)** _____ **10.0.2 Dry Tons Per Year (biosolids)**	☐	Yes	☒	No

11.0 **Does the project involve construction, modification or removal of a dam?** ☐ Yes ☒ No
If "Yes", identify the dam.
11.0.1 Dam Name

12.0 **Will the project interfere with the flow from, or otherwise impact, a dam?** ☐ Yes ☒ No
If "Yes", identify the dam.
12.0.1 Dam Name

13.0 **Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?** If "Yes", identify each type of emission followed by the amount of that emission. ☒ Yes ☐ No

13.0.1 Enter all types & amounts of emissions; separate each set with semicolons.

Facility will be a minor source for all pollutants with levels less than following:

- Nitrogen Oxides (NOX) – 100 tons;
- Carbon Monoxide (CO) – 100 tons;
- Sulfur Oxides (SOX) – 100 tons;
- Particulate Matter – 100 tons;
- Volatile Organic Compounds (VOC) – 50 tons;
- Individual Hazardous Air Pollutant (HAP) – 10 tons; and
- Total Hazardous Air Pollutants (HAP) – 25 tons

14.0 **Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year?** If "Yes", check all proposed sub-facilities. ☒ Yes ☐ No

14.0.1 Number of Persons Served
14.0.2 Number of Employee/Guests 50
14.0.3 Number of Connections

14.0.4	**Sub-Fac: Distribution System**	☐ Yes	☐ No
14.0.5	**Sub-Fac: Water Treatment Plant**	☐ Yes	☐ No
14.0.6	**Sub-Fac: Source**	☐ Yes	☐ No
14.0.7	**Sub-Fac: Pump Station**	☐ Yes	☐ No
14.0.8	**Sub Fac: Transmission Main**	☐ Yes	☐ No
14.0.9	**Sub-Fac: Storage Facility**	☐ Yes	☐ No

15.0 **Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?** ☐ Yes ☒ No

16.0 **Is your project to be served by an existing public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project. ☐ Yes ☒ No

16.0.1 Supplier's Name
16.0.2 Letter of Approval from Supplier is Attached ☐ Yes ☐ No

17.0 **Will this project involve a new or increased drinking water withdrawal from a stream or other water body?** If "Yes", should reference both Water Supply and Watershed Management. ☐ Yes ☒ No

17.0.1 Stream Name

18.0 **Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed. ☒ Yes ☐ No

18.0.1 Type & Amount Disposal of sewage approx. 1000 gal/day. Residual waste from 50 employees per day

19.0 **Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?** ☐ Yes ☒ No

20.0 **Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. ☒ Yes ☐ No

20.0.1 Enter all substances & capacity of each; separate each set with semicolons. 3- Sewage Storage Tanks – Total 5,000 gallons

21.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **21.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
22.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **22.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
23.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **23.0.1 Enter all substances & capacity of each; separate each set with semicolons.** 1 – Liquid Natural Gas – 6 million gallons 2 – Firewater – 1.7 million gallons each	☒	Yes	☐	No
24.0	**Will the intended activity involve the use of a radiation source?**	☐	Yes	☒	No

CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Type or Print Name Brannen McElmurray

Signature	Title	Date
	Chief Development Officer	12/07/2018

Plan Approval Forms

2700-PM-AQ0007 Rev. 7/2004

Submit in Triplicate

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

RECEIVED
DEC 10 2018
AIR QUALITY

PROCESSES

Application for Plan Approval to Construct, Modify or Reactivate an Air Contamination Source and/or Install an Air Cleaning Device

This application must be submitted with the General Information Form (GIF).

Before completing this form, read the instructions provided for the form.

Section A - Facility Name, Checklist And Certification

Organization Name or Registered Fictitious Name/Facility Name: Bradford County Real Estate Partners LLC

DEP Client ID# (if known): _____

Type of Review required and Fees:

- ☐ Source which is not subject to NSPS, NESHAPs, MACT, NSR and PSD: ..... $_____
- ☒ Source requiring approval under NSPS or NESHAPS or both: $3,400.00
- ☐ Source requiring approval under NSR regulations: ..... $_____
- ☐ Source requiring the establishment of a MACT limitation: ..... $_____
- ☐ Source requiring approval under PSD: ..... $_____

Applicant's Checklist

Check the following list to make sure that all the required documents are included.

- ☒ **General Information Form (GIF)**
- ☒ **Processes Plan Approval Application**
- ☒ **Compliance Review Form** or provide reference of most recently submitted compliance review form for facilities submitting on a periodic basis: _____
- ☒ **Copy and Proof of County and Municipal Notifications**
- ☒ **Permit Fees**
- ☐ **Addendum A:** Source Applicable Requirements (only applicable to existing Title V facility)

Certification of Truth, Accuracy and Completeness by a Responsible Official

I, **Brannen McElmurray**, certify under penalty of law in 18 Pa. C. S. A. §4904, and 35 P.S. §4009(b) (2) that based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate and complete.

(Signature): _____ Date: 12/7/2018

Name (Print): Brannen McElmurray Title: Authorized Signatory

OFFICIAL USE ONLY

Application No. _____ Unit ID _____ Site ID _____

DEP Client ID #: _____ APS. ID _____ AUTH. ID _____

Date Received _____ Date Assigned _____ Reviewed By _____

Date of 1st Technical Deficiency _____ Date of 2nd Technical Deficiency _____

Comments: _____

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.
The refrigerant compressor gas turbines are direct drive simple-cycle turbines Two Identical Units.

Manufacturer	Model No.	Number of Sources
General Electric	LM6000PF+	2
Source Designation	Maximum Capacity	Rated Capacity
	509.2 MMBtu/hr	461.1 MMBtu/hr at59F

Type of Material Processed

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
509.2 MMBtu/hr			

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Seasonal variations (Months) From to

If variations exist, describe them

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	1.25 grain/100 SCF		1020 Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
GE	LM6000	

Description:
Dry Low NOx type

Rated Capacity	Maximum Capacity

4. Process Storage Vessels – N/A

A. For Liquids:

Name of material stored

Tank I.D. No.	Manufacturer	Date Installed

Maximum Pressure	Capacity (gallons/Meter^3)

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)

Type of Roof: Describe:

Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):

B. For Solids – N/A

Type: ☐ Silo ☐ Storage Bin ☐ Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality – N/A

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☐ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information –

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

See application text Section 1 to 4 for Data

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

CEMS will be installed for O2, NOx, and CO. Calibrated natural gas fuel flow orifices will provide input flow rates. Emissions of VOC, SO2, PM, and GHGs will be calculated based on fuel flow, fuel test results, and emission factors or stack test data.

Describe each proposed modification to an existing source.

NA

'dentify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

There are no fugitive emission points associated with the CT.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

Emissions are minimized during startups, shutdowns, process upsets and/or disruptions by following the OEM's recommended procedures for these events.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: _____
ii. Expected completion date of construction/reconstruction/installation: _____
iii. Anticipated date of start-up: _____

Section C - Air Cleaning Device

Table A-2 contains pre and post control emission levels

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

Section C - Air Cleaning Device (Continued)

10. ☒ **Selective Catalytic Reduction (SCR)**
☐ **Selective Non-Catalytic Reduction (SNCR)**
☐ **Non-Selective Catalytic Reduction (NSCR)**

Equipment Specifications

Manufacturer	Type	Model No.
TBD	TBD	TBD

Design Inlet Volume (SCFM)	Design operating temperature (°F)
679,532 ACFM	945

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., ammonia slip)
See Attachment A for detailed calculations and assumptions

Operating Parameters

Volume of gases handled 679,532 (ACFM) @ 945 °F

Operating temperature range for the SCR/SNCR/NSCR system (°F) From _____ °F To _____ °F

Reducing agent used, if any	Oxidation catalyst used, if any
Ammonia	Yes

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm)
	10 ppmvd @ 15% O2

Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.
SCR and Oxidation Catalyst will be equipped with alarms to ensure proper operation (high/low temperatures, etc.)

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)
See Table A-2			

Section C - Air Cleaning Device (Continued)

11. Oxidizer/Afterburners

Equipment Specifications

Manufacturer	Type ☐ Thermal ☒ Catalytic	Model No.
TBD		
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	

Describe design features, which will ensure mixing in combustion chamber.

