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New Source Review Minor Construction Permit Application for Hub City Energy Park

Revision: 0

NorthWestern Energy

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Acronyms and Abbreviations

AGS	Aberdeen Generating Station
CARB	California Air Resources Board
CEMS	Continuous Emissions Monitoring System
CFR	*Code of Federal Regulations*
CH_4	methane
CI	compression ignition
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent(s)
EPA	U.S. Environmental Protection Agency
g	gram(s)
GHG	greenhouse gas
H_2SO_4	sulfuric acid
HAP	hazardous air pollutant
hp	horsepower
hp-hr	horsepower hours
HVAC	heating, ventilation, and air conditioning
kPa	kilo pascal
kW-hr	kilowatt-hours
l/cyl	liter(s) per cylinder
lb	pound
lb/hour	pound(s) per hour
MACT	maximum achievable control technology
MMBtu/hr	million British thermal units per hour
MW	megawatt(s)
N_2O	nitrous oxide
NESHAP	National Emission Standards for Hazardous Air Pollutants
NH_3	ammonia

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NMHC	nonmethane hydrocarbon
NorthWestern	NorthWestern Energy
NO_x	nitrogen oxide
NSPS	New Source Performance Standards
NSR	New Source Review
O_2	oxygen
PM	particulate matter
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in aerodynamic diameter
ppm	part(s) per million
ppmvd	part(s) per million by volume, dry
Project	Hub City Energy Park
Project Site	Hub City Energy Park location
psi	pounds per square inch
PSD	prevention of significant deterioration
PTE	potential to emit
RICE	reciprocating internal combustion engine(s)
RMP	Risk Management Plan
SD DANR	South Dakota Department of Agriculture and Natural Resources
SO_2	sulfur dioxide
ton	short ton – 2,000 pounds
tpy	ton(s) per year
ULSD	ultra-low sulfur diesel
VOC	volatile organic compound
VOL	volatile organic liquid

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1. Background and Project Description

NorthWestern Energy Public Service Corporation d/b/a NorthWestern Energy (NorthWestern) is proposing the construction and operation of the Hub City Energy Park (the Project) to support the future capacity and reliability needs of its South Dakota electric system. Located north of the existing Aberdeen Generating Station (AGS) near Aberdeen, South Dakota, the Project would add generation capacity that can be dispatched efficiently and flexibly, helping ensure reliable service during periods of high electricity demand. The Project will be located at 440 SW 135th Street, Aberdeen SD, 57401 (Project Site).

The Project will include up to seven natural gas-fired simple cycle combustion turbines rated at approximately 37 megawatts (MW) each (at average ambient temperature and site conditions), as well as miscellaneous auxiliary equipment, including two emergency diesel generators, one fire pump, two dew point heaters, three diesel fuel tanks, and heating, ventilation, and air conditioning (HVAC) and comfort heating equipment. The natural gas-fired turbines will be equipped with a multipollutant catalyst system to control and minimize air emissions for NO_x, carbon monoxide (CO), and volatile organic compounds (VOCs). The use of natural gas will limit emissions of particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}), particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$), and sulfur dioxide (SO_2). The Project Site will be directly across the street from the existing AGS. Development of the Project is anticipated to occur over approximately 10 years, with the initial phase including the construction of three of the seven turbines.

The construction and operation of the Project will result in emissions of regulated air pollutants and therefore requires a construction permit pursuant to South Dakota Department of Agriculture and Natural Resources (SD DANR) Title 74, Article 36, Chapter 20, Section 02. This application is being submitted to obtain authorization for construction and initial operation of the Project. Because the Project Site will be adjacent to the existing AGS and will share common ownership and industrial grouping, the two facilities will be considered a single stationary source for air permitting purposes. As such, the existing AGS Title V Operating Permit (Permit 28.0801-03) will be modified to incorporate the Project within 12 months following commencement of operation of the first turbine. Although the Project Site and AGS are located in close proximity to one another and contribute to the same regional electric system, the Project was independently evaluated and selected through NorthWestern's resource planning process to address future capacity and reliability needs. Accordingly, the Project was developed through a distinct and separate planning process and schedule from the existing AGS; therefore, this application requests a construction permit specific to the Project.

As emissions from the Project are less than the applicable prevention of significant deterioration (PSD) major source significance thresholds for all regulated New Source Review (NSR) pollutants, the Project is a minor source for PSD. While greenhouse gas (GHG) emissions from the Project are estimated to exceed 75,000 tons per year on a carbon dioxide equivalent (CO_2e) basis, the Project does not result in a significant emissions increase for any other regulated NSR pollutant. Therefore, the Project is not subject to PSD review for GHG emissions alone. As a result, the Project will be permitted as a minor modification to the existing AGS, which is a major Title V stationary source. The existing AGS is a minor source for PSD.

The sections that follow in this minor source permit application for the Project provide a detailed summary of the equipment and associated emissions, a review of the applicability of both state and federal regulations, and the permit limitations being requested for the new units. Appendix A provides SD DANR required construction permit forms, and Appendix B provides detailed potential to emit (PTE) calculations. Appendix C provides a drawing showing the Project Site and emission source locations.

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2. Equipment and Emissions

The details that follow outline the equipment for the Project along with the associated fuel use, control equipment, and operational expectations. **Table 2-1** lists emission units included in the Project. Section 2.2 provides a Project-wide emissions summary. Appendix B provides detailed PTE calculations for the Project.

Table 2-1. New Emission Units

Emission Unit ID	Equipment Description	Design Rating
HUB-5	Titan 350 52500S GSC NG Turbine	37 MW (average ambient temperature and site conditions)
HUB-6	Titan 350 52500S GSC NG Turbine	37 MW (average ambient temperature and site conditions)
HUB-7	Titan 350 52500S GSC NG Turbine	37 MW (average ambient temperature and site conditions)
HUB-8	Titan 350 52500S GSC NG Turbine	37 MW (average ambient temperature and site conditions)
HUB-9	Titan 350 52500S GSC NG Turbine	37 MW (average ambient temperature and site conditions)
HUB-10	Titan 350 52500S GSC NG Turbine	37 MW (average ambient temperature and site conditions)
HUB-11	Titan 350 52500S GSC NG Turbine	37 MW (average ambient temperature and site conditions)
HUB-FP	250-hp Diesel Emergency Fire Pump	1.42 MMBtu/hr
HUB-EG1	800-kW Emergency Diesel Generator	7.9 MMBtu/hr
HUB-EG2	1,250-kW Emergency Diesel Generator	12.1 MMBtu/hr
HUB-DPH1	Dew Point Heater	7 MMBtu/hr
HUB-DPH2	Dew Point Heater	9 MMBtu/hr
DG-TNK-001	Diesel Storage Tank[a]	2,000 gallons
DG-TNK-002	Diesel Storage Tank[a]	2,000 gallons
FP-TNK-001	Diesel Storage Tank[a]	500 gallons
HUB_HVAC	Comfort Heaters and HVAC Equipment [b]	less than 3.5 MMBtu/hr each

[a] Emissions from the diesel tanks are less than 2 tpy; therefore, they are not subject to construction permit requirements. These new units are included for completeness.

[b] All heaters and HVAC equipment are rated less than 3.5 MMBtu/hr each. Emissions from the heaters and HVAC equipment are less than 2 tpy each; therefore, they are not subject to construction permit requirements. These new units are included for completeness.

hp = horsepower

MMBtu/hr = million British thermal units per hour

tpy = ton(s) per year

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2.1 Project Equipment

As listed in Table 2-1, the Project includes up to:

- Seven new Titan 350 natural gas combustion turbines rated at approximately 37 MW each (average ambient temperature and site conditions)
- One diesel-powered fire pump
- Two diesel emergency generators
- Two natural gas fueled dew point heaters.

Additional equipment with exempt emissions will include one 500-gallon diesel storage tank, two 2,000-gallon diesel storage tanks, and HVAC equipment.

2.1.1 Titan 350 Solar Turbines

NorthWestern is planning to install up to seven natural gas-powered Solar Turbines Titan 350 combustion turbines each rated at approximately 37 MW each at average ambient temperature and site conditions (HUB-5 to HUB-11). Each combustion turbine will consist of a compressor, combustor, and turbine. After filtration, air will pass through the compressor before entering the combustor and combining with the fuel. The combustion products and compressed air will pass through the turbine, which will drive both the compressor and the generator. The exhaust gas temperature from each turbine will be tempered with ambient air and the exhaust gas will enter the multipollutant catalyst system at high temperatures to control emissions of NO_x, CO, and VOCs.

Good combustion practices and burning of pipeline-quality natural gas will minimize emissions for other pollutants.

Table 2-2 provides the steady state stack emission rates for the gas turbines.

Table 2-2. Titan 350 Combustion Turbine Stack Emission Rates

Pollutant	Emissions Control Description	Normal Stack Emission Rates
NO_x	Multipollutant catalyst system	3.00 ppmvd @15% O_2
CO	Multipollutant catalyst system	6.00 ppmvd @15% O_2
VOC	Multipollutant catalyst system	1.50 ppmvd @15% O_2
Total $PM/PM_{10}/PM_{2.5}$	Good combustion practices; Use of pipeline-quality natural gas	3.96 lb/hour
SO_2	Use of pipeline-quality natural gas	0.5 grain sulfur/100 standard cubic feet of natural gas

lb/hour = pound(s) per hour

O_2 = oxygen

ppmvd = part(s) per million by volume, dry

2.1.1.1 Operating Schedule

Based on the projected power demand, NorthWestern proposes to limit the hours of operation for the gas turbines as described below. The operational limits are designed to ensure that emissions from the Project remain below PSD major source threshold of 250 tons per year (tpy):

- Turbine Units 1 through 3 (HUB-5 to HUB-7): 260 startup and shutdown events per year; 4,000 hours of normal operation per year, per turbine.

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- Turbine Units 4 through 7 (HUB-8 to HUB-11): 217 startups and shutdown events per year and 4,000 hours of normal operations per year, per turbine.

For the purposes of this permit, startup is defined as the period of initial firing until the turbine meets the steady state emission limits listed in Table 2-2. Shutdown is defined as the period after the initiation of the turbine shutdown sequence and ending with the cessation of firing of the gas turbine.

2.1.1.2 Emission Estimate Methodology

Criteria pollutant emissions for startup, shutdown, and normal operations were calculated using vendor-provided emission rates.

Emissions of formaldehyde were based on vendor-provided data. The remaining hazardous air pollutant (HAP) emissions were calculated using emission factors from U.S. Environmental Protection Agency (EPA) AP–42 Section 3.1, Stationary Gas Turbines, Table 3.1-3 (EPA 2024) with 50% control efficiency for the multipollutant catalyst system. This control efficiency was based on vendor-provided information.

GHG emission estimates of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) are based on *Code of Federal Regulations* Title 40, Part 98.33 (40 CFR 98.33) Tables C-1 and C-2 factors for natural gas. GHG emissions were converted to CO_2 equivalents (CO_2e) using the global warming potentials that became effective on January 1, 2025.

2.1.2 Diesel Emergency Generator Engines

The Project includes the installation of one 800-kW Tier 2 certified diesel generator engine (HUB-EG1) and one 1,250-kW Tier 2 certified diesel emergency generator engine (HUB-EG2).

2.1.2.1 Emission Estimate Methodology

The PTE emissions of VOC, NO_x, CO, and PM were calculated using factors from 40 CFR 60, Subpart IIII, Emission Standards for Stationary Internal Combustion Engines, which are equivalent to the Tier 2 emission standard for compression ignition (CI) reciprocating internal combustion engine (RICE). Emissions for NO_x and VOC were determined by applying the California Air Resources Board (CARB) methodology that the combined 'NO_x + nonmethane hydrocarbon (NMHC)' emission standard breaks down to 95% NO_x and 5% VOC (CARB 2011). As there are no Tier 2 standards for SO_2 and HAPs, emissions for these pollutants were calculated using the EPA emission factors from AP-42 Section 3.4, Large Stationary Diesel and All Stationary Dual-fuel Engines, Tables 3.4-1, 3.4-3, and 3.4-4 (EPA 2024). GHG emissions (CO_2e) were calculated by converting CO_2, CH_4, and N_2O using 40 CFR 98.33 Tables C-1 and C–2 for diesel fuel and applying global warming potentials that were effective starting January 1, 2025. The emergency generators will only use ultra-low sulfur diesel (ULSD) fuel.

Aside from emergency use, the emergency engines will operate for no more than 100 hours per year per unit for maintenance and testing purposes. For PTE calculations, the hours of operation per engine were assumed to be 100 hours per year.

2.1.3 Emergency Fire Pump

The Project includes the installation of one 250-horsepower (hp) diesel emergency fire pump engine (HUB-FP).

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2.1.3.1 Emission Estimate Methodology

The PTE emissions of VOC, NO_x, CO, and PM were calculated using factors from 40 CFR 60, Subpart IIII, Emission Standards for Stationary Fire Pumps, which are equivalent to the Tier 3 emission standard for CI RICE. The combined 'NO_x + NMHC' emission factor contains 95% NO_x and 5% VOC in accordance with CARB methodology (CARB, 2011). SO_2 emissions were calculated by assuming a sulfur content of 15 ppm in ULSD. HAP emissions were calculated using EPA emission factors from AP-42 Section 3.3, Gasoline and Diesel Industrial Engines, 3.3-2 (EPA 2024). GHG emissions (CO_2e) were calculated by converting CO_2, CH_4, and N_2O using 40 CFR 98.33 Tables C-1 and C-2 for diesel fuel.

Outside of emergency use, the fire pump will operate for no more than 100 hours per year for maintenance and testing purposes. For PTE calculations, the fire pump hours of operation were assumed to be 100 hours per year.

2.1.4 Dew Point Heaters

The Project includes the installation of one 7 million British thermal units per hour (MMBtu/hr) natural gas dew point heater (HUB–DPH1) and one 9 MMBtu/hr natural gas dew point heater (HUB-DPH2). The natural gas dew point heaters will be used to raise the temperature of the natural gas to a level exceeding the dew point to prevent condensation of liquids in the fuel gas.

Emissions for these units were calculated based on the applicable emission factors from EPA AP–42 Section 1.4, Natural Gas Combustion, Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (EPA 2024). For NO_x and CO emissions, the combustor type was assumed to be small boilers less than 100 MMBtu/hour heat input with low NO_x burner control. GHG emissions (CO_2e) were calculated by converting CO_2, CH_4, and N_2O using 40 CFR 98.33 Tables C-1 and C-2 for natural gas. GHG emissions were converted to CO_2 equivalents (CO_2e) using the global warming potentials that became effective on January 1, 2025.

For PTE calculations, the dew point heaters were assumed to operate for 8,760 hours per year, per heater at full load. It is expected that the actual operating hours of the dew point heaters will be less than this conservative estimate.

2.1.5 Diesel Storage Tanks

Emissions from the diesel storage tanks were estimated using EPA TANKS 5.3 software (2026). Throughputs were conservatively estimated based on one turnover per day for the 2,000-gallon and 500-gallon diesel tanks that will support the emergency diesel engines and diesel fire pump, respectively. Based on these criteria, the PTE emissions for each of the tanks are less than 2 tpy for VOCs; therefore, these units are exempt from requirements for a construction permit. They are, however, included in the PTE for completeness purposes and to provide a Project-wide PTE.

2.1.6 HVAC and Comfort Heating Equipment

Comfort heating and HVAC equipment will be installed onsite. All HVAC and heating units are expected to have a heat input capability less than 3.5 MMBtu/hr and emissions less than 2 tpy for each unit for all criteria pollutants and HAPs. As such, these units are exempt from the requirement for a construction permit but will be included in the PTE for completeness purposes and to provide a Project-wide PTE. All HVAC and heating equipment are expected to be natural gas-fired or electric.

Emissions from the HVAC and heating units were calculated using the fuel combustion emission factors provided in EPA AP-42, Section 1.4, Natural Gas Combustion. Criteria pollutant emissions were estimated by applying the emission factors from AP-42 Table 1.4-1, Residential Furnaces for units with a heat input

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rating less than 0.3 MMBtu/hr and emission factors from Table 1.4-1, Small Uncontrolled Boilers were used for those units with a heat input rating greater than 0.3 MMBtu/hr. PM, SO_2, and VOC emissions were estimated using emission factors in AP-42 Table 1.4-2. HAP emissions were estimated using emission factors from AP-42 Table 1.4-3. Potential emissions were calculated assuming continuous operation (8,760 hours per year) at maximum heat input and were included in the Project-wide PTE.

2.2 Emissions Summary

Using the methodologies described in Section 2.1, NorthWestern has calculated PTE emissions for the Project for the operation scenario described in Section 2.1.1.1. **Table 2–3** summarizes the Project's PTE emissions for criteria pollutants and GHG, and **Table 2-4** summarizes the Project's potential HAP emissions. Appendix B provides detailed emissions calculations.

