National Fuel Gas Supply Corporation
Empire Pipeline, Inc.

NATIONAL FUEL GAS SUPPLY CORPORATION AND EMPIRE PIPELINE, INC.

NORTHERN ACCESS 2016 PROJECT

RESOURCE REPORT NO. 9
Air and Noise Quality

FERC Docket No. PF14-18-000

Submitted: March 16, 2015

Compilation of:
Air Quality Analysis by National Fuel Gas Supply Corporation
and
Noise Analysis by Hoover and Keith, Inc.

TETRA TECH

SUMMARY OF REQUIRED FERC REPORT INFORMATION		
Topic	**FERC Reference**	**Report Reference or Not Applicable**
1. Describe existing air quality in the vicinity of the project	§380.12(k)(1)	Section 9.1.2
2. Quantify the existing noise levels (day-night sound level (L_{dn}) and other applicable noise parameters) at noise sensitive areas and at other areas covered by relevant state and local noise ordinances.	§380.12(k)(2)	Section 9.2.2
3. Quantify existing and proposed emissions of compressor equipment, plus construction emissions, including nitrogen oxides (NO_x) and carbon monoxide (CO), and the basis for these calculations. Summarize anticipated air quality impacts for the project. For major sources of air emissions (as defined by the Environmental Protection Agency), provide copies of applications for permits to construct (and operate, if applicable) or for applicability determinations under regulations for the prevention of significant air quality deterioration and subsequent determinations.	§380.12(k)(3) §380.12(k)(3) (ii)	Sections 9.1.1, 9.1.4
4. Describe the existing compressor units at each station where new, additional, or modified compressor units are proposed, including the manufacturer, model number, and horsepower of the compressor units. For proposed new, additional, or modified compressor units include the horsepower, type, and energy source.	§380.12(k)(4)	Section 9.1.1
5. Identify any nearby noise-sensitive area by distance and direction from the proposed compressor unit building/enclosure.	§380.12(k)(4)	Section 9.2.2
6. Identify any applicable state or local noise regulations	§380.12(k)(4)	Section 9.2.1
7. Calculate the noise impact at noise-sensitive areas of the proposed compressor unit modifications or additions, specifying how the impact was calculated, including manufacturer's data and proposed noise control equipment. Include step-by-step supporting calculations or identify the computer program used to model the noise levels, the input and raw output data and all assumptions made when running the model, as well as the far-field sound level data for maximum facility operation and the source of the data. Include sound pressure levels for unmuffled engine inlets and exhausts, engine casings, and cooling equipment; dynamic insertion loss for all mufflers; sound transmission loss for all compressor building components, including walls, roof, doors, windows and ventilation openings; sound attenuation from the station to nearby noise-sensitive areas; the manufacturer's name, the model number, the performance rating; and a description of each	§380.12(k)(4) §380.12(k)(4)(i) §380.12(k)(4)(ii)	Section 9.2.4 Section 9.2.4 Section 9.2.4

noise source and noise control component to be employed at the proposed compressor station. For proposed compressors the initial filing must include at least the proposed horsepower, type of compression, and energy source for the compressor.		
Far-field sound level data measured from similar units in service elsewhere, when available, may be substituted for manufacturer's far-field sound level data.	§380.12(k)(4)(iii)	Not Applicable
If specific noise control equipment has not been chosen, include a schedule for submitting the data prior to certification.	§380.12(k)(4)(iv)	Not Applicable
The estimate must demonstrate that the project will comply with applicable noise regulations and show how the facility will meet the following requirements: (a) the noise attributable to any new compressor station, compression added to an existing station, or any modification, upgrade or update of an existing station, must not exceed a day- night sound level (L_{dn}) of 55 dBA at any pre-existing noise-sensitive area (such as schools, hospitals, or residences); and (b) new compressor stations or modifications of existing stations shall §380.12 (k)(4)(v))not result in a perceptible increase in vibration at any noise-sensitive area.	§380.12(k)(4)(v)	Section 9.2.4
8. Describe measures and manufacturer's specifications for equipment proposed to mitigate impact to air and noise quality, including emission control systems, installation of filters, mufflers, or insulation of piping and buildings, and orientation of equipment away from noise-sensitive areas.	§380.12(k)(5)	Section 9.2.5 and 9.1.5

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LIST OF ACRONYMS

AQCR	Air Quality Control Region
BACT	Best Available Control Technology
gm/bhphr	gram/brake horsepower-hour
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2e}	carbon dioxide equivalent
dB	decibel
dBA	A-weighted decibel
DIL	dynamic insertion loss
Empire	Empire Pipeline, Inc.
F	Fahrenheit
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Association
g/VMT	grams per vehicle mile traveled
GWP	Global Warming Potential
H&K	Hoover and Keith, Inc.
HAP	hazardous air pollutant
hp	horsepower
Hz	Hertz
IL	insertion loss
kW	kilowatt
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
L_{max}	maximum instantaneous sound level
L_p	sound pressure level
L_w	sound power level
M&R	meter and regulator
MACT	Maximum Achievable Control Technology
MOVES	Motor Vehicle Emissions Simulator
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
National Fuel	Supply and Empire, collectively known as
NNSR	Nonattainment New Source Review
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NSA	Noise Sensitive Area
NSPS	New Source Performance Standards
NSR	New Source Review
NY	New York
NYSDEC	New York State Department of Environmental Conservation

O_3	ozone
OTAQ	Office of Transportation and Air Quality (USEPA)
OTR	Ozone Transport Region
Pb	lead
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppb	parts per billion
ppm	parts per million
ppmvd	parts per million volume dry
Project	New Market Project
PSD	Prevention of Significant Deterioration
RCNM	Roadway Construction Noise Model
SEQRA	State Environmental Quality Review Act
SO_2	sulfur dioxide
STL	sound transmission loss
Supply	National Fuel Gas Supply Corporation
tpy	tons per year
$\mu g/m^3$	micrograms per cubic meter
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
W	watt(s)
WRAP	Western Regional Air Partnership

RESOURCE REPORT 9 – AIR AND NOISE QUALITY

9.0. INTRODUCTION

National Fuel Gas Supply Corporation ("Supply") and Empire Pipeline, Inc. ("Empire"), both subsidiaries of National Fuel Gas Company, are seeking authorization from the Federal Energy Regulatory Commission ("FERC") pursuant to Section 7(c) of the Natural Gas Act to construct and operate the proposed Northern Access 2016 Expansion Project ("Project"). Through this proposed Project, Supply and Empire (collectively known as "National Fuel") jointly propose to expand the Supply pipeline system to provide approximately 497,000 dekatherms per day ("Dth/d") of new firm natural gas transportation capacity, and the Empire pipeline system to provide approximately 350,000 dekatherms per day ("Dth/d") of new firm natural gas transportation capacity.

The proposed Project consists of the following Supply components:

- construction of approximately 96.65 miles of new 24-inch-diameter pipeline ("Mainline Pipeline"), from Sergeant Township, McKean County, Pennsylvania, to an interconnection with Supply's existing Line X-North, near Supply's existing Porterville Compressor Station in the Town of Elma, Erie County, New York;

- addition of approximately 5,350 horsepower to Porterville Compressor Station;

- construction of an interconnection with Tennessee Gas Pipeline's 200 Line in the Town of Wales, Erie County, New York;

- addition of interconnect/tie-in facilities at Clermont (McKean County, Pennsylvania), Hinsdale Compressor Station (Cattaraugus County, New York), and X-North Pipeline (Erie County, New York);

- addition of a meter and regulator ("M&R")/pressure reduction station near the tie-in to X-North Pipeline;

- addition of 13 mainline valve (MLV) sites; and,

- cathodic protection facilities.

The proposed Project also consists of the following Empire components:

- construction of a 24-inch pipeline segment of approximately 3.05 miles, replacing 3.05 miles of existing 16-inch Supply pipeline ("Replacement Pipeline") in the towns of Wheatfield and Pendleton, Niagara County, New York;

- modification of tie-in facilities at the south end of the Replacement Pipeline (tie-in to Line X-North) and approximately 1 mile north of Replacement Pipeline MP 3.05 (tie-in to Empire Pipeline);

- construction of a new, approximately 22,214 horsepower compressor station in the Town of Pendleton, Niagara County, New York;

- construction of a new natural gas dehydration facility in the Town of Wheatfield, Niagara County, New York; and,

- removal of an existing meter station in the Town of Pendleton, Niagara County with relocation/reuse of certain metering equipment at the proposed Pendleton Compressor Station.

A list and mapping of Project components and their locations is provided in Resource Report 1 – Project Description.

This Resource Report describes the existing air and noise quality within the vicinity of the Project, the potential impacts to air and noise quality associated with construction and operation of the Project, and the proposed measures to avoid or minimize those impacts.

As part of a separate project under separate funding, National Fuel will be retiring and removing four (4) 150-hp gas storage field injection compressor engines installed in the 1950s (associated with existing gas storage field; not associated with transmission pipeline) at the existing Porterville Compressor Station, and replacing them with a single storage injection compressor engine. This separate storage compressor replacement project is not proposed as part of the Northern Access 2016 Project facilities, and it is possible that this compressor replacement project may take place either prior to, or concurrent with, the construction related to the Northern Access 2016 project. Thus, the required air permit application for the Porterville Compressor Station will include evaluations of emissions from the new Northern Access 2016 equipment as well as the replacement storage injection compressor engine. Site disturbances for the storage compressor capital replacement project will be limited to the same existing compressor station property. Due to the distinct and separate function of the storage compression and planned replacement, National Fuel does not intend to develop evaluations for replacement of this existing facility within the Resource Reports for the Northern Access 2016 Project.

9.1. AIR QUALITY

9.1.1. Air Emission Sources

New permanent stationary sources of air emission would be located at the existing Porterville Compressor Station, the proposed Pendleton Compressor Station, the proposed Wheatfield Dehydration Facility and along the pipeline. Both the existing and proposed sources are described below, including their manufacturer, model number, and horsepower of the units as applicable. In addition to air quality impacts from new equipment described above, temporary air quality impacts will result from pipeline and facility construction activities (Refer to Section 9.1.4.3).

9.1.1.1. Existing Porterville Compressor Station

The Porterville Compressor Station currently houses four (4) 150-horsepower (hp) storage field injection compressor engines, a 70-hp emergency generator and various permit-exempt sources. (Refer to Table 9.1-1). This station currently operates in accordance with New York State Department of Environmental Conservation (NYSDEC) Air State Facility Permit No. 9-1442-00039/00015 (effective date 1/19/2000). This permit specifies a 6,500 hour/year cap on each compressor engine to limit facility NO_x emissions below 100 tons per year. As described previously, these storage field injection compressor engines will be replaced with a single storage injection compressor engine as part of a separate project under separate funding. [Note: As described in subsequent sections, the proposed improvements to the Porterville Compressor Station will result in lower emissions, and the 6500 hour cap will no longer been required.]

As part of the proposed Project, the following new equipment would be installed at the Porterville Compressor Station:

- Two (2) Caterpillar 3608A4 compressor engines, each rated at 2,675 hp; and
- One (1) Caterpillar G3412 TA emergency generator, rated at approximately 622 hp. Note, it is anticipated that this new emergency generator will replace the existing emergency generator.
- Three (3) storage tanks

Refer to Table 9.1-1 for a list and description of the existing and new emission sources.

9.1.1.2. Proposed Pendleton Compressor Station

The proposed new Pendleton Compressor station will have the following air emission sources:

- Two (2) Solar Taurus T70 turbine-powered compressors, each rated at 11,107 hp nominal at ISO conditions (11,626 hp each at site conditions[1]).
- One (1) Caterpillar G3516 A emergency generator, rated at approximately 1,053 hp; and
- One (1) condensate storage tank.