Describe method of preheating incoming gases (if applicable).	Describe heat exchanger system used for heat recovery (if applicable).

Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____

Are temperature sensing devices being provided to measure the temperature rise across the catalyst? ☒ Yes ☐ No

If yes, describe.

Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch.

Burner Information - NA

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)

Describe the operation of the burner	Attach dimensioned diagram of afterburner

Operating Parameters

Inlet flow rate (ACFM) _____ @ _____°F	Outlet flow rate (ACFM) _____ @ _____°F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data – SEE Appendix A and Table A-2

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

14. Costs

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Annual Operating Cost

15. Miscellaneous

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

N/A

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

SEE Attachment A

Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase air contaminant emissions.

TBD – per manufacturer recommendations

Section D - Additional Information

Will the construction, modification, etc. of the sources covered by this application increase emissions from other sources at the facility? If so, describe and quantify.

Yes, new facility. – See Table A-1

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52?	☐ YES	☒ NO
b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E?	☐ YES	☒ NO
c. New Source Performance Standards (NSPS), 40 CFR Part 60? (If Yes, which subpart) KKKK	☒ YES	☐ NO
d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____	☐ YES	☒ NO
e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? (If Yes, which part) _____	☐ YES	☒ NO

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

Section 4 of Application text

Provide emission increases and decreases in allowable (or potential) and actual emissions within the last five (5) years for applicable PSD pollutant(s) if the facility is an existing major facility (PSD purposes).

See Table A-1

Section D - Additional Information (Continued)

Indicate emission increases and decreases in tons per year (tpy), for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for NSR applicability since January 1, 1991 or other applicable dates (see other applicable dates in instructions). The emissions increases include all emissions including stack, fugitive, material transfer, other emission generating activities, quantifiable emissions from exempted source(s), etc.

Permit number (if applicable)	Date issued	Indicate ***Yes*** or ***No*** if emission increases and decreases were used previously for netting	Source I. D. or Name	VOCs		NOx	
				Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)	Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)

New facility, see Table A-1

If the source is subject to 25 Pa. Code Chapter 127, Subchapter E, New Source Review requirements,

a. Identify Emission Reduction Credits (ERCs) for emission offsets or demonstrate ability to obtain suitable ERCs for emission offsets.

b. Provide a demonstration that the lowest achievable emission rate (LAER) control techniques will be employed (if applicable).

c. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs (if applicable).

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III and applicable requirements of the Clean Air Act adopted thereunder The Department may request additional information to evaluate the application such as a standby plan, a plan for air pollution emergencies, air quality modeling, etc.

Section E - Compliance Demonstration

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below

See Section 3, Regulatory Discussion.

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

Section F - Flue and Air Contaminant Emission

Estimated Atmospheric Emissions* See Table A-2

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack:

Stack height above grade (ft.) 75 Grade elevation (ft.)	Stack diameter (ft) or Outlet duct area (sq. ft.) 12.0	f. Weather Cap ☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack exhaust
Volume 679,532 ACFM Temperature 945 °F Moisture _____ %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

Exhauster (attach fan curves) _____ in. of water _____ HP @ _____RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

NOTE – To reduce the number of redundant pages, we have only included the Pages specific to the individual sources addressed in the PADEP form. Any information regarding Project as a whole that has been addressed in the above forms is not included.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.
Gas combustion turbine - Three Identical Units

Manufacturer	Model No.	Number of Sources
Siemens Industria Turbomachinery	SGT-400 TBC	3
Source Designation	Maximum Capacity 142.4MMBtu/hr	Rated Capacity 142.4MMBtu/hr

Type of Material Processed
Gas

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
142.4 MMBtu/hr	3,417 MMBtu/day	23,923 MMBtu/week	1,244,006 MMBtu/year

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Seasonal variations (Months) From to

If variations exist, describe them

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	1.25 grain/100 SCF		1020 Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
Siemens or Equivalent	**SGT-400 or equivalent**	

Description:

Rated Capacity	Maximum Capacity

4. Process Storage Vessels – N/A

A. For Liquids:

Name of material stored

Tank I.D. No.	Manufacturer	Date Installed

Maximum Pressure	Capacity (gallons/Meter^3)

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)

Type of Roof: Describe:

Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):

B. For Solids – N/A

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality – N/A

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☐ No
f yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information –

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

See application text Section 1 to 4 for Data

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

CEMS will be installed for O2, NOx, and CO. Calibrated natural gas fuel flow orifices will provide input flow rates. Emissions of VOC, SO2, PM, and GHGs will be calculated based on fuel flow, fuel test results, and emission factors or stack test data.

Describe each proposed modification to an existing source.

NA

'dentify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

There are no fugitive emission points associated with the CT.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

Emissions are minimized during startups, shutdowns, process upsets and/or disruptions by following the OEM's recommended procedures for these events.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: _____
ii. Expected completion date of construction/reconstruction/installation: _____
iii. Anticipated date of start-up: _____

Section C - Air Cleaning Device

1. Precontrol Emissions* See Table A-3

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

Section C - Air Cleaning Device (Continued)

10. ☒ **Selective Catalytic Reduction (SCR)**
☐ **Selective Non-Catalytic Reduction (SNCR)**
☐ **Non-Selective Catalytic Reduction (NSCR)**

Equipment Specifications

Manufacturer	Type	Model No.
TBD	TBD	TBD

Design Inlet Volume (SCFM)	Design operating temperature (°F)
166,392	961

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., ammonia slip)

Operating Parameters

Volume of gases handled 166,392 (ACFM) @ 961 °F

Operating temperature range for the SCR/SNCR/NSCR system (°F) From _____ °F To _____ °F

Reducing agent used, if any	Oxidation catalyst used, if any
Ammonia	Yes

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm)
	Ammonia slip will be limited to 10 ppmvd @ 15% O2.

Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

SCR and Oxidation Catalyst will be equipped with alarms to ensure proper operation (high/low temperatures, etc.)

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)
See Table A-3			

Section C - Air Cleaning Device (Continued)

11. Oxidizer/Afterburners

Equipment Specifications

Manufacturer	Type ☐ Thermal ☒ Catalytic	Model No.
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	
Describe design features, which will ensure mixing in combustion chamber.		
Describe method of preheating incoming gases (if applicable).	Describe heat exchanger system used for heat recovery (if applicable).	

Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____

Are temperature sensing devices being provided to measure the temperature rise across the catalyst? ☐ Yes ☐ No

If yes, describe.

Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch.

Burner Information - NA

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)
Describe the operation of the burner	Attach dimensioned diagram of afterburner	

Operating Parameters

Inlet flow rate (ACFM) _____ @ _____°F	Outlet flow rate (ACFM) _____@ _____°F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.
Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.	

Emissions Data – SEE Appendix A and Table A-3

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

14. Costs

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Annual Operating Cost

15. Miscellaneous

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

N/A

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

TBD

Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase air contaminant emissions.

TBD

Section D - Additional Information

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☒ YES ☐ NO
(If Yes, which subpart) KKKK

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____ ☐ YES ☒ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which part) _____

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

See Section 4 Application Text.

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III and applicable requirements of the Clean Air Act adopted thereunder The Department may request additional information to evaluate the application such as a standby plan, a plan for air pollution emergencies, air quality modeling, etc.

Section E - Compliance Demonstration

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below

See Section 3, Regulatory Discussion.

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* See Table A-3

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack:

Stack height above grade (ft.) 50 Grade elevation (ft.)	Stack diameter (ft) or Outlet duct area (sq. ft.) 3.0	f. Weather Cap ☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack exhaust
Volume 166,692 ACFM Temperature 961 °F Moisture _____ %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

Exhauster (attach fan curves) _____ in. of water _____ HP @ _____RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section B - Combustion Unit Information

1. Combustion Units: ☐ Coal ☐ Oil ☒ Natural Gas Other: _____

Description: Steam boilers used to produce steam which is used to heat the amine solution to strip out acid gases removed from the pipeline feed gas - Two Identical Units.