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Table 2-3. Project-wide Potential to Emit Criteria & PSD Pollutant Summary

Emissions Source	VOC	NO_X	CO	SO_2	Total PM	Total PM_{10}	Total $PM_{2.5}$	CO_2e	H_2SO_4
	tpy								
Existing Permitted Emissions Sources[a]	19.2	101.1	230.9	3.0	30.5	30.5	30.4	158,991	—
New Emissions Sources									
Titan 350 Natural Gas Combustion Turbine – Units 1 through 3	9.04	28.51	33.14	3.32	15.71	15.71	15.71	289,362	1.64
Titan 350 Natural Gas Combustion Turbine Startup and Shutdown – Units 1 through 3	4.26	8.83	70.71	0.13	0.87	0.87	0.87	—	—
Titan 350 Natural Gas Combustion Turbine – Units 4 through 7	12.05	38.02	44.18	4.43	20.94	20.94	20.94	383,414	2.19
Titan 350 Natural Gas Combustion Turbine Startup and Shutdown – Units 4 through 7	4.74	9.83	78.69	0.15	0.97	0.97	0.97	—	—
Diesel Fire Pump – 250 hp	4.10E-03	0.08	0.07	1.10E-04	4.0E-03	4.0E-03	4.0E-03	11.63	—
Diesel Emergency Generator – 800 kW	0.032	0.60	0.34	7.23E-04	0.020	0.020	0.020	65	—
Diesel Emergency Generator – 1,250 kW	0.049	0.94	0.53	1.13E-03	0.031	0.031	0.031	99	—
Natural Gas Dew Point Heater – 7 MMBtu/hr	0.17	1.59	2.66	0.019	0.24	0.24	0.24	3,588	—
Natural Gas Dew Point Heater – 9 MMBtu/hr	0.22	2.04	3.42	0.024	0.31	0.31	0.31	4,613	—
New Exempt Emission Sources									
2,000 Gallon Diesel Storage Tank for 800-kW Emergency Engine	1.7E-03	—	—	—	—	—	—	—	—
2,000 Gallon Diesel Storage Tank for 1,250-kW Emergency Engine	1.7E-03	—	—	—	—	—	—	—	—

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Emissions Source	VOC	NO_X	CO	SO_2	Total PM	Total PM_{10}	Total $PM_{2.5}$	CO_2e	H_2SO_4
	tpy								
500 Gallon Diesel Storage Tank for Fire Pump	5.84E-04	—	—	—	—	—	—	—	—
Heaters and HVAC Equipment	0.28	5.03	4.10	0.030	0.38	0.38	0.38	7,201	
Total Project PTE	**30.85**	**95.46**	**237.85**	**8.11**	**39.47**	**39.47**	**39.47**	**688,295**	**3.83**
PSD Threshold	*250*	*250*	*250*	*250*	*250*	*250*	*250*	—	*7*
Significant for PSD?	No	No	No	No	No	No	No	—	No

[a] Existing emissions are based on equipment permitted under Title V Operating Permit #28.0801-03.

Notes:

Numbers are rounded to the nearest hundredth.

— = not applicable

H_2SO_4 = sulfuric acid

MMBtu/hr = million British thermal unit(s) per hour

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Table 2-4. Project-wide Potential to Emit HAP Pollutant Summary

Pollutant	Combustion Turbine Units 1 through 3	Combustion Turbine Units 4 through 7	Fire Pump – 250 hp	Emergency Generator – 800-kW	Emergency Generator – 1,250-kW	Dew Point Heater – 7 MMBtu/hr	Dew Point Heater – 9 MMBtu/hr	Total HAP
	tpy							
1,3-Butadiene	5.31E-04	7.04E-04	—	—	—	—	—	1.24E-03
2-Methylnaphthalene	—	—	—	—	—	7.61E-07	9.78E-07	1.74E-06
3-Methylchloranthrene	—	—	—	—	—	5.71E-08	7.34E-08	1.30E-07
7,12-Dimethylbenz(a)anthracene	—	—	—	—	—	5.07E-07	6.52E-07	1.16E-06
Acenaphthene	—	—	1.01E-07	1.85E-06	2.82E-06	5.71E-08	7.34E-08	4.90E-06
Acenaphthylene	—	—	3.60E-07	3.65E-06	5.57E-06	5.71E-08	7.34E-08	9.71E-06
Acetaldehyde	4.94E-02	6.55E-02	5.45E-05	9.96E-06	1.52E-05	—	—	0.11
Acrolein	7.91E-03	1.05E-02	6.57E-06	3.12E-06	4.75E-06	—	—	0.018
Anthracene	—	—	1.33E-07	4.86E-07	7.42E-07	7.61E-08	9.78E-08	1.53E-06
Benz(a)anthracene	—	—	1.19E-07	2.46E-07	3.75E-07	5.71E-08	7.34E-08	8.71E-07
Benzene	1.48E-02	1.96E-02	6.63E-05	3.07E-04	4.68E-04	6.66E-05	8.56E-05	0.036
Benzo(b)fluoranthene	—	—	7.04E-09	4.39E-07	6.69E-07	5.71E-08	7.34E-08	1.25E-06
Benzo(a)pyrene	—	—	1.34E-08	1.02E-07	1.55E-07	3.80E-08	4.89E-08	3.57E-07
Benzo(g,h,i)perylene	—	—	3.48E-08	2.20E-07	3.35E-07	3.80E-08	4.89E-08	6.77E-07
Benzo(k)fluoranthene	—	—	1.10E-08	8.62E-08	1.31E-07	5.71E-08	7.34E-08	3.59E-07
Chrysene	—	—	2.51E-08	6.05E-07	9.23E-07	5.71E-08	7.34E-08	1.68E-06
Dibenzo(a,h)anthracene	—	—	4.14E-08	1.37E-07	2.09E-07	3.80E-08	4.89E-08	4.74E-07
Dichlorobenzene	—	—	—	—	—	3.80E-05	4.89E-05	1.48E-04
Ethylbenzene	3.95E-02	5.24E-02	—	—	—	—	—	9.19E-02

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Pollutant	Combustion Turbine Units 1 through 3	Combustion Turbine Units 4 through 7	Fire Pump – 250 hp	Emergency Generator – 800-kW	Emergency Generator – 1,250-kW	Dew Point Heater – 7 MMBtu/hr	Dew Point Heater – 9 MMBtu/hr	Total HAP
	tpy							
Fluoranthene	—	—	5.41E-07	1.59E-06	2.43E-06	9.51E-08	1.22E-07	4.78E-06
Fluorene	—	—	2.08E-06	5.06E-06	7.72E-06	8.88E-08	1.14E-07	1.51E-05
Formaldehyde	5.40E-01	7.16E-01	8.39E-05	3.12E-05	4.76E-05	2.38E-03	3.06E-03	1.27E+00
Hexane	—	—	—	—	—	5.71E-02	7.34E-02	0.22
Indeno(1,2,3-cd)pyrene	—	—	2.67E-08	1.64E-07	2.50E-07	5.71E-08	7.34E-08	5.70E-07
Naphthalene	1.61E-03	2.13E-03	6.03E-06	5.14E-05	7.84E-05	1.93E-05	2.49E-05	3.95E-03
PAH	2.72E-03	3.60E-03	—	—	—	—	—	6.32E-03
Phenanthrene	—	—	2.09E-06	1.61E-05	2.46E-05	5.39E-07	6.93E-07	4.41E-05
Propylene	—	—	1.83E-04	1.10E-03	1.68E-03	—	—	2.97E-03
Propylene Oxide	3.58E-02	4.75E-02	—	—	—	—	—	8.33E-02
Pyrene	—	—	3.40E-07	1.47E-06	2.24E-06	1.59E-07	2.04E-07	4.41E-06
Toluene	1.61E-01	0.21	2.91E-05	1.11E-04	1.69E-04	1.08E-04	1.39E-04	0.37
Xylenes	7.91E-02	0.10	2.03E-05	7.63E-05	1.16E-04	—	—	0.18
Arsenic	—	—	—	—	—	6.34E-06	8.15E-06	1.45E-05
Beryllium	—	—	—	—	—	3.80E-07	4.89E-07	8.70E-07
Cadmium	—	—	—	—	—	3.49E-05	4.48E-05	7.97E-05
Chromium	—	—	—	—	—	4.44E-05	5.71E-05	1.01E-04
Cobalt	—	—	—	—	—	2.66E-06	3.42E-06	6.09E-06
Manganese	—	—	—	—	—	1.20E-05	1.55E-05	2.75E-05
Mercury	—	—	—	—	—	8.24E-06	1.06E-05	1.88E-05
Nickel	—	—	—	—	—	6.66E-05	8.56E-05	1.52E-04
Selenium	—	—	—	—	—	7.61E-07	9.78E-07	1.74E-06

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Pollutant	Combustion Turbine Units 1 through 3	Combustion Turbine Units 4 through 7	Fire Pump – 250 hp	Emergency Generator – 800-kW	Emergency Generator – 1,250-kW	Dew Point Heater – 7 MMBtu/hr	Dew Point Heater – 9 MMBtu/hr	Total HAP
	tpy							
Lead	—	—	—	—	—	1.59E-05	2.04E-05	3.62E-05
Total Project PTE (tpy) [a]	**0.93**	**1.24**	**4.56E-04**	**1.73E-03**	**2.63E-03**	**5.99E-02**	**7.70E-02**	**2.40**
							Existing Permitted HAP Emissions [b]	**5.30**

[a] New exempt emission source HAP emission details are included in Appendix B.
[b] Existing emissions are based on equipment permitted under Title V Operating Permit #28.0801-03.

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3. Regulatory Overview

This section summarizes relevant state and federal air quality permitting and compliance requirements applicable to the Project.

3.1 Air Quality Construction Permit

According to SD DANR Title 74, Article 36, Chapter 20, Section 02, "A person may not construct, install, modify, or operate any source or unit likely to cause the emission of air pollutants into the ambient air or any equipment that prevents or controls the emission of air pollutants into the ambient air until a construction permit has been issued by the board or the secretary."

NorthWestern is proposing to construct, install, and operate new emission sources adjacent to the existing AGS facility and has therefore prepared and is submitting this air quality construction permit application in compliance with the SD DANR Air Pollution Control Program requirements.

3.2 Title V Operating Permit Program

The NorthWestern AGS facility operates under a Title V major source operating permit (permit number 28.0801-03). NorthWestern will submit a Title V permit modification application within 12 months after operation of the first emission unit begins, in accordance with SD DANR Title 74, Article 36, Chapter 05, Section 08 (SD DANR 74:36:05:08).

3.3 Source Designation

The Project is in Aberdeen, South Dakota, which is designated as attainment or unclassified for all criteria pollutants regulated under the Clean Air Act. Therefore, NorthWestern's facility is not subject to Nonattainment NSR.

According to 40 CFR 52.21, a PSD review is applicable to the "construction of any new major stationary sources or any project at an existing major stationary source in an area designated as attainment or unclassifiable." Based on the estimated emissions of regulated pollutants presented in Table 2-2 and Table 2-3 above, all criteria pollutants emissions are less than 250 tons a year; therefore, a PSD review is not required for this Project.

3.4 South Dakota Air Quality Standards and Regulations

This section describes the regulations applicable to the Project, as set forth at SD DANR Title 74, Article 36.

3.4.1 SD DANR 74:36:07:14. Standards of performance for volatile organic liquid storage vessels for which construction, reconstruction, or modification commenced after July 23, 1984, and on or before October 4, 2023.

This section references the standards of performance for volatile organic liquid (VOL) storage vessels, including petroleum liquid storage vessels for which construction, reconstruction, or modification began after July 23, 1984, as outlined in 40 CFR Part 60, Subpart Kb (July 1, 2018). NorthWestern will install three diesel storage tanks to support operation of the diesel emergency generator engines and diesel fire

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pump. As the diesel storage tanks will be installed after October 4, 2023, the diesel storage tanks will not be subject to 40 CFR Subpart Kb.

3.4.2 SD DANR 74:36:07:14.01 Standards of performance for volatile organic liquid storage vessels (including petroleum liquid storage vessels) for which construction, reconstruction, or modification commenced after October 4, 2023.

This section references the standards of performance for VOL storage vessels including petroleum liquid storage vessels for which construction, reconstruction, or modification began after October 4, 2023, as outlined in 40 CFR Part 60, Subpart Kc (October 14, 2024). NorthWestern will install three diesel storage tanks to support operation of the diesel emergency generator engines and diesel fire pump. The diesel storage tanks will not be subject to Subpart Kc as the capacity and vapor pressure measurements are less than the applicability thresholds described in Subpart Kc.

3.4.3 SD DANR 74:36:07:88. Standards of performance for stationary compression ignition internal combustion engines.

This section references the standards of performance for stationary CI internal combustion engines as outlined in 40 CFR Part 60, Subpart IIII (July 1, 2018). The CI engines include the diesel fire pump and two diesel emergency generators (HUB-EG1, HUB-EG2, and HUB-FP) and will be subject to and comply with applicable Subpart IIII requirements as detailed further in Section 3.5.

3.4.4 SD DANR 74:36:07:89. Standards of performance for stationary combustion turbines.

This section references the standards of performance for stationary gas turbines as outlined in 40 CFR Part 60, Subpart KKKK (July 1, 2024). NorthWestern will install seven natural gas combustion turbines which will be subject to and comply with Subpart KKKKa as it is the updated applicable regulation for newly constructed turbines as of December 14, 2025.

3.4.5 SD DANR 74:36:20:01 and 74:36:20:02. Construction permit applicability.

The regulations state that a person may not construct, install, modify, or operate any source or unit likely to emit air pollutants into the ambient air or any equipment that prevents or controls the emission of air pollutants into the ambient air until a construction permit has been issued by the board or the secretary.

The Project will result in emissions and therefore this application is being submitted to obtain a minor construction permit for the Project.

3.4.6 SD DANR 74:36:20:04. Emission unit exemptions.

Emission units meeting the criteria contained in this section are exempt from inclusion in a construction permit. In accordance with SD DANR 74:36:20:04(7) and (8), a unit with criteria pollutant PTE less than 2 tpy and HAP PTE less than 2 tpy before any controls are exempt from inclusion in a construction permit. Emission estimates from exempt sources must still be included in the application.

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The three diesel storage tanks, comfort heating equipment, and HVAC equipment meet these criteria as both uncontrolled criteria and HAP emissions are less than 2 tpy for each emission unit. As a result, these sources are considered exempt from construction permit requirements. Emissions from these sources were estimated and included in the facility-wide PTE inventory.

3.4.7 SD DANR 74:36:20:07. Required contents of complete application for a construction permit

An application for a construction permit pertaining to a new source or modification must include the following information to be considered a complete application:

- General company information, including company name and address or the plant name and address if different from the company name; owner's name and agent; and plant site manager or contact.
- A description of the plant and its processes and products.
- The following information on emissions:
  - Identification and description of all emission units.
  - Fuels, fuel use, raw materials, and production rates.
  - Identification and description of air pollution control equipment.
  - Limitations on source operation affecting emissions or any work practice standards.
  - Other information required by any applicable requirements, including information related to stack parameters.
- If available, a copy of any prepared plans and the specifications of any equipment or other facilities that may affect the source, including pollution control devices.
- A signed and notarized certification of applicant form.
- The results of any air dispersion modeling required by the department.
- The results of any stack performance testing required by the department.
- Any other information requested by the department that is relevant to determining compliance with the act or the Clean Air Act.
- The application must be signed by the responsible official or designated representative.

NorthWestern is submitting this construction permit application for the Project in accordance with these requirements. The permit application includes:

- General company Information
- Project description
- Emissions Information for the Project emission units
- Summary of applicable state and federal air quality regulations
- Control technology review
- Requested permit conditions
- Notarized and signed application forms

3.5 Federal Regulations

This section outlines federal regulations.

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3.5.1 New Source Performance Standards (40 CFR Part 60)

Title 40 CFR Part 60 New Source Performance Standards (NSPS) apply to the owner or operator of any stationary source that contains an affected facility, the construction or modification of which is began after the date of publication in Part 60 of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

3.5.1.1 40 CFR Part 60, Subpart A. General Provisions

The provisions of Subpart A apply to sources subject to a standard under 40 CFR Part 60. Applicability of the requirements contained in Subpart A are dependent on and listed in the source-specific subparts.

3.5.1.2 40 CFR Part 60, Subpart Dc. Standards of Performance for Small Industrial–Commercial-Institutional Steam Generating Units

Subpart Dc applies to "steam generating units" equal to or greater than 10 MMBtu/hour and less than 100 MMBtu/hour that began construction, modification, or reconstruction after June 9, 1989.

The dew point heaters are natural gas-fired units with a maximum heat input capacity of 7 MMBtu/hour and 9 MMBtu/hour each. Because the dew point heaters are rated at less than 10 MMBtu/hr, the requirements of Subpart Dc are not applicable. In addition, the comfort heating and HVAC equipment at the Project Site will have a maximum heat input capacity less than 3.5 MMBtu/hr and Subpart Dc will not be applicable.

3.5.1.3 40 CFR Part 60, Subpart GG. Standards of Performance for Stationary Gas Turbines.

Subpart GG applies to all stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million British thermal units) per hour, based on the lower heating value of the fuel-fired and began construction, modification, or reconstruction after October 3, 1977. In accordance with Part 60.4305(b), the combustion turbines are subject to Subpart KKKKa and are therefore not subject to NSPS under Subpart GG.

3.5.1.4 40 CFR Part 60, Subpart IIII. Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII applies to stationary CI RICE and the manufacturers and/or owners and operators of these engines. Subpart IIII is applicable to the emergency fire pump (HUB-FP) and the emergency engines (HUB-EG1 and HUB-EG2) which are classified as CI RICE.

Emission Standards

This section outlines emissions standards.

Fire Pump

Fire pump diesel emergency engines rated at 250 hp with a model year of 2009 or later, and a displacement of 1.48 liters per cylinder (l/cyl), which is less than the 30 liters per cylinder threshold, must meet the following emission requirements [*Part 60.4205(c) and Table 4]*:

- 4.0 (3.0) grams (g) NMHC+NO_x/kilowatt-hours (kW-hr) (g/hp-hr)
- 3.5 (2.6) g CO/kW-hr (g/hp-hr)

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- 0.20 (0.15) g PM/kW-hr (g/hp-hr)

The 250-hp fire pump diesel emergency engine (HUB-FP) will be a certified engine capable of meeting the 40 CFR 60.4205(c) and Table 4 limits and therefore will satisfy these requirements.

800-kW and 1,250-kW Emergency Diesel Generator Engines

Emergency diesel generator engines rated at 800 kW and 1,250 kW with a model year of 2006 or later, and a displacement of 2.25 l/cyl and 2.68 l/cyl, respectively, which is less than the 30 l/cyl threshold, must meet the following Tier 2 emission requirements [Part 60.4205(b), Part 60.4202(b), and Table 2 to Appendix 1 – Part 1039]:

- 6.4 g NMHC+NO_x/kW-hr
- 3.5 g CO/kW-hr
- 0.20 g PM/kW-hr

The 800-kW and 1,250-kW emergency diesel generator engines (HUB-EG1 and HUB-EG2) will be certified engines capable of meeting the Tier 2 emission limitations and therefore will satisfy these requirements.