Refer to Table 9.1-1 for a list and description of these emission sources.

[1] Site conditions for turbine operation are conservatively estimated to be the following: 0ºF ambient temperature, 100% load, 70% relative humidity, 582 feet in elevation.

9.1.1.3. Proposed Wheatfield Dehydration Facility

The proposed new Wheatfield Dehydration Facility will have the following air emission sources:

- Two (2) Frederick Logan Company, Inc. Triethylene Glycol (TEG) Dehydration Units, each rated at approximately 442 MMSCFD, and each with a 1.5 MMBtu/hr reboiler burner;
- One (1) MTU 10V0068 GS75 emergency generator, rated at approximately 100 hp; and
- Two (2) storage tanks.

Refer to Table 9.1-1 for a list and description of the existing and new emission sources.

All new units will be powered by natural gas.

9.1.1.4. Pipeline Facilities

Along the pipeline, air emission sources will include the following:

- Thirteen (13) new mainline valves including pneumatic (natural gas) actuators;
- One (1) approximately 1,000-gallon condensate storage tank and one (1) emergency generator at the TGP 200 Interconnect in the Town of Wales (Erie County, N.Y.); and
- One (1) emergency generator at the X-North Pressure Reduction Station (Erie County, N.Y.).

Refer to Table 9.1-1 for a list and description of these new emission sources.

9.1.2. Existing Conditions

The Project is located in McKean County, Pennsylvania and Allegany, Cattaraugus, Erie, and Niagara Counties, New York. Existing conditions pertaining to air quality in the area of the Project are described in the following sections, including climate and meteorology, the National Ambient Air Quality Standards (NAAQS), existing air monitoring data, and attainment status.

9.1.2.1. Climate/Meteorology

The area of the proposed facilities (Erie and Niagara Counties, New York) has a humid continental climate, with cold, snowy winters and warm, wet summers. Summers are typified by warm yet temperate days with highest recorded 2013 temperature of 92 degrees Fahrenheit (°F) at both the Buffalo and Niagara Falls airports. Winters are cold, with the lowest recorded 2013 temperatures of 1°F and -3 °F at the Buffalo and Niagara Falls airports, respectively. The 2013 annual average temperature at the Buffalo and Niagara

Falls airports was about 48 °F. Precipitation is distributed evenly throughout the year and there is not a dry season. The proximity to the Great Lakes results in significant cloudiness and precipitation, as weather systems traveling over the lakes pick up moisture, and cooler air masses from the west and north converge to create a regularly unsettled weather pattern.

9.1.2.2. National Ambient Air Quality Standards (NAAQS)

The U.S. Environmental Protection Agency (USEPA) has promulgated NAAQS to protect human health and welfare. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health.

NAAQS currently apply to the following criteria pollutants: particulate matter (PM) with a nominal aerodynamic diameter of 10 microns or less (PM_{10}); PM with a nominal aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$); sulfur dioxide (SO_2); nitrogen dioxide (NO_2); carbon monoxide (CO); ozone (O_3); and lead (Pb). Each NAAQS is expressed in terms of a concentration level and an associated statistical form. The current NAAQS for these criteria pollutants are codified in 40 CFR Part 50 and are summarized in Table 9.1-2. Footnotes to Table 9.1-2 explain how compliance with each NAAQS is assessed.

9.1.2.3. Existing Ambient Air Quality Monitoring Data

NYSDEC and USEPA provide ambient air quality monitoring data for use to characterize ambient concentrations of criteria pollutants. Table 9.1-3 summarizes the available historical monitoring data considered from monitors closest to the Project facilities for the period 2008 - 2013. The most recent three–year period of available monitoring data was selected for each monitor as three-year periods are normally used to assess background air quality for regulatory purposes. Table 9.1-3 lists the background air quality corresponding to the statistical forms used to evaluate compliance with the NAAQS. These data were obtained from air quality monitoring data tables from NYSDEC Ambient Air Quality Report for 2013 (NYSDEC 2013) and USEPA AirData air quality monitoring database (USEPA 2014a).

9.1.2.4. Attainment Status

The USEPA compares ambient air measurements of criteria pollutants to the NAAQS to assess the status of air quality in the different regions of the United States. Based on these comparisons, regions of the United States are designated as either "attainment," "nonattainment," or "unclassifiable." A region is designated as attainment if monitoring shows that ambient concentrations of a specific pollutant are less than or equal to NAAQS. If the NAAQS are exceeded for a pollutant, then the region is designated as nonattainment for that pollutant. Nonattainment areas are further classified based on the severity of the

exceedance of the relevant standard. An area is designated as unclassifiable if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment. If an area is re-designated from nonattainment to attainment, it is classified as a "maintenance area" for a 10-year period to ensure that the air quality improvements are sustained. Federal designations of air quality are defined in 40 CFR Part 81. HAPs are pollutants that are known or suspected to cause acute or long-term serious health effects such as cancer, reproductive effects or birth defects, or adverse environmental impacts. Ambient air quality standards, in general, have not been established for these pollutants. However, federal, state, and local regulations and guidelines have been established to reduce their release to the atmosphere.

Attainment status for the counties in which the Project is located was obtained from the USEPA Green Book Nonattainment Areas for Criteria Pollutants (USPEA 2014b). McKean County, Allegany County and Cattaraugus County are either in attainment or unclassifiable for all criteria pollutant NAAQS. Erie and Niagara Counties are moderate non-attainment areas for the eight-hour ozone standard, and are either in attainment and/or unclassifiable for the remaining criteria pollutant NAAQS. However, all of New York and Pennsylvania are located within the Northeast Ozone Transport Region that establishes emission thresholds for emissions of both NO_x and VOCs as ozone precursors. Facilities in non-attainment areas are held to more restrictive air permitting standards.

9.1.3. Air Regulatory Requirements

Air emissions from the Project include the following criteria pollutants: nitrogen oxides (NO_x), CO, SO_2, PM_{10}, and $PM_{2.5}$. Emissions of hazardous air pollutants (HAPs), and volatile organic compounds (VOCs) occur in the form of unburned hydrocarbons.

Air emissions from the Project will comply with applicable federal and state air quality regulations. A summary of the stationary sources associated with the Project is presented in Table 9.1-1. Tables 9.1-4 through 9.1-11 summarize Potential-To-Emit (PTE) emissions from the compressor stations, the dehydration facility, the sources along the pipeline and construction emissions. [Note: Supporting calculations, emission factors, fuel consumption rates, and annual hours of operation for the compressor stations and dehydration facility will be provided in the air permit or registration applications. Copies of the air permit or registration applications for these facilities will be provided to FERC following submittal to the NYSDEC.]

The following paragraphs briefly discuss the applicability of selected air regulations to the Project.

9.1.3.1. Title V Operating Permit

Major sources of air emissions and certain affected non-major sources are required to obtain a federal (Title V) operating permit [40 CFR 70]. The major source emissions thresholds for a Title V operating permit for the proposed Project location (i.e.: moderate ozone non-attainment area and ozone transport region) are included in the facility PTE emissions tables (Tables 9.1-4 through 9.1-6). PTE Emissions from the improved Porterville Compressor Station, the proposed Pendleton Compressor, and the proposed Wheatfield Dehydration Facility do not

exceed the major source thresholds. Thus, Title V Operating permits will not be required for these facilities. State Facility permits or registrations will be required. Permit applications will be provided to FERC following submittal to the NYSDEC.

9.1.3.2. Clean Air Act/General Conformity Rule

The Clean Air Act (CAA) of 1970, 42 U.S.C § 7401 et seq., amended in 1977 and 1990, is the basic federal statute governing air quality. The General Conformity Rule is codified in 40 CFR Part 51, Subpart W and Part 93, Subpart B, determining Conformity of General Federal Actions to State or Federal Implementation Plans. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operational activities are likely to result in generating direct and indirect emissions that would exceed the conformity threshold levels (*de minimis*) of the pollutant(s) for which an air basin is in non-attainment or maintenance. Because operational air emissions are included in federal or state permit programs, they are exempt. The only Project emissions subject to the General Conformity would be construction emissions.

As described in Section 9.1.2.4, portions of the Project (Erie and Niagara Counties, New York) are in ozone nonattainment areas and the entire project is in the Northeast Ozone Transport Region. Construction emissions for the Northern Access 2016 Project are presented in Table 9.1-8. The General Conformity *de minimis* levels for NO_x and VOCs are 100 tpy and 50 tpy, respectively [40 CFR § 93.153(b)(1)]. Therefore, construction emissions for the Project would be below the General Conformity applicability thresholds and a conformity analysis is not required.

9.1.3.3. New Source Review

Preconstruction approval of new stationary sources of air pollution is granted in accordance with either major or minor New Source Review (NSR) regulations. Major NSR includes two programs: Prevention of Significant Deterioration (PSD) and nonattainment NSR (NNSR). Both major NSR programs are established at the federal level and are typically implemented by state or local permitting authorities. The local authorities are either delegated authority by the USEPA or have an USEPA-approved SIP. Minor NSR permits are issued by a state or local permitting authority to a facility with potential emissions that are less than the major source thresholds.

The PSD program applies to new major sources and major modifications to existing sources in areas designated as attainment or unclassified for air pollutants with an established NAAQS. The purpose of PSD is to prevent a degradation of air quality in a NAAQS attainment area such that nonattainment occurs. In New York State, the PSD and NNSR programs are adopted by reference in 6 NYCRR Part 231. NNSR applies to new major sources and major modifications of existing sources located in nonattainment areas for specified pollutants. A project could be subject to both PSD and NNSR for different pollutants.

Prevention of Significant Deterioration

The PSD regulations identify 28 source categories for which the PSD major source threshold is 100 tpy of any PSD-regulated pollutant. Other sources, such as natural gas compressor stations are major for PSD purposes if potential emissions of any PSD-regulated pollutant exceed 250 tpy. Facility-wide potential emissions from the expanded Porterville Compressor Station, the proposed Pendleton Compressor Station and the Wheatfield Dehydration Facility are each below the PSD major source thresholds.

A key aspect of PSD is the requirement to install the Best Available Control Technology (BACT) to each source for which PSD is applicable: BACT is not required for minor, non-PSD projects. The expanded Porterville Compressor Station, the proposed Pendleton Compressor Station and the Wheatfield Dehydration Facility are not major PSD sources and are not subject to PSD review. Furthermore, NYSDEC does not require the application of BACT to minor, non-PSD stationary sources that do not trigger applicable major source, PSD, or NSR emission thresholds. Therefore, a BACT analysis will not be required for the improvements at the Porterville Compressor Station, the proposed Pendleton Compressor Station or the proposed Wheatfield Dehydration Facility.

Class I Areas

Class I Areas correspond to 156 national parks and wilderness areas that are designated for special protection under the Clean Air Act. Sources subject to PSD review and that have a potential to impact Class I Areas are required to complete a Class I area Impact Analysis and may be subject to more stringent air quality guidelines. The nearest Class I Areas to the Project's permanent stationary air emission sources are listed below:

- Lye Brook Wilderness Area: 450 km east
- Otter Creek Wilderness Area: 430 km south
- Dolly Sods Wilderness Area: 430 km south
- Brigantine Wilderness Area: 500 km southeast

Based on the distance of Class I Areas to the Project and since the Project is not subject to PSD review, no analysis of Project air impacts to Class I Areas is required.