Manufacturer	Model No.	Number of units	
TBD	TBD	2	
Maximum heat input (Btu/hr)	Rated heat input (Btu/hr)	Typical heat input (Btu/hr)	Furnace Volume
58.2 MMBtu/hr	58.2 MMBtu/h	58.2 MMBtu/h	
Grate Area (if applicable)		Method of firing	

Indicate how combustion air is supplied to boiler

Indicate the Steam Usage:

Mark and describe soot Cleaning Method:

i. Air Blown
ii. Steam Blown
iii. Brushed and Vacuumed
iv. Other N/A Natural Gas
v. Frequency of Cleaning _____

Maximum Operating schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions taken or requested, if any (e.g., bottlenecks or voluntary restrictions to limit potential to emit)

Capacity (specify units)

Per hour	Per day	Per week	Per year
24	7	365	8,760

Typical Operating schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Seasonal variations (Months): If variations exist, describe them.

Operating using primary fuel: _____ From _____ to _____
Operating using secondary fuel: _____ Form _____ to _____
Non-operating: From _____ to _____

2. Specify the primary, secondary and startup fuel. Furnish the details in item 3.

Section B - Combustion Unit Information (Continued)

3. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 Gal	1.25 gr/100 SCF		1020 Btu/SCF
Gas (other)	SCFH	X 10^6 Gal	gr/100 SCF		Btu/SCF
Coal					
Other*					

* Note: Describe and furnish information separately for other fuels in Addendum B.

4. Burner

Manufacturer	Model Number	Type of Atomization (Steam, air, press, mech., rotary cup)
TBD		

Number of Burners	Maximum fuel firing rate (all burners)	Normal fuel firing rate

If oil, temperature and viscosity.

Maximum theoretical air requirement

Percent excess air 100% rating

Turndown ratio

Combustion modulation control (on/off, low-high fire, full automatic, manual). Describe.

Main burner flame ignition method (electric spark, auto gas pilot, hand-held torch, other). Describe.

5. Nitrogen Oxides (NO_x) control Options

Mark and describe the NO_x control options adopted

Low excess air (LEA)	Flue gas recirculation	Other._____
Over fire air (OFA)	Burner out of service	
Low-NO_x burner	Reburning	
Low NO_x burners with over fire air	Flue gas treatment (SCR / SNCR)	

Section B - Combustion Unit Information (Continued)

3. Miscellaneous Information

Describe fly ash reinjection operation

N/A

Describe, in detail, the equipment provided to monitor and to record the source(s) operating conditions, which may affect emissions of air contaminants. Show that they are reasonable and adequate.

TBD

Describe each proposed modification to an existing source.

N/A

Describe how emissions will be minimized especially during start up, shut down, combustion upsets and/or disruptions. Provide emission estimates for start up, shut down and upset conditions. Provide duration of start up and shut down.

Use of flue gas recirulation and selective catalytic reduction (SCR), and Oxidation Catalyst.

Describe in detail with a schematic diagram of the control options adopted for SO_2 (if applicable).

N/A - Natural Gas

Anticipated milestones:

Expected commencement date of construction/reconstruction: _____
Expected completion date of construction/reconstruction: _____
Anticipated date(s) of start-up: _____

Section C - Air Cleaning Device

7. **Precontrol Emissions*** **See Table A-4**

Emission Rate

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SOx					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----		-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

Section C - Air Cleaning Device (Continued)

8. ☒ **SELECTIVE CATALYTIC REDUCTION (SCR)**
   ☐ **SELECTIVE NON-CATALYTIC REDUCTION (SNCR)**
   ☐ **NON-SELECTIVE CATALYTIC REDUCTION (NSCR)**

Equipment specifications

Manufacturer	Type	Model No
TBD	TBD	TBD

Design inlet volume (SCFM)	Design operating temperature (°F)
25,048 ACFM	616

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., Ammonia, urea slip).
The SCR system will reduce the NOx emissions to less than 0.0074 lb/MMBtu. An ammonia slip will exist.

Operating parameters

Volume of gases handled (ACFM) 25,048 @ 616 (°F)

Operating temperature range for the SCR/SNCR/NSCR system (°F) From To

Reducing agent used, if any. Ammonia	Oxidation catalyst used, if any. Yes

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm) Ammonia slip will be limited to 10 ppmvd @ 3% O2.

Describe fully with a sketch giving locations of equipment, controls system, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

SCR and Oxidation Catalyst will be equipped with alarms to ensure proper operation (high/low temperatures, etc.)

Emissions data - See Table A-4

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

11. Oxidizer/Afterburners

Equipment Specifications

Manufacturer	Type ☐ Thermal ☒ Catalytic	Model No.
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	

Describe design features, which will ensure mixing in combustion chamber.

Describe method of preheating incoming gases (if applicable).	Describe heat exchanger system used for heat recovery (if applicable).

Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____

Are temperature sensing devices being provided to measure the temperature rise across the catalyst? ☐ Yes ☐ No

If yes, describe.

Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch.

Burner Information - NA

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)

Describe the operation of the burner	Attach dimensioned diagram of afterburner

Operating Parameters

Inlet flow rate (ACFM) _____ @ _____°F	Outlet flow rate (ACFM) _____@ _____°F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data – SEE Appendix A and Table A-4

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

10. Costs

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Operating Cost

11 MISCELLANEOUS

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

N/A

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

TBD

ch the maintenance schedule for the control equipment and any part of the process equipment that, if in disrepair, would increase air contaminant emissions.

TBD

Section D - Additional Information

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards

a. Prevention of Significant Deterioration permit (PSD), 40 CFR Part 52? ☐ YES ☒ NO

b. New Source Review, 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards, 40 CFR Part 60? ☒ YES ☐ NO
(If Yes, which subpart) **Subpart Dc**

d. National Emissions Standards for Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61? ☐ YES ☒ NO
If Yes, which subpart) _____

e. Maximum Achievable Control Technology (MACT), 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which subpart) _____

Attach a demonstration showing that the emissions from any new source will be the minimum attainable through the use of best available technology (BAT).

See Section 4 of Application Text

Section E - Compliance Demonstration

Note: Complete this section if the facility is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below.

See Section 3, Regulatory Discussion.

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (stack test, CEM etc.):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method Citation:

b. Reference Test Method Description:

Recordkeeping:

Describe the parameters that will be recorded and the recording frequency:

Reporting:

a. Describe the type of information to be reported and the reporting frequency:

b. Reporting start date:

Work Practice Standard: Describe each

Section F - Flue and Air Contaminant Emission

1. Estimated Maximum Emissions* See Table A-4

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number

List Source(s) or source ID exhausted to this stack: | % of flow exhausted to stack:

Stack height above grade (ft.) 50
Grade elevation (ft.)

Stack diameter (ft) or Outlet duct area (sq. ft.)
3.0

Weather Cap ☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of Stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack Exhaust

Volume 25,048 ACFM Temperature 616 °F Moisture _____%

Exhauster (attach fan curves) _____ in. of water _____ HP @ _____RPM.

** If the datum and collection method information and codes differ from those provided on the General Information Form - Authorization Application, provide the additional required by that form on a separate sheet.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.
Thermal Oxidizer

Manufacturer	Model No.	Number of Sources
TBD	TBD	1
Source Designation	Maximum Capacity 42.8 MMBtu/hr	Rated Capacity 58.5 MMBtu/hr

Type of Material Processed

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
42.8 MMBtu/hr	1,027 MMBtu/day		374,928 MMBtu/

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Seasonal variations (Months) From to

If variations exist, describe them

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	1.25 grain/100 SCF		1020 Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
TBD	TBD	

Description:

Rated Capacity	Maximum Capacity

4. Process Storage Vessels

A. For Liquids: – N/A

Name of material stored

Tank I.D. No.	Manufacturer	Date Installed

Maximum Pressure	Capacity (gallons/Meter^3)

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)

Type of Roof: Describe:

Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):

B. For Solids – N/A

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality – N/A

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☐ No
f yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information – See application text section 1 to 4.