Fuel Requirements

Diesel fuel oil burned in the emergency engines with a displacement of less than 30 liters per cylinder must meet the following requirements [Part 60.4207(d) and Part 1090.305]:

- A maximum sulfur content of 15 ppm (0.0015%) by weight
- A minimum cetane index of 40 or a maximum aromatic content of 35% by volume

The diesel fuel used for the Project will comply with these requirements.

Compliance, Recordkeeping and Reporting/Notification Requirements

Owners and operators must operate and maintain engines and control devices according to the manufacturer's emission-related instructions, including changing only those emission-related settings permitted by the manufacturer [Part 60.4211(a) and (c)].

The engine can only be used for emergency operations, maintenance, and testing, and up to 50 hours per year in nonemergency situations. There is no time limit for emergency use. For maintenance and testing, the engine can operate up to 100 hours per year, which includes any nonemergency use. Maintenance checks and readiness testing must be recommended by relevant authorities or organizations. If additional hours are needed for maintenance, a petition can be submitted to the administrator. Nonemergency use is limited to 50 hours per year and cannot be for peak shaving or generating income, except under specific conditions where the engine is dispatched to mitigate local transmission issues. Records must be kept of the dispatching entity and the standards followed. If these requirements are not met, the engine will be reclassified as a nonemergency engine and must comply with all applicable standards for nonemergency engines.

Emergency engines not meeting the standards applicable to nonemergency engines, must install a nonresettable hour meter prior to startup of the engine [Part 60.4209(a)].

The owner or operator will maintain records indicating if federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year [Part 60.4211(f)(2)(i)]. NorthWestern must keep records of operation in emergency and nonemergency situations, recorded through a nonresettable hour meter.

Emergency engines do not require an initial notification.

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3.5.1.5 40 CFR Part 60, Subpart KKKK. Standards of Performance for Stationary Combustion Turbines

Subpart KKKK applies to all stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million British thermal units) per hour, based on the lower heating value of the fuel-fired and began construction, modification, or reconstruction after February 18, 2005. Because the combustion turbines will be constructed after December 13, 2024, in accordance with Part 60.4305(b), they are subject to Subpart KKKKa and are therefore not subject to the requirements of NSPS Subpart KKKK.

3.5.1.6 40 CFR Part 60, Subpart KKKKa. Standards of Performance for Stationary Combustion Turbines

The combustion turbines will be subject to NSPS Subpart KKKKa. This is because Subpart KKKKa applies to all stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour constructed, modified, or reconstructed after December 13, 2024. The turbines for the Project will have a peak heat input greater than 10.7 gigajoules (10 MMBtu/hour); therefore, the turbines are subject to this standard.

Emission Standards

Subpart KKKKa regulates pollutant emissions of NO_X and SO_2 for combustion turbines.

For NO_X, the applicable Subpart KKKKa standard is for new, modified, or reconstructed natural gas-fired combustion turbines with heat input greater than 50 MMBtu/hour and less than 850 MMBtu/hour. The turbines are new units that will be firing natural gas and will be utilized for more than 45% of the year. In accordance with Subpart KKKKa Table 1, the applicable NO_X limitation for each turbine is either 15 ppm at 15% O_2 or 0.43 pounds per megawatt-hour gross. NorthWestern proposes a NO_x limit of 3 ppm @15% O_2 during steady state operation on an hourly basis, which is significantly less than the NSPS emission limit.

For SO_2, 40 CFR 60 Subpart KKKKa regulates SO_2 emissions by limiting SO_2 emissions to 0.90 pound per megawatt-hour (lb/MWh) or by limiting the fuel potential sulfur emissions to 0.060 lb SO_2/MMBtu. The turbines will meet the NSPS requirements by combusting natural gas (approximately 0.0014 lb SO_2/MMBtu for combustion turbines).

Compliance, Recordkeeping and Reporting/Notification Requirements

Owners and operators must operate and maintain stationary combustion 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, shutdown, and malfunction.

To ensure compliance with emission standards, an initial performance test is required for NO_x. Following this test, annual performance tests or continuous monitoring are required to ensure compliance with the NO_x emission standard. Compliance with the SO_2 requirements is demonstrated through documenting the total sulfur content for the fuel combusted and submitting fuel records.

The NSPS requires that a NO_X CEMS be installed to continuously monitor NO_X emissions and a performance test is required to be performed within 180 days of initial startup of a turbine with specified reference method, operations, notification, and recordkeeping. Fuel records will be used to demonstrate compliance with SO_2 emission standards. NorthWestern will comply with these specific requirements.

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3.5.1.7 40 CFR Part 60, 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, and On or Before October 4, 2023

NorthWestern will install three diesel storage tanks to support operation of the diesel emergency generator engines and diesel fire pump. As the diesel storage tanks will be installed after October 4, 2023, 40 CFR Part 60 Subpart Kb is not applicable to this Project.

3.5.1.8 40 CFR Part 60, Subpart Kc. Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023

NorthWestern will install three diesel storage tanks to support operation of the diesel emergency engines and diesel fire pump.

The requirements under 40 CFR Part 60, Subpart Kc are applicable to each storage vessel with a capacity greater than or equal to 20,000 gallons (75.7 cubic meters) that is used to store VOLs for which construction, reconstruction, or modification begins after October 4, 2023. According to 40 CFR Part 60.110c(b)(8), vessels that only store VOL with a maximum true vapor pressure less than 0.25 psi (or 1.7 kPA absolute) are not subject to this rule. The maximum true vapor pressure of diesel stored in the tanks will be less than 0.25 psi, and the tanks will have capacities less than 20,000 gallons. Therefore, 40 CFR Part 60 Subpart Kc is not applicable to the diesel storage tanks to be installed as part of this Project.

3.5.1.9 40 CFR Part 60, Subpart TTTT. Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources – Electric Utility Generating Units

Subpart TTTT applies to stationary combustion turbines that commence construction after January 8, 2014, but on or before May 23, 2023, and have a base heat input rating greater than 250 MMBtu/hour and serving a generator capable of selling 25 MW of electricity to a utility power distribution system. Construction for the combustion turbines would commence after May 23, 2023, and would not be subject to this subpart.

3.5.1.10 40 CFR Part 60, Subpart TTTTa. Standards of Performance for Standards of Performance for Greenhouse Gas Emissions for Modified Coal-Fired Steam Electric Generating Units and New Construction and Reconstruction Stationary Combustion Turbine Electric Generating Units

Subpart TTTTa applies to stationary combustion turbines that commence construction or reconstruction after May 23, 2023, have a base heat input rating greater than 250 MMBtu/hour, and serve a generator capable of selling 25 MW of electricity to a utility power distribution system. [40 CFR Part 60.5508a and 60.5509a]

This rule would currently be applicable to the combustion turbines. However, this rule is proposed to be repealed under Docket ID No. EPA-HQ-OAR-2025-0124. If the rule remains in effect when the combustion turbines become operational, the units will be required to meet the requirements of this subpart.

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3.5.2 National Emission Standards for Hazardous Air Pollutants (40 CFR Part 63)

3.5.2.1 Overview

The National Emission Standards for Hazardous Air Pollutants (NESHAP) are emission standards set by EPA for HAPs not covered by National Ambient Air Quality Standards. PTE estimates indicate that the Project would be an area source of HAPs.

3.5.2.2 Subpart A – General Provisions

General maximum achievable control technology (MACT) provisions (40 CFR 63 Subpart A) are applicable to sources subject to a MACT Subpart and include various notification, monitoring, and recordkeeping requirements for the Project. The applicable source-specific subparts in 40 CFR 63 indicate which of the general provision in Subpart A are applicable to affected sources.

3.5.2.3 Subpart CCCCCC – National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities

Subpart CCCCCC applies to loading of gasoline storage tanks at gasoline dispensing facilities. This subpart does not apply as the facility is an electricity generating station that will not use gasoline.

3.5.2.4 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

Subpart JJJJJJ applies to industrial, commercial, and institutional boilers located at area sources of HAPs, except for those exempted under 40 CFR 63.11195. This facility is an area source of HAPs. However, this rule is not applicable because the dew point heaters are natural gas-fired boilers in accordance with 40 CFR 63.11195(e).

3.5.2.5 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for HAPs for Stationary Combustion Turbines

Subpart YYYY establishes national emission limitations and operating limitations for HAP emissions from stationary combustion turbines located at major sources of HAP emissions.

This subpart does not apply as the total facility PTE shows that the individual HAP emissions are less than 10 tpy for all HAPs, and combined HAP emissions are less than 25 tpy and the facility is an area source of HAPs.

3.5.2.6 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for HAPs for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ is applicable to stationary RICE at both major and area sources of HAP emissions. The diesel emergency generator engines and diesel fire pump are new stationary RICE located at an area source of HAPs. Therefore, the engines comply with 40 CFR 63 Subpart ZZZZ by meeting the requirements of NSPS Subpart IIII, *[Part 63.6590 (c)]*. No specific emissions limitations are therefore applicable from Subpart ZZZZ for fire pump or diesel emergency generator engines.

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3.5.3 Acid Rain Program

The acid rain program applies to electric utility generating units, including the turbines planned for the Project as they are larger than 25 MW. The facility, therefore, is subject to Phase II of the Acid Rain Program pursuant to Title IV of the Clean Air Act and is required to have a Title V operating permit. A Title V modification application will be submitted within 12 months of operations of the Project. The Project will be required to obtain allowances for calendar year SO_2 emissions. These allowances are expected to be readily available on the open market trading system or from other NorthWestern plants. Additionally, the acid rain permit will require emissions monitoring for NO_X and fuel monitoring for sulfur content.

3.5.4 Accidental Release Prevention Program

The use of aqueous ammonia (NH_3) for NO_X control at the facility is not anticipated to require a Risk Management Plan (RMP). The Accidental Release Prevention Program standard requires RMP preparation for aqueous NH_3 storage for more than 20,000 pounds of NH_3 of 20% or greater. The facility intends to use concentrations of aqueous NH_3 less than 20% for the NO_X control. Therefore, no RMP will be required for the Project.

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4. Control Technology Review

This Project is not a major PSD source under 40 CFR 52.21. Consistent with the application requirement in SD DANR Title 74, Article 36, Chapter 20, Section 07, a Best Available Control Technology review and air dispersion modeling are not required.

The Project turbines will be equipped with a multipollutant catalyst system to control and minimize emissions of NO_x, CO, formaldehyde, and other VOCs. Operation of the multipollutant catalyst system will produce emissions of ammonia via ammonia slip. Ammonia slip is expected to be no more than 10 parts per million by volume, dry (ppmvd) @ 15% O_2. To minimize emissions of SO_2 and particulate matter including PM, PM_{10}, and $PM_{2.5}$, NorthWestern plans to use natural gas for the combustion turbines and ULSD for the diesel engines and fire pump, alongside implementing optimal combustion practices for the units. The emergency diesel engines and fire pump will be certified units, and will comply with applicable NSPS requirements, including operational restrictions for emergency units.

This comprehensive approach to emission control ensures that the Project will fully comply with the applicable emission standards and state and federal requirements.

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5. Proposed Permit Conditions

This section outlines the permit conditions that NorthWestern is proposing.

Combustion Turbines

- Emissions to the atmosphere from each combustion turbine shall not exceed the following rates and concentrations shown in **Table 5-1** below:

Table 5-1. Turbine Emission Permit Conditions for NOx, CO, and VOC.

Pollutant	Limitations (Under Steady State/Normal Conditions)	Averaging Period
NO_x	3 ppmvd @ 15% O_2	3-hour average
CO	6 ppmvd @ 15% O_2	3-hour average
VOC	1.5 ppmvd @ 15% O_2	3-hour average

Steady state/normal operation includes all periods of turbine operation, except for periods of startup and shutdown. Startup is defined as the period beginning with turbine initial firing until the unit meets the ppmvd emission limits listed in the condition for steady state operation. Shutdown is defined as the period beginning with the initiation of the turbine shutdown sequence and ending with the cessation of firing of the gas turbine.

- NorthWestern will install, calibrate, and maintain CEMS on each of the combustion turbine stacks. The facility shall record the NO_x and CO emissions.
- NorthWestern will perform initial testing to comply with the emissions limits noted within 180 days of the initial operation of the combustion turbine.
- After the initial performance stack test, NorthWestern shall comply with the emissions limitations as follows:
  - NO_x: compliance shall be demonstrated by CEMS as outlined previously.
  - CO: compliance shall be demonstrated by CEMS as outlined previously.
  - VOC: compliance shall be demonstrated by stack testing at least once annually.
  - SO_2: compliance shall be demonstrated by documenting fuel sulfur content.

Emergency Generators and Fire Pump

The diesel emergency generators and fire pump shall be limited to100 hours per year of operation for testing and maintenance.

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5.1 References

California Air Resources Board (CARB). 2011. *Frequently Asked Questions: Regulation for In-Use Off-Road Diesel-Fueled Fleets (Off-Road Regulation).* https://ww2.arb.ca.gov/sites/default/files/classic/msprog/ordiesel/faq/emissionfactorsfaq.pdf

Tetra Tech. (2024). *NorthWestern Energy Air Quality Construction Permit Application – Addition of Generating Units to the Aberdeen Generating Station.* August 8.

U.S. Environmental Protection Agency (EPA). 2024. *Compilation of Air Pollutant Emission Factors for Stationary Sources*. https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors-stationary-sources

U.S. Environmental Protection Agency (EPA). 2026. *TANKS Emissions Estimation Software, Version 5.* July 9. https://www.epa.gov/air-emissions-factors-and-quantification/tanks-emissions-estimation-software-version-5.

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Appendix A
Construction Permit Forms

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Application Form
Air Quality Construction Permit

General Information Form
And
Certification of Applicant Form

SEND ALL MATERIALS TO:

SD Department of Agriculture and Natural Resources
Air Quality Program
523 East Capitol
Pierre, South Dakota 57501-3181

(Please complete shaded areas - if you have questions call (605) 773-3151)

A. Application Type

Check the appropriate box:

✓	New [1]		Modification [1]		Administrative Revision

For administrative revisions, provide existing permit number:

[1] – Applications for a "New" air quality construction permit that is also a major source of air emissions under the Title V air quality operating permit program is required to submit an application fee of $138. In addition, a "Modification" to an existing source with a Title V air quality operating permit is also required to submit an application fee of $138. The application fee is not applicable to ethanol plants.

B. General Information

1. Facility name:	Hub City Energy Park
2. Mailing address:	3010 West 69th Street
City, state, zip code	Sioux Falls, South Dakota 57108

3. Facility location (if plant is portable, enter location at time of submittal):

Street and city	440 SW 135th Street, Aberdeen, South Dakota 57401
Legal description (if street address is unknown)	

(Quarter, Section, Township, Range)

4. Construction contact:

Name/title	Josh Follman, Director Energy Supply Project Development
Telephone number	406-498-3617
Email address	Joshua.Follman@northwestern.com

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5. Facility contact, if different than construction contact (Person to contact for arranging inspections):

Name/title	Josh Follman, Director Energy Supply Project Development
Telephone number	406-498-3617
Email address	Joshua.Follman@northwestern.com

6. Responsible official:

Name/title	Bleau LaFave, VP – Planning, Development, & Asset Management
Telephone number	605-978-2897
Email address	Bleau.LaFave@northwestern.com

Note: A responsible official is defined as a president, vice president, secretary, or treasurer for a corporation; general partner or the proprietor for a partnership; and principal executive officer or ranking elected official for municipal, state, federal or public agency.

C. Plant Description

7. Standard Industrial Classification Code (SIC code):

Primary SIC code: 4911 Secondary SIC code (if applicable):

Please contact the Department at (605) 773-3151 for assistance if SIC code is unknown.

8. For a "New" application, briefly describe the operations at the facility, including raw materials and finished products. For an administrative revision, skip to the next section:

NorthWestern Energy is proposing the Hub City Energy Park Project to support the future capacity and reliability needs of its South Dakota electric system. The proposed expansion will include up to seven (7) natural gas fired simple cycle combustion turbines rated at approximately 37 megawatts (MW) each (average ambient temperature, site conditions), as well as miscellaneous ancillary equipment including two (2) emergency diesel generators, one (1) fire pump, two (2) dew point heaters, three (3) diesel fuel tanks, and HVAC and comfort heating equipment. The natural gas-fired turbines will be equipped with a multipollutant catalyst system to control and minimize air emissions.

If additional space is needed to describe operations, please attach the additional paper to this application and reference the attachment here.

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D. Air Emissions Summary (skip this section for Administrative Revisions)

Potential air emissions are calculated assuming the permitted unit operates 24 hours per day, 7 days per week, 52 weeks per year at its maximum design capacity. If air emissions are available, please complete the following table. Attach all available documentation used to calculate the potential air emissions such as a spreadsheet, software programs (i.e., Tanks 4.09), emission factors, calculations, MSDS sheets for all products containing volatile organic compounds and/or hazardous air pollutants, and other supporting documentation.

Pollutant	Actual (tons per year)	Potential Controlled (tons per year)	Potential Uncontrolled (tons per year)
PM10 [2]	Not Applicable	See Table 2-3 in Application	
PM2.5 [3]	Not Applicable	See Table 2-3 in Application	
Sulfur Dioxide	Not Applicable	See Table 2-3 in Application	
Nitrogen Oxide	Not Applicable	See Table 2-3 in Application	
Carbon Monoxide	Not Applicable	See Table 2-3 in Application	
Volatile Organic Compounds	Not Applicable	See Table 2-3 in Application	
Greenhouse Gases	Not Applicable	See Table 2-3 in Application	
Hazardous Air Pollutants (if applicable)			
See Table 2-4 in Application			

[2] – PM10 means particulate matter 10 microns in diameter or less; and
[3] – PM2.5 means particulate matter 2.5 microns in diameter or less.