Non-attainment New Source Review (NNSR)

Erie and Niagara Counties are designated as moderate non-attainment areas for the eight-hour ozone standard, and are located within the Northeast Ozone Transport Region. NNSR regulations apply to new major sources or major modifications at existing major sources located in non-attainment areas and NNSR thresholds apply to facilities within ozone transport regions.

The applicability threshold for NNSR is 100 tpy for all criteria pollutants, except 50 tpy for VOCs. Emissions of criteria pollutants from the proposed Pendleton Compressor Station and Wheatfield Dehydration Facility are below these thresholds and would not be subject to NNSR. Additionally, NNSR is not applicable to the Porterville Compressor Station as it is not an existing major source.

In summary, the potential emissions from the improved Porterville Compressor Station, the proposed Pendleton Compressor Station and the proposed Dehydration Facility will remain below the applicable major source thresholds and as such, will not trigger permitting associated with either PSD or major NNSR. Supply will submit air permit applications for these facilities to the NYSDEC and the applications will be forwarded to FERC under separate cover.

9.1.3.4. NSPS Requirements

The USEPA has promulgated New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific source categories. Depending upon the source type, these standards may include emission limits, work practice standards, and requirements for monitoring, recordkeeping and reporting.

NSPS apply to new, modified or reconstructed stationary sources meeting criteria established in 40 CFR Part 60. Based on the type of new equipment being installed, NSPS applies to certain emissions sources included in the Project as described below.

<u>40 CFR Part 60 Subpart KKKK</u>
The simple-cycle combustion turbines proposed for the Pendleton Compressor Station will be subject to USEPA regulations at 40 CFR Part 60 Subpart KKKK, "Standards of Performance for Stationary Combustion Turbines". These regulations apply to turbines installed after February 18, 2005.

Turbines of this type firing natural gas fuel only, and with maximum heat input ratings between 50 and 805 million British Thermal Units per hour (MMBtu/Hr), must comply with a NO_x emission standard of 25 parts per million by volume dry adjusted to 15 percent oxygen (ppmvd @ 15% O_2).

The proposed natural gas-fueled Solar Turbines, Inc. Taurus Model 70 turbines equipped with SoLoNOx have maximum heat input rates of approximately 85.43 MMBtu/hr. Solar Turbines, Inc. warrants these turbines not to exceed 25 parts per million (ppm) NO_x. Subpart KKKK requires performance emission testing for NO_x emissions periodically to verify continued compliance with the 25 ppm standard. Stack testing of this same turbine model at other facilities consistently result in NO_x concentrations less than this standard.

40 CFR 60 Part Subpart JJJJ

The new emergency generator engines at the Pendleton Compressor Station and the Wheatfield Dehydration Facility as well as the replacement emergency generator engine and new compressor engines at the Porterville Compressor Station will be subject to Subpart JJJJ.

For emergency engines manufactured after January 1, 2009 which are greater than 130 hp rated capacity (i.e.: Pendleton and Porterville), the Subpart JJJJ emission limits are:

- NO_x: 2.0 g/hp-hr or 160 ppmvd at 15% O_2;
- CO: 4.0 g/hp-hr or 540 ppmvd at 15% O_2; and
- VOC: 1.0 g/hp-hr or 86 ppmvd at 15% O_2.

For emergency engines manufactured after January 1, 2009 which are greater than 25 hp and less than 130 hp rated capacity (i.e.: Wheatfield), the Subpart JJJJ emission limits are:

- NO_x + HC: 10 g/hp-hr and
- CO: 387 g/hp-hr.

For the proposed new Porterville compressor engines (non-emergency engines manufactured after July 1, 2010 which are greater than 500 horsepower) the Subpart JJJJ emissions limits are:

- NO_x: 1.0 g/hp-hr or 82 ppmvd @ 15% O_2
- CO: 2.0 g/hp-hr or 270 ppmvd @ 15% O_2
- VOC: 0.7 g/hp-hr or 60 ppmvd @ 15% O_2

The proposed new engines will comply with the emission limits listed above and the applicable requirements of Subpart JJJJ.

40 CFR Part 60 Subpart OOOO

Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution) is not applicable to the proposed new equipment. The proposed combustion units are not affected facilities. Pneumatic controllers located in the natural gas transmission and storage segment are not affected facilities. Per 40 CFR 60.5365(e) storage vessels (i.e.: tanks) located in the natural gas transmission segment are identified as affected facilities if potential VOC emissions are greater than 6 tpy. Since the proposed storage vessels do not have emissions greater than 6 tpy, Subpart OOO is not applicable. (Refer to Tables 9.1-4 – 9.1-7.)

9.1.3.5. NESHAPS Requirements

NESHAP are promulgated under 40 CFR Part 63 to regulate and limit HAP emissions from specific processes.

40 CFR Part 63 Subpart HHH

Subpart HHH pertains to glycol dehydration units and is only applicable to "affected sources" located at Natural Gas Transmission and Storage Facilities that are major sources of HAP emissions. Therefore, these regulations are not applicable to the proposed Wheatfield Dehydration Facility since this facility is a minor, or "area," source of HAPs. (Refer to Table 9.1-6.) No dehydrators are proposed at the Porterville and Pendleton facilities.

9.1.3.6. Greenhouse Gas Tailoring Rule

The Greenhouse Gas (GHG) Tailoring Rule (75 Federal Register (FR) 31514) established provisions for determining whether GHGs are "subject to regulation," that, in conjunction with statutory and regulatory mass-based thresholds, were intended to be used in determining major stationary source status (under the PSD and Title V programs) and major modification applicability (under the PSD program) for GHGs. In June of 2014, a Supreme Court ruling struck down a portion of the rule that would have allowed the USEPA to treat greenhouse gases as an air pollutant for purposes of determining whether a source is a major source required to obtain a Prevention of Significant Deterioration (PSD) or Title V permit. The GHG Tailoring Rule thresholds still apply to facilities that are existing Prevention of Significant Deterioration Sources or would become Prevention of Significant Deterioration sources due to an exceedance of applicable threshold for a criteria pollutant. While the Tailoring Rule may not currently apply to the Project, the USEPA has not provided final guidance on how the Tailoring rule will be implemented as a result of the Supreme Court decision. Therefore, it is possible that the Tailoring Rule thresholds could potentially be applicable at a later time and GHG potential emissions are included in the Project emission tables.

Fugitive emission sources have been evaluated for the compressor stations. Sources include piping components, pneumatic controllers, and equipment blowdowns.

Potential natural gas fugitive emissions from new connectors, flanges, open-ended lines, pump seals, valves, and other components installed as a part of the project are estimated based on Table W-3 of 40 CFR 98; measured emissions from similar facilities, USEPA's Compilation of Air Pollutant Emission Factors (AP-42) and/or compressor manufacturer data. Estimates of potential natural gas releases from components were adjusted based on a site-specific gas analysis to estimate the amount of GHGs released.

Fugitive emissions are expected to be generated during the system blowdowns that periodically occur at each of the compressor stations; the blowdowns are calculated based on engineering estimates. The potential volume of natural gas released

during blowdowns is estimated based on measurements from similar facilities. A site-specific gas analysis is used to determine the amount of each pollutant released.

Fugitive GHG emissions will be attributable primarily to the compressor seal gas leakage, fugitive leaks and blowdowns. The PTE estimates of fugitive GHG emissions are provided in Tables 9.1-4 through 9.1-6 for the compressor stations and dehydration facility, and in Table 9.1-7 for the mainline valves along the pipeline.

9.1.3.7. Mandatory Greenhouse Gas Reporting Rule

The Mandatory Greenhouse Gas Reporting Rule (40 CFR Part 98) requires that greenhouse gas emissions be reported at facilities with actual GHG emissions of 25,000 tpy or more CO_2e. GHG potential emissions for Porterville, Pendleton and Wheatfield are included in Tables 9.1-4 through 9.1-6. The proposed Wheatfield Dehydration Facility GHG PTE emissions do not exceed this threshold; therefore mandatory GHG reporting is not required. The GHG PTE emissions from improved Porterville Compressor Station and the proposed Pendleton Compressor Station are both greater than 25,000 tpy CO_2e; however, Supply would only be required to comply with the Mandatory GHG Reporting Rule should the *actual* GHG emissions exceed this threshold.

9.1.3.8. Applicable State Air Quality Requirements

A NYSDEC State Facility Permit or Registration application will be prepared for the Porterville, Pendleton and Wheatfield Facilities. None of these facilities have PTE emissions exceeding major source thresholds, so no Title V permitting will be required. Potential emissions from the facilities are summarized on Tables 9.1-4 through 9.1-6. Please note that the PTE emissions tables have been prepared using the equipment information which is available at this time. Final PTE tables will be included in the permit applications which will be forwarded to FERC upon submittal to the NYSDEC.

This section summarizes State-level regulatory requirements that are applicable to construction activities and new equipment. General requirements that are unrelated to approval for construction and operation (such as emissions reporting requirements) are not summarized herein.

Pursuant to 6 NYCRR § 227-1.3(a), stationary combustion installations may not exhibit greater than 20 percent opacity (six minute average), except for one six-minute period per hour of not more than 27 percent opacity. Visible emissions are limited to 57 percent at any time. Existing and new combustion units at the facilities will comply with the opacity requirement by firing only natural gas. The proposed combustion units are designed to have inherently low visible emissions. Good combustion controls will further minimize visible emissions from the units.

The NO_x allowance requirements specified in Parts 237, 243 and 244 are not applicable to the combustion engines, turbines, and other small combustion units associated with the facilities. Standards for Stationary Combustion Installations are contained in Subpart 227. Reasonably Available Control Technology (RACT) requirements for stationary sources of NO_x emissions are in Subpart 227-2. These requirements are for boilers, combustion turbines, and stationary internal combustion engines. The rules are applicable at major sources of NO_x; however, none of the facilities will be major sources of NO_x; therefore the RACT requirements are not applicable.

9.1.3.9. Air Dispersion Modeling

Minor sources, such as the proposed Porterville, Pendleton and Wheatfield facilities, that are not subject to NNSR and PSD reviews and do not appear likely to contravene any applicable ambient air quality standard, are not required by regulation to conduct dispersion modeling to determine ambient air quality impacts and demonstrate compliance with the NAAQS. Nonetheless, in response to FERC's request, air dispersion modeling, using AERSCREEN or AERMOD, as appropriate will be conducted for the improved Porterville Compressor Station and the proposed Pendleton Compressor station. The modeling results will be submitted under separate cover upon completion. This submittal will include input parameters (emission rates, stack heights, stack temperatures, exit velocities, etc.) and justification for any assumptions used in determining input parameters.

9.1.4. Air Quality Impacts

Air emissions resulting from natural gas combustion and construction activities include the following criteria pollutants: oxides of nitrogen (NO_x), carbon monoxide, sulfur dioxide, particulate matter (PM_{10} and $PM_{2.5}$). Additionally, emissions of hazardous air pollutants and volatile organic compounds (VOCs) occur in the form of unburned hydrocarbons and emissions from the natural gas dehydration unit(s).

9.1.4.1. Existing Emissions

PTE emissions from the operation of the existing Porterville Compressor Station are presented in Table 9.1-4B. Total NOx PTE emissions from the existing facility are capped with a 6,500 hour limit on each of the four existing 150 hp compressor engines. Facility emissions of pollutants are below major source thresholds. The PTE emissions for NO_x at the existing facility total 97 tpy.

9.1.4.2. Emissions from New Facilities

Estimated emissions from the operation of the expanded Porterville Compressor Station, the new Pendleton Compressor station, the new Wheatfield Dehydration Facility, and pipeline facilities are summarized below.