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

Describe each proposed modification to an existing source.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: _____
ii. Expected completion date of construction/reconstruction/installation: _____
iii. Anticipated date of start-up: _____

Section C - Air Cleaning Device

1. Precontrol Emissions* See Table A-7

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

Section D - Additional Information

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☐ YES ☒ NO
(If Yes, which subpart) _____

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____ ☐ YES ☒ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which part) _____

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

See Section 4 of Application text

Section E - Compliance Demonstration

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below

See Section 3, Regulatory Discussion

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* See Table A-7

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack:

Stack height above grade (ft.) 75 Grade elevation (ft.)	Stack diameter (ft) or Outlet duct area (sq. ft.) 6.0	f. Weather Cap ☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack exhaust
Volume 102,084 ACFM Temperature 1,600 °F Moisture _____ %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

Exhauster (attach fan curves) _____ in. of water _____ HP @ _____RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.
Regenerative Heater

Manufacturer	Model No.	Number of Sources
TBD	TBD	1
Source Designation	Maximum Capacity	Rated Capacity
	36.6 MMBtu/hr	36.6 MMBtu/hr

Type of Material Processed

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	7	365	8,760

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
36.6 MMBtu/hr	871.2 MMBtu/day	6,098.4 MMBtu/week	317,116.8 MMBtu/year

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
27	7	365	8,760

Seasonal variations (Months) From to

If variations exist, describe them

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
TBD	TBD	

Description:

Rated Capacity	Maximum Capacity

4. Process Storage Vessels – N/A

A. For Liquids:

Name of material stored

Tank I.D. No.	Manufacturer	Date Installed

Maximum Pressure	Capacity (gallons/Meter^3)

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)

Type of Roof: Describe:

Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):

B. For Solids– N/A

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality – N/A

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☐ No
f yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information – See application text – Section 1 to 4

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

Describe each proposed modification to an existing source.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: _____
ii. Expected completion date of construction/reconstruction/installation: _____
iii. Anticipated date of start-up: _____

Section C - Air Cleaning Device

1. Precontrol Emissions* See Table A-5

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

Section D - Additional Information

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☐ YES ☒ NO
(If Yes, which subpart) _____

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____ ☐ YES ☒ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which part) _____

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

See Section 4 of Application text

Section E - Compliance Demonstration

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below.

See application text – Section 1 to 4

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* See Table A-5

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack:

Stack height above grade (ft.) 85 Grade elevation (ft.)	Stack diameter (ft) or Outlet duct area (sq. ft.) 4.0	f. Weather Cap ☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack exhaust
Volume 12,604 ACFM Temperature 493 °F Moisture _____ %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

Exhauster (attach fan curves) _____ in. of water _____ HP @ _____RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.
Backup Generators

Manufacturer	Model No.	Number of Sources
TBD	TBD	2
Source Designation	Maximum Capacity	Rated Capacity
	4423 hp	4423 hp

Type of Material Processed

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
			100

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
4,423 hp			

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
			100

Seasonal variations (Months) From to

If variations exist, describe them

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
TBD	TBD	

Description:

Rated Capacity	Maximum Capacity

4. Process Storage Vessels –

A. For Liquids:

Name of material stored

Diesel Fuel Tank

Tank I.D. No.	Manufacturer	Date Installed

Maximum Pressure	Capacity (gallons/Meter^3)

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)

Type of Roof: Describe:

Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):

B. For Solids– N/A

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality – N/A

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☐ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information See application text – sections 1 to 4

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

Describe each proposed modification to an existing source.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: _____
ii. Expected completion date of construction/reconstruction/installation: _____
iii. Anticipated date of start-up: _____

Section D - Additional Information

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52?	☐ YES	☒ NO
b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E?	☐ YES	☒ NO
c. New Source Performance Standards (NSPS), 40 CFR Part 60? (If Yes, which subpart) **Subpart IIII**	☒ YES	☐ NO
d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) **Subpart ZZZZ**	☒ YES	☐ NO
e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? (If Yes, which part) _____	☐ YES	☒ NO

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

See Section 4 of Application Text

Section E - Compliance Demonstration

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below

See application text – Section 1 to 4

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* See Table A-6

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack:

Stack height above grade (ft.) 16 Grade elevation (ft.)	Stack diameter (ft) or Outlet duct area (sq. ft.) 1.67	f. Weather Cap ☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack exhaust
Volume 23,169 ACFM Temperature 874 °F Moisture _____ %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

Exhauster (attach fan curves) _____ in. of water _____ HP @ _____RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

Fire water pump

Manufacturer	Model No.	Number of Sources
TBD	TBD	2
Source Designation	Maximum Capacity	Rated Capacity
	700 hp	700 hp

Type of Material Processed

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
			100

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
700 hp/hr			

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
			100

Seasonal variations (Months) From to

If variations exist, describe them

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner

Manufacturer	Type and Model No.	Number of Burners
TBD	TBD	

Description:

Rated Capacity	Maximum Capacity

4. Process Storage Vessels

A. For Liquids:

Name of material stored

Diesel fuel tank

Tank I.D. No.	Manufacturer	Date Installed

Maximum Pressure	Capacity (gallons/Meter^3)

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)

Type of Roof: Describe:

Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):

B. For Solids– N/A

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality – N/A

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☐ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information – See application text section 1 to 4.

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

Describe each proposed modification to an existing source.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: _____
ii. Expected completion date of construction/reconstruction/installation: _____
iii. Anticipated date of start-up: _____

Section C - Air Cleaning Device

1. Precontrol Emissions* See Table A-6

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling

Section D - Additional Information

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☒ YES ☐ NO
(If Yes, which subpart) **Subpart IIII**

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) **Subpart ZZZZ** ☒ YES ☐ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which part) _____

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

See Section 4 of Application Text

Section E - Compliance Demonstration

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.

Method of Compliance Type: Check all that apply and complete all appropriate sections below.

See Section 3, Regulatory Discussion

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions* See Table A-6

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack:

Stack height above grade (ft.) 27 Grade elevation (ft.)	Stack diameter (ft) or Outlet duct area (sq. ft.) 0.67	f. Weather Cap ☐ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

Does stack height meet Good Engineering Practice (GEP)?

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Stack exhaust
Volume 4,083 ACFM Temperature 948 °F Moisture _____ %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

Exhauster (attach fan curves) _____ in. of water _____ HP @ _____ RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Air Pollution Control Act
Compliance Review Form

2700-PM-AQ0004 Rev. 6/2006

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

AIR POLLUTION CONTROL ACT COMPLIANCE REVIEW FORM

Fully and accurately provide the following information, as specified. Attach additional sheets as necessary.

Type of Compliance Review Form Submittal (check all that apply)

☒ Original Filing
☐ Amended Filing

Date of Last Compliance Review Form Filing: ____/____/____

Type of Submittal

☒ New Plan Approval ☐ New Operating Permit ☐ Renewal of Operating Permit
☐ Extension of Plan Approval ☐ Change of Ownership ☐ Periodic Submission (@ 6 mos)
☐ Other: _____

SECTION A. GENERAL APPLICATION INFORMATION

Name of Applicant/Permittee/("applicant")
(non-corporations-attach documentation of legal name)
Bradford County Real Estate Partners LLC

Address c/o New Fortress Energy, 111 West 19th Street, 8th Floor
New York, NY 10011

Telephone 516-268-7400 **Taxpayer ID#** 83-2591487

Permit, Plan Approval or Application ID# N/A

Identify the form of management under which the applicant conducts its business (check appropriate box)

☐ Individual ☐ Syndicate ☐ Government Agency
☐ Municipality ☐ Municipal Authority ☐ Joint Venture
☐ Proprietorship ☐ Fictitious Name ☐ Association
☐ Public Corporation ☐ Partnership ☒ Other Type of Business, specify below:
☐ Private Corporation ☐ Limited Partnership Limited Liability Company

Describe below the type(s) of business activities performed.

A natural gas processing plant and all related activities including but not limited to receiving, processing, cooling, loading and transporting natural gas for distribution to commercial markets

SECTION B. GENERAL INFORMATION REGARDING "APPLICANT"

If applicant is a corporation or a division or other unit of a corporation, provide the names, principal places of business, state of incorporation, and taxpayer ID numbers of all domestic and foreign parent corporations (including the ultimate parent corporation), and all domestic and foreign subsidiary corporations of the ultimate parent corporation with operations in Pennsylvania. Please include all corporate divisions or units, (whether incorporated or unincorporated) and privately held corporations. (A diagram of corporate relationships may be provided to illustrate corporate relationships.) Attach additional sheets as necessary.

Unit Name	Principal Places of Business	State of Incorporation	Taxpayer ID	Relationship to Applicant
New Fortress Energy Holdings LLC	Various	Delaware	47-5030406	Indirect / Ultimate Parent

SECTION C. SPECIFIC INFORMATION REGARDING APPLICANT AND ITS "RELATED PARTIES"

Pennsylvania Facilities. List the name and location (mailing address, municipality, county), telephone number, and relationship to applicant (parent, subsidiary or general partner) of applicant and all Related Parties' places of business, and facilities in Pennsylvania. Attach additional sheets as necessary.