Please contact the Department at (605) 773-3151 if assistance is needed for calculating emissions for the permitted units such as emission factors, clarifying what potential emissions are, efficiency for control equipment, or for any other questions.

E. Forms for Specific Equipment and Control Equipment

9. The following forms must be completed for each piece of specific equipment being installed at the facility and submitted with this form:

Boiler, Turbine, or Furnace	**Generators and Fire Pumps**	**Incinerator**
Kiln or Dryer	**Spray Booth**	**Storage Tank**
Miscellaneous	**Insignificant Activities** [4]	

[4] – The "Insignificant Activities" form should be completed for each operation identified as an insignificant activity and exempt from permitting.

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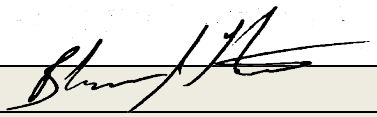
10. The following forms must be completed for each piece of specific air control equipment being installed at the facility and submitted with this form:

Baghouse	**Cyclone**	**Electrostatic Precipitator**
Thermal Oxidizer	**Wet Scrubber**	**Miscellaneous**

F. Certification of Compliance

I certify the following:

This application is submitted in accordance with the provisions of the South Dakota Codified Laws 34A-1 and Administrative Rules of South Dakota 74:36. To the best of my knowledge, after reasonable inquiry, the statements and information contained in the application and supporting documents are true, accurate, and complete. In accordance with South Dakota Codified Laws 1-41-20, I have also enclosed a completed Certification of Applicant form.

Signature:		10/13/2026
Print Name:	Bleau LaFave	Date

Responsible Official

COPY

STATE OF SOUTH DAKOTA

BEFORE THE SECRETARY OF

THE DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION OF	)	
NorthWestern Energy Public Service Corporation	)	**CERTIFICATION OF**
	)	**APPLICANT**
STATE OF South Dakota	)	
COUNTY OF Brown	)	

I, Bleau LaFave, the applicant in the above matter after being duly sworn upon oath hereby certify the following information in regard to this application:

I have read and understand South Dakota Codified Law Section 1-41-20 which provides:

"The secretary may reject an application for any permit filed pursuant to Titles 34A or 45, including any application by any concentrated swine feeding operation for authorization to operate under a general permit, upon making a specific finding that:

(1) The applicant is unsuited or unqualified to perform the obligations of a permit holder based upon a finding that the applicant, any officer, director, partner, or resident general manager of the facility for which application has been made:

(a) Has intentionally misrepresented a material fact in applying for a permit;

(b) Has been convicted of a felony or other crime involving moral turpitude;

(c) Has habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage;

(d) Has had any permit revoked under the environmental laws of any state or the United States; or

(e) Has otherwise demonstrated through clear and convincing evidence of previous actions that the applicant lacks the necessary good character and competency to reliably carry out the obligations imposed by law upon the permit holder; or

(2) The application substantially duplicates an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Nothing in this subdivision may be construed to prohibit an applicant from submitting a new application for a permit previously denied, if the new application represents a good faith attempt by the applicant to correct the deficiencies that served as the basis for the denial in the original application.

All applications filed pursuant to Titles 34A and 45 shall include a certification, sworn to under oath and signed by the applicant, that he is not disqualified by reason of this section from obtaining a permit. In the absence of evidence to the contrary, that certification shall constitute a prima facie showing of the suitability and qualification of the applicant. If at any point in the application review, recommendation or hearing process, the secretary finds the applicant has intentionally made any material misrepresentation of fact in regard to this certification, consideration of the application

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may be suspended and the application may be rejected as provided for under this section.

Applications rejected pursuant to this section constitute final agency action upon that application and may be appealed to circuit court as provided for under chapter 1-26."

I certify pursuant to 1-41-20, that as an applicant, officer, director, partner, or resident general manager of the activity or facility for which the application has been made that I; a) have not intentionally misrepresented a material fact in applying for a permit; b) have not been convicted of a felony or other crime of moral turpitude; c) have not habitually and intentionally violated environmental laws of any state or the United States which have caused significant and material environmental damage; (d) have not had any permit revoked under the environmental laws of any state or the United States; or e) have not otherwise demonstrated through clear and convincing evidence of previous actions that I lack the necessary good character and competency to reliably carry out the obligations imposed by law upon me. I also certify that this application does not substantially duplicate an application by the same applicant denied within the past five years which denial has not been reversed by a court of competent jurisdiction. Further;

"I declare and affirm under the penalties of perjury that this claim (petition, application, information) has been examined by me, and to the best of my knowledge and belief, is in all things true and correct."

Dated this 13 day of October, 20 26 .

Bleau LaFave, VP - Planning, Development & Asset Management

Applicant (print)

Applicant (signature)

Subscribed and sworn before me this 13 day of October, 2026 .

Notary Public (signature)

My commission expires: October 16, 2028

(SEAL)

COLLEEN M MCDONALD
Notary Public
for the State of Montana
Residing at:
Butte, Montana
My Commission Expires:
October 16, 2028

PLEASE ATTACH ANY ADDITIONAL INFORMATION NECESSARY TO DISCLOSE ALL FACTS AND DOCUMENTS PERTAINING TO SDCL 1-41-20 (1) (a) THROUGH (e). ALL VIOLATIONS MUST BE DISCLOSED, BUT WILL NOT AUTOMATICALLY RESULT IN THE REJECTION OF AN APPLICATION

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB-5

2. Manufacturer: Solar Turbines | Manufacture date: TBD

3. Model number: Titan 350

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Simple Cycle Combustion Turbine

5. Maximum designed operating rate (name plate):

		million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or	Approximately 37,000 (average ambient temperature, site conditions)	kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | ✓ | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Multipollutant Catalyst System

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770760.92	feet	539727.93	meters
Y- Coordinate or Northing:	16506339.14	feet	5031132.17	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	90.00	feet	27.43	meters
Exit Stack Diameter	11.00	feet	3.35	meters
Exit Stack Temperature	858	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Control Device

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit, Minor Operating Permit, or the General Permits.

(please complete shaded areas)

Describe the miscellaneous control device and how it works:

Multipollutant Catalyst System

Equipment and processes served by this baghouse (please list all equipment and processes):

	Equipment and Processes
1.	Solar Turbines Titan 350 Combustion Turbine – HUB-5
2.	
3.	
4.	
5.	

Manufacturer Information:

Manufacturer?	TBD		
Manufacturer date?	TBD	Installation date?	TBD
Manufacturer's designed control efficiency?	NOx: 67%; CO: 60%; VOC: 50%	%	

Miscellaneous Control Device Operation and Maintenance:

Pressure drop across control unit?		Inches water (minimum)		inches water (maximum)
Inlet Temperature?	829	Fahrenheit (minimum)	994	Fahrenheit (maximum)
Outlet Temperature?	763.6	Fahrenheit (minimum)	844.4	Fahrenheit (maximum)

Describe maintenance of control unit (use of visual inspections, maintenance schedule, etc.):

Maintenance schedule per manufacturer specification

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting: [1]	1770760.92	feet	or	539727.93	meters
Y- Coordinate or Northing: [1]	16506339.14	feet	or	5031132.17	meters
Base Elevation of Stack: [1]	1292.00	feet	or	393.80	meters
Stack Height:	90.00	feet	or	27.43	meters
Exit Stack Diameter	11.00	feet	or	3.35	meters
Exit Stack Temperature	794.04	degrees Fahrenheit			

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

[1] - Portable asphalt plants, rock crushers, or concrete plants do not have to provide the requested information in these categories.

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB-6

2. Manufacturer: Solar Turbines | Manufacture date: TBD

3. Model number: Titan 350

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Simple Cycle Combustion Turbine

5. Maximum designed operating rate (name plate):

		million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or	Approximately 37,000 (average ambient temperature, site conditions)	kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | ✓ | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Multipollutant Catalyst System

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770630.42	feet	539688.15	meters
Y- Coordinate or Northing:	16506339.86	feet	5031132.39	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	90.00	feet	27.43	meters
Exit Stack Diameter	11.00	feet	3.35	meters
Exit Stack Temperature	858	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Control Device

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit, Minor Operating Permit, or the General Permits.

(please complete shaded areas)

Describe the miscellaneous control device and how it works:

Multipollutant Catalyst System

Equipment and processes served by this baghouse (please list all equipment and processes):

	Equipment and Processes
1.	Solar Turbines Titan 350 Combustion Turbine – HUB-6
2.	
3.	
4.	
5.	

Manufacturer Information:

Manufacturer?	TBD		
Manufacturer date?	TBD	Installation date?	TBD
Manufacturer's designed control efficiency?	NOx: 67%; CO: 60%; VOC: 50%	%	

Miscellaneous Control Device Operation and Maintenance:

Pressure drop across control unit?		Inches water (minimum)		inches water (maximum)
Inlet Temperature?	829	Fahrenheit (minimum)	994	Fahrenheit (maximum)
Outlet Temperature?	763.6	Fahrenheit (minimum)	844.4	Fahrenheit (maximum)

Describe maintenance of control unit (use of visual inspections, maintenance schedule, etc.):

Maintenance schedule per manufacturer specification

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting: [1]	1770630.42	feet	or	539688.15	meters
Y- Coordinate or Northing: [1]	16506339.86	feet	or	5031132.39	meters
Base Elevation of Stack: [1]	1292.00	feet	or	393.80	meters
Stack Height:	90.00	feet	or	27.43	meters
Exit Stack Diameter	11.00	feet	or	3.35	meters
Exit Stack Temperature	794.04	degrees Fahrenheit			

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
	and/or			
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

[1] - Portable asphalt plants, rock crushers, or concrete plants do not have to provide the requested information in these categories.

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB-7

2. Manufacturer: Solar Turbines | Manufacture date: TBD

3. Model number: Titan 350

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Simple Cycle Combustion Turbine

5. Maximum designed operating rate (name plate):

		million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or	Approximately 37,000 (average ambient temperature, site conditions)	kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | ✓ | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Multipollutant Catalyst System

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770499.89	feet	539648.37	meters
Y- Coordinate or Northing:	16506340.62	feet	5031132.62	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	90.00	feet	27.43	meters
Exit Stack Diameter	11.00	feet	3.35	meters
Exit Stack Temperature	858	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Control Device

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit, Minor Operating Permit, or the General Permits.

(please complete shaded areas)

Describe the miscellaneous control device and how it works:

Multipollutant Catalyst System

Equipment and processes served by this baghouse (please list all equipment and processes):

	Equipment and Processes
1.	Solar Turbines Titan 350 Combustion Turbine – HUB-7
2.	
3.	
4.	
5.	

Manufacturer Information:

Manufacturer?	TBD		
Manufacturer date?	TBD	Installation date?	TBD
Manufacturer's designed control efficiency?	NOx: 67%; CO: 60%; VOC: 50%	%	

Miscellaneous Control Device Operation and Maintenance:

Pressure drop across control unit?		Inches water (minimum)		inches water (maximum)
Inlet Temperature?	829	Fahrenheit (minimum)	994	Fahrenheit (maximum)
Outlet Temperature?	763.6	Fahrenheit (minimum)	844.4	Fahrenheit (maximum)

Describe maintenance of control unit (use of visual inspections, maintenance schedule, etc.):

Maintenance schedule per manufacturer specification

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting: [1]	1770499.89	feet	or	539648.37	meters
Y- Coordinate or Northing: [1]	16506340.62	feet	or	5031132.62	meters
Base Elevation of Stack: [1]	1292.00	feet	or	393.80	meters
Stack Height:	90.00	feet	or	27.43	meters
Exit Stack Diameter	11.00	feet	or	3.35	meters
Exit Stack Temperature	794.04	degrees Fahrenheit			

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
	and/or			
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

[1] - Portable asphalt plants, rock crushers, or concrete plants do not have to provide the requested information in these categories.

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB-8

2. Manufacturer: Solar Turbines | Manufacture date: TBD

3. Model number: Titan 350

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Simple Cycle Combustion Turbine

5. Maximum designed operating rate (name plate):

		million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or	Approximately 37,000 (average ambient temperature, site conditions)	kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | ✓ | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Multipollutant Catalyst System

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770763.26	feet	539728.64	meters
Y- Coordinate or Northing:	16506755.51	feet	5031259.08	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	90.00	feet	27.43	meters
Exit Stack Diameter	11.00	feet	3.35	meters
Exit Stack Temperature	858	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Control Device

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit, Minor Operating Permit, or the General Permits.

(please complete shaded areas)

Describe the miscellaneous control device and how it works:

Multipollutant Catalyst System

Equipment and processes served by this baghouse (please list all equipment and processes):

	Equipment and Processes
1.	Solar Turbines Titan 350 Combustion Turbine – HUB-8
2.	
3.	
4.	
5.	

Manufacturer Information:

Manufacturer?	TBD		
Manufacturer date?	TBD	Installation date?	TBD
Manufacturer's designed control efficiency?	NOx: 67%; CO: 60%; VOC: 50%	%	

Miscellaneous Control Device Operation and Maintenance:

Pressure drop across control unit?		Inches water (minimum)		inches water (maximum)
Inlet Temperature?	829	Fahrenheit (minimum)	994	Fahrenheit (maximum)
Outlet Temperature?	763.6	Fahrenheit (minimum)	844.4	Fahrenheit (maximum)

Describe maintenance of control unit (use of visual inspections, maintenance schedule, etc.):

Maintenance schedule per manufacturer specification

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting: [1]	1770763.26	feet	or	539728.64	meters
Y- Coordinate or Northing: [1]	16506755.51	feet	or	5031259.08	meters
Base Elevation of Stack: [1]	1292.00	feet	or	393.80	meters
Stack Height:	90.00	feet	or	27.43	meters
Exit Stack Diameter	11.00	feet	or	3.35	meters
Exit Stack Temperature	794.04	degrees Fahrenheit			

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second

and/or

Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

[1] - Portable asphalt plants, rock crushers, or concrete plants do not have to provide the requested information in these categories.

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB-9

2. Manufacturer: Solar Turbines | Manufacture date: TBD

3. Model number: Titan 350

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Simple Cycle Combustion Turbine

5. Maximum designed operating rate (name plate):

		million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or	Approximately 37,000 (average ambient temperature, site conditions)	kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | ✓ | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Multipollutant Catalyst System

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770632.77	feet	539688.87	meters
Y- Coordinate or Northing:	16506756.23	feet	5031259.30	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	90.00	feet	27.43	meters
Exit Stack Diameter	11.00	feet	3.35	meters
Exit Stack Temperature	858	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Control Device

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit, Minor Operating Permit, or the General Permits.

(please complete shaded areas)

Describe the miscellaneous control device and how it works:

Multipollutant Catalyst System

Equipment and processes served by this baghouse (please list all equipment and processes):

	Equipment and Processes
1.	Solar Turbines Titan 350 Combustion Turbine – HUB-9
2.	
3.	
4.	
5.	

Manufacturer Information:

Manufacturer?	TBD		
Manufacturer date?	TBD	Installation date?	TBD
Manufacturer's designed control efficiency?	NOx: 67%; CO: 60%; VOC: 50%	%	

Miscellaneous Control Device Operation and Maintenance:

Pressure drop across control unit?		Inches water (minimum)		inches water (maximum)
Inlet Temperature?	829	Fahrenheit (minimum)	994	Fahrenheit (maximum)
Outlet Temperature?	763.6	Fahrenheit (minimum)	844.4	Fahrenheit (maximum)

Describe maintenance of control unit (use of visual inspections, maintenance schedule, etc.):

Maintenance schedule per manufacturer specification

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting: [1]	1770632.77	feet	or	539688.87	meters
Y- Coordinate or Northing: [1]	16506756.23	feet	or	5031259.30	meters
Base Elevation of Stack: [1]	1292.00	feet	or	393.80	meters
Stack Height:	90.00	feet	or	27.43	meters
Exit Stack Diameter	11.00	feet	or	3.35	meters
Exit Stack Temperature	794.04	degrees Fahrenheit			

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

[1] - Portable asphalt plants, rock crushers, or concrete plants do not have to provide the requested information in these categories.

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB-10

2. Manufacturer: Solar Turbines | Manufacture date: TBD

3. Model number: Titan 350

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Simple Cycle Combustion Turbine

5. Maximum designed operating rate (name plate):

		million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or	Approximately 37,000 (average ambient temperature, site conditions)	kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | ✓ | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Multipollutant Catalyst System

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770502.24	feet	539649.08	meters
Y- Coordinate or Northing:	16506756.96	feet	5031259.52	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	90.00	feet	27.43	meters
Exit Stack Diameter	11.00	feet	3.35	meters
Exit Stack Temperature	858	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second

and/or

Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Control Device

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit, Minor Operating Permit, or the General Permits.

(please complete shaded areas)

Describe the miscellaneous control device and how it works:

Multipollutant Catalyst System

Equipment and processes served by this baghouse (please list all equipment and processes):

	Equipment and Processes
1.	Solar Turbines Titan 350 Combustion Turbine – HUB-10
2.	
3.	
4.	
5.	

Manufacturer Information:

Manufacturer?	TBD		
Manufacturer date?	TBD	Installation date?	TBD
Manufacturer's designed control efficiency?	NOx: 67%; CO: 60%; VOC: 50%	%	

Miscellaneous Control Device Operation and Maintenance:

Pressure drop across control unit?		Inches water (minimum)		inches water (maximum)
Inlet Temperature?	829	Fahrenheit (minimum)	994	Fahrenheit (maximum)
Outlet Temperature?	763.6	Fahrenheit (minimum)	844.4	Fahrenheit (maximum)

Describe maintenance of control unit (use of visual inspections, maintenance schedule, etc.):

Maintenance schedule per manufacturer specification

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting: [1]	1770502.24	feet	or	539649.08	meters
Y- Coordinate or Northing: [1]	16506756.96	feet	or	5031259.52	meters
Base Elevation of Stack: [1]	1292.00	feet	or	393.80	meters
Stack Height:	90.00	feet	or	27.43	meters
Exit Stack Diameter	11.00	feet	or	3.35	meters
Exit Stack Temperature	794.04	degrees Fahrenheit			

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

[1] - Portable asphalt plants, rock crushers, or concrete plants do not have to provide the requested information in these categories.