Porterville Compressor Station

As noted previously, Supply anticipates undertaking a storage compressor engine replacement project at the Porterville Compressor Station. The replacement project is separate from the Northern Access 2016 project. Replacement of the four existing 150 hp storage compressor engines with a single Waukesha F18SE 400 HP engine will reduce the NO_x PTE storage compressor engine emissions by approximately 88 tpy. (Refer to Tables 9.1-4A and 9.1-4B.)

With the addition, replacement and removal of the remaining equipment as part of the Northern Access 2016 Project (see Table 9.1-1), the PTE emissions from the improved Porterville Compressor Station will be less than 50% of major source thresholds. (See Table 9.1-4A.) Thus, an air registration application is being prepared for this facility. A copy of the NYSDEC air registration application will be provided to FERC following submittal to the NYSDEC.

Pendleton Compressor Station

PTE emissions from the proposed Pendleton Compressor Station are summarized in Table 9.1-5. Total facility PTE emissions will be below major source thresholds. Thus, the facility will be classified as a natural minor source, and a NYSDEC State Facility Permit application is being prepared for this facility. A copy of the permit application will be provided to FERC following submittal to the NYSDEC.

Wheatfield Dehydration Facility

PTE emissions from the proposed Wheatfield Dehydration Facility are summarized in Table 9.1-6. Total facility PTE emissions will be below major source thresholds. Thus, the facility will be classified as a natural minor source, and a NYSDEC State Facility Permit application is being prepared for this facility. A copy of the permit application will be provided to FERC following submittal to the NYSDEC.

Pipeline Facilities

Thirteen mainline valves with pneumatic (natural gas) actuators will be installed along the Mainline Pipeline. The potential emissions from these actuators are calculated by conservatively assuming a continuous bleed rate of 6 standard cubic feet per hour per component. Fugitive PTE emissions from the pipeline pneumatic actuators are summarized in Table 9.1-7.

Two emergency generator engines will also be installed at pipeline facilities: one at the TGP-200 Interconnect and one at the X-North Pressure Reduction Station. Both are currently assumed to be Kohler Systems model KG2204 36 hp engines or equivalent. Additionally, a 1,000-gallon condensate storage tank will be installed at the TGP 200 Interconnect. PTE emissions from the emergency generator engines and the tank are also summarized on Table 9.1-7.

9.1.4.3. Temporary Construction Emissions

Construction of the Northern Access 2016 Project is scheduled to begin in early 2016, with completion expected by November 1, 2016. To date, the construction phase of the Northern Access 2016 Project has not been awarded to a contractor and the exact equipment to be used on-site for each phase of construction is not known. The construction emissions estimates assume that construction will occur over a period of 8 months.

Estimated Project construction emissions are presented in Tables 9.1-8 through 9.1-11.

Project air quality impacts associated with construction activities are anticipated to be temporary, localized, and relatively small. It is anticipated that earth-moving equipment and other non-road sources will be powered by diesel engines and will be sources of combustion-related emissions including criteria pollutants such as NO_x, CO, VOCs, PM; GHG emissions; and small amounts of HAPs. Additionally, fugitive dust will result from clearing, grading, excavation, concrete work and vehicle traffic.

No open burning of brush or other materials will be conducted as part of the Project.

9.1.4.4. Cumulative Impacts

Cumulative impacts are a potential concern when the emissions of more than one source or facility can additively affect air quality. As it pertains to this Project, there are three main sources of emissions that could potentially be of concern for cumulative impacts: 1) original and improved Porterville Compressor Station; 2) proposed Pendleton Compressor Station, proposed Wheatfield Dehydration Facility and 3) nearby sources. As mentioned previously, the existing Porterville Compressor Station included in this Project operates under a permit issued by the NYSDEC. National Fuel will be submitting an air registration application in the near future for the improvements at the Porterville Compressor Station, which are associated with this Project. In addition, separate Air State Facility Permit applications are being submitted for the proposed Pendleton Compressor Station and Wheatfield Dehydration Facility.

An evaluation of cumulative impacts is provided in Resource Report 1.

9.1.5. Mitigation

9.1.5.1. Construction

National Fuel will comply with the fugitive dust emissions according to 6 NYCRR Part 201 and 25 PA Code, Sections 123.1. Fugitive dust emissions may be generated from excavation and vehicle traffic on unpaved or disturbed access and construction land surfaces.

Fugitive dust mitigation techniques will be applied on an as-needed basis as determined by the construction site supervisor. Strategies that may be used during construction include as-needed water applications on access roads and construction work areas, vehicle speed restrictions, use of gravel or asphalt at site exit points to remove dirt from tires and tracks, and replanting disturbed areas as quickly as possible after construction. Additionally, the project Environmental Inspector will have the authority to (a) determine if/when dust control measures are necessary and (b) stop work if the contractor does not comply with dust control measures. A Fugitive Dust Control Plan is being prepared and will be submitted to FERC at a later date.

Fugitive emissions from exhaust systems of construction equipment will be mitigated through operational measures. Operational measures include limiting engine idling by shutting down equipment when not required and regular preventative maintenance to prevent emission increases due to engine problems. To reduce emissions from the operation of internal combustion engines, idling of construction vehicles will be minimized.

Through implementation of the above work practices and the short duration of construction activities, National Fuel estimates temporary emissions during construction of this Project will be minimal.

9.1.5.2. Operations

National Fuel is preparing an analysis of the feasibility of utilizing electric-motor-driven compressors at the new compressor station and the feasibility of converting the existing Porterville Compressor Station to electric driven compression. This supplemental document will be provided to FERC at a later date.

9.2. NOISE

The unit of noise measurement is the decibel (dB), which measures the energy of the noise. Because the human ear is not uniformly sensitive to noise frequencies, the "A" weighting frequency scale (dBA) was devised to correspond with the ear's sensitivity. The A-weighted frequency scale uses specific weighting of a sound pressure level for the purpose of determining the human response to sound and the resulting unit of measure is the dBA.

Because noise levels can vary over a given time period, they are further quantified using the Equivalent Sound Level (Leq) and Day-Night Level (Ldn). The Leq is an average of the time-varying sound energy for a specified time period. The Ldn is an average of the time-varying sound energy for one 24-hour period, with a 10 dB addition to the sound energy for the time period of 22:00 to 07:00 hours.

9.2.1. Noise Regulations

The proposed NA 2016 project is regulated by the Federal Energy Regulatory Commission (FERC). The FERC noise regulations and applicable State, County and Local noise regulations are presented below.

9.2.1.1. Federal Energy Regulatory Commission (FERC)

The United States Environmental Protection Agency (USEPA) has identified an Ldn of 55 dBA as being the maximum sound level that will not adversely affect public health and welfare by interfering with speech or other activities in outdoor areas, with an adequate margin of safety (USEPA, 1971). If the sound energy does not vary with time, the Ldn level will be equal to the Leq level plus 6.4 dB.

Commission Guidelines require that the noise attributable to any new compressor station, compression added to an existing station, or any modification, upgrade or update of an existing station, must not exceed a day – night sound level (Ldn) of 55 dBA at any pre-existing noise-sensitive area (such as schools, hospitals, or residences). In addition, typically the noise attributable to the full load operation of the Station, including the compressor unit addition(s), should not exceed the previously existing noise levels produced by the station at any nearby NSA that are above an Ldn of 55 dBA. New compressor stations or modifications of existing stations shall not result in a perceptible increase in vibration at any noise-sensitive area.

9.2.1.2. State Regulations

There are no applicable Pennsylvania or New York[2] noise regulations.

9.2.1.3. County Regulations

We are unaware of any applicable Cattaraugus, Erie, or Niagara county noise ordinances.

9.2.1.4. Local Regulations

Applicable local town noise regulations for the proposed Pendleton Compressor Station and Proposed Wheatfield Dehydration Station will be presented to FERC by April 15, 2015. Applicable local town noise regulations for the remaining facilities will be presented to FERC by April 30, 2015.

9.2.2. Existing Noise Levels

Hoover and Keith, Inc. (H&K), an acoustical engineering company headquartered in Houston, Texas performed pre-construction and/or ambient sound surveys for the project facilities. The existing sound levels are depicted in the following tables:

- Existing Porterville Compressor Station and Proposed X-N Pressure Reduction Station — Table 9.2.4.1-1
- Proposed TGP 200 Interconnect Station — Table 9.2.4.2-1
- Proposed Pendleton Compressor Station — Table 9.2.4.3-1
- Proposed Wheatfield Dehydration Station — Table 9.2.4.4-1
- Proposed Hinsdale Meter Station — Table 9.2.4.5-1

9.2.3. Construction Noise Impacts

9.2.3.1. Aboveground Facilities

Construction of the proposed facilities will be temporary and short-term in nature, and primarily limited to daytime hours. Construction will consist of earth work (e.g., site grading, clearing and grubbing) and construction of the site foundations and equipment, and it is assumed that the highest level of construction noise would occur during site earth work (i.e., time frame when the largest amount of construction equipment would operate).

H&K estimates the following peak noise level of construction activities, at the closest NSAs, for the project facilities:

[2] The NYSDEC has a Policy Document (i.e., Program Policy DEP-00-1; Revised Feb. 2, 2001, "Assessing and Mitigating Noise Impacts") to provide guidance and clarify program issues for NYSDEC staff to ensure compliance with statutory and regulatory requirements for facility operations regulated under New York State Environmental Quality Reviews or "SEQR".

- Proposed Compressor Unit Additions at the Porterville CS ___ dBA Ldn
- Proposed X-N Pressure Reduction Station ___ dBA Ldn
- Proposed TGP 200 Interconnect Station ___ dBA Ldn
- Proposed Pendleton Compressor Station ___ dBA Ldn
- Proposed Wheatfield Dehydration Station ___ dBA Ldn
- Proposed Hinsdale Meter Station ___ dBA Ldn

Estimated construction noise impacts for the proposed Pendleton Compressor Station and Proposed Wheatfield Dehydration Station will be presented to FERC by April 15, 2015. Estimated construction noise impacts for the remaining facilities will be presented to FERC by April 30, 2015.

9.2.3.2. Pipeline Facilities

Construction of the pipeline will cause temporary increases in noise levels in the immediate vicinity of the construction sites. On-site construction noise will occur mainly from heavy-duty construction equipment (e.g., trucks, backhoes, excavators, loaders and cranes). Noise from on-site construction activities that may occur near a noise-sensitive receptor along the pipeline route may be intermittent or continuous, but will be limited to short durations over a period of three to four weeks at any one location based on the nature of right-of-way construction sequencing.

Blasting, if required for ditch excavation in shallow bedrock conditions may also be required during the ROW construction sequencing. Controlled blasting for purposes of making shallow bedrock excavation feasible will be completed in accordance with a blasting plan (as described in Resource Report 6). The amount of explosives per borehole will be limited by the proximity of existing structures and utilities. Instantaneous sound levels from typical construction blasting would be more than typical project construction activities at a distance of 50 feet. In comparison with other construction noise, the sound from blasting will be brief and infrequent, if blasting is determined to be required on the project.

9.2.3.3. HDD Sites

NFG proposes to utilize the HDD construction method at the Allegheny River (McKean County, PA), I-86 (Cattaraugus County, NY) and Highway 16 (Erie County, NY) for the new gas pipeline associated with the Project. The HDD construction technique is an alternative to traditional "open cut" construction and is itself an "environmental mitigative measure" for avoiding foreign pipelines, utilities and water bodies.