Unit Name	Street Address	County and Municipality	Telephone No.	Relationship to Applicant
None	None	None	None	None

Provide the names and business addresses of all general partners of the applicant and parent and subsidiary corporations, if any.

Name	Business Address
Bradford County Real Estate Holdings LLC	c/o New Fortress Energy, 111 W 19th Street, 8th Floor, New York, NY 10011

List the names and business address of persons with overall management responsibility for the process being permitted (i.e. plant manager).

Name	Business Address
Brannen McElmurray	c/o New Fortress Energy, 111 W 19th Street, 8th Floor, New York, NY 10011

Plan Approvals or Operating Permits. List all plan approvals or operating permits issued by the Department or an approved local air pollution control agency under the APCA to the applicant or related parties that are currently in effect or have been in effect at any time 5 years prior to the date on which this form is notarized. This list shall include the plan approval and operating permit numbers, locations, issuance and expiration dates. Attach additional sheets as necessary.

Air Contamination Source	Plan Approval/ Operating Permit#	Location	Issuance Date	Expiration Date
None	None	None	None	None

Compliance Background. (Note: Copies of specific documents, if applicable, must be made available to the Department upon its request.) List all documented conduct of violations or enforcement actions identified by the Department pursuant to the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. Attach additional sheets as necessary. See the definition of "documented conduct" for further clarification. Unless specifically directed by the Department, deviations which have been previously reported to the Department in writing, relating to monitoring and reporting, need not be reported.

Date	Location	Plan Approval/ Operating Permit#	Nature of Documented Conduct	Type of Department Action	Status: Litigation Existing/Continuing or Corrected/Date	Dollar Amount Penalty
None	None	None	None	None	None	$None
						$
						$
						$
						$
						$
						$
						$
						$
						$

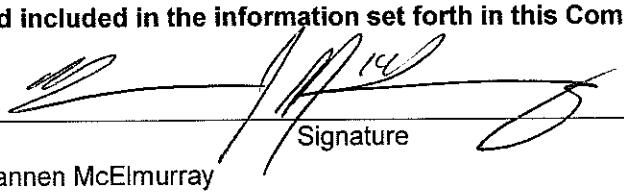
List all incidents of deviations of the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. This list must include items both currently known and unknown to the Department. Attach additional sheets as necessary. See the definition of "deviations" for further clarification.

Date	Location	Plan Approval/ Operating Permit#	Nature of Deviation	Incident Status: Litigation Existing/Continuing Or Corrected/Date
None	None	None	None	None

<u>CONTINUING OBLIGATION</u>. Applicant is under a continuing obligation to update this form using the Compliance Review Supplemental Form if any additional deviations occur between the date of submission and Department action on the application.

VERIFICATION STATEMENT

Subject to the penalties of Title 18 Pa.C.S. Section 4904 and 35 P.S. Section 4009(b)(2), I verify under penalty of law that I am authorized to make this verification on behalf of the Applicant/Permittee. I further verify that the information contained in this Compliance Review Form is true and complete to the best of my belief formed after reasonable inquiry. I further verify that reasonable procedures are in place to ensure that "documented conduct" and "deviations" as defined in 25 Pa Code Section 121.1 are identified and included in the information set forth in this Compliance Review Form.



Signature

December 7, 2018

Date

Brannen McElmurray

Name (Print or Type)

Authorized Signatory

Title

ATTACHMENT D

Municipal Notification Letters and Receipts

From: TrackingUpdates@fedex.com
To: Koch, Andrew
Subject: FedEx Shipment 773479863820 Delivered
Date: Wednesday, October 17, 2018 11:55:26 AM

This tracking update has been requested by:

Company Name: AECOM
Name: Brittany Berardelli
E-mail: andrew.koch@aecom.com

Our records indicate that the following shipment has been delivered:

Invoice number: 7
Purchase order number: 60552249
Reference: 39940525.54210.00001
Ship date: Oct 15, 2018
Signed for by: S.PRESTON
Delivery location: TOWANDA, PA
Delivered to: Receptionist/Front Desk
Delivery date: Wed, 10/17/2018 11:49 am
Service type: FedEx Priority Overnight®
Packaging type: FedEx® Envelope
Number of pieces: 1
Weight: 0.50 lb.
Special handling/Services Deliver Weekday
Standard transit: 10/16/2018 by 4:30 pm

Tracking number: 773479863820

Shipper Information	Recipient Information
Brittany Berardelli	Bradford County Commissioners
AECOM	301 MAIN ST
715 Washington Boulevard	TOWANDA
Williamsport	PA
PA	US
US	18848
17701	

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:55 AM CDT on 10/17/2018.

All weights are estimated.

The shipment is scheduled for delivery on or before the scheduled delivery displayed above. FedEx does not

AECOM 715 Washington Blvd.
Williamsport, PA 17701
(570)-505-1674

October 15, 2018

Bradford County Commissioners
301 Main Street.
Towanda, PA 18848
Phone: 570-265-1727

Re: Act 14 Notification
Liberty Logistics Center LNG Facility
Wyalusing Township, Bradford County

Dear Commissioners:

The purpose of this notice is to inform you of our intent to apply for the following permit coverages from the Pennsylvania Department of Environmental Protection (DEP):

Applicant Information:	Bradford County Real Estate Partners LLC c/o New Fortress Energy Holdings LLC 111 West 19th Street, New York, NY 10011
Permit Application Types:	General NPDES GP-4 Installation of an intake and outfall structure GP-8 Temporary Road Crossing GP-11 Update of an already permitted crossing Joint Permit Application (JPA) Air Plan Approval Application
Applicant Contact:	Curtis Barrick, Project Manager (570) 505-1674 x202
Project Location:	The Liberty Logistics Center LNG Facility project is located approximately 2.3 miles East of Wyalusing along the South side of US-6 E. From Wyalusing head E on US-6 E for approximately 2 miles and the site will be on the right. The project is located in Wylausing Township, Bradford County, PA
Project Description:	Bradford County Real Estate Partners, LLC ("BCRP") is planning to build and operate a natural gas processing facility. The proposed facility will receive locally-produced natural gas, remove the heavier hydrocarbons and some other materials and then use a cooling process to turn this natural gas into liquefied natural gas (LNG), allowing it to be more easily transported to customers that are not connected to a natural gas pipeline. LNG is a clear, colorless and non-toxic liquid that forms when natural gas is cooled to -162ºC (-260ºF). The cooling process shrinks the

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715 Washington Blvd.
Williamsport, PA 17701
(570)-505-1674

volume of the gas 600 times, making it easier and safer to store and ship.

Acts 67, 68 and 127, which amended the Municipalities Planning Code (MPC), direct state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure, and specify that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as described in Sections 619.2 and 1105 of the MPC. The Pennsylvania Department of Environmental Protection's Policy for Consideration of Local Comprehensive Plans and Zoning Ordinance in DEP Review of Permits for Facilities and Infrastructure (DEP's Land Use Policy) provides direction and guidance to DEP staff, permit applicants, and local and county governments for the implementation of Acts 67, 68 and 127 of 2000. This policy can be found at www.depweb.state.pa.us; keyword: Land Use.

Please do not send this form to DEP, as we must include the Municipal Land Use Letter with our permit application. If we do not receive a response from you within 30 days, we shall proceed to submit our permit application to DEP without the Municipal Land Use Letter. If the Municipal Land Use Letter is not submitted with our permit application, and we provide proof to DEP that we attempted to obtain it, DEP will assume there are no substantive land use conflicts and proceed with the normal application review process.

If you have any questions or concerns, or if you would like to discuss any element of this notification, please feel free to contact me at (570) 505-1674 x 202 or via email at curtis.barrick@aecom.com.