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB-11

2. Manufacturer: Solar Turbines | Manufacture date: TBD

3. Model number: Titan 350

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Simple Cycle Combustion Turbine

5. Maximum designed operating rate (name plate):

		million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or	Approximately (average ambient temperature, site conditions)	kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | ✓ | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Multipollutant Catalyst System

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770371.74	feet	539609.31	meters
Y- Coordinate or Northing:	16506757.71	feet	5031259.75	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	90.00	feet	27.43	meters
Exit Stack Diameter	11.00	feet	3.35	meters
Exit Stack Temperature	858	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Control Device

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit, Minor Operating Permit, or the General Permits.

(please complete shaded areas)

Describe the miscellaneous control device and how it works:

Multipollutant Catalyst System

Equipment and processes served by this baghouse (please list all equipment and processes):

	Equipment and Processes
1.	Solar Turbines Titan 350 Combustion Turbine – HUB-11
2.	
3.	
4.	
5.	

Manufacturer Information:

Manufacturer?	TBD		
Manufacturer date?	TBD	Installation date?	TBD
Manufacturer's designed control efficiency?	NOx: 67%; CO: 60%; VOC: 50%	%	

Miscellaneous Control Device Operation and Maintenance:

Pressure drop across control unit?		Inches water (minimum)		inches water (maximum)
Inlet Temperature?	829	Fahrenheit (minimum)	994	Fahrenheit (maximum)
Outlet Temperature?	763.6	Fahrenheit (minimum)	844.4	Fahrenheit (maximum)

Describe maintenance of control unit (use of visual inspections, maintenance schedule, etc.):

Maintenance schedule per manufacturer specification

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting: [1]	1770371.74	feet	or	539609.31	meters
Y- Coordinate or Northing: [1]	16506757.71	feet	or	5031259.75	meters
Base Elevation of Stack: [1]	1292.00	feet	or	393.80	meters
Stack Height:	90.00	feet	or	27.43	meters
Exit Stack Diameter	11.00	feet	or	3.35	meters
Exit Stack Temperature	794.04	degrees Fahrenheit			

Exit Stack Velocity and/or Flow Rate:

Velocity:	93.81	feet per second	28.59	meters per second
		and/or		
Flow Rate:	534910.79	actual cubic feet per minute	252.45	actual cubic meters per second

[1] - Portable asphalt plants, rock crushers, or concrete plants do not have to provide the requested information in these categories.

COPY

Air Quality Permit Application Form

Generators and Fire Pumps

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (e.g. Generator #1, Fire Pump #1, etc.): HUB_EDG01
2. Manufacturer: TBD
3. Model number: TBD
4. Type (e.g. compression ignition, spark ignition, fire pump, etc.)

Compression ignition

5. Maximum designed operating rate (name plate):

		horsepower with generator efficiency:	
or	800	mechanical kilowatts with generator efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

	Natural gas			Propane
✓	Distillate oil	Sulfur content	0.0015	Weight percent
	Residual oil	Sulfur content		Weight percent
	Other (e.g. coal, wood, etc.)			

7. Is the unit equipped with a non-settable clock? ✓ Yes ☐ No
8. Manufacture date? TBD

If the manufacture date is prior to July 11, 2005, skip to Question #11

9. Will the unit operate more than 100 hours per year? ☐ Yes ✓ No

If yes proceed to Question #10, if no skip to Question #11.

10. If the generator operates more than 500 hours per year and the manufacture date is after to July 11, 2005, will crankcase emissions be controlled? **(If this is for a fire pump engine, skip Question #10 and proceed to Question #11)**

☐ Yes ☐ No If yes, please explain:

11. Does the emergency generator or fire pump operate less than 500 hours per year? ✓ Yes ☐ No

12. What is the displacement of the unit in liters? 27.03
13. How many cylinders does the unit have? 12

COPY

14. Please list the Manufacturer Guaranteed Emission Rates or Tier Emission Standards and attach supporting documentation in **g/KW-hr or g/HP-hr**. (circle the units reported for emissions)

NMHC + NO_X	See Section 2 in application.	NO_X	See Section 2 in application.
HC		CO	
PM		Tier (if applicable)	

15. Has a stack test been conducted (check appropriate box)? ☐ Yes ☑ No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

Stack Information: If this application is a renewal, contact the air program to determine if we already have this information.

X- Coordinate or Easting:	1770489.43	feet	539645.18	meters
Y- Coordinate or Northing:	16506137.04	feet	5031070.57	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	12.83	feet	3.91	meters
Exit Stack Diameter	0.83	feet	0.25	meters
Exit Stack Temperature	947.8	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity: 181.61 feet per second 55.36 meters per second

and/or

Flow Rate: 5943.3 actual cubic feet per minute 2.80 actual cubic meters per second

COPY

Air Quality Permit Application Form

Generators and Fire Pumps

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (e.g. Generator #1, Fire Pump #1, etc.): HUB_EDG02
2. Manufacturer: TBD
3. Model number: TBD
4. Type (e.g. compression ignition, spark ignition, fire pump, etc.)

Compression ignition

5. Maximum designed operating rate (name plate):

		horsepower with generator efficiency:	
or	1250	mechanical kilowatts with generator efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

	Natural gas			Propane	
✓	Distillate oil	Sulfur content	0.0015	Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Other (e.g. coal, wood, etc.)				

7. Is the unit equipped with a non-settable clock? ✓ Yes ☐ No
8. Manufacture date? TBD

If the manufacture date is prior to July 11, 2005, skip to Question #11

9. Will the unit operate more than 100 hours per year? ☐ Yes ✓ No

If yes proceed to Question #10, if no skip to Question #11.

10. If the generator operates more than 500 hours per year and the manufacture date is after to July 11, 2005, will crankcase emissions be controlled? **(If this is for a fire pump engine, skip Question #10 and proceed to Question #11)**

☐ Yes ☐ No If yes, please explain:

11. Does the emergency generator or fire pump operate less than 500 hours per year? ☐ Yes ✓ No

12. What is the displacement of the unit in liters? 32.1
13. How many cylinders does the unit have? 12

COPY

14. Please list the Manufacturer Guaranteed Emission Rates or Tier Emission Standards and attach supporting documentation in **g/KW-hr or g/HP-hr**. (circle the units reported for emissions)

NMHC + NO_X	See Section 2 in application	NO_X	See Section 2 in application
HC		CO	
PM		Tier (if applicable)	

15. Has a stack test been conducted (check appropriate box)? ☐ Yes ☑ No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

Stack Information: If this application is a renewal, contact the air program to determine if we already have this information.

X- Coordinate or Easting:	1770492.32	feet	539646.058	meters
Y- Coordinate or Northing:	16506591.80	feet	5031209.18	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	12.833	feet	3.91	meters
Exit Stack Diameter	1.08	feet	0.33	meters
Exit Stack Temperature	806.6	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity: 180.92 feet per second 55.14 meters per second

and/or

Flow Rate: 10005.8 actual cubic feet per minute 4.72 actual cubic meters per second

COPY

Air Quality Permit Application Form

Generators and Fire Pumps

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (e.g. Generator #1, Fire Pump #1, etc.): HUB_FP1
2. Manufacturer: TBD
3. Model number: TBD
4. Type (e.g. compression ignition, spark ignition, fire pump, etc.)

Fire pump

5. Maximum designed operating rate (name plate):

250 horsepower with generator efficiency:

or mechanical kilowatts with generator efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

	Natural gas			Propane	
✓	Distillate oil	Sulfur content	0.0015	Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Other (e.g. coal, wood, etc.)				

7. Is the unit equipped with a non-settable clock? ✓ Yes No

8. Manufacture date? TBD

If the manufacture date is prior to July 11, 2005, skip to Question #11

9. Will the unit operate more than 100 hours per year? Yes ✓ No

If yes proceed to Question #10, if no skip to Question #11.

10. If the generator operates more than 500 hours per year and the manufacture date is after to July 11, 2005, will crankcase emissions be controlled? **(If this is for a fire pump engine, skip Question #10 and proceed to Question #11)**

Yes No If yes, please explain:

11. Does the emergency generator or fire pump operate less than 500 hours per year? ✓ Yes No

12. What is the displacement of the unit in liters? 8.9
13. How many cylinders does the unit have? 6

COPY

14. Please list the Manufacturer Guaranteed Emission Rates or Tier Emission Standards and attach supporting documentation in **g/KW-hr or g/HP-hr**. (circle the units reported for emissions)

NMHC + NO_X	See Section 2 in application	NO_X	See Section 2 in application
HC		CO	
PM		Tier (if applicable)	3

15. Has a stack test been conducted (check appropriate box)? ☐ Yes ☑ No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

Stack Information: If this application is a renewal, contact the air program to determine if we already have this information.

X- Coordinate or Easting:	1770418.18	feet	539623.46	meters
Y- Coordinate or Northing:	16506459.81	feet	5031168.95	meters
Base Elevation of Stack:	1292.00	feet	393.90	meters
Stack Height:	15.00	feet	4.57	meters
Exit Stack Diameter	0.5	feet	0.15	meters
Exit Stack Temperature	705.2	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity: 125.44 feet per second 38.23 meters per second

and/or

Flow Rate: 1477.8 actual cubic feet per minute 0.70 actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Process

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB_DPH01

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Dew Point Heater

5. Maximum designed operating rate (name plate):

	7	million Btus per hour heat input
or		horsepower
or		kilowatts

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? ☐ Yes ✓ No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770800.52	feet	539740.00	meters
Y- Coordinate or Northing:	16505973.98	feet	5031020.87	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	15	feet	4.57	meters
Exit Stack Diameter	2.25	feet	0.69	meters
Exit Stack Temperature	190	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	18.19	feet per second	5.54	meters per second

and/or

Flow Rate:	4338.30	actual cubic feet per minute	2.05	actual cubic meters per second

COPY

Air Quality Permit Application Form

Miscellaneous Process

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): HUB_DPH02

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Dew Point Heater

5. Maximum designed operating rate (name plate):

	9	million Btus per hour heat input
or		horsepower
or		kilowatts

6. Check the appropriate box(es) for primary and secondary fuels:

✓	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? ☐ Yes ✓ No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	1770816.81	feet	539744.96	meters
Y- Coordinate or Northing:	16505973.92	feet	5031020.85	meters
Base Elevation of Stack:	1292.00	feet	393.80	meters
Stack Height:	15	feet	4.57	meters
Exit Stack Diameter	2.67	feet	0.81	meters
Exit Stack Temperature	190	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	17.26	feet per second	5.26	meters per second
		and/or		
Flow Rate:	5784.40	actual cubic feet per minute	2.73	actual cubic meters per second

COPY

Air Quality Permit Application

Insignificant Activities

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

Please list all equipment and processes that are considered an Insignificant Activity:

	Equipment and Processes	Exemption #
1.	500 Gallon Diesel Fuel Storage Tank for Fire Pump	7
2.	2,000 Gallon Diesel Fuel Storage Tank for Emergency Generator	7
3.	2,000 Gallon Diesel Fuel Storage Tank for Emergency Generator	7
4.	HVAC and Comfort Heating Equipment (ranging from 105,000 MMBtu/hr to 814,000 MMBtu/hr, total 35 units including 5 electric units) – see 'Exempt Heaters and HVAC Equipment' in PTE Inventory.	4
5.		
6.		
7.		
8.		
9.		
10.		

Insignificant Activity Exemptions

1. One or more incinerators of less than 100 pounds per hour combined burning capacity that combust municipal or household waste;
2. A mobile internal combustion engine, including engines in autos, trucks, tractors, airplanes, locomotives, and boats;
3. Laboratory equipment used exclusively for chemical or physical analysis;
4. A device or apparatus that has a heat input capability of not more than 3,500,000 Btus per hour;
5. An air conditioning or ventilating system not designed to remove air pollutants from equipment;
6. Routine housekeeping or plant upkeep activities such as painting buildings, retarring roofs, or paving parking lots;
7. A unit that has the potential to emit two tons or less per year of any criteria pollutant before the application of control equipment. A unit may not be considered insignificant if a state or federal limit is applicable to the unit; and
8. A unit that has the potential to emit two tons or less per year of any hazardous air pollutant. However, the hazardous air pollutant emissions from the unit must be included in determining if the source is a major or minor source.

A unit can not be considered insignificant if a state or federal limit is applicable to the unit.

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): MS-MUA-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Direct Gas-fired Make-up Air Unit

5. Maximum designed operating rate (name plate):

	0.732	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	TBD	feet		meters
Y- Coordinate or Northing:	TBD	feet		meters
Base Elevation of Stack:	TBD	feet		meters
Stack Height:	TBD	feet		meters
Exit Stack Diameter	TBD	feet		meters
Exit Stack Temperature	TBD	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
		and/or		
Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): MS-MUA-002

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Direct Gas-fired Make-up Air Unit

5. Maximum designed operating rate (name plate):

	0.732	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	TBD	feet		meters
Y- Coordinate or Northing:	TBD	feet		meters
Base Elevation of Stack:	TBD	feet		meters
Stack Height:	TBD	feet		meters
Exit Stack Diameter	TBD	feet		meters
Exit Stack Temperature	TBD	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
		and/or		
Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): MS-HWH-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Hot Water Heater

5. Maximum designed operating rate (name plate):

	0.12	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
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Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): MS-UH-001

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): MS-UH-002

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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N/A

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Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): MS-UH-003

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

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Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): MS-UH-004

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

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Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
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Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): WTB-MUA-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Direct Gas-fired Make-up Air Unit

5. Maximum designed operating rate (name plate):

	0.814	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Exit Stack Temperature	TBD	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
		and/or		
Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): WTB-MUA-002

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Direct Gas-fired Make-up Air Unit

5. Maximum designed operating rate (name plate):

	0.814	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

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Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): WTB-HWH-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Hot Water Heater

5. Maximum designed operating rate (name plate):

	0.199	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): WTB-UH-001

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): WTB-UH-002

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): WTB-UH-003

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

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Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): WTB-UH-004

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

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Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	N/A	feet		meters
Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): ES-HWH-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Hot Water Heater

5. Maximum designed operating rate (name plate):

	0.199	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

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Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	TBD	feet		meters
Y- Coordinate or Northing:	TBD	feet		meters
Base Elevation of Stack:	TBD	feet		meters
Stack Height:	TBD	feet		meters
Exit Stack Diameter	TBD	feet		meters
Exit Stack Temperature	TBD	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
		and/or		
Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): AB-AHU-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Air Handling Unit

5. Maximum designed operating rate (name plate):

	0.30	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

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Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
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Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): AB-AHU-002

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Air Handling Unit

5. Maximum designed operating rate (name plate):

	0.30	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

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Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
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Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): AB-AHU-003

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Air Handling Unit

5. Maximum designed operating rate (name plate):

	0.20	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

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Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): AB-AHU-004

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Air Handling Unit

5. Maximum designed operating rate (name plate):

	0.20	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): AB-HWH-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Hot Water Heater

5. Maximum designed operating rate (name plate):

	0.199	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

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Velocity:	TBD	feet per second		meters per second
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Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-001

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? Yes | X | No

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Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-002

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

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Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-003

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

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Stack Information: If this application is a renewal, contact the air program. We may have this information.

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Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-004

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

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Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	N/A	feet		meters
Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-005

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

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Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-006

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input	
or		horsepower with boiler efficiency:	
or		kilowatts with boiler efficiency:	

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas				Propane	
	Distillate oil	Sulfur content			Weight percent	
	Residual oil	Sulfur content			Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal	
Coal sulfur content		Weight percent	Coal ash content		Weight percent	
	Other (please specify)					

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

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Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	N/A	feet		meters
Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-007

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	N/A	feet		meters
Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

COPY

Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-UH-008

2. Manufacturer: Reznor | Manufacture date: TBD

3. Model number: UDX100

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Gas-fired Unit Heater

5. Maximum designed operating rate (name plate):

	0.105	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	N/A	feet		meters
Y- Coordinate or Northing:	N/A	feet		meters
Base Elevation of Stack:	N/A	feet		meters
Stack Height:	N/A	feet		meters
Exit Stack Diameter	N/A	feet		meters
Exit Stack Temperature	N/A	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	N/A	feet per second		meters per second
		and/or		
Flow Rate:	N/A	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-MUA-001

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Direct Gas-fired Make-up Air Unit

5. Maximum designed operating rate (name plate):

	2.33	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	TBD	feet		meters
Y- Coordinate or Northing:	TBD	feet		meters
Base Elevation of Stack:	TBD	feet		meters
Stack Height:	TBD	feet		meters
Exit Stack Diameter	TBD	feet		meters
Exit Stack Temperature	TBD	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
		and/or		
Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Air Quality Permit Application Form

Boiler Turbine or Furnace

This form is to be submitted, if necessary, along with the Title V (Part 70) Operating Permit or Minor Operating Permit.

(please complete shaded areas)

1. Facility identification (i.e., Boiler #1, Unit #1, etc): EH-MUA-002

2. Manufacturer: TBD | Manufacture date: TBD

3. Model number: TBD

4. Type (i.e., steam boiler, simple cycle combustion turbine, generator, etc.)

Direct Gas-fired Make-up Air Unit

5. Maximum designed operating rate (name plate):

	2.33	million Btus per hour heat input
or		horsepower with boiler efficiency:
or		kilowatts with boiler efficiency:

6. Check the appropriate box(es) for primary and secondary fuels:

X	Natural gas			Propane	
	Distillate oil	Sulfur content		Weight percent	
	Residual oil	Sulfur content		Weight percent	
	Bituminous Coal		Subbituminous Coal		Lignite Coal
Coal sulfur content		Weight percent	Coal ash content		Weight percent
	Other (please specify)				

7. Has a stack test been conducted (check appropriate box)? | | Yes | X | No

If a stack test has been conducted, please attach a copy of the most recent stack test report to this application. If the Department already has a copy of the most recent stack test, please specify the date of most recent stack test.