A 55 dBA L_{dn} sound level contribution, resulting from HDD drilling operations, at nearby NSAs is typically utilized by the Federal Energy Regulatory Commission (“FERC”) as a

guideline and/or criteria when HDD operations could be employed for a 24-hour workday. For 24-hour HDD drilling activities, FERC also requires mitigation measures to minimize the noise impact of 24-hour HDD activities.

Table 9.2.3.3-1 summarizes the construction noise assessment for the closest NSAs to the Entry and Exit sites for the proposed HDD sites:

Table 9.2.3.3-1. Construction Noise Assessment for the HDD Sites

HDD Location	Entry or Exit Point	Distance & Direction of Closest NSA	Calc'd Peak L_{dn} due to HDD (w/o added noise control measures) (dBA)	Calc'd Peak L_{dn} due to HDD (w/ added noise control measures) (dBA)	Meas'd Ambient L_{dn} (dBA)	Total L_{dn} of HDD + Ambient (dBA)	Increase above Ambient Ld_n (dBA)
HDD #1 Allegheny River	Entry	1,775 ft. NE			48.7		
	Exit	> ½ Mile	---	---	---	---	---
HDD #2 Interstate 86	Entry	700 ft. SE			57.1		
	Exit	475 ft. N-NE			49.8		
HDD #3 Highway 16	Entry	300 ft. NE			52.0		
	Exit	950 ft. NW			47.1		

Construction noise assessments for the proposed HDD crossings will be presented will be provided to FERC by April 30, 2015.

9.2.4. Operating Noise Impacts

9.2.4.1. Existing Porterville Compressor Station and Proposed X-N Pressure Regulation Station

The Noise Impact Analysis for the proposed compressor unit additions, including the replacement unit for the existing compressor units, at the existing Porterville Compressor Station along with the proposed X-N Pressure Reduction Station was performed in the following report:

H&K RN 3166, dated _____, 2015, Existing Porterville Compressor Station and Proposed X-N Pressure Reduction Station, Pre-Construction Sound Survey and Noise Impact Analysis (associated with the Northern Access 2016 Project).

Table 9.2.4.1-1 summarizes the Noise Quality Analysis, at the nearby NSAs, for the modified Porterville Compressor Station and proposed X-N Pressure Reduction Station:

Table 9.2.4.1-1. Noise Quality Analysis for the Modified Porterville Compressor Station and the Proposed X-N Pressure Reduction Station

NSAs	Distance to Center of Proposed Comp. Units	L_{dn} of Existing Station at Full Load Operation (dBA)	Est'd L_{dn} of Modified Compressor Station at Full Load Operation (dBA)	Est'd L_{dn} of Proposed X-N Pressure Reduction Station (dBA)	Total Station L_{dn} (Modified Compressor Station + Proposed X-N Pressure Reduction Station) (dBA)	Potential Increase Above Existing Station Sound Level (dBA)
NSA #1 (House)	700 ft. NW	50.0				
NSA #2 (Houses)	525 ft. N-NE	52.9				
NSA #3 (Houses)	600 ft. E-NE	55.7				
NSA #4 (Houses)	950 ft. NW	49.7				
NSA #5 (Houses)	1,200 ft. SW to SE	50.9				
NSA #6[(1)] (House)	400 ft. SE	TBD				

[(1)] NSA #6 is 400 ft. SE of the Proposed X-N Pressure Reduction Station and 5,000 ft. E of the proposed compressor units at the Porterville Compressor Station.

Operating noise assessments for the modified Porterville Compressor Station will be provided to FERC by April 30, 2015.

9.2.4.2. Proposed TGP 200 Interconnect Station

The Noise Impact Analysis for the proposed TGP 200 Interconnect Station was performed in the following report:

H&K RN 3169, dated _____, 2015, Proposed TGP 200 Interconnect Station, Noise Impact Analysis (associated with the Northern Access 2016 Project).

Table 9.2.4.2-1 summarizes the Noise Quality Analysis, at the nearby NSAs, for the proposed TGP Interconnect Station:

Table 9.2.4.2-1. Noise Quality Analysis for the Proposed TGP Interconnect Station

NSAs	Distance to Proposed TGP Inter-connect Station	Est'd L_{dn} of Ambient + Existing East Aurora Comp. Station at Full Load [(1)] (dBA)	Est'd L_{eq} of Proposed TGP Inter-connect Station (dBA)	Est'd L_{dn} of Proposed TGP Inter-connect Station (dBA)	Total L_{dn} (Ambient + Existing East Aurora Comp. Station + Proposed TGP Interconnect Station) (dBA)	Potential Increase Above Ambient + Existing East Aurora Comp. Station Sound Level (dB)
NSA #1 (Houses)	2,600 ft. W	**39.5**				
NSA #2 (Houses)	2,900 ft. W-SW	**40.6**				
NSA #3 (Houses)	2,450 ft. SW	**41.2**				
NSA #4 (Park)	750 ft. E	**38.9**				

[(1)] From H&K RN 2840, East Aurora Compressor Station, Post-Construction Sound Survey (associated with the Northern Access Project), FERC Docket No. CP-11-128-000. April 23, 2013.

Operating noise assessments for the proposed TGP Interconnect Station will be provided to FERC by April 30, 2015.

9.2.4.3. Proposed Pendleton Compressor Station

The Noise Impact Analysis for the proposed Pendleton Compressor Station was performed in the following report:

H&K RN 3167, dated _____, 2015, Proposed Pendleton Compressor Station, Ambient Sound Survey and Noise Impact Analysis (associated with the Northern Access 2016 Project).

Table 9.2.4.3-1 summarizes the Noise Quality Analysis, at the nearby NSAs, for the proposed Pendleton Compressor Station:

Table 9.2.4.3-1. Noise Quality Analysis for the Proposed Pendleton Comp. Station

NSAs	Distance to Proposed Comp. Station	Existing Ambient L_{dn} (dBA)	Est'd L_{eq} of Proposed Compressor Station (dBA)	Est'd L_{dn} of Proposed Compressor Station (dBA)	Total L_{dn} (Ambient + Proposed Compressor Station) (dBA)	Potential Increase Above Existing Ambient Level (dBA)
NSA #1 (Houses)	800 ft. SW to NW	34.8				
NSA #2 (Houses)	2,300 ft. SE to E	38.7				
NSA #3 (Houses)	1,550 ft. NW	34.0				
NSA #4 (Houses)	1,250 ft. SW	34.8				

Operating noise assessments for the proposed Pendleton Compressor Station will be provided to FERC by April 15, 2015.

9.2.4.4. Proposed Wheatfield Dehydration Facility

The Noise Impact Analysis for the proposed Wheatfield Dehydration Facility was performed in the following report:

H&K RN 3168, dated April __, 2015, Proposed Wheatfield Dehydration Facility, Ambient Sound Survey and Noise Impact Analysis (associated with the Northern Access 2016 Project).

Table 9.2.4.4-1 summarizes the Noise Quality Analysis, at the nearby NSAs, for the proposed Wheatfield Dehydration Facility:

Table 9.2.4.4-1. Noise Quality Analysis for the Proposed Wheatfield Dehy Facility

NSAs	Distance to Proposed Wheatfield Dehy Facility	Existing Ambient L_{dn} (dBA)	Est'd L_{eq} of Proposed Dehy Facility (dBA)	Est'd L_{dn} of Proposed Dehy Facility (dBA)	Total L_{dn} (Ambient + Proposed Dehy Facility) (dBA)	Potential Increase Above Existing Ambient Level (dBA)
NSA #1 (Houses)	3,000 ft. SW	57.2				
NSA #2 (Houses)	3,350 ft. S	52.8				
NSA #3 (Houses)	2,450 ft. N	51.0				
NSA #4 (Houses)	3,000 ft. NE	51.0				

Operating noise assessments for the proposed Wheatfield Dehydration Facility will be provided to FERC by April 15, 2015.

9.2.4.5. Proposed Hinsdale Meter Station

The Noise Impact Analysis for the proposed Hinsdale Meter Station was performed in the following report:

H&K RN 3219, dated _____, 2015, Proposed Hinsdale Meter Station, Noise Impact Analysis (associated with the Northern Access 2016 Project).

Table 9.2.4.5-1 summarizes the Noise Quality Analysis, at the nearby NSAs, for the proposed Hinsdale Meter Station:

Table 9.2.4.5-1. Noise Quality Analysis for the Proposed Hinsdale Meter Station

NSAs	Distance to Proposed Meter Station	Est'd L_{dn} of Hinsdale CS[(1)] at Full Load Operation (dBA)	Est'd L_{eq} of Proposed Meter Station (dBA)	Est'd L_{dn} of Proposed Meter Station (dBA)	Total L_{dn} (Hinsdale CS + Proposed Hinsdale Meter Station) (dBA)	Potential Increase Above Existing Station Sound Level (dBA)
NSA #1 (Houses)	550 ft. NW	46.3				
NSA #2 (Houses)	1,800 ft. SW	46.1				
NSA #3 (Houses)	1,850 ft. SE	39.5				
NSA #4 (House)	2,000 ft. NE	36.5				
NSA #5 (House)	2,100 ft. NW	39.7				

(1) From H&K RN 2941, Hinsdale Compressor Station, Ambient Sound Survey and Noise Impact Analysis (associated with the Northern Access 2015 Project), FERC Docket No. CP14-100-000. January 31, 2014.

Operating noise assessments for the proposed Hinsdale Meter Station will be provided to FERC by April 30, 2015.

9.2.5. Noise Mitigation Measures

Noise mitigation measures for the proposed Pendleton Compressor Station and proposed Wheatfield Dehydration Facility will be provided to FERC by April 15, 2015. Noise mitigation measures for the modified Porterville Compressor Station, proposed X-N Pressure Reduction Station, proposed TGP 200 Interconnect Station and proposed Hinsdale Meter Station will be provided to FERC by April 30, 2015.

9.2.6. Post-Construction Sound Surveys

9.2.6.1. Porterville Compressor Station and Proposed X-N Pressure Reduction Station

Within 60 days of startup of the modifications to the Porterville Compressor Station and completion of the proposed X-N Pressure Reduction Station, a Post-Construction Sound Survey will be performed to document that the total sound level contribution of the modified Porterville Compressor Station, at full load, and proposed X-N Pressure Reduction Station, at full capacity, does not exceed an L_{dn} of 55 dBA at the surrounding NSAs. National Fuel will ensure that the modified Porterville Compressor Station is operated at 75% or greater load during the Post-Construction Sound Survey, and the

measured sound levels will be appropriately factored to document and assess the full load Station sound levels. The results of the sound survey will be submitted to the Commission.

9.2.6.2. Proposed TGP 200 Interconnect Station

Within 60 days of startup of the proposed TGP Interconnect Station, a Post-Construction Sound Survey will be performed to document that the full capacity Station sound level contribution does not exceed an L_{dn} of 55 dBA at the surrounding NSAs. The results of the sound survey will be submitted to the Commission.

9.2.6.3. Proposed Pendleton Compressor Station

Within 60 days of startup of the proposed Pendleton Compressor Station, a Post-Construction Sound Survey will be performed to document that the full load Station sound level contribution does not exceed an L_{dn} of 55 dBA at the surrounding NSAs. National Fuel will ensure that the Station is operated at 75% or greater load during the Post-Construction Sound Survey, and the measured sound levels will be appropriately factored to document and assess the full load Station sound levels. The results of the sound survey will be submitted to the Commission.

9.2.6.4. Proposed Wheatfield Dehydration Facility

Within 60 days of startup of the proposed Wheatfield Dehydration Facility, a Post-Construction Sound Survey will be performed to document that the full load Station sound level contribution does not exceed an L_{dn} of 55 dBA at the surrounding NSAs. The results of the sound survey will be submitted to the Commission.

9.2.6.5. Proposed Hinsdale Meter Station

Within 60 days of startup of the proposed Hinsdale Meter Station, a Post-Construction Sound Survey will be performed to document that the full capacity Station sound level contribution does not exceed an L_{dn} of 55 dBA at the surrounding NSAs. The results of the sound survey will be submitted to the Commission.

9.3. REFERENCES

H&K RN 3166, dated _____, 2015, Existing Porterville Compressor Station and Proposed X-N Pressure Reduction Station, Pre-Construction Sound Survey and Noise Impact Analysis (associated with the Northern Access 2016 Project).

H&K RN 3169, dated _____, 2015, Proposed TGP 200 Interconnect Station, Noise Impact Analysis (associated with the Northern Access 2016 Project).

H&K RN 3167, dated _____, 2015, Proposed Pendleton Compressor Station, Ambient Sound Survey and Noise Impact Analysis (associated with the Northern Access 2016 Project).

H&K RN 3168, dated _____, 2015, Proposed Wheatfield Dehydration Station, Ambient Sound Survey and Noise Impact Analysis (associated with the Northern Access 2016 Project).

H&K RN 3170, dated _____, 2015, Acoustical Assessment of HDDs (associated with the Northern Access 2016 Project).

H&K RN 3219, dated _____, 2015, Proposed Hinsdale Meter Station, Noise Impact Analysis (associated with the Northern Access 2016 Project).

H&K RN 2840, dated April 23, 2013, East Aurora Compressor Station, Post-Construction Sound Survey (associated with the Northern Access Project), FERC Docket No. CP-11-128-000.

H&K RN 2941, dated January 31, 2014, Hinsdale Compressor Station, Ambient Sound Survey and Noise Impact Analysis (associated with the Northern Access 2015 Project), FERC Docket No. CP-14-100-000.

NAAQS for criteria pollutants obtained from 40 Code of Federal Regulations (CFR) Part 50.

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USEPA. 2014a. AirData Air Quality Monitoring System Data Mart (air quality monitoring database). Available at: www.epa.gov/airquality/airdata/. Accessed January 2015.

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United States Code of Federal Regulations. 1983. Title 18, Part 157, Section 157.206(d)(5) Environmental Compliance, Sound Levels. U.S. Government Printing Office, Washington, DC.

APPENDIX 9-A

Tables Supporting Air Quality Section 9.1

Table 9.1-1

Emission Source Descriptions

Source	Location	Description	Equipment Size	Unit Status
Engines 1-4	Porterville Compressor Station	Four Ingersoll Rand 4XVG 4-Stroke Rich Burn Engines	150 HP each	Existing (to be removed)[1]
Engine G		Kohler 55RZ61 4-Stroke Rich Burn Emergency Generator	70 HP	Existing (to be removed)
Boilers		BDP Company 234B 5PQ Boiler	0.16 MMBtu/hr	Existing
		BDP Company 231B 3PQ Boiler	0.08 MMBtu/hr	Existing
		Burnham 808B-W Boiler	0.462 MMBtu/hr	Existing (to be removed)
Heaters		A.O. Smith GCVL 40 100 Water Heater	0.04 MMBtu/hr	Existing
		Reznor EEXL200 Space Heater	0.2 MMBtu/hr	Existing
		Reznor F165-S Space Heater	0.165 MMBtu/hr	Existing
		Bradford White MI403S6FBN Water Heater	0.04 MMBtu/hr	Existing
Pipeline Heaters		Four TulPro Pipeline Heaters	1.0 to 3.5 MMBtu/hr	Existing
Tanks		Waste Oil Storage Tank	300-gallons	Existing (to be removed)
		Diesel Fuel Storage Tank	300-gallons	Existing
		Unleaded Gasoline Storage Tank	1,000-gallons	Existing
		Methanol Storage Tank	2,000-gallons	Existing
		Mercaptan Storage Tank	2,000-gallons	Existing
		Drip Fluids Storage Tank	3,000-gallons	Existing
		Two Mercaptan Storage Tanks	3,000-gallons each	Existing
		Triethylene Glycol Storage Tank	1,000-gallons	New
		Condensate Storage Tank	1,000-gallons	New
		Lube Oil Storage Tank	3,000-gallons	New
Fugitives		Fugitive Emissions (Venting, Blowdowns, Leaks)	Not Applicable	Existing/New
ENG 01-02		Two Caterpillar 3608A4 2-Stroke Lean Burn Engines	2,675 HP each	New
ENG 03		One Waukesha F18SE Rich Burn Engine	400 HP	New[1]
GEN		One Caterpillar G3412TA 4-Stroke Rich Burn Emergency Generator	622 HP	New

[1] Removal and replacement of the existing storage compression engines is not part of the NA2016 Project, but will occur prior to, or concurrently with, the NA2016 Project. Refer to Section 9.0.

Continued on next page

Table 9.1-1 *Continued*
Northern Access 2016 Project

Emission Source Descriptions

Source	Location	Description	Equipment Size	Unit Status
DEHY	Wheatfield Dehydration Facility	Two Frederick Logan Company, Inc. Triethylene Glycol Dehydrators, each with Flash Tank Control	442 MMSCFD rated throughput (each) 1.5 MMBtu/hr reboiler burner (each)	New
GEN		MTU 10V0068 GS75 4-Stroke Rich Burn Emergency Generator	100 HP	New
Tank		Condensate Storage Tank	1,000-gallons	New
		Triethylene Glycol Storage Tank	1,000-gallons	New
ENG	Pendleton Compressor Station	Two Solar Taurus T70 SoLoNOx Turbines	11,100 HP each (nominal at ISO conditions) 11,626 HP each (at site conditions[1])	New
GEN		Caterpillar G3516A 4-Stroke Rich Burn Emergency Generator Engine with 3-way oxidation catalyst	1,053 HP	New
Fugitives		Fugitive Emissions (Venting, Blowdowns, Leaks)	Not Applicable	New
Tank		Condensate Storage Tank	1,000-gallons	New
VALVE	Pipeline Facilities	13 Mainline Valves with pneumatic (natural gas) actuators	N/A	New
Tank		Condensate Storage Tank (East Aurora TGP 200 Interconnect)	1,000-gallon	New
GEN		Kohler Systems Model KG2204 Emergency Generator (East Aurora/TGP 200 Interconnect	36 HP	New
GEN		(Kohler Systems Model KG2204 Emergency Generator X-North Pressure Reduction Station)	36 HP	New

1. Site conditions for turbine operation are conservatively estimated to be the following: 0ºF ambient temperature, 100% load, 70% relative humidity, 582 feet in elevation.

Table 9.1-2

National Ambient Air Quality Standards

Pollutant	Averaging Period	Primary Standard	Secondary Standard
SO_2	3-Hour[2]	--	500 ppb (1300 µg/m^3)
	1-hour[10, 11]	75 ppb (196 µg/m^3)	--
PM_{10}	24-Hour[4]	150 µg/m^3	150 µg/m^3
$PM_{2.5}$	Annual[5]	12.0 µg/m^3	15.0 µg/m^3
	24-Hour[6]	35 µg/m^3	35 µg/m^3
CO	8- Hour[2]	9 ppm (10,000 µg/m^3)	--
	1- Hour[2]	35 ppm (40,000 µg/m^3)	--
O_3	8- Hour (2008 Standard)[7, 8]	75 ppb (150 µg/m^3)	75 ppb (150 µg/m^3)
	8- Hour (1997 Standard)[7, 9]	80 ppb (157 µg/m^3)	80 ppb (157 µg/m^3)
NO_2	Annual[1]	53 ppb (100 µg/m^3)	53 ppb (100 µg/m^3)
	1-hour[3]	100 ppb (188 µg/m^3)	--
Lead	Rolling 3-month[1]	0.15 µg/m^3	0.15 µg/m^3

1 Not to be exceeded.

2 Not to be exceeded more than once per year.

3 Compliance based on 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area.

4 Not to be exceeded more than once per year on average over 3 years.

5 Compliance based on 3-year average of weighted annual mean $PM_{2.5}$ concentrations at community-oriented monitors.

6 Compliance based on 3-year average of 98th percentile of 24-hour concentrations at each population-oriented monitor within an area.

7 Compliance based on 3-year average of fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area.

8 USEPA is currently reconsidering the 8-hour ozone standard set in March 2008.

9 The 1997 8-hour ozone standard and associated implementation rules remain in place as the transition to the 2008 standard occurs.

10 Compliance based on 3-year average of 99th percentile of the daily maximum 1-hour average at each monitor within an area.

11 The 1-hour SO_2 standard was effective as of August 23, 2010.

ppm = parts per million by volume.

ppb = parts per billion by volume.

µg/m^3 = micrograms per cubic meter.

Table 9.1-3
Ambient Air Quality Data from Project Area

Pollutant	Averaging Period	Rank	NAAQS	Year	Year	Year	Units	Monitor(s)[1]
CO				**2013**	**2012**	**2011**		
	1-hour	2nd high	35	1.9	1.6	1.6	ppm	Buffalo
	8-hour	2nd high	9	1.3	1.1	1.3	ppm	
				2012	**2011**	**2010**		
	1-hour	2nd high	35	1.1	1.3	1.3	ppm	Niagara Falls
	8-hour	2nd high	9	1.0	1.0	1.1	ppm	
SO_2				**2010**	**2009**	**2008**		
	3-hour	2nd high	500	11	22	18	ppb	Buffalo
				2013	**2012**	**2011**		
	1-hour	99th percentile	75	3-year average = 25			ppb	Buffalo
NO_2				**2012**	**2011**	**2010**		
	Annual	mean	53	6.44	8.32	8.19	ppb	Amherst
	1-hour	98th percentile	100	3-year average = 42			ppb	
				2013	**2012**	**2011**		
	Annual	mean	53	10.38	10.46	12.52	ppb	Buffalo
	1-hour	98th percentile	100	3-year average = 48.6			ppb	
Ozone				**2013**	**2012**	**2011**		
	8-hour	4nd high	75	3-year average = 0.073			ppb	Amherst
	8-hour	4th high	75	3-year average = 0.073			ppb	Middleport
$PM_{2.5}$				**2013**	**2012**	**2011**		
	24-hour	98th percentile	35	3-year average = 21.5			$\mu g/m^3$	Buffalo
	Annual	Mean	12	3-year average = 9.2			$\mu g/m^3$	
	24-hour	98th percentile	35	3 year average = 21.1			$\mu g/m^3$	Brookside Terrace
	Annual	Mean	12	3 year average = 8.7			$\mu g/m^3$	
				2012	**2011**	**2010**		
	24-hour	98th percentile	35	3-year average = 22			$\mu g/m^3$	Niagara Falls
	Annual	Mean	12	3-year average = 8.2			$\mu g/m^3$	
PM_{10}				**2012**	**2011**	**2010**		
	24-hour	2nd high	150	42	32	47	$\mu g/m^3$	Niagara Falls

$\mu g/m^3$ = micrograms per cubic meter
ppm = parts per million
ppb = parts per billion
N/A = not available

[1]Air quality monitoring data was obtained from the NYSDEC air quality monitoring data tables, with the exception of the 1-hr SO_2 value which was obtained from USEPA AirData.