Sincerely,
AECOM

Curtis L. Barrick, P.E.
Project Manager

cc: 60557852

CLB/sgb

Enclosures

AECOM 715 Washington Blvd.
Williamsport, PA 17701
(570)-505-1674

COUNTY LAND USE LETTER

Date: _____

To: Curtis Barrick, PE
AECOM
715 Washington Blvd
Williamsport, PA 17701

Or scan and email to curtis.barrick@aecom.com

From: Bradford County

Re: Liberty Logistics Center LNG Facility

The Bradford County states that it:

_____ has adopted a county or multi-county comprehensive plan.
If yes, please provide date of adoption:

_____ has not adopted a county or multi-county comprehensive plan.

If applicable:

The above referenced project:

___ is consistent with the adopted county or multi-county comprehensive plan.
___ is not consistent with the adopted county or multi-county comprehensive plan.

Additional Comments (attach additional sheets if necessary):

_____
_____
_____

Submitted By:

Name	
Title	
Contact Information (Address & Phone)	
Signature	
Date	

cc: AECOM (Curtis Barrick)

From: TrackingUpdates@fedex.com
To: Koch, Andrew
Subject: FedEx Shipment 773479813078 Delivered
Date: Wednesday, October 17, 2018 1:02:42 PM

This tracking update has been requested by:

Company Name: AECOM
Name: Brittany Berardelli
E-mail: andrew.koch@aecom.com

Our records indicate that the following shipment has been delivered:

Invoice number: 7
Purchase order number: 60552249
Reference: 04104183.1
Ship date: Oct 15, 2018
Signed for by: Signature not required
Delivery location: WYALUSING, PA
Delivered to: Residence
Delivery date: Wed, 10/17/2018 1:00 pm
Service type: FedEx Priority Overnight®
Packaging type: FedEx® Envelope
Number of pieces: 1
Weight: 0.50 lb.
Special handling/Services Deliver Weekday
Residential Delivery
Standard transit: 10/16/2018 by 4:30 pm

Tracking number: 773479813078

Shipper Information	Recipient Information
Brittany Berardelli	Wyalusing Township Office
AECOM	2473 Old Stagecoach Road
715 Washington Boulevard	WYALUSING
Williamsport	PA
PA	US
US	18853
17701	

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 12:02 PM CDT on 10/17/2018.

All weights are estimated.

AECOM 715 Washington Blvd.
Williamsport, PA 17701
(570)-505-1674

October 15, 2018

Wyalusing Township Supervisors
2473 Old Stagecoach Road
Wyalusing Township, PA 18853
Phone: 570-746-3897

Re: Act 14 Notification
Liberty Logistics Center LNG Facility
Wyalusing Township, Bradford County

Dear Supervisors:

The purpose of this notice is to inform you of our intent to apply for the following permit coverages from the Pennsylvania Department of Environmental Protection (DEP):

Applicant Information:	Bradford County Real Estate Partners LLC c/o New Fortress Energy Holdings LLC 111 West 19th Street, New York, NY 10011
Permit Application Type:	General NPDES GP-4 Installation of an intake and outfall structure GP-8 Temporary Road Crossing GP-11 Update of an already permitted crossing Joint Permit Application (JPA) Air Plan Approval Application
Applicant Contact:	Curtis Barrick, Project Manager (570) 505-1674 x202
Project Location:	The Liberty Logistics Center LNG Facility project is located approximately 2.3 miles East of Wyalusing along the South side of US-6 E. From Wyalusing head E on US-6 E for approximately 2 miles and the site will be on the right. The project is located in Wylausing Township, Bradford County, PA
Project Description:	Bradford County Real Estate Partners, LLC ("BCRP") is planning to build and operate a natural gas processing facility. The proposed facility will receive locally-produced natural gas, remove the heavier hydrocarbons and some other materials and then use a cooling process to turn this natural gas into liquefied natural gas (LNG), allowing it to be more easily transported to customers that are not connected to a natural gas pipeline. LNG is a clear, colorless and non-toxic liquid that forms when natural gas is cooled to -162ºC (-260ºF). The cooling process shrinks the

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(570)-505-1674

volume of the gas 600 times, making it easier and safer to store and ship.

Acts 67, 68 and 127, which amended the Municipalities Planning Code (MPC), direct state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure, and specify that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as described in Sections 619.2 and 1105 of the MPC. The Pennsylvania Department of Environmental Protection's Policy for Consideration of Local Comprehensive Plans and Zoning Ordinance in DEP Review of Permits for Facilities and Infrastructure (DEP's Land Use Policy) provides direction and guidance to DEP staff, permit applicants, and local and county governments for the implementation of Acts 67, 68 and 127 of 2000. This policy can be found at www.depweb.state.pa.us; keyword: Land Use.

Please do not send this form to DEP, as we must include the Municipal Land Use Letter with our permit application. If we do not receive a response from you within 30 days, we shall proceed to submit our permit application to DEP without the Municipal Land Use Letter. If the Municipal Land Use Letter is not submitted with our permit application, and we provide proof to DEP that we attempted to obtain it, DEP will assume there are no substantive land use conflicts and proceed with the normal application review process.

If you have any questions or concerns, or if you would like to discuss any element of this notification, please feel free to contact me at (570) 505-1674 x 202 or via email at curtis.barrick@aecom.com.

Sincerely,
AECOM

Curtis L. Barrick, P.E.
Project Manager

cc: 60557852

CLB/sgb

Enclosures

AECOM 715 Washington Blvd.
Williamsport, PA 17701
(570)-505-1674

MUNICIPAL LAND USE LETTER

Date: _____

To: Mr. Curtis Barrick, PE
AECOM
715 Washington Blvd
Williamsport, PA 17701

Or scan and email to curtis.barrick@aecom.com

From: Wyalusing Township

Re: Liberty Logistics Center LNG Facility

The Wyalusing Township states that it:
_____ has adopted a municipal or multi-municipal comprehensive plan.
If yes, please provide date of adoption:

_____ has not adopted a municipal or multi-municipal comprehensive plan.

The Wyalusing Township states that it:
_____ has adopted a county zoning ordinance, or a municipal or joint-municipal zoning ordinance.
_____ has not adopted a county zoning ordinance, or a municipal or joint-municipal zoning ordinance.

If applicable:

The Wyalusing Township states that its zoning ordinance is generally consistent with its municipal comprehensive plan and the county comprehensive plan.

The above referenced proposed project
_____ meets the provisions of the local zoning ordinance

If zoning approval is required for the project to proceed, the above referenced project:
_____ has received zoning approval.
_____ has not received zoning approval.

If the proposed project has not received zoning approval:

What is the status of the zoning request for the proposed project? (e.g., Special Exception Approval from the Zoning Hearing Board required, Conditional Use approval from the Governing Body required)

_____
_____
_____

AECOM 715 Washington Blvd.
Williamsport, PA 17701
(570)-505-1674

Is there a legal challenge by the applicant with regard to zoning for the proposed project?

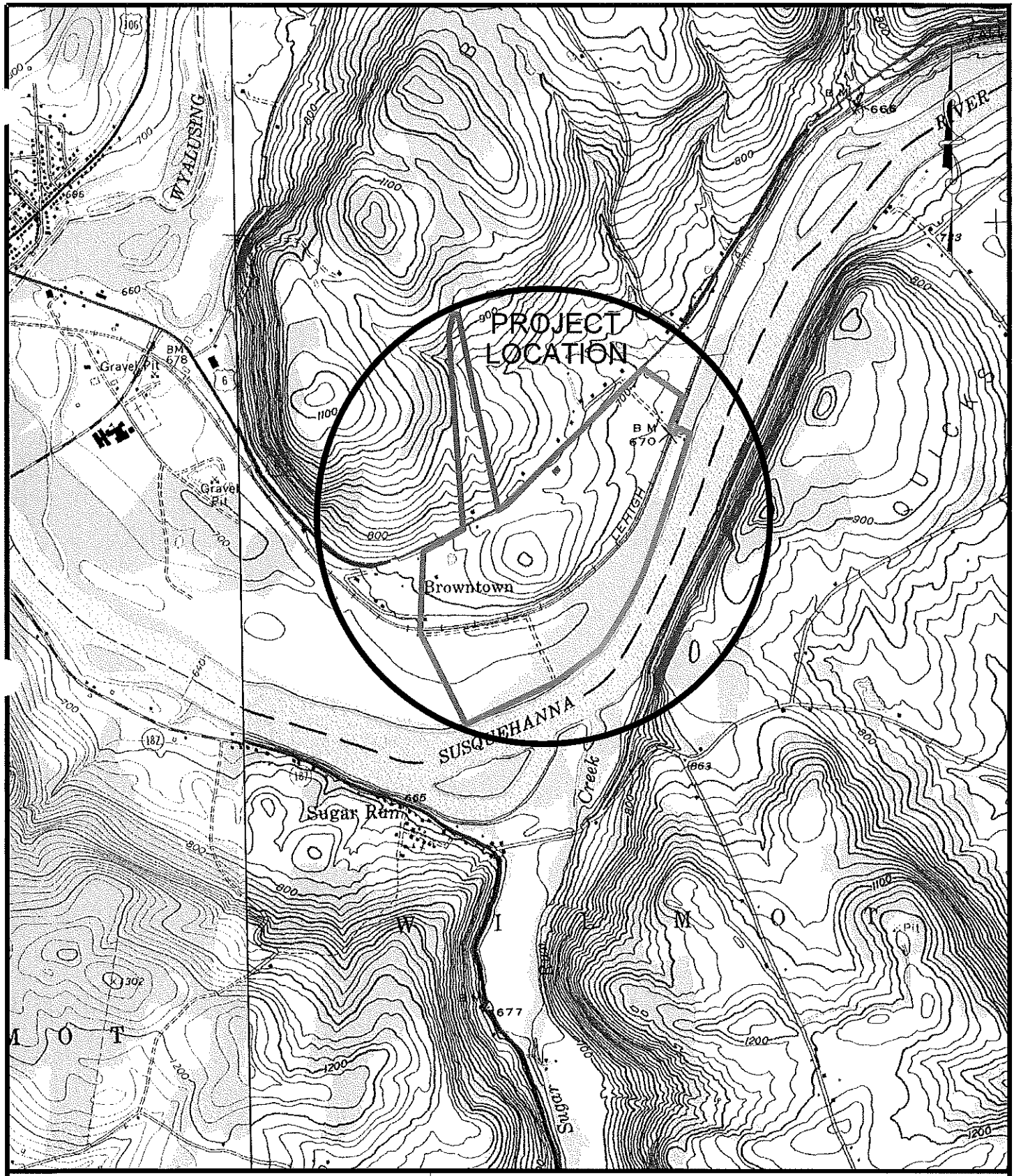
Name and Contact Information for Municipal Zoning Officer:

Additional Comments (attach additional sheets if necessary):

Submitted By:

Name	
Title	
Contact Information (Address & Phone)	
Signature	
Date	

cc: AECOM (Curtis Barrick)

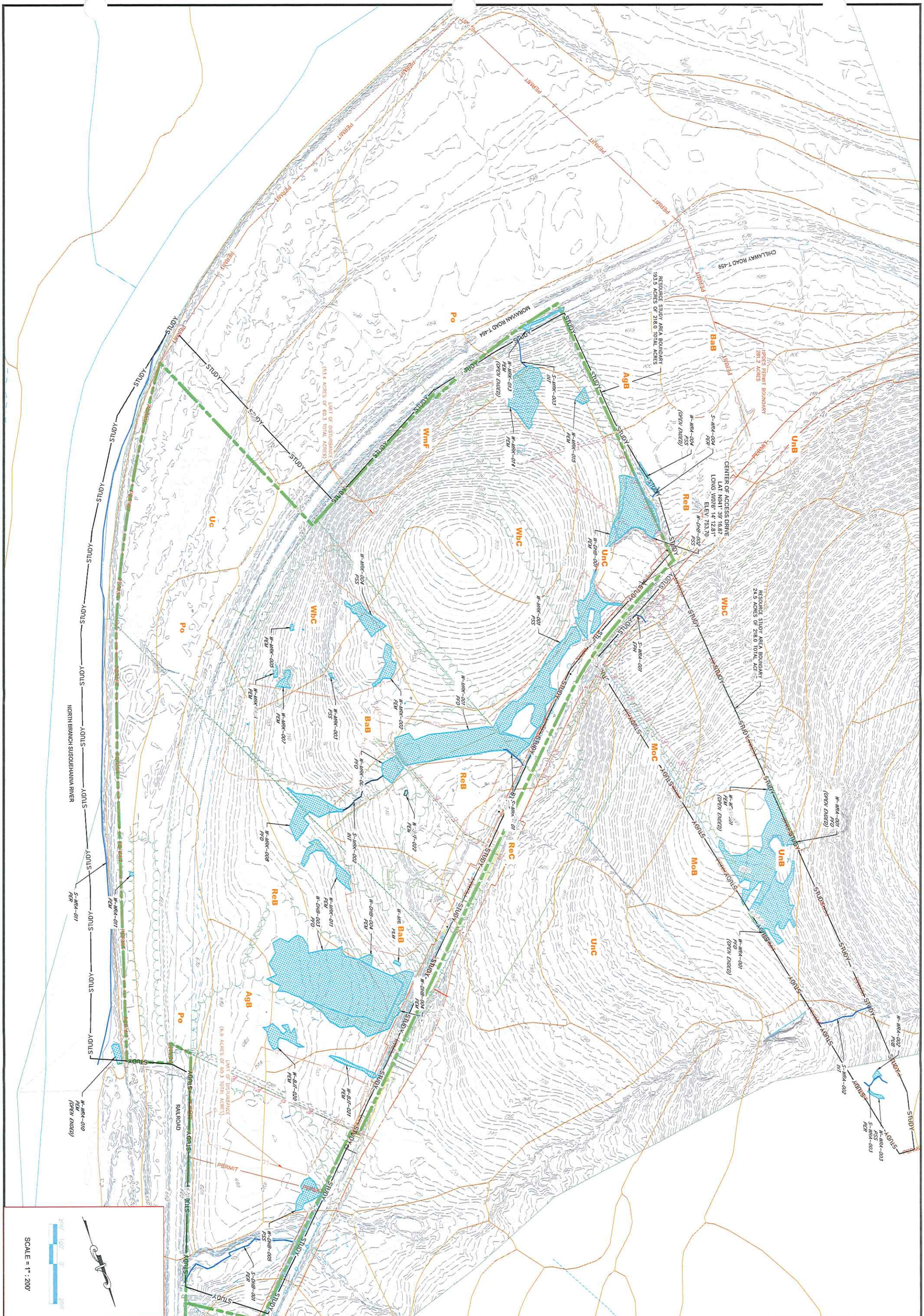


AECOM

715 WASHINGTON BLVD.
WILLIAMSPORT, PA 17701

LIBERTY LOGISTICS CENTER LNG FACILITY

PREPARED BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	DRAWING NO.
AAK	CLB	CLB	10/15/2018	1"=2000'	FIGURE 1
			REV. DATE:	PROJECT NO.	WYALUSING TWP, BRADFORD COUNTY