Date of most recent stack test:

Control Equipment: If applicable, types of air pollution control equipment (Examples: baghouse, cyclone, wet scrubber, electrostatic precipitator, thermal oxidizer, miscellaneous control device, etc.).

N/A

Please complete the appropriate air quality permit application form for each type of control equipment that controls air emissions from this operation.

COPY

Stack Information: If this application is a renewal, contact the air program. We may have this information.

X- Coordinate or Easting:	TBD	feet		meters
Y- Coordinate or Northing:	TBD	feet		meters
Base Elevation of Stack:	TBD	feet		meters
Stack Height:	TBD	feet		meters
Exit Stack Diameter	TBD	feet		meters
Exit Stack Temperature	TBD	degrees Fahrenheit		

Exit Stack Velocity and/or Flow Rate:

Velocity:	TBD	feet per second		meters per second
		and/or		
Flow Rate:	TBD	actual cubic feet per minute		actual cubic meters per second

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Appendix B
Potential to Emit Calculations

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Potential Criteria Air Pollutant Emissions Summary

NorthWestern Energy - Hub City Energy Park

These tables summarize NorthWestern Energy's Hub City Energy Park Project Potential to Emit values for all unit emissions in tons per year.

Assumptions		
Units 1-3		
Number of Units	3	units
Steady State Operation Hours of CTG Units 1-3	4,000	hours/year/CTG
Number of Startup and Shutdowns per CTG for Units 1-3	260	SUSD/year/CTG
Units 4-7		
Number of Units	4	units
Steady State Operation Hours of CTG Units 4-7	4,000	hours/year/CTG
Number of Startup and Shutdowns per CTG for Units 4-7	217	SUSD/year/CTG

Emissions Summary	VOC	NO_X	CO	SO_2 [3]	PM	PM_{10}	$PM_{2.5}$	CO_2e	H_2SO_4	NH_3	Total HAPs
	tpy										
New Emissions Sources											
Titan 350 Solar Natural Gas Combustion Turbine - *Units 1-3*	9.04	28.51	33.14	3.32	15.71	15.71	15.71	289,362	1.64	32.39	0.93
Titan 350 Solar Natural Gas Combustion Turbine Startup and Shutdown - *Units 1-3*	4.26	8.83	70.71	0.13	0.87	0.87	0.87	--	--	--	--
Titan 350 Solar Natural Gas Combustion Turbine - *Units 4-7*	12.05	38.02	44.18	4.43	20.94	20.94	20.94	383,356	2.19	43.18	1.24
Titan 350 Solar Natural Gas Combustion Turbine Startup and Shutdown - *Units 4-7*	4.74	9.83	78.69	0.15	0.97	0.97	0.97	--	--	--	--
Diesel Fire Pump - 250 hp	0.0041	0.08	0.07	1.10E-04	0.004	0.004	0.004	11.63	--	--	4.56E-04
Diesel Emergency Engine - 800 kW	0.032	0.60	0.34	7.23E-04	0.020	0.020	0.020	65	--	--	1.73E-03
Diesel Emergency Engine - 1250 kW	0.049	0.94	0.53	1.13E-03	0.031	0.031	0.031	99	--	--	2.63E-03
Natural Gas Dew Point Heater - 7 MMBtu/hr	0.17	1.59	2.66	0.019	0.24	0.24	0.24	3,588	--	--	5.99E-02
Natural Gas Dew Point Heater - 9 MMBtu/hr	0.22	2.04	3.42	0.024	0.31	0.31	0.31	4,613	--	--	7.70E-02
New Exempt Emissions Sources											
2,000 Gallon Diesel Storage Tank for 800 kW Emergency Engine	0.0017	--	--	--	--	--	--	--	--	--	--
2,000 Gallon Diesel Storage Tank for 1250 kW Emergency Engine	0.0017	--	--	--	--	--	--	--	--	--	--
500 Gallon Diesel Storage Tank for Fire Pump	5.84E-04	--	--	--	--	--	--	--	--	--	--
Heaters and HVAC Equipment	0.28	5.03	4.10	0.030	0.38	0.38	0.38	7,201	--	--	0.095
Total PTE - New Emission Sources	**30.85**	**95.46**	**237.85**	**8.11**	**39.47**	**39.47**	**39.47**	**688,295**	**3.83**	**75.57**	**2.40**
Major Source Threshold [1]	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**75,000**	**7**	**N/A**	**25**
New Project - Major Source?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**N/A**	**No**
Existing Emissions Sources											
Unit 2A and 2B	11.5	80.0	190.5	1.1	27.5	27.5	27.5	88,495	--	--	0.7
Emergency Generators	0.0	0.4	0.7	0.0	0.0	0.0	0.0	21	--	--	--
Heaters	0.0	1.2	0.7	0.0	0.1	0.1	0.1	1,013	--	--	--
Road Emissions	--	--	--	--	0.1	0.1	0.0	--	--	--	--
Fuel Oil Tank	0.2	--	--	--	--	--	--	--	--	--	--
Fugitive Leak	0.1	--	--	--	--	--	--	4	--	--	--
2x16.5 MW Natural Gas Titan	7.3	19.4	39.0	1.9	2.8	2.8	2.8	69,819	--	--	4.6
Dew Point Heater	0.0	0.1	0.1	0.0	0.0	0.0	0.0	1,159	--	--	--
Existing Facility PTE [2]	**19.2**	**101.1**	**230.9**	**3.0**	**30.5**	**30.5**	**30.4**	**158,991**	**0.00**	**--**	**5.30**
Post Project PTE	**50.1**	**196.6**	**468.7**	**11.1**	**70.0**	**70.0**	**69.9**	**847,286**	**3.8**	**--**	**7.70**

Notes:

(1) Prevention of Significant Deterioration major threshold from 40 Code of Federal Regulations Part 52, Subpart A (52.21).

(2) Existing emission sources calculations from Table 3-1. of NorthWestern AGS AQ Modification Application_8_24.pdf.

(3) SO_2 emission rate during startup and shutdown are assumed to be equal to emission rate during normal operations.

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Potential Hazardous Air Pollutant Emissions Summary

NorthWestern Energy - Hub City Energy Park

These tables summarize NorthWestern Energy's Hub City Energy Park Project HAP emissions in tons per year.

HAP Emission Summary

Pollutant	Titan 350 Solar Natural Gas Combustion Turbine U1-3	Titan 350 Solar Natural Gas Combustion Turbine U4-7	Diesel Fire Pump - 250 hp	Diesel Emergency Engine - 800 kW	Diesel Emergency Engine - 1250 kW	Natural Gas Dew Point Heater - 7 MMBtu/hr	Natural Gas Dew Point Heater - 9 MMBtu/hr	Diesel Tanks (1)	Heaters and HVAC Equipment	Total HAP
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
1,3-Butadiene	5.31E-04	7.04E-04	--	--	--	--	--	--	--	1.24E-03
2-Methylnaphthalene	--	--	--	--	--	7.61E-07	9.78E-07	--	--	1.74E-06
3-Methylchloranthrene	--	--	--	--	--	5.71E-08	7.34E-08	--	--	1.30E-07
7,12-Dimethylbenz(a)anthracene	--	--	--	--	--	5.07E-07	6.52E-07	--	--	1.16E-06
Acenaphthene	--	--	1.01E-07	1.85E-06	2.82E-06	5.71E-08	7.34E-08	--	--	4.90E-06
Acenaphthylene	--	--	3.60E-07	3.65E-06	5.57E-06	5.71E-08	7.34E-08	--	--	9.71E-06
Acetaldehyde	4.94E-02	6.55E-02	5.45E-05	9.96E-06	1.52E-05	--	--	--	--	0.11
Acrolein	7.91E-03	1.05E-02	6.57E-06	3.12E-06	4.75E-06	--	--	--	--	0.018
Anthracene	--	--	1.33E-07	4.86E-07	7.42E-07	7.61E-08	9.78E-08	--	--	1.53E-06
Benz(a)anthracene	--	--	1.19E-07	2.46E-07	3.75E-07	5.71E-08	7.34E-08	--	--	8.71E-07
Benzene	1.48E-02	1.96E-02	6.63E-05	3.07E-04	4.68E-04	6.66E-05	8.56E-05	--	1.06E-04	0.036
Benzo(b)fluoranthene	--	--	7.04E-09	4.39E-07	6.69E-07	5.71E-08	7.34E-08	--	--	1.25E-06
Benzo(a)pyrene	--	--	1.34E-08	1.02E-07	1.55E-07	3.80E-08	4.89E-08	--	--	3.57E-07
Benzo(g,h,i)perylene	--	--	3.48E-08	2.20E-07	3.35E-07	3.80E-08	4.89E-08	--	--	6.77E-07
Benzo(k)fluoranthene	--	--	1.10E-08	8.62E-08	1.31E-07	5.71E-08	7.34E-08	--	--	3.59E-07
Chrysene	--	--	2.51E-08	6.05E-07	9.23E-07	5.71E-08	7.34E-08	--	--	1.68E-06
Dibenzo(a,h)anthracene	--	--	4.14E-08	1.37E-07	2.09E-07	3.80E-08	4.89E-08	--	--	4.74E-07
Dichlorobenzene	--	--	--	--	--	3.80E-05	4.89E-05	--	6.06E-05	1.48E-04
Ethylbenzene	3.95E-02	5.24E-02	--	--	--	--	--	--	--	9.19E-02
Fluoranthene	--	--	5.41E-07	1.59E-06	2.43E-06	9.51E-08	1.22E-07	--	--	4.78E-06
Fluorene	--	--	2.08E-06	5.06E-06	7.72E-06	8.88E-08	1.14E-07	--	--	1.51E-05
Formaldehyde	5.40E-01	7.16E-01	8.39E-05	3.12E-05	4.76E-05	2.38E-03	3.06E-03	--	3.79E-03	1.27E+00
Hexane	--	--	--	--	--	5.71E-02	7.34E-02	--	9.09E-02	0.22
Indeno(1,2,3-cd)pyrene	--	--	2.67E-08	1.64E-07	2.50E-07	5.71E-08	7.34E-08	--	--	5.70E-07
Naphthalene	1.61E-03	2.13E-03	6.03E-06	5.14E-05	7.84E-05	1.93E-05	2.49E-05	--	3.08E-05	3.95E-03
PAH	2.72E-03	3.60E-03	--	--	--	--	--	--	--	6.32E-03
Phenanthrene	--	--	2.09E-06	1.61E-05	2.46E-05	5.39E-07	6.93E-07	--	--	4.41E-05
Propylene	--	--	1.83E-04	1.10E-03	1.68E-03	--	--	--	--	2.97E-03
Propylene Oxide	3.58E-02	4.75E-02	--	--	--	--	--	--	--	8.33E-02
Pyrene	--	--	3.40E-07	1.47E-06	2.24E-06	1.59E-07	2.04E-07	--	--	4.41E-06
Toluene	1.61E-01	0.21	2.91E-05	1.11E-04	1.69E-04	1.08E-04	1.39E-04	--	1.72E-04	0.37
Xylenes	7.91E-02	0.10	2.03E-05	7.63E-05	1.16E-04	--	--	--	--	0.18
Arsenic	--	--	--	--	--	6.34E-06	8.15E-06	--	--	1.45E-05
Beryllium	--	--	--	--	--	3.80E-07	4.89E-07	--	--	8.70E-07
Cadmium	--	--	--	--	--	3.49E-05	4.48E-05	--	--	7.97E-05
Chromium	--	--	--	--	--	4.44E-05	5.71E-05	--	--	1.01E-04
Cobalt	--	--	--	--	--	2.66E-06	3.42E-06	--	--	6.09E-06
Manganese	--	--	--	--	--	1.20E-05	1.55E-05	--	--	2.75E-05
Mercury	--	--	--	--	--	8.24E-06	1.06E-05	--	--	1.88E-05
Nickel	--	--	--	--	--	6.66E-05	8.56E-05	--	--	1.52E-04
Selenium	--	--	--	--	--	7.61E-07	9.78E-07	--	--	1.74E-06
Lead	--	--	--	--	--	1.59E-05	2.04E-05	--	--	3.62E-05
Total Project (tpy)	**0.93**	**1.24**	**4.56E-04**	**1.73E-03**	**2.63E-03**	**5.99E-02**	**7.70E-02**	**2.02E-06**	**9.51E-02**	**2.40**
									Existing Facility HAPs	**5.30**
									Post Project PTE	**7.70**

Notes:

(1) All VOC losses estimated for diesel tank emissions assumed to be HAP emissions. No speciation of emissions was calculated.

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

Titan 350 Solar Natural Gas Combustion Turbine - Criteria Emissions Simple Cycle

Highest Case Controlled Emissions

Pollutant	Single Turbine Pollutant Concentrations [1]	Single CTG Hourly Emission Rate	Performance Margin	Single CTG Hourly Emission Rate with Margins
	(ppmvd @ 15% O2)	(lb/hr) [1] [2]	% [3]	(lb/hr)
H_2SO_4 [4]	--	0.273	--	0.273
VOC	1.5	1.25	20%	1.51
NOx	3.0	4.32	10%	4.75
CO	6.0	5.26	5%	5.52
SO_2 [4]	--	0.55	--	0.55
PM [5]	--	2.38	10%	2.62
PM_{10}	--	2.38	10%	2.62
$PM_{2.5}$	--	2.38	10%	2.62
NH_3	10	5.40	--	5.40

Notes:

(1) Vendor provided emission rates for 100% load, inlet air evaporative cooling off and maximum power output.

(2) Maximum turbine emission rate from turbine operating scenarios selected for each pollutant.

(3) Performance margins for steady state operations determined in discussion with NorthWestern Energy and comparison to similar units.

(4) H_2SO_4 and SO_2 emission rates based on natural gas sulfur content of 0.5 g S/100 scf.

(5) PM, PM_{10}, $PM_{2.5}$ emission rate based on vendor provided guaranteed value of 0.006 lb/MMBtu.

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

Titan 350 Solar Natural Gas Combustion Turbine - Startup & Shutdown Criteria Emissions Simple Cycle

Assumptions - per CTG unit	Value [1]	Units
Startup Duration	30	minutes
Startup Duration	0.5	hours
Shutdown Duration	7	minutes
Shutdown Duration	0.12	hours
Startup and Shutdown Duration per Event per Unit	0.62	hours

Notes:

(1) Startup and shutdown durations based on vendor provided data.

	Emission Rate (pound per event per unit)					
Initial Startup/Shutdown	**VOC**	**NO_x**	**CO**	**SO_2 [1]**	**$PM_{10}/PM_{2.5}$ [2]**	**Reference [3]**
Startup Emission Data	6.40	14.67	101.71	--	1.86	Vendor provided SUSD rates, considering catalyst warm-up time.
Shutdown Emission Data	4.53	7.98	79.59	--	0.36	

Notes:

(1) SO_2 startup and shutdown emissions were assumed equal to steady state operations.

(2) PM emissions conservatively assumed to represent PM_{10} and $PM_{2.5}$ emissions.

(3) CO_2 and HAP emissions from startup and shutdown emissions were assumed equal to steady state operations, and therefore not included in this table.

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

Titan 350 Solar Natural Gas Combustion Turbine HAP and GHG Emissions Simple Cycle

Turbine Information	Value	Units
Control System Efficiency for Organic HAPs	50%	--
Maximum Turbine Fuel Heat Input	396.0	MMBtu/hr

Notes
(1) Control efficiency calculated from VOC reduction provided by vendor.

HAP Emissions

Hazardous Air Pollutant	Emission Factor [1] (lb/MMBtu)	HAP Emissions [2] Maximum (lb/hr)
1,3-Butadiene	4.30E-07	8.51E-05
Acetaldehyde	4.00E-05	7.92E-03
Acrolein	6.40E-06	1.27E-03
Benzene	1.20E-05	2.38E-03
Ethylbenzene	3.20E-05	6.34E-03
Formaldehyde	--	8.66E-02
Naphthalene	1.30E-06	2.57E-04
PAH	2.20E-06	4.36E-04
Propylene Oxide	2.90E-05	5.74E-03
Toluene	1.30E-04	2.57E-02
Xylenes	6.40E-05	1.27E-02
	Total HAP Emissions	**0.15**

Notes:

(1) HAP emissions factors from AP-42 Table 3.1-3, except Formaldehyde. Formaldehyde emissions provided by vendor.
(2) Controlled emissions, excluding Formaldehyde emissions, assume control efficiency from multipollutant catalyst system. Formaldehyde based on vendor provided emission rate.

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Natural Gas GHG Emission Factors and Conversions [1]			Source
CO_2	53.06	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	1.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	1.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Natural Gas Heating Value [2]	967	MMBtu/scf	Natural Gas Data
Conversion	1.102	ton/tonne	--
	0.0010	tonne/kg	--

Notes:
(1) GHG emissions factors from 40 CFR 98, Tables A-1, C-1, C-2. Global Warming Potentials from 40 CFR 98 Subpart A, Table A-1.
(2) 967 MMBtu/scf based on minimum tariff heating value.

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

GHG Emissions

Greenhouse Gas	GHG Emissions (tons/hr)
CO_2	2.32E+01
CH_4	4.36E-04
N_2O	4.36E-05
CO_2e	2.32E+01

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

Diesel Emergency Fire Pump

Fire Pump Information	Value	Units
Number of Units	1	Units
Annual Hours of Operations	100	hrs/year
Fuel Usage	39	L/hr
Generator Rating	250	hp
Generator Rating	186	kW
Heat Input	1.42	MMBtu/hr

Notes:
(1) Diesel fire pump power rating, hours of operation, fuel usage, and heat input based on vendor data.
(2) 100 hours of emergency operation per SDNAR recommendation for emergency equipment.