Table 9.1-4A
Northern Access 2016 Project

Preliminary Summary[1] of PTE Emissions for Improved Porterville Compressor Station

Replacement Storage Compressor Engine NOT Part of NA2016 Project	Potential Emissions (tpy)								
	NO_x	CO	VOC	PM_{10} and $PM_{2.5}$	SO_2	Total HAPs	Formal-dehyde	Benzene	GHG (CO_{2e})
GE Waukesha F18SE 4-Stroke Rich Burn Compressor Engine (400 HP)	3.9	7.7	3.0	0.27	0.008	0.457	0.288	0.022	1,628
Proposed NA 2016 Emissions Sources									
Two (2) Caterpillar G3608 A4 2-Stroke Lean Burn Compressor Engines (2,675 HP each)	36.1	31.0	13.9	7.60	0.093	7.841	4.133	0.305	23,009
Caterpillar G3412 TA 4-Stroke Rich Burn Emergency Generator (622 HP)	0.7	1.4	0.3	0.02	0.001	0.039	0.025	0.002	140
Three Storage Tanks (1,000 gallon capacity each)[2]	-	-	0.7	-	-	0.026	-	0.002	6
Fugitive Emissions (Venting, Blowdowns, Leaks)	-	-	2.0	-	-	-	-	-	26,828
Subtotal: Proposed NA2016 Emissions Sources	36.7	32.4	17.0	7.62	0.094	7.865	4.155	0.309	49,983
Subtotal: Replacement Storage Compressor Eng.	3.9	7.7	3.0	0.27	0.008	0.457	0.288	0.022	1,628
Subtotal from Table 9.1-4B: Existing Emissions Sources to Remain	4.3	3.6	2.6	0.33	0.027	0.196	0.003	0.006	5,237
TOTAL IMPROVED FACILITY[3]:	44.9	43.7	22.6	8.2	0.1	8.5	4.4	0.3	56,848
Major Source Thresholds (Title V)	100	100	50	100	100	25	10	10	N/A

1. This preliminary summary of PTE Emissions is based on proposed equipment information at the time of this submittal. If the type or configuration of equipment is updated, revised PTE calculations will be presented in the air permit application which will be provided to FERC following submittal to the NYSDEC.
2. Refer to Table 9.1-1 for a summary of tank capacities and contents.
3. Total Improved Facility Emissions includes emissions from (a) proposed NA2016 equipment, (b) replacement storage compressor engine, and (c) existing emissions sources to remain.

Table 9.1-4B

Existing Facility PTE Emissions – Porterville Compressor Station

Existing Emissions Sources to be Removed	Potential Emissions (tpy)								
	NO_x	CO	VOC	PM_{10} and $PM_{2.5}$	SO_2	Total HAPs	Formal-dehyde	Benzene	GHG (CO_{2e})
Four Ingersoll Rand 150 HP 4XVG 4-Stroke Rich Burn Engines	92.44	2.48	4.28	0.352	0.010	0.084	0.268	0.020	NA
Kohler 55RZ61 4-Stroke Rich Burn Emergency Generator (70 HP)	0.39	0.33	0.01	0.022	<0.001	0.003	0.002	<0.001	NA
Burnham 808B-W Boiler (0.462 MMBtu/hr)	0.20	0.04	0.01	0.048	0.001	<0.001	<0.001	<0.001	NA
300-gallon Waste Oil Storage Tank	-	-	0.02	-	-	-	-	-	NA
Subtotal: Existing Emissions Sources to be Removed	93.03	2.85	4.32	0.422	0.011	0.087	0.270	0.020	NA
Existing Emissions Sources to Remain[2]									
Six Boilers, Water Heaters, and Space Heaters (0.04 – 0.2 MMBtu/hr)	0.3	0.25	0.02	0.022	0.002	0.006	<0.001	<0.001	355
Four Pipeline Heaters (1.0 – 3.5 MMBtu/hr)	4.0	3.39	0.22	0.306	0.024	0.080	0.003	<0.001	4,866
Seven Storage Tanks (tank capacities ranging from 300 – 2,000 gallons each)	-	-	2.32	-	-	0.110	-	0.006	16
Subtotal: Existing Emissions Sources to Remain	4.3	3.64	2.56	0.328	0.026	0.196	0.003	0.006	5,237
TOTAL: EXISTING FACILITY EMISSIONS	97.33	6.49	6.87	0.75	0.04	0.28	0.27	0.03	NA

1. Data regarding existing equipment was obtained from the air permit application. NA indicates “not available.”
2. Refer to Table 9.1-1 for equipment details.

Table 9.1-5

Preliminary Summary[1] of PTE Emissions for Proposed Pendleton Compressor Station

Proposed Emissions Sources	Potential Emissions (tpy)								
	NO_x	CO	VOC	PM_{10} and $PM_{2.5}$	SO_2	Total HAPs	Formal-dehyde	Benzene	GHG (CO_{2e})
Two Solar Taurus 70 Compressor Turbines with SoLoNox technology (11,626 hp each at site conditions)[2]	74.84	91.12	5.22	11.22	2.544	0.769	0.532	0.009	83,150
T70 Turbine Startup/Shutdown Emissions (for two turbines)	0.02	2.00	0.02	-	-	-	-	-	13
T70 Turbine Gas Seal Leakage (for two turbines)	-	-	1.60	-	-	-	-	-	5,332
Caterpillar G3516A 4-Stroke Rich Burn Emergency Generator (1,053 hp)	1.16	2.32	0.58	0.039	0.001	0.070	0.042	0.003	235
Hydrocarbon Storage Tank (1,000 gallon capacity)	-	-	0.71	-	-	0.026	-	0.002	5
Fugitive Emissions (Venting, Blowdowns, Leaks)	-	-	3.0	-	-	-	-	-	8,884
Total Proposed Facility PTE Emissions	76.0	95.4	11.1	11.3	2.5	0.9	0.6	0.01	97,619
Major Source Thresholds (Title V)	100	100	50	100	100	25	10	10	N/A

1. This preliminary summary of PTE Emissions is based on proposed equipment information at the time of this submittal. If the type or configuration of equipment is updated, revised PTE calculations will be presented in the air permit application which will be provided to FERC following submittal to the NYSDEC.
2. Solar Taurus 70 Compressor Turbine horsepower and PTE emissions are based on operations at 0^{o}F, 100% load and 70% relative humidity at 582 feet in elevation.

Table 9.1-6

Preliminary Summary[1] of PTE Emissions for Proposed Wheatfield Dehydration Facility

Proposed Emissions Sources	Potential Emissions (tpy)								
	NO_x	CO	VOC	PM_{10} and $PM_{2.5}$	SO_2	Total HAPs	Formal-dehyde	Benzene	GHG (CO_{2e})
Two TEG Dehydrators[2]: Still Emissions	-	-	37.90	-	-	1.954	-	1.250	1,593
Two TEG Dehydrators[2]: Reboiler Burner Emissions	1.20	1.08	0.07	0.098	0.008	0.020	0.001	<0.001	1,546
MTU 10V0068 GS7 4-Stroke Rich Burn Emergency Generator (100 HP)	0.11	0.22	0.06	0.005	<0.001	0.010	0.005	<0.001	28
Two Storage Tanks (1,000 gallon capacity each)[3]	-	-	0.71	-	-	0.026	-	-	-
Total Proposed Facility PTE Emissions	1.3	1.3	38.7	0.1	0.008	2.0	0.006	1.3	3,167
Major Source Thresholds (Title V)	100	100	50	100	100	25	10	10	N/A

1. This preliminary summary of PTE Emissions is based on proposed equipment information at the time of this submittal. If the type or configuration of equipment is updated, revised PTE calculations will be presented in the air permit application which will be provided to FERC following submittal to the NYSDEC.
2. A total of two (2) triethylene glycol (TEG) dehydrators are proposed at the Wheatfield Dehydration Facility. Each 442 MMSCFD dehydrator has a still equipped with a flash tank and a 1.5 MMBtu/hr reboiler burner.
3. Refer to Table 9.1-1 for a list of tank sizes and contents.

Table 9.1-7

Preliminary Summary[1] of PTE Emissions for Pipeline Equipment

Proposed Emissions Sources	Potential Emissions (tpy)								
	NO_x	CO	VOC	PM_{10} and $PM_{2.5}$	SO_2	Total HAPs	Formal-dehyde	Benzene	GHG (CO_{2e})
Two(2) Kohler 24RCL 4-Stroke Rich Burn Emergency Generators (36 HP each) (500 hrs each)	0.26	7.20	0.26	0.03	0.001	0.04	0.016	0.002	29
Condensate Storage Tank (1,000 gallon capacity)	-	-	0.71	-	-	0.03	-	0.002	5
Thirteen (13) mainline valves with pneumatic (natural gas) actuators[2]	-	-	0.10	-	-	<0.01	-	<0.001	347
Total Proposed Pipeline Equipment PTE Emissions	0.26	7.20	1.07	0.03	0.001	0.07	0.016	0.004	381

1. This preliminary summary of PTE Emissions is based on proposed equipment information at the time of this submittal.

2. Based on a conservative estimated natural gas leakage rate of 6 scf/hr/component.

Table 9.1-8
Northern Access 2016 Project

Summary of Construction Emissions

	Criteria Pollutants					**GHGs**			**Total GHG Emissions**
	PM_{10}[1]	$PM_{2.5}$[1]	NO_x	CO	VOCs[2]	CO_2	N_2O	CH_4	
Total Project Construction Emissions (tpy)	8.85	2.67	56.14	11.61	4.03	2,717.07	0.15	1.05	
Metric Tonnes CO_2e[3]						**2,464.87**	**40.95**	**23.77**	**2,529.59**

Notes:

1. Estimate of PM_{10} = Particulate Matter, Exhaust + Fugitive Dust PM_{10}; Estimate of $PM_{2.5}$ = Particulate Matter, Exhaust + Fugitive Dust $PM_{2.5}$.
2. VOC emissions are approximately equal to HC emissions.
3. Total CO_2e values determined by multiplying total emissions by Global Warming Potentials and converting to metric tonnes.

Table 9.1-9
Northern Access 2016 Project

Diesel Exhaust Emissions from Construction Activities

Equipment Type	HP	Estimated Operating Hours[1]	Emission Factors (g/HP-hr)[2]				Estimated Emissions (tons/yr)[4]			
			HC[3]	CO	NO_x	Particulates	HC[3]	CO	NO_x	Particulates
Cranes										
150-ton Crawler Crane	263	14	0.3085	0.7475	4	0.1316	0.0013	0.0030	0.0162	0.0005
100-ton Hydr. Crane	225	550	0.3085	0.7475	4	0.1316	0.0421	0.1020	0.5456	0.0180
50-ton Hydraulic Crane	185	648	0.3085	0.7475	4	0.1316	0.0408	0.0988	0.5286	0.0174
Earthwork/Concrete Equipment										
Excavators/Backhoes	200	14,400	0.3085	0.7475	4	0.1316	0.9794	2.3731	12.6986	0.4178
Side Boom	200	4,300	0.3085	0.7475	4	0.1316	0.2925	0.7086	3.7919	0.1248
Dozer - D-8	300	6,430	0.3085	0.7475	4	0.1316	0.6560	1.5895	8.5054	0.2798
Compactor	200	360	0.3085	0.7475	4	0.1316	0.0245	0.0593	0.3175	0.0104
Gradal	200	400	0.3085	0.7475	4	0.1316	0.0272	0.0659	0.3527	0.0116
Farm Tractor	100	330	0.3384	0.8667	4.1	0.18	0.0123	0.0315	0.1491	0.0065
Dump Trucks	250	2,058	0.3085	0.7475	4	0.1316	0.1750	0.4239	2.2686	0.0746
Concrete Pump	125	12	0.3384	0.8667	4.1	0.18	0.0006	0.0014	0.0068	0.0003
Vehicles										
Automobiles	90	145	0.3672	2.3655	4.7	0.24	0.0053	0.0340	0.0676	0.0035
Pick-up Trucks (1/2 - 3/4 ton)	110	7,500	0.3384	0.8667	4.1	0.18	0.3077	0.7882	3.7286	0.1637
Pick-up Trucks (1 ton) (including Welding Ring)	150	8,575	0.3384	0.8667	4.1	0.18	0.4798	1.2288	5.8132	0.2552
Flatbed Trucks (2-ton)	200	860	0.3085	0.7475	4	0.1316	0.0585	0.1417	0.7584	0.0250
2,000-Gallon Water Truck	250	50	0.3085	0.7475	4	0.1316	0.0043	0.0103	0.0551	0.0018
Stringing Truck (Tri-Axle)	450	2,400	0.1669	0.8425	4.3351	0.1316	0.1987	1.0030	5.1609	0.1567

Equipment Type	HP	Estimated Operating Hours[1]	Emission Factors (g/HP-hr)[2]				Estimated Emissions (tons/yr)[4]			
			HC[3]	CO	NO_x	Particulates	HC[3]	CO	NO_x	Particulates
Forklifts/Manlifts										
Forklifts (5-ton)	200	1,008	0.3085	0.7475	4	0.1316	0.0686	0.1661	0.8889	0.0292
Manlifts	200	670	0.3085	0.7475	4	0.1316	0.0456	0.1104	0.5908	0.0194
Air Compressors										
160-185 CFM Portable	150	1,140	0.3384	0.8667	4.1	0.18	0.0638	0.1634	0.7728	0.0339
700-850 CFM Portable	400	104	0.1669	0.8425	4.3351	0.1316	0.0077	0.0386	0.1988	0.0060
HDD Equipment										
American Augers Maxi Rig	600	665	0.1669	1.3272	4.1	0.1316	0.0734	0.5837	1.8033	0.0579
Drill Fluid System	475	665	0.3085	0.8425	4.3351	0.1316	0.1074	0.2934	1.5094	0.0458
Mud Pumps	475	665	0.3085	0.8425	4.3351	0.1316	0.1074	0.2934	1.5094	0.0458
Decanting Centrifuge	100	665	0.3384	0.8667	4.1	0.18	0.0248	0.0635	0.3005	0.0132
Miscellaneous Equipment										
Welding Machines (300 - 400 AMP)	40	18,200	0.2789	1.5323	4.7279	0.2	0.2238	1.2296	3.7941	0.1605
Lighting Towers	7	80	0.5508	4.1127	4.3	0.5	0.0003	0.0025	0.0027	0.0003
Total Estimated Project Emissions (Tons/Project/Year)							**4.0285**	**11.6078**	**56.1357**	**1.9797**

Notes:

1. Assume 60-hour work weeks and four weeks per month.
2. Emissions Factors from Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling -- Compression-Ignition, NR-009c, (EPA420-P-04-009), April 2004. The Base or Tier 0 Technology Type was used to determine the emission factor.
3. Assume HC approximately equal to VOCs.
4. Assume: 210-day construction period (60 hours per week, four weeks per month) and 907,185 grams per ton.
5. Final hours of use of various equipment depend on contractor's means and methods.

Table 9.1-10
Northern Access 2016 Project

Diesel Fugitive Emissions from Construction Activities

Equipment Type	HP	Estimated Operating Hours[1]	Additional Information		E: Based on PM_{10} [lb/vehicle miles traveled (VMT)]	E: Based on $PM_{2.5}$ (lb/VMT)	Estimated Emissions (tons/yr)		
			W: Mean Vehicle Weight (tons)[2]	S: Surface Material Silt Content (%)[3]			VMT (miles per project)	Fugitive Particulate PM_{10} (tons per project)	Fugitive Particulate $PM_{2.5}$ (tons per project)
Cranes									
150-ton Crawler Crane	263	14	150	8.5	6.395	0.640	1.4	0.004	0.0004
100-ton Hydr. Crane	225	550	100	8.5	5.328	0.533	55.0	0.147	0.0147
50-ton Hydraulic Crane	185	648	50	8.5	3.901	0.390	64.8	0.126	0.0126
Earthwork/Concrete Equipment									
Excavators/Backhoes	200	14,400	35	8.5	3.322	0.332	1440.0	2.392	0.239
Side Boom	200	4,300	30	8.5	3.100	0.310	430.0	0.666	0.067
Dozer - D-8	300	6,430	20	8.5	2.583	0.258	643.0	0.830	0.083
Compactor	200	360	20	8.5	2.583	0.258	36.0	0.046	0.005
Gradal	200	400	20	8.5	2.583	0.258	40.0	0.052	0.005
Farm Tractor	100	330	5	8.5	1.384	0.138	33.0	0.023	0.002
Dump Trucks	250	2,058	40	8.5	3.528	0.353	205.8	0.363	0.036
Concrete Pump	125	12	40	8.5	3.528	0.353	1.2	0.002	0.000
Vehicles									
Automobiles	90	145	0.5	8.5	0.491	0.049	14.5	0.004	0.000
Pick-up Trucks (1/2 - 3/4 ton)	110	7,500	0.75	8.5	0.589	0.059	750.0	0.221	0.022
Pick-up Trucks (1 ton) (including Welding Ring)	150	8,575	1	8.5	0.671	0.067	857.5	0.288	0.029
Flatbed Trucks (2-ton)	200	860	2	8.5	0.916	0.092	86.0	0.039	0.004

Equipment Type	HP	Estimated Operating Hours[1]	Additional Information		E: Based on PM_{10} [lb/vehicle miles traveled (VMT)]	E: Based on $PM_{2.5}$ (lb/VMT)	Estimated Emissions (tons/yr)		
			W: Mean Vehicle Weight (tons)[2]	S: Surface Material Silt Content (%)[3]			VMT (miles per project)	Fugitive Particulate PM_{10} (tons per project)	Fugitive Particulate $PM_{2.5}$ (tons per project)
2,000-Gallon Water Truck	250	50	30	8.5	3.100	0.310	5.0	0.008	0.001
Stringing Truck (Tri-Axle)	450	2,400	40	8.5	3.528	0.353	240.0	0.423	0.042
Forklifts/Manlifts									
Forklifts (5-ton)	200	1,008	5	8.5	1.384	0.138	100.8	0.070	0.007
Manlifts	200	670	2	8.5	0.916	0.092	67.0	0.031	0.003
Air Compressors									
160-185 CFM Portable	150	1,140	15	8.5	2.269	0.227	114.0	0.129	0.013
700-850 CFM Portable	400	104	35	8.5	3.322	0.332	10.4	0.017	0.002
HDD Equipment									
American Augers Maxi Rig	600	665	15	8.5	2.269	0.227	66.5	0.075	0.008
Drill Fluid System	475	665	35	8.5	3.322	0.332	66.5	0.110	0.011
Mud Pumps	475	665	15	8.5	2.269	0.227	66.5	0.075	0.008
Decanting Centrifuge	100	665	35	8.5	3.322	0.332	66.5	0.110	0.011
Miscellaneous Equipment									
Welding Machines (300 - 400 AMP)	40	18,200	1	8.5	0.671	0.067	1820.0	0.610	0.061
Lighting Towers	7	80	1	8.5	0.671	0.067	8.0	0.003	0.000
Total Estimated Project Emissions (Tons/Project/Year)							**7289**	**6.867**	**0.687**

Notes:

1. Estimated operating hours subject to change based on Contractor's means and methods
2. Mean Vehicle Weight for equipment engines obtained from Dataquest, 2006 and public sources (Caterpillar home page and Internet)
3. Surface Material Silt Content estimated based on similar projects and data from AP-42, Chapter 13.
4. Calculations based on the EPA AP-42, dated Nov 2006, Chapter 13, 13.2.2. Unpaved Roads

Table 9.1-11
Northern Access 2016 Project

Greenhouse Gas Emissions from Construction Activities

Equipment Type	HP	Estimated Operating Hours	Emission Factors (g/HP-hr)			Estimated Emissions (tons/yr)		
			CO_2	N_20	CH_4	CO_2	N_20	CH_4
Cranes								
150-ton Crawler Crane	263	14	199.1	0.0111	0.0768	0.81	0.00	0.00
100-ton Hydr. Crane	225	550	199.1	0.0111	0.0768	27.16	0.00	0.01
50-ton Hydraulic Crane	185	648	199.1	0.0111	0.0768	26.31	0.00	0.01
Earthwork/Concrete Equipment								
Excavators/Backhoes	200	14,400	199.1	0.0111	0.0768	632.07	0.04	0.24
Side Boom	200	4,300	199.1	0.0111	0.0768	188.74	0.01	0.07
Dozer - D-8	300	6,430	199.1	0.0111	0.0768	423.36	0.02	0.16
Compactor	200	360	199.1	0.0111	0.0768	15.80	0.00	0.01
Gradal	200	400	199.1	0.0111	0.0768	17.56	0.00	0.01
Farm Tractor	100	330	199.1	0.0111	0.0768	7.24	0.00	0.00
Dump Trucks	250	2,058	199.1	0.0111	0.0768	112.92	0.01	0.04
Concrete Pump	125	12	199.1	0.0111	0.0768	0.33	0.00	0.00
Vehicles								
Automobiles	90	145	199.1	0.0111	0.0768	2.86	0.00	0.00
Pick-up Trucks (1/2 - 3/4 ton)	110	7,500	199.1	0.0111	0.0768	181.06	0.01	0.07
Pick-up Trucks (1 ton) (including Welding Ring)	150	8,575	199.1	0.0111	0.0768	282.29	0.02	0.11
Flatbed Trucks (2-ton)	200	860	199.1	0.0111	0.0768	37.75	0.00	0.01
2,000-Gallon Water Truck	250	50	199.1	0.0111	0.0768	2.74	0.00	0.00
Stringing Truck (Tri-Axle)	450	2,400	199.1	0.0111	0.0768	237.03	0.01	0.09
Forklifts/Manlifts								
Forklifts (5-ton)	200	1,008	199.1	0.0111	0.0768	44.25	0.00	0.02
Manlifts	200	670	199.1	0.0111	0.0768	29.41	0.00	0.01
Air Compressors								
160-185 CFM Portable	150	1,140	199.1	0.0111	0.0768	37.53	0.00	0.01
700-850 CFM Portable	400	104	199.1	0.0111	0.0768	9.13	0.00	0.00
HDD Equipment								
American Augers Maxi Rig	600	665	199.1	0.0111	0.0768	87.57	0.00	0.03
Drill Fluid System	475	665	199.1	0.0111	0.0768	69.33	0.00	0.03
Mud Pumps	475	665	199.1	0.0111	0.0768	69.33	0.00	0.03
Decanting Centrifuge	100	665	199.1	0.0111	0.0768	14.59	0.00	0.01
Miscellaneous Equipment								
Welding Machines (300 - 400 AMP)	40	18,200	199.1	0.0111	0.0768	159.77	0.01	0.06

Equipment Type	HP	Estimated Operating Hours	Emission Factors (g/HP-hr)			Estimated Emissions (tons/yr)		
			CO_2	N_20	CH_4	CO_2	N_20	CH_4
Lighting Towers	7	80	199.1	0.0111	0.0768	0.12	0.00	0.00
Total Estimated Project Emissions (Tons/Project/Year)						**2717.07**	**0.15**	**1.05**

Notes:

1. Estimated operating hours subject to change based on Contractor's means and methods.
2. Source: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Page 3.36 - Original Default Factors given in Kg/TJ for Diesel Off-Road Mobile Sources: CO_2 - 74,100; N_2O - 4.15; CH_4 - 28.6