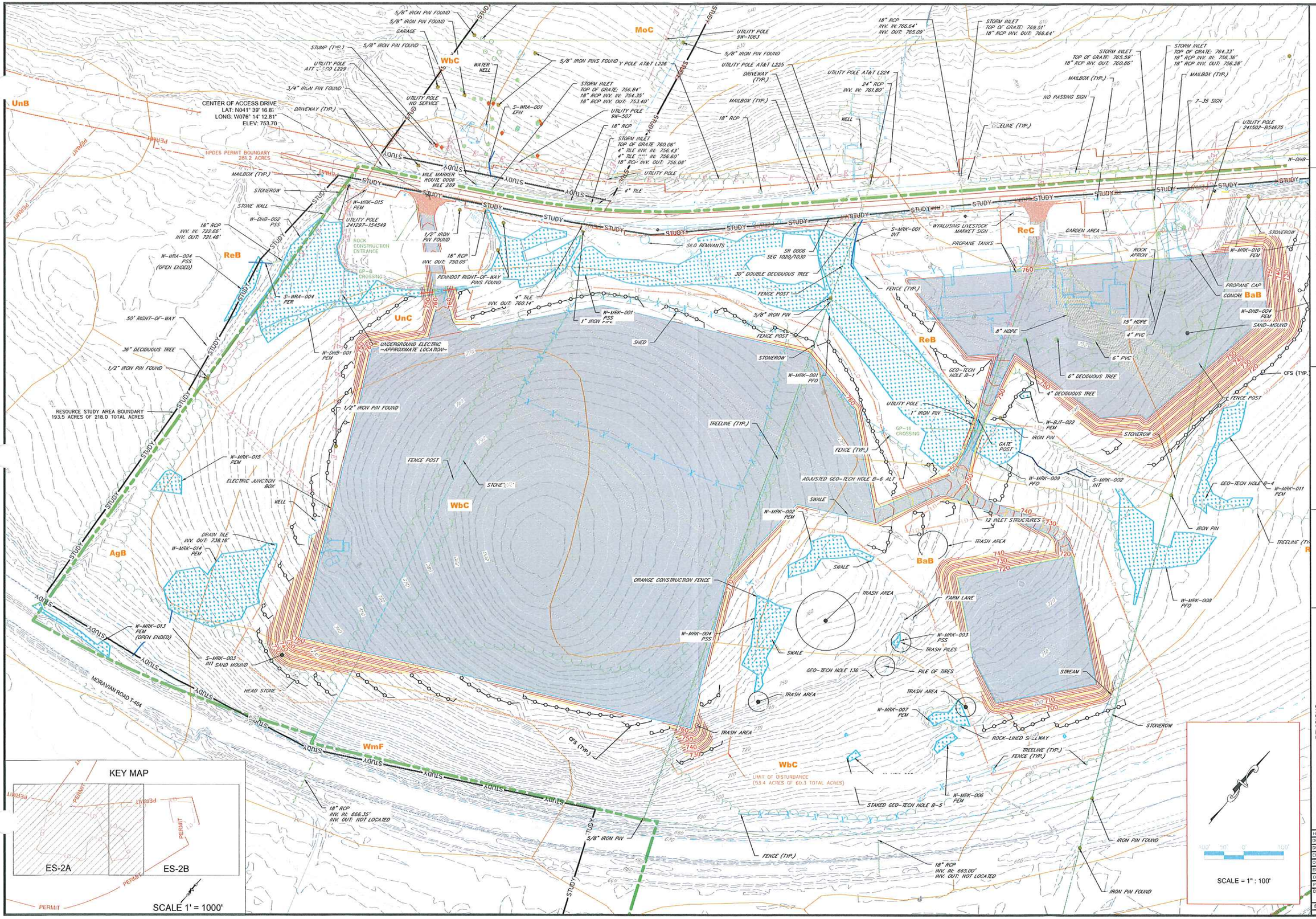
REVISIONS		
DATE	DESCRIPTION	APPROVED

EROSION AND SEDIMENT POLLUTION CONTROL PLAN FOR LIBERTY LOGISTICS CENTER LNG FACILITY

WYALUSING TOWNSHIP, BRADFORD COUNTY, PENNSYLVANIA

AECOM
715 WASHINGTON BLVD.
WILLIAMSPORT, PA 17701

HORIZ. SCALE	AS SHOWN
DRAWN BY	AMK
DESIGNED BY	CAB
CONSTRUCTION CK.	-
ENVIRONMENTAL CK.	-
DATE	OCTOBER 2018
PROJECT NO.	60552238
DRAWING NO.	
SHEET 1 OF 7	
REV.	



AECOM
715 WASHINGTON BLVD.
WILLIAMSPORT, PA 17701

EROSION AND SEDIMENT POLLUTION CONTROL PLAN FOR LIBERTY LOGISTICS CENTER LNG FACILITY

WYALUSING TOWNSHIP, BRADFORD COUNTY, PENNSYLVANIA

REVISIONS		
DATE	DESCRIPTION	APPROVED

HORZ. SCALE:	AS SHOWN
DRAWN BY:	AAK
DRAFTING CK:	CLB
ENGINEERING CK:	CLB
CONSTRUCTION CK:	-
ENVIRONMENTAL CK:	-
DATE:	OCTOBER 2018
PROJECT NO.:	60552249
DRAWING NO.:	
SHEET 1 OF 7	REV.

AECOM
715 WASHINGTON BLVD.
WILLIAMSPORT, PA 17701

EROSION AND SEDIMENT POLLUTION CONTROL PLAN FOR LIBERTY LOGISTICS CENTER LNG FACILITY

WYALUSING TOWNSHIP, BRADFORD COUNTY, PENNSYLVANIA

STORM INLET
TOP OF GRATE: 769.51'
18" RCP INV. OUT: 766.64'

STORM INLET
TOP OF GRATE: 765.59'
18" RCP INV. OUT: 760.86'

STORM INLET
TOP OF GRATE: 764.33'
18" RCP INV. IN: 756.36'
18" RCP INV. OUT: 756.28'

24" RCP
INV. IN: 723.86'
INV. OUT: 716.25'

BROWNTOWN ROAD SIGN

18" DECIDUOUS TREE

STORM INLET
TOP OF GRATE: 723.10'
4" TILE INV. IN: 722.55'
4" TILE INV. IN: 720.99'
18" RCP INV. OUT: 720.98'

12" RCP
STORM INLET
TOP OF GRATE: 708.43'
12" RCP INV. IN: 705.85'
4" TILE INV. IN: 705.25'
15" RCP INV. OUT: 705.33'
4" TILE INV. OUT: 705.55'

4" TILE

MAILBOX (TYP.)

NO PASSING SIGN

7-35 SIGN

UTILITY POLE
241502-854675

IRON PIN

4" TILE

STATE ROUTE 0006

15" RCP

18" RCP

DIBBLE ROAD SIGN

W-DHB-004
PEM

12" CMP

SWALE

GUIDE RAIL (TYP.)

NO PASSING SIGN

12" DECIDUOUS TREE

GEO-TECH HOLE B-2

4" TILE
W-BJT-021
PEM

STORM INLET
TOP OF GRATE: 708.48'
4" TILE INV. IN: 706.50'
4" TILE INV. IN: 704.98'
4" TILE INV. IN: 704.49'
15" RCP INV. IN: 704.54'
18" RCP INV. OUT: 704.33'

W-DHB-005
PSS

S-DHB-001
PER

LIVESTOCK MARKET SIGN

PROPANE TANKS

GARDEN AREA

ReC

STONEROW

ROCK APRON

W-MRK-010
PEM

PROPANE CAP

CONCRETE

BaB

TREELINE (TYP.)

W-DHB-004
PEM

15" HDPE

4" PVC

SAND MOUND

8" HDPE

6" PVC

6" DECIDUOUS TREE

4" DECIDUOUS TREE

CFS (TYP.)

FENCE POST

W-BJT-022
PEM

IRON PIN

GATE POST

W-MRK-009
PFO

S-MRK-002
INT

12 INLET STRUCTURES

GEO-TECH HOLE B-4

W-MRK-011
PEM

TREELINE (TYP.)

ReB

IRON PIN

W-MRK-008
PFO

TRASH AREA

LANE

STREAM

ROCK-LINED SPILLWAY

STONEROW

TREELINE (TYP.)

FENCE (TYP.)

POTENTIAL STOCKPILE AREA

POTENTIAL STOCKPILE AREA

LIMIT OF DISTURBANCE
(6.9 ACRES OF 60.3 TOTAL ACRES)

NPDES PERMIT BOUNDARY
255.7 ACRES

PERMIT

SWALE

SWALE

W-DHB-003
PFO

6" DECIDUOUS TREE

W-BJT-020
PEM

FARM LANE

14" DECIDUOUS TREE

8" DECIDUOUS TREE

GEO-TECH HOLE B-3

AgB

TREELINE (TYP.)

RESOURCE STUDY AREA BOUNDARY
193.5 ACRES OF 218.0 TOTAL ACRES

Po

RAILROAD

TRASH AREA

IRON PIN FOUND

IRON PIN FOUND

W-WRA-010
PEM
(OPEN ENDED)

EDGE OF WATER

1" LATHE FOUND

W-WRA-011
PEM

S-WRA-011
PER

EDGE OF WATER

STUDY

XDMLS

KEY MAP

ES-2A

ES-2B

PERMIT

SCALE 1' = 1000'

SCALE = 1" : 100'

REVISIONS		
DATE	DESCRIPTION	APPROVED

HORZ. SCALE:	AS SHOWN
DRAWN BY:	AAK
DRAFTING CK:	CLB
ENGINEERING CK:	CLB
CONSTRUCTION CK:	-
ENVIRONMENTAL CK:	-
DATE:	OCTOBER 2018
PROJECT NO.:	60552249
DRAWING NO.:	
SHEET 1 OF 7	REV.