Criteria Pollutant Emissions

Criteria Pollutant	Emission Factor per Fire Pump [(1)] (g/kWh)	Fire Pump Hourly Emissions (lb/hr)	Fire Pump Annual Emissions (tpy)
VOC	0.20	0.08	4.11E-03
NO_X [(2)]	3.80	1.56	0.08
CO	3.50	1.438	0.07
SO_X [(3)]	--	2.19E-03	1.10E-04
PM	0.20	0.08	4.11E-03
PM_{10}	0.20	0.08	4.11E-03
$PM_{2.5}$	0.20	0.08	4.11E-03

Notes:
(1) VOC, NOx, and CO emission factors based on EPA Tier 3 nonroad diesel engine emission standards for engine power of 175 ≤ kW < 300. PM emission factors based on EPA Tier 2 nonroad diesel engines as PM standards were not adopted for Tier 3 engines.
(2) Non-methane hydrocarbon (NMHC) and nitrogen oxide (NOx) emission factor breakdown assumed as 5% NMHC and 95% NOx, per California Air Resources Board (CARB 2011).
(3) SO_x emissions based on conversion of all fuel sulfur into SO_2.

Ultra-Low Sulfur Diesel	15	ppm sulfur
	32.06	g/mol S
	64.07	g/mol SO_2
Conversions	7.10	lb/gal density diesel
	3.79	L/gal
	73.1	lb/hr fuel use

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HAP Emissions

Hazardous Air Pollutant	Emission Factor[1] (lb/MMBtu)	Fire Pump Emissions (lb/hr)	Fire Pump Emissions (tpy)
Benzene	9.33E-04	1.33E-03	6.63E-05
Toluene	4.09E-04	5.81E-04	2.91E-05
Xylenes	2.85E-04	4.05E-04	2.03E-05
Formaldehyde	1.18E-03	1.68E-03	8.39E-05
Acetaldehyde	7.67E-04	1.09E-03	5.45E-05
Acrolein	9.25E-05	1.31E-04	6.57E-06
Naphthalene	8.48E-05	1.21E-04	6.03E-06
Propylene	2.58E-03	3.67E-03	1.83E-04
Acenaphthylene	5.06E-06	7.19E-06	3.60E-07
Acenaphthene	1.42E-06	2.02E-06	1.01E-07
Fluorene	2.92E-05	4.15E-05	2.08E-06
Phenanthrene	2.94E-05	4.18E-05	2.09E-06
Anthracene	1.87E-06	2.66E-06	1.33E-07
Fluoranthene	7.61E-06	1.08E-05	5.41E-07
Pyrene	4.78E-06	6.79E-06	3.40E-07
Benz(a)anthracene	1.68E-06	2.39E-06	1.19E-07
Chrysene	3.53E-07	5.02E-07	2.51E-08
Benzo(b)fluoranthene	9.91E-08	1.41E-07	7.04E-09
Benzo(k)fluoranthene	1.55E-07	2.20E-07	1.10E-08
Benzo(a)pyrene	1.88E-07	2.67E-07	1.34E-08
Indeno(1,2,3-cd)pyrene	3.75E-07	5.33E-07	2.67E-08
Dibenzo(a,h)anthracene	5.83E-07	8.29E-07	4.14E-08
Benzo(g,h,i)perylene	4.89E-07	6.95E-07	3.48E-08
Total Toxic Emissions (HAPs + Other Toxics)		**9.12E-03**	**4.56E-04**

Notes:
(1) HAP and Other Toxic Emission Factors from AP-42, Section 3.3, Tables 3.3-2 diesel industrial engines [less than 600 horsepower (hp)].

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GHG Emissions

Source Name	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
250 hp Diesel Fire Pump	11.59	4.70E-04	9.40E-05	11.63

Diesel Fuel GHG Emission Factors and Conversions			Source
CO_2	73.96	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	3.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	6.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Default HHV	0.1380	MMBtu/gal	40 CFR 98.33 Table C-1
Density of Distillate #2	7.3	lbs/gallon	AP-42 Appendix A
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--
	32	MW Sulfur	--
	64	MW SO_2	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

800 kW Diesel Emergency Engine

Engine Information	Value	Units
Number of Units	1	Units
Generator Rating	800	kW
Engine Rating	1,192	hp
Annual Hours of Operations	100	hrs/yr
Fuel Usage	57.3	gal/hr
Heat Input	7.91	MMBtu/hr

Notes:

(1) Diesel generator power rating and fuel usage based on vendor data. Conversion from kW to bhp accounts for generator and mechanical losses.

(2) 100 hours of emergency operation per SDNAR recommendation for emergency equipment.

Criteria Pollutant Emissions

Criteria Pollutant	Emission Factor per Engine [(1)] (g/hp-hr)	Engine Hourly Emissions (lb/hr)	Engine Annual Emissions (tpy)
VOC	0.24	0.631	0.0315
NO_x	4.56	11.98	0.60
CO	2.60	6.83	0.34
SO_x [(3)]	1.21E-05	0.014	7.23E-04
PM	0.15	0.39	0.0197
PM_{10}	0.15	0.39	0.0197
$PM_{2.5}$	0.15	0.39	0.0197

Notes:

(1) VOC, NOx, CO, and PM emission factors based on EPA Tier 2 nonroad diesel engine emission standards for engine power > 560 kWh.

(2) Non-methane hydrocarbon (NMHC) and nitrogen oxide (NOx) emission factor breakdown assumed as 5% NMHC and 95% NOx, per California Air Resources Board Policy (June 2004).

(3) SO_x Emission Factor from AP-42 Table 3.4-1 for diesel fuel and is in units of lb/hp-hr.

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HAP Emissions

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Engine Emissions (lb/hr)	Engine Emissions (tpy)
Benzene	7.76E-04	6.14E-03	3.07E-04
Toluene	2.81E-04	2.22E-03	1.11E-04
Xylenes	1.93E-04	1.53E-03	7.63E-05
Formaldehyde	7.89E-05	6.24E-04	3.12E-05
Acetaldehyde	2.52E-05	1.99E-04	9.96E-06
Acrolein	7.88E-06	6.23E-05	3.12E-06
Naphthalene	1.30E-04	1.03E-03	5.14E-05
Propylene	2.79E-03	2.21E-02	1.10E-03
Acenaphthylene	9.23E-06	7.30E-05	3.65E-06
Acenaphthene	4.68E-06	3.70E-05	1.85E-06
Fluorene	1.28E-05	1.01E-04	5.06E-06
Phenanthrene	4.08E-05	3.23E-04	1.61E-05
Anthracene	1.23E-06	9.73E-06	4.86E-07
Fluoranthene	4.03E-06	3.19E-05	1.59E-06
Pyrene	3.71E-06	2.93E-05	1.47E-06
Benz(a)anthracene	6.22E-07	4.92E-06	2.46E-07
Chrysene	1.53E-06	1.21E-05	6.05E-07
Benzo(b)fluoranthene	1.11E-06	8.78E-06	4.39E-07
Benzo(k)fluoranthene	2.18E-07	1.72E-06	8.62E-08
Benzo(a)pyrene	2.57E-07	2.03E-06	1.02E-07
Indeno(1,2,3-cd)pyrene	4.14E-07	3.27E-06	1.64E-07
Dibenzo(a,h)anthracene	3.46E-07	2.74E-06	1.37E-07
Benzo(g,h,i)perylene	5.56E-07	4.40E-06	2.20E-07
Total Toxic Emissions (HAPs + Other Toxics)		**3.45E-02**	**1.73E-03**

Notes:

(1) HAP and Other Toxic Emission Factors from AP-42, Section 3.4, Tables 3.4-3 and 3.4-4 for large stationary diesel engines [greater than 600 horsepower (hp)].

GHG Emissions

Source Name	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
800 kW Diesel Emergency Engine	64.47	2.61E-03	5.23E-04	64.68

Diesel Fuel GHG Emission Factors and Conversions			Source
CO_2	73.96	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	3.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	6.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Default HHV	0.1380	MMBtu/gal	40 CFR 98.33 Table C-1
Density of Distillate #2	7.3	lbs/gallon	AP-42 Appendix A
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--
	32	MW Sulfur	--
	64	MW SO_2	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

1,250 kW Diesel Emergency Engine

Engine Information	Value	Units
Number of Units	1	Units
Generator Rating	1,250	kW
Engine Rating	1,863	hp
Annual Hours of Operations	100	hrs/yr
Fuel Usage	87.4	gal/hr
Heat Input	12.06	MMBtu/hr

Notes:

(1) Diesel generator power rating and fuel usage based on vendor data. Conversion from kW to bhp accounts for generator and mechanical losses.

(2) 100 hours of emergency operation per SDNAR recommendation for emergency equipment.

Criteria Pollutant Emissions

Criteria Pollutant	Emission Factor per Engine [(1)] (g/hp-hr)	Engine Hourly Emissions (lb/hr)	Engine Annual Emissions (tpy)
VOC	0.24	0.985	0.0493
NO_X	4.56	18.72	0.94
CO	2.6	10.68	0.53
SO_x [(3)]	1.21E-05	0.023	0.0011
PM	0.15	0.62	0.031
PM_{10}	0.15	0.62	0.031
$PM_{2.5}$	0.15	0.62	0.031

Notes:

(1) VOC, NOx, CO, and PM emission factors based on EPA Tier 2 nonroad diesel engine emission standards for engine power > 560 kWh.

(2) Non-methane hydrocarbon (NMHC) and nitrogen oxide (NOx) emission factor breakdown assumed as 5% NMHC and 95% NOx, per California Air Resources Board Policy (June 2004).

(3) SO_x Emission Factor from AP-42 Table 3.4-1 for diesel fuel and is in units of lb/hp-hr.

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HAP Emissions

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Engine Emissions (lb/hr)	Engine Emissions (tpy)
Benzene	7.76E-04	9.36E-03	4.68E-04
Toluene	2.81E-04	3.39E-03	1.69E-04
Xylenes	1.93E-04	2.33E-03	1.16E-04
Formaldehyde	7.89E-05	9.52E-04	4.76E-05
Acetaldehyde	2.52E-05	3.04E-04	1.52E-05
Acrolein	7.88E-06	9.50E-05	4.75E-06
Naphthalene	1.30E-04	1.57E-03	7.84E-05
Propylene	2.79E-03	3.37E-02	1.68E-03
Acenaphthylene	9.23E-06	1.11E-04	5.57E-06
Acenaphthene	4.68E-06	5.64E-05	2.82E-06
Fluorene	1.28E-05	1.54E-04	7.72E-06
Phenanthrene	4.08E-05	4.92E-04	2.46E-05
Anthracene	1.23E-06	1.48E-05	7.42E-07
Fluoranthene	4.03E-06	4.86E-05	2.43E-06
Pyrene	3.71E-06	4.47E-05	2.24E-06
Benz(a)anthracene	6.22E-07	7.50E-06	3.75E-07
Chrysene	1.53E-06	1.85E-05	9.23E-07
Benzo(b)fluoranthene	1.11E-06	1.34E-05	6.69E-07
Benzo(k)fluoranthene	2.18E-07	2.63E-06	1.31E-07
Benzo(a)pyrene	2.57E-07	3.10E-06	1.55E-07
Indeno(1,2,3-cd)pyrene	4.14E-07	4.99E-06	2.50E-07
Dibenzo(a,h)anthracene	3.46E-07	4.17E-06	2.09E-07
Benzo(g,h,i)perylene	5.56E-07	6.71E-06	3.35E-07
Total Toxic Emissions (HAPs + Other Toxics)		**5.26E-02**	**2.63E-03**

Notes:

(1) HAP and Other Toxic Emission Factors from AP-42, Section 3.4, Tables 3.4-3 and 3.4-4 for large stationary diesel engines [greater than 600 horsepower (hp)].

GHG Emissions

Source Name	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
1,250 kW Diesel Emergency Engine	98.33	3.99E-03	7.98E-04	98.65

Diesel Fuel GHG Emission Factors and Conversions			Source
CO_2	73.96	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	3.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	6.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Default HHV	0.1380	MMBtu/gal	40 CFR 98.33 Table C-1
Density of Distillate #2	7.3	lbs/gallon	AP-42 Appendix A
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--
	32	MW Sulfur	--
	64	MW SO_2	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

7 MMBtu/hr Dew Point Heater

Heater Information	Value	Units
Heat Input	7.0	MMBtu/hr
Natural Gas Heating Value	967	BTU/scf
Maximum Natural Gas Usage	7,239	scf/hr
Maximum Natural Gas Usage	7.24E-03	(10^6scf/hr)
Maximum Natural Gas Usage	61,320	MMBtu/yr
Annual Hours of Operations	8,760	hrs/yr
Total Number of Heaters	1	Units

Notes:
(1) Dew point heater heat input provided by NorthWestern based on vendor data.

Criteria Pollutant - Potential Emissions

Pollutant	Natural Gas 7 MMBtu/hr Dew Point Heater		
	Emission Factor ($lb/10^6$ scf)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
NOx	50	0.36	1.59
CO	84	0.61	2.66
PM_{10}	7.6	0.055	0.24
$PM_{2.5}$	7.6	0.055	0.24
SO_2	0.6	0.0043	0.019
VOC	5.5	0.040	0.17

Notes:
(1) Natural gas criteria emission factors from AP-42, Tables 1.4-1 and 1.4-2. For NOx and CO, combustor type is assumed to be small boilers with low NOx burners < 100 MMBtu/hr.

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HAP Emissions

Pollutant	Emission Factor ($lb/10^6$ scf)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
2-Methylnaphthalene	2.4E-05	1.74E-07	7.61E-07
3-Methylchloranthrene	1.8E-06	1.30E-08	5.71E-08
7,12-Dimethylbenz(a)anthracene	1.6E-05	1.16E-07	5.07E-07
Acenaphthene	1.8E-06	1.30E-08	5.71E-08
Acenaphthylene	1.8E-06	1.30E-08	5.71E-08
Anthracene	2.4E-06	1.74E-08	7.61E-08
Benz(a)anthracene	1.8E-06	1.30E-08	5.71E-08
Benzene	2.1E-03	1.52E-05	6.66E-05
Benzo(a)pyrene	1.2E-06	8.69E-09	3.80E-08
Benzo(b)fluoranthene	1.8E-06	1.30E-08	5.71E-08
Benzo(g,h,i)perylene	1.2E-06	8.69E-09	3.80E-08
Benzo(k)fluoranthene	1.8E-06	1.30E-08	5.71E-08
Chrysene	1.8E-06	1.30E-08	5.71E-08
Dibenzo(a,h)anthracene	1.2E-06	8.69E-09	3.80E-08
Dichlorobenzene	1.2E-03	8.69E-06	3.80E-05
Fluoranthene	3.0E-06	2.17E-08	9.51E-08
Fluorene	2.8E-06	2.03E-08	8.88E-08
Formaldehyde	7.5E-02	5.43E-04	2.38E-03
Hexane	1.8E+00	1.30E-02	5.71E-02
Indeno(1,2,3-cd)pyrene	1.8E-06	1.30E-08	5.71E-08
Naphthalene	6.1E-04	4.42E-06	1.93E-05
Phenanthrene	1.7E-05	1.23E-07	5.39E-07
Pyrene	5.0E-06	3.62E-08	1.59E-07
Toluene	3.4E-03	2.46E-05	1.08E-04
Arsenic	2.0E-04	1.45E-06	6.34E-06
Beryllium	1.2E-05	8.69E-08	3.80E-07
Cadmium	1.1E-03	7.96E-06	3.49E-05
Chromium	1.4E-03	1.01E-05	4.44E-05
Cobalt	8.4E-05	6.08E-07	2.66E-06
Manganese	3.8E-04	2.75E-06	1.20E-05
Mercury	2.6E-04	1.88E-06	8.24E-06
Nickel	2.1E-03	1.52E-05	6.66E-05
Selenium	2.4E-05	1.74E-07	7.61E-07
Lead	5.0E-04	3.62E-06	1.59E-05
Total Toxic Emissions (HAPs + Other Toxics)		**1.37E-02**	**5.99E-02**

Notes:
(1) Natural Gas HAP Emission Factors from AP-42, Tables 1.4-2, 1.4-3 and 1.4-4.

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GHG Emissions

Source	Max Annual Fuel Consumption (MMBtu)	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
7 MMBtu/hr Natural Gas Dew Point Heater	61,320	3,586	1.62E-06	0.0068	3,588

Natural Gas GHG Emission Factors and Conversions			Source
CO_2	53.06	kg/MMBtu	40 CFR 98.33, Table C-1
CH_4	0.001	kg/MMBtu	40 CFR 98.33, Table C-2
N_2O	0.0001	kg/MMBtu	40 CFR 98.33, Table C-2
Conversion	1.1023	ton/ tonne	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

9 MMBtu/hr Dew Point Heater

Heater Information	Value	Units
Heat Input	9.0	MMBtu/hr
Natural Gas Heating Value	967	BTU/scf
Maximum Natural Gas Usage	9,307	scf/hr
Maximum Natural Gas Usage	9.31E-03	(10^6scf/hr)
Maximum Natural Gas Usage	78,840	MMBtu/yr
Annual Hours of Operations	8,760	hrs/yr
Total Number of Heaters	1	Units

Notes:
(1) Dew point heater heat input provided by NEW based on vendor data.

Criteria Pollutant - Potential Emissions

Pollutant	Natural Gas 9 MMBtu/hr Dew Point Heater		
	Emission Factor ($lb/10^6$ scf)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
NOx	50	0.47	2.04
CO	84	0.78	3.42
PM_{10}	7.6	0.071	0.31
$PM_{2.5}$	7.6	0.071	0.31
SO_2	0.6	0.01	0.02
VOC	5.5	0.05	0.22

Notes:

(1) Natural gas criteria emission factors from AP-42, Tables 1.4-1 and 1.4-2. For NOx and CO, combustor type is assumed to be small boilers with low NOx burners < 100 MMBtu/hr.

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HAP Emissions

Hazardous Air Pollutant	Natural Gas 9 MMBtu/hr Dew Point Heater		
	Emission Factor ($lb/10^6$ scf)	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
2-Methylnaphthalene	2.4E-05	2.23E-07	9.78E-07
3-Methylchloranthrene	1.8E-06	1.68E-08	7.34E-08
7,12-Dimethylbenz(a)anthracene	1.6E-05	1.49E-07	6.52E-07
Acenaphthene	1.8E-06	1.68E-08	7.34E-08
Acenaphthylene	1.8E-06	1.68E-08	7.34E-08
Anthracene	2.4E-06	2.23E-08	9.78E-08
Benz(a)anthracene	1.8E-06	1.68E-08	7.34E-08
Benzene	2.1E-03	1.95E-05	8.56E-05
Benzo(a)pyrene	1.2E-06	1.12E-08	4.89E-08
Benzo(b)fluoranthene	1.8E-06	1.68E-08	7.34E-08
Benzo(g,h,i)perylene	1.2E-06	1.12E-08	4.89E-08
Benzo(k)fluoranthene	1.8E-06	1.68E-08	7.34E-08
Chrysene	1.8E-06	1.68E-08	7.34E-08
Dibenzo(a,h)anthracene	1.2E-06	1.12E-08	4.89E-08
Dichlorobenzene	1.2E-03	1.12E-05	4.89E-05
Fluoranthene	3.0E-06	2.79E-08	1.22E-07
Fluorene	2.8E-06	2.61E-08	1.14E-07
Formaldehyde	7.5E-02	6.98E-04	3.06E-03
Hexane	1.8E+00	1.68E-02	7.34E-02
Indeno(1,2,3-cd)pyrene	1.8E-06	1.68E-08	7.34E-08
Naphthalene	6.1E-04	5.68E-06	2.49E-05
Phenanthrene	1.7E-05	1.58E-07	6.93E-07
Pyrene	5.0E-06	4.65E-08	2.04E-07
Toluene	3.4E-03	3.16E-05	1.39E-04
Arsenic	2.0E-04	1.86E-06	8.15E-06
Beryllium	1.2E-05	1.12E-07	4.89E-07
Cadmium	1.1E-03	1.02E-05	4.48E-05
Chromium	1.4E-03	1.30E-05	5.71E-05
Cobalt	8.4E-05	7.82E-07	3.42E-06
Manganese	3.8E-04	3.54E-06	1.55E-05
Mercury	2.6E-04	2.42E-06	1.06E-05
Nickel	2.1E-03	1.95E-05	8.56E-05
Selenium	2.4E-05	2.23E-07	9.78E-07
Lead	0.0005	4.65E-06	2.04E-05
Total Toxic Emissions (HAPs + Other Toxics)		**1.76E-02**	**7.70E-02**

Notes:
(1) Natural Gas HAP Emission Factors from AP-42, Tables 1.4-2, 1.4-3 and 1.4-4.

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GHG Emissions

Source	Max Annual Fuel Consumption (MMBtu)	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
9 MMBtu/hr Natural Gas Dew Point Heater	78,840	4,611	0.00	0.01	4,613

Natural Gas GHG Emission Factors and Conversions			Source
CO_2	53.06	kg/MMBtu	40 CFR 98.33, Table C-1
CH_4	0.001	kg/MMBtu	40 CFR 98.33, Table C-2
N_2O	0.0001	kg/MMBtu	40 CFR 98.33, Table C-2
Conversion	1.1023	ton/ tonne	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

Exempt Diesel Storage Tanks

Tank Specs

Tank ID	Met. Data City	Met. Data State	Site Name	Tank Type	Shell Length (ft)	Tank Diameter (ft)	Max. Liquid Level (ft)	Min. Liquid Level (ft)	Throughput in gal.	Number of turnovers	Is Insulated	Is Heated	Heating cycles
DG-TNK-001	Aberdeen	SD	AGS	Horizontal Tank	20.3	4.9	3.00	0	730,000	365	No	No	N/A
DG-TNK-002	Aberdeen	SD	AGS	Horizontal Tank	20.3	4.9	3.00	0	730,000	365	No	No	N/A
FP-TNK-001	Aberdeen	SD	AGS	Horizontal Tank	16.2	3.9	1.92	0	182,500	365	No	No	N/A

Fuel Specs

Tank ID	Product	Bulk Liquid Temperature (deg F)	Avg. Liquid Surface Temp. (deg F)	Min. Liquid Surface Temp. (deg F)	Max. Liquid Surface Temp. (deg F)	Avg. Total Vapor Pressure (psia)	Min. Total Vapor Pressure (psia)	Max. Total Vapor Pressure (psia)	Molecular Weight Liquid (lb/lb-mole)	Molecular Weight Vapor (lb/lb/-mole)
DG-TNK-001	Diesel	47.0	51.4	41.8	61.1	0.0049	0.0035	0.0067	188	130
DG-TNK-002	Diesel	47.0	51.4	41.8	61.1	0.0049	0.0035	0.0067	188	130
FP-TNK-001	Diesel	47.0	51.4	41.8	61.1	0.0049	0.0035	0.0067	188	130

Emissions

Tank ID	Estimated VOC standing losses (lbs/y)	Estimated VOC working losses (lbs/y)	Total estimated VOC emissions (lbs/y)	Total estimated VOC emissions (tpy)
DG-TNK-001	0.57	2.88	3.45	0.0017
DG-TNK-002	0.57	2.88	3.45	0.0017
FP-TNK-001	0.29	0.88	1.17	0.00058
Total Diesel Tank Emissions (lbs)	**1.4**	**6.6**	**8.1**	**4.04E-03**
Total Diesel Tank Emissions (tons)	**7.12E-04**	**3.32E-03**	**4.04E-03**	**2.02E-06**

Notes:

(1) Emissions estimated using EPA TANKS 5.3.

(2) Throughput for the fire pump tank and emergency engine tanks are based on 1 turnover per day (500 gallons per day and 2,000 gallons per day respectively).

(3) Fire pump tank fuel tank is based on black shell finish and non insulated. Estimates are based on good tank conditions. Dimensions based on CAT C27 Fuel Tank Base for 600 gallon tank.

(4) For rectangular base tanks, tank diameter was determined by calculating an effective diameter for the tank area. Maximum liquid level was assumed to be the tank height.

(5) Emergency engines fuel tank based on black shell finish and non insulated. Estimates are based on good tank conditions. Dimensions based on CAT C27 Fuel Tank Base for 2,000 gallon tank.

(6) Equations based AP-42 Chapter 7.1.

(7) All VOC emissions assumed to be HAPs.

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New Emission Sources - Potential to Emit Calculations

NorthWestern Energy - Hub City Energy Park

Exempt Heaters and HVAC Equipment

Location (Building)	Equipment Description [1]	Rated Heat Input per Unit (Btu/hr)	Number at Location	Total Heat Input [2] (MMBtu/hr)
Maintenance Shop/Warehouse/Locker Rooms/Showers	Direct Gas-fired MUA (6,750 CFM)	732,000	2	1.46
	Gas-fired Hot Water Heater	120,000	1	0.12
	Reznor UDX-100 Gas Unit Heater	105,000	4	0.42
Water Treatment Building	Direct Gas-fired MUA (7,500 CFM)	814,000	2	1.63
	Gas-fired Hot Water Heater	199,000	1	0.20
	Reznor UDX-100 Gas Unit Heater	105,000	4	0.42
Heated/Enclosed Safety Shower/Eyewash Station	Electric Heater	Elec Heat	1	0.00
	Gas-fired Hot Water Heater	199,000	1	0.20
Power Distribution Center	Air Handling Unit (3,000 CFM)	Elec Heat	2	0.00
Administration/Control Building	Air Handling Unit (5,000 CFM) (Admin Area)	300,000	2	0.60
	Air Handling Unit (3,000 CFM) Control Room	200,000	2	0.40
	Gas-fired Hot Water Heater	199,000	1	0.20
Substation Control House	Air Handling Unit (2,000 CFM)	Elec Heat	2	0.00
Power Island Engine Hall	Reznor UDX-100 Gas Unit Heater	105,000	8	0.84
	Direct Gas-fired MUA (21,500 CFM)	2,330,000	2	4.66
		Total	**35**	**11.15**

Notes:
(1) Emissions have been estimated for prime units only.
(2) All emission units are exempt from permitting as heat input is below 3.5 MMBtu/hr, per SD SDAR 74:36:04:03.

Heaters Information	Value	Units
Operating Schedule	8,760	hrs/yr
Heat Content of Fuel	967	Btu/scf
Total Heat Input	11.15	MMBtu/hr
HI (>0.3 MMBtu)	10.43	MMBtu/hr
HI (<0.3 MMBtu)	0.72	MMBtu/hr
Potential Fuel Usage	0.012	MMscfh
Fuel Use (>0.3 MMBtu)	0.011	MMscfh
Fuel Use (<0.3 MMBtu)	0.001	MMscfh

Criteria Pollutant Emissions

Criteria Pollutant Emissions	Emission Factor (lb/MMscf)	Total Emissions (lb/hr)	Total Emissions (tpy)
CO (> 0.3 MMBtu)	84	0.906	3.97
CO (< 0.3 MMBtu)	40	0.030	0.13
CO Total	-	0.936	4.10
NOx (> 0.3 MMBtu)	100	1.079	4.73
NOx (< 0.3 MMBtu)	94	0.070	0.31
NOx Total	-	1.148	5.03
$PM/PM_{10}/PM_{2.5}$	7.6	0.088	0.38
SO_2	0.6	0.007	0.03
VOC, non-methane	5.5	0.063	0.28

Notes:
(1) Emission factors, from AP-42, Section 1.4 Tables 1.4-1, 1,4-2. Residential Furnace emissions factors in Table 1.4-1 for CO and NOx used for heaters less than 0.3 MMBtu. Small uncontrolled boiler emission factors in Table 1.4-1 used for heaters greater than 0.3 MMBtu/hr.
(2) Assume PM_{10} and $PM_{2.5}$ = 100% of total particulate

HAP Emissions

Hazardous Air Pollutant	Emission Factor (lb/MMscf)	Total Emissions (lb/hr)	Total Emissions (tpy)
Benzene	0.002	2.42E-05	1.06E-04
Dichlorobenzene	0.001	1.38E-05	6.06E-05
Formaldehyde	0.075	8.65E-04	3.79E-03
Naphthalene	6.10E-04	7.03E-06	3.08E-05
Hexane	1.80	0.021	0.091
Toluene	3.40E-03	3.92E-05	1.72E-04
Total			**0.095**

Notes:
(1) Emission factors, from AP-42, Section 1.4-3.
(2) While the combustion of natural gas will result in additional HAPs, emissions from those HAPs are expected to be less than 0.00001 TPY. Therefore, those HAP emissions have not be speciated.

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GHG Emissions

Emission Source	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions	CO_2e Emissions (tpy)
Natural Gas Heaters and HVAC Equipment	7,195	0.11	0.01	7,201

Notes:
(1) GHG emissions factors from 40 CFR 98, Tables A-1, C-1, C-2. Global Warming Potentials from 40 CFR 98 Subpart A, Table A-1.

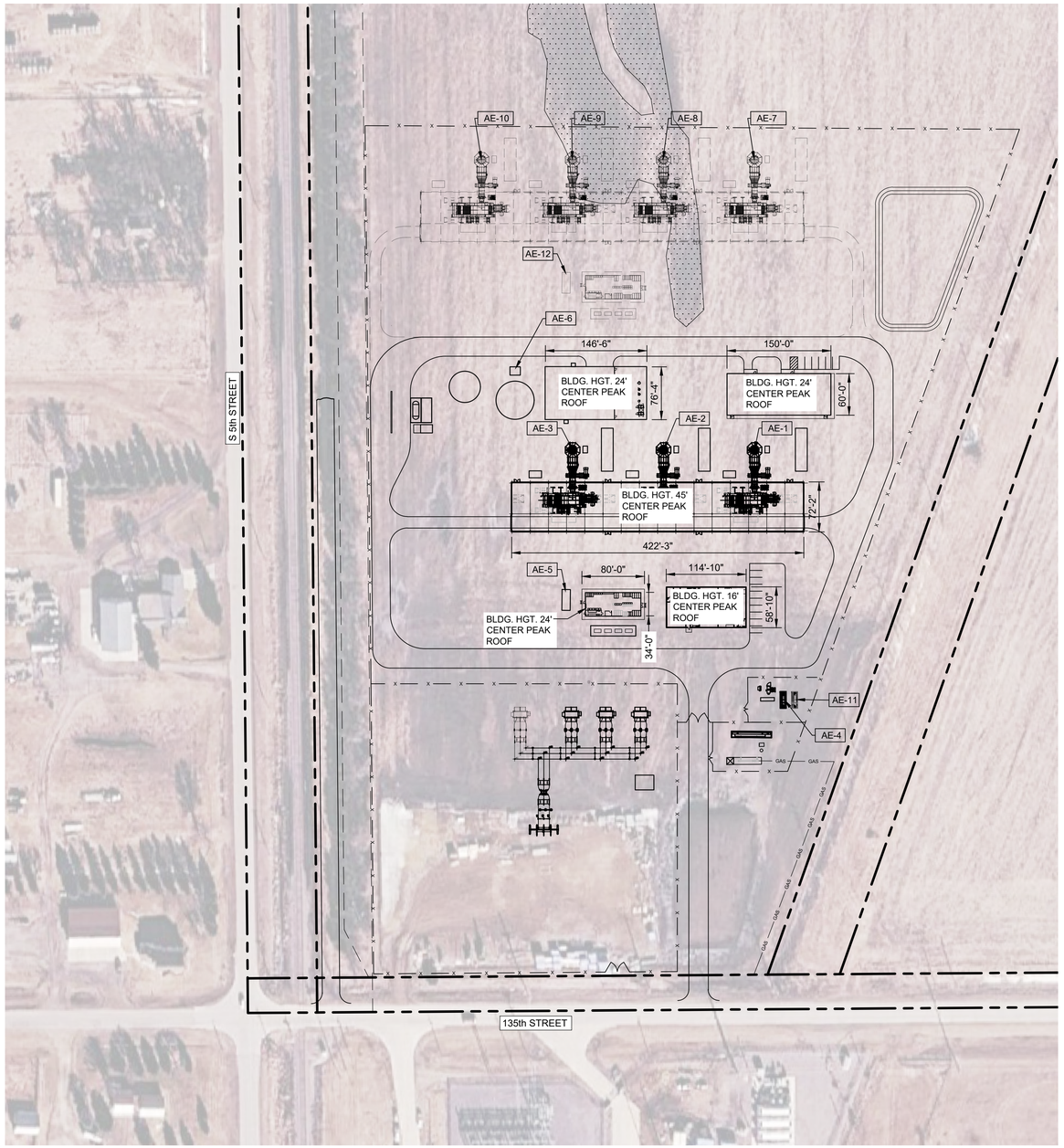
Natural Gas GHG Emission Factors and Conversions			Source
CO_2	66.83	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	1.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	1.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Natural Gas Heating Value	967	MMBtu/scf	40 CFR 98 Subpart C, Table C-1
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

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Appendix C
Facility Plot Plan

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AIR EMISSION SOURCES (COMBUSTION SOURCES)				
NO	NAME	STATE PLANE COORDINATES		ELEVATION
		E	N	
AE-1	CT EXHAUST STACK 1	2,355,504 ft. E	586,666 ft. N	+80 ft.
AE-2	CT EXHAUST STACK 2	2,355,373 ft. E	586,666 ft. N	+80 ft.
AE-3	CT EXHAUST STACK 3	2,355,241 ft. E	586,666 ft. N	+80 ft.
AE-4	DEW POINT HEATER	2,355,547 ft. E	586,306 ft. N	+15 ft.
AE-5	EMERGENCY DIESEL GENERATOR	2,355,232 ft. E	586,462 ft. N	+10 ft.
AE-6	DIESEL-FIRED FIRE PUMP	2,355,159 ft. E	586,784 ft. N	+15 ft.
AE-7	CT EXHAUST STACK 4 (FUTURE)	2,355,504 ft. E	587,084 ft. N	+80 ft.
AE-8	CT EXHAUST STACK 5 (FUTURE)	2,355,373 ft. E	587,084 ft. N	+80 ft.
AE-9	CT EXHAUST STACK 6 (FUTURE)	2,355,241 ft. E	587,084 ft. N	+80 ft.
AE-10	CT EXHAUST STACK 7 (FUTURE)	2,355,110 ft. E	587,084 ft. N	+80 ft.
AE-11	DEW POINT HEATER (FUTURE)	2,355,563 ft. E	586,305 ft. N	+15 ft.
AE-12	EMERGENCY DIESEL GENERATOR (FUTURE)	2,355,232 ft. E	586,917 ft. N	+10 ft.

1. STATE PLANE COORDINATES ARE ZONE 4001 "SOUTH DAKOTA NORTH" AND ARE APPROXIMATE.
2. ELEVATIONS ARE PRELIMINARY, APPROXIMATE AND ASSUMED SITE BASE GRADE ELEVATION IS 1292 ft.

NOTES:

1. FOR ALL SLOPED ROOFS, A ROOF SLOPE OF 4/12 CAN BE USED.

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AIR EMISSIONS PLAN

SCALE: 1"=100'

100 50 0 100 200 300

ISSUE	DATE	DESCRIPTION	DRAWN	ENGINEER	CHECKED	APPROVED
3	09/23/2026	REVISED	CMW	MAH	CTS	CTS
2	06/05/2026	REVISED	J_B	BBC	CTS	JWB
1	05/07/2026	PRELIMINARY BUILDING SIZES ADDED FOR INFORMATION	J_B	BBC	CTS	JWB
0	04/13/2026	FOR BID	J_B	BBC	CTS	JWB

PRELIMINARY
NOT FOR CONSTRUCTION

NorthWestern Energy

NORTHWESTERN ENERGY
HUB CITY ENERGY PARK

AIR EMISSIONS LOCATION PLAN

FILENAME M1003.dwg
SCALE AS NOTED

SHEET
10450080-0GA-M1003