AIR QUALITY GENERAL CONSTRUCTION PERMIT

PERMIT NUMBER: GCP-EMENG-1 **Permit Name: Emergency Engine** 1

Project Description: Construction of emergency engine(s).

Typical Standard Industrial Classification (SIC) Code: Various

Pursuant to Chapter 14 of the Nebraska Air Quality Regulations, the public has been notified by prominent advertisement of the proposed construction of air contaminant sources meeting the specific criteria of this general construction permit and the thirty (30) day period allowed for comments has elapsed. This general construction permit approves the construction of specific types of Emergency Engines. This permit document and the associated application make up the complete permit for the specific source identified in the application.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard. The permit holder, owner, and operator of the facility shall assure that the installation, operation, and maintenance of all equipment is in compliance with all of the conditions of this permit.

The undersigned issues this permit on behalf of the Director under the authority of Nebraska Administrative Code Title 129 – Nebraska Air Quality Regulations as amended July 6, 2015.

3/30/16 **{ORIGINAL SIGNED}**

Date

Shelley Schneider, Air Administrator
Air Quality Division

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ABBREVIATIONS, SYMBOLS, and UNITS OF MEASURE

AP-42	Compilation of Air Pollutant Emission Factors, Volume I, Stationary Point and Area Sources
BACT	Best Available Control Technology
bhp	Brake Horsepower
BMP	Best Management Practice
Btu	British Thermal Unit
bu	Bushel
CAA	Clean Air Act
CE	Control Equipment
CEM	Continuous Emissions Monitor
CEMS	Continuous Emissions Monitoring System
cf	Cubic feet
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	CO_2 equivalent
CP	Construction Permit
DGS	Distiller's Grains with Solubles
DDGS	Dry Distillers Grains with Solubles
dscf	Dry Standard Cubic Feet
dscfm	Dry Standard Cubic Feet per Minute
EMIS	Emergency Management Information System
EPA	Environmental Protection Agency
EQC	Environmental Quality Council
EP	Emission Point
ESP	Electrostatic Precipitator
EU	Emission Unit
FID	Facility Identification Number
FDCP	Fugitive Dust Control Plan
FGR	Flue Gas Recirculation
FIP	Federal Implementation Plan
FR	Federal Register
ft	Feet
FTIR	Fourier Transform Infrared
GHGs	Greenhouse Gases
H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
hp	Horsepower
hr	Hour
lb	Pound
LDAR	Leak Detection and Repair
LNB	Low-NO_x Burner
LPG	Liquified Petroleum Gas
MACT	Maximum Achievable Control Technology
Mgal	One Thousand gallons
MMBtu	One Million British Thermal Units
MMscf	One Million Standard Cubic Feet
MSDS	Material Safety Data Sheet
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NDEQ	Nebraska Department of Environmental Quality
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NSPS	New Source Performance Standard
NSR	New Source Review
PAL	Plant-wide Applicability Limit
Pb	Lead (chemical abbreviation)
PbR	Permit-by-Rule
PEMS	Parametric Emissions Monitoring System
PM	Particulate Matter
PM_{10}	Particulate Matter with and aerodynamic diameter equal to or less than 10 microns
$PM_{2.5}$	Particulate Matter with and aerodynamic diameter equal to or less than 2.5 microns
ppb	Parts per Billion
ppm	Parts per Million
ppmv	Parts per Million by volume
ppmvd	Parts per Million by volume, dry basis
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RVP	Reid Vapor Pressure
RATA	Relative Accuracy Test Audit
RMP	Risk Management Plan
RTO	Regenerative Thermal Oxidizer
scf	Standard Cubic Feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
TDS	Total Dissolved Solids
TO	Thermal Oxidizer
TO/HRSG	Thermal Oxidizer with Heat Recovery Steam Generator
tpy	Tons per year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate Matter
ULNB	Ultra Low-NO_x Burner
UST	Underground Storage Tank
UTM	Universal Transverse Mercator
VHAP	Volatile Hazardous Air Pollutant
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WDGS	Wet Distiller's Grains with Solubles

I. GENERAL CONDITIONS

(A) Coverage granted under this permit is not transferable to another source or location. {Chapter 9}

(B) Coverage under this permit does not relieve the owner or operator of the source from the responsibility to comply with all applicable portions of the Nebraska Air Quality Regulations and any other requirements under local, State, or Federal law. Any permit noncompliance shall constitute a violation of the Nebraska Environmental Protection Act and the Federal Clean Air Act, and is grounds for enforcement action or permit revocation. {Chapter 41 and Chapter 17, Section 011}

(C) Application for review of plans or advice furnished by the Director will not relieve the owner or operator of legal compliance with any provision of these regulations, or prevent the Director from enforcing or implementing any provision of these regulations. {Chapter 37}

(D) Any owner or operator who failed to submit any relevant facts or who submitted incorrect information in a general permit application shall, upon becoming aware of such failure or incorrect submittal, promptly reapply for coverage or submit a construction permit application under the provisions of Chapter 17. {Chapter 17, Sections 006, 007, and 008}

(E) Approval to construct will become invalid if a continuous program of construction is not commenced within 18 months after the date of coverage granted by this general construction permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable period of time. {Chapter 17, Section 012}

(F) The owner or operator shall allow the NDEQ, EPA or an authorized representative, upon presentation of credentials to: {Neb. Rev. Statute §81-1504}

(1) Enter upon the owner or operator's premises at reasonable times where a source subject to this permit is located, emissions-related activity is conducted or records are kept, for the purpose of ensuring compliance with the permit or applicable requirements;

(2) Have access to and copy, at reasonable times, any records, for the purpose of ensuring compliance with the permit or applicable requirements;

(3) Inspect at reasonable times any facilities, pollution control equipment, including monitoring and air pollution control equipment, practices, or operations, for the purpose of ensuring compliance with the permit or applicable requirements;

(4) Sample or monitor at reasonable times substances or parameters for the purpose of ensuring compliance with the permit or applicable requirements.

(G) When requested by the NDEQ, the owner or operator shall submit completed emission inventory forms for the preceding year to the NDEQ by March 31 of each year. {Chapter 6}

(H) Open fires are prohibited except as allowed by Chapter 30.

(I) Particulate Matter – General Requirements: {Chapter 32}

(1) The owner or operator shall not cause or permit the handling, transporting or storage of any material in a manner, which allows particulate matter to become airborne in such

quantities and concentrations that it remains visible in the ambient air beyond the property line.

(2) The owner or operator shall not cause or permit the construction, use, repair or demolition of a building, its appurtenances, a road, a driveway, or an open area without applying all reasonable measures to prevent particulate matter from becoming airborne and remaining visible beyond the property line. Such measures include, but are not limited to, paving or frequent cleaning of roads, driveways and parking lots; application of dust-free surfaces; application of water; and planting and maintenance of vegetative ground cover.

(J) If and when the Director declares an air pollution episode as defined in Chapter 38, Section 003.01B, 003.01C, or 003.01D, the owner or operator shall immediately take all required actions listed in Title 129, Appendix I until the Director declares the air pollution episode terminated.

(K) This permit may be revised (reopened and reissued) or revoked for cause in accordance with Title 129 and Nebraska Administrative Code Title 115 -Rules of Practice and Procedure. Conditions under which this permit will be revised or revoked for cause, include but are not limited to: {Chapter 15, Section 006}

(1) A determination by the Director, or the Administrator of EPA that:

(a) the permit must be revised to ensure compliance with the applicable requirements;

(b) the permit contains a material mistake or that inaccurate statements were made in the emissions standards or other terms or conditions of the permit.

(2) A determination by the Director that the source or activity endangers human health or the environment and that the danger cannot be removed by a revision of the permit.

(L) Coverage under this permit may be revoked for cause in accordance with Title 129 and Title 115. Conditions under which this permit will be revised or revoked for cause, include but are not limited to: {Title 129, Chapter 15, Section 006}

(1) The existence at the source of unresolved noncompliance with applicable requirements or a term or condition of the permit, and refusal of the owner or operator to agree to an enforceable schedule of compliance to resolve the noncompliance;

(2) The failure of the owner or operator to pay a penalty owed pursuant to court order, stipulation and agreement, or order issued by the Administrator of the EPA; or

(3) The submittal by the owner or operator of false, incomplete, or misleading information to the NDEQ or EPA.

II. SPECIFIC CONDITIONS

(A) The owner/operator of the source shall provide the following notifications to the NDEQ:

(1) The date construction commenced as defined in Chapter 1. Notification shall be postmarked no later than 30 days after such date and include a summary description and whether the requirement to commence construction was met through: {Title 129, Chapter 17, Section 012}

(a) Initiating physical on-site construction activities of a permanent nature that meet the definition of "begin actual construction", or

(b) Entering into binding agreements or contractual obligations. If this option is used, the notice shall also include a brief summary of each binding agreement or contractual obligation entered into, the date of the agreement or contract, and why it cannot be cancelled or modified without substantial loss to the owner or operator.

(2) The notification required in Condition II.(A)(1) shall also include an equipment list which must detail all equipment associated with the facility, including the corresponding maximum capacities of all equipment. {Title 129, Chapter 17, Sections 006, 007, and 008}

(3) The date on which the source first becomes operational, postmarked within 15 days after such date. {Chapter 7, Section 002.03}

(B) Recordkeeping: Records of all measurements, results, inspections, and observations as required to ensure compliance with all applicable requirements shall be maintained on-site as follows:

(1) All calculations and records required throughout this permit shall be completed no later than the fifteenth (15^{th}) day of each calendar month and shall include all information through the previous calendar month, unless otherwise specified in this permit.

(2) All records required throughout this permit shall be kept for a minimum of five (5) years and shall be clear and readily accessible to NDEQ representatives, unless otherwise specified in this permit.

(3) Copies of all notifications, reports, test results, and plans.

(4) Calibration records for all operating parameter monitoring equipment.

(5) Operation and Maintenance manuals, or equivalent documentation, detailing proper operation and maintenance of all permitted emission units, required control equipment, and required monitoring equipment shall be kept for the life of the equipment.

(6) Records documenting equipment failures, malfunctions, or other variations, including date and time of occurrence, remedial action taken, and when corrections were made to each piece of permitted equipment, required control equipment, and required monitoring equipment.

(C) All permitted emission units, control equipment, and monitoring equipment shall be properly installed, operated, and maintained. {Chapter 34, Section 006 and Chapter 35 Sections 006.02 and 006.05}

(D) When performance testing is required it shall be completed and submitted to the NDEQ as follows: {Chapter 34}

(1) Performance tests shall be conducted while operating at maximum capacity (operating conditions producing the highest emissions or loading to the control device) within sixty (60) days after first reaching the maximum capacity, but not more than 180 days after the start-up of operations of each unit, unless otherwise specified by the NDEQ.

(2) Testing shall be conducted according to the methodologies found in Title 129, Chapter 34, Section 002, or other NDEQ approved methodologies.

(3) Performance tests shall be conducted for a minimum of three (3) one hour runs unless another run time is specified by the applicable Standard or as deemed appropriate by the NDEQ.

(4) The owner or operator of a source shall provide the NDEQ at least thirty (30) days written notice prior to testing to afford the NDEQ an opportunity to have an observer present. The owner or operator shall also provide the NDEQ with an emissions testing protocol at least thirty (30) days prior to testing. The NDEQ may, in writing, approve a notice of less than 30 days. If the testing is pursuant to an underlying requirement contained in a federal rule, the notice provisions of the underlying requirement apply.

(5) The owner or operator shall monitor and record the operating parameters for process and control equipment during the performance testing required in the permit.

(6) A written copy of the test results signed by the person conducting the test shall be provided to the NDEQ within sixty (60) days of completion of the test unless a different period is specified in the underlying requirements of an applicable Federal Rule and will, at a minimum, contain the following items:

(a) A description of the source's operating parameters (e.g. production rates, firing rates of combustion equipment, fuel usage, etc.), control equipment parameters (e.g. baghouse fan speeds, scrubber liquid flow rates, etc.), and ambient conditions (e.g. weather conditions, etc.) during testing.

(b) Copies of all data sheets from the test run(s).

(c) A description and explanation of any erroneous data or unusual circumstance(s) and the cause for such situation.

(d) A final conclusion section describing the outcome of the testing.

(E) Any emissions due to malfunctions, unplanned shutdowns, and ensuing start-ups that are, or may be, in excess of applicable emission limits shall be reported to the NDEQ in writing and mailed within 48 hours of the beginning of each period of excess emissions. {Chapter 35, Sections 004 and 005}

III.(A) Specific Conditions for Emergency Engine(s)

(1) Permitted Emission Points:

(a) The source is permitted to construct the emission points and associated emission units identified in the following table at the maximum capacity and combusting the fuel type listed:

Emission Point ID#	Emission Unit Description	Total Capacity (hp)	Permitted Fuel Type
EP-ENGINES	EU Emergency Engines	10,000	Diesel

(b) All emergency engines covered under this permit shall be model year 2014 or later. {Chapter 17}

(c) All emergency engines covered under this permit shall have a displacement of less than thirty (30) liters per cylinder. {Chapter 17}

(2) Emission Limitations and Testing Requirements:

(a) The emergency engines covered under this permit shall comply with the emission limitations of Title 129, Chapter 20, Section 004. {Chapter 20}

(b) Each emergency engine covered under this permit shall be certified by the manufacturer in accordance with the requirements listed in 40 CFR Part 60 Subpart IIII for the same model year and maximum engine power. {Chapter 17}

(c) The source shall comply with the applicable emission limitations and testing requirements as specified in 40 CFR Part 60 Subpart IIII, and 40 CFR Part 63 Subpart ZZZZ. {Chapters 18 and 28}

(3) Operational and Monitoring Requirements and Limitations:

(a) The combined maximum engine output of all emergency engines at the source covered under this permit shall not exceed 10,000 horsepower. {Chapter 17}

(b) Each emergency engine covered under this permit shall be limited to 500 operating hours per any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) months after startup shall the operation of any engine exceed 500 hours. {Chapter17}

(i) Each emergency engine shall be equipped with a non-resettable hour meter to record the operating hours.

(c) The emergency engines covered under this permit shall combust only Number 2 Fuel Oil. {Chapter 17}

(d) The source shall comply with the applicable operational and monitoring requirements and limitations as specified in 40 CFR Part 60 Subparts A, IIII. Additionally, the source shall comply with 40 CFR Part 63 Subparts A and ZZZZ. {Chapters 18 and 28}

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The following standards apply to all emergency engines covered by this permit:

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Title 129, Chapter 18, Sec. 001.01 40 CFR 60.1
NSPS, Subpart IIII	Stationary Compression Ignition Internal Combustion Engines	Title 129, Chapter 18, Sec. 001.76 40 CFR 60.4200
NESHAP, Subpart A	General Provisions	Title 129, Chapter 28, Sec. 001.01 40 CFR 63.1
NESHAP, Subpart ZZZZ	Stationary Reciprocating Internal Combustion Engines	Title 129, Chapter 28, Sec 001.88 40 CFR 63.6580

(5) Reporting and Recordkeeping Requirements:

(a) The source shall maintain records documenting the model year of each emergency engine covered under this permit.

(b) Records shall be kept demonstrating compliance with the emission standards of 40 CFR Part 60 Subpart IIII.

(c) The source shall maintain records documenting the maximum engine output capacity of each engine covered under this permit for the lifetime of the equipment.

(d) The source shall record and maintain records documenting the hours of operation for each emergency engine covered under this permit for each calendar month and for each period of twelve (12) consecutive calendar months.

(e) The source shall comply with the applicable reporting and recordkeeping requirements as specified in 40 CFR Part 60 Subparts A and IIII and 40 CFR Part 63 Subparts A and ZZZZ.

(f) The source shall maintain records documenting fuel purchases for each emergency engine covered under this permit.

III.(B) Specific Conditions for External Combustion Units

(1) Permitted Emission Points:

(a) The source is permitted to construct the emission points and associated emission units identified in the following table at the maximum capacity and combusting the fuel types listed:

Emission Point ID#	Emission Unit Description	Total Capacity	Permitted Fuel Types
EP-EXTCOMB	EU-EXTCOMB	20 MMBtu/hr	Diesel, LPG, Natural Gas

(b) The total aggregate combustion capacity of the external combustion units covered under this permit shall not exceed 20 MMBtu/hr. {Chapter 17}

(2) Emission Limitations and Testing Requirements:

(a) The emissions limitations of Chapter 20, Sections 002 and 004 applies to the emission points identified in Condition III.(B)(1). {Chapter 20}

(b) The source shall comply with the applicable emission limitations and testing requirements as specified in 40 CFR Part 63, Subparts DDDDD or JJJJJJ. {Chapter 28}

(c) The source shall comply with the applicable emission limitations and testing requirements of 40 CFR 60, Subpart Dc. {Chapter 18}

(3) Operational and Monitoring Requirements and Limitations

(a) The emission units authorized in Condition III.(B)(1) shall combust only diesel fuel, LPG, and/or natural gas. {Chapter 17}

(b) The source shall comply with the applicable operational and monitoring requirements and limitations as specified in 40 CFR Part 63 Subparts A and JJJJJJ or DDDDD. {Chapter 28}

(c) The source shall comply with all the applicable operational and monitoring requirements and limitations as specified in 40 CFR Part 60, Subparts A and DC. {Chapter 18}

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The emission units identified in Condition III.(B)(1) may be subject to the NSPS and NESHAP requirements listed below:

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Title 129, Chapter 18, Sec. 001.01 40 CFR 60.1
NSPS, Subpart Dc	Small Industrial-Commercial-Institutional Steam Generating Units	Title 129, Chapter 18, Sec. 001.52 40 CFR 60.40c
NESHAP, Subpart A	General Provisions	Title 129, Chapter 28, Sec. 001.01

Applicable Standard	Title	Rule Citation
		40 CFR 63.1
NESHAP, Subpart JJJJJJ	Industrial, Commercial, and Institutional Boilers Area Sources	Title 129, Chapter 28, Sec. 001.71 40 CFR 63.11193
NESHAP, Subpart DDDDD	Industrial, Commercial, and Institutional Boilers and Process Heaters Major Sources	Title 129, Chapter 28, Sec. 001.70 40 CFR 63.7480

(5) Reporting and Recordkeeping Requirements:

(a) Records shall be kept documenting the total aggregate heat input capacity of all external combustion units covered under this permit.

(b) Records shall be kept documenting the fuel types combusted by all external combustion units covered under this permit.

(c) The source shall comply with the applicable reporting and recordkeeping requirements as specified in 40 CFR Part 63 Subparts A and JJJJJJ or DDDDD.

(d) The source shall comply with the applicable reporting and recordkeeping requirements as specified in 40 CFR Part 60 Subparts A and Dc.

Fact Sheet for General Permit Number: GCP-EMENG-1
Date: March 30, 2016

Typical Standard Industrial Classification Code: Various

Typical North American Industry Classification System Code: Various

DESCRIPTION OF GENERAL CONSTRUCTION PERMIT:

The Nebraska Department of Environmental Quality (NDEQ) has determined there are numerous similar sources in Nebraska that are subject to the same Federal and State regulatory requirements. Chapter 9 of Nebraska Administrative Code Title 129 – Air Quality Regulations allows the NDEQ to issue a general construction permit (GCP) for these sources. This GCP follows the applicable procedures of Chapters 9, 14, and 17 of Title 129. The owner of a source that qualifies for this GCP must apply to the NDEQ for coverage under the applicable terms of the GCP. Each application must include all information necessary to determine qualification for, and to ensure compliance with, the GCP.

The NDEQ will notify the applicant of the determination of coverage under this GCP for the source identified in the application. If the Director of the NDEQ denies coverage of the source under the GCP, the applicant may request an adjudicative hearing in accordance with the procedures established in Title 115 – Rules of Practice and Procedure. The NDEQ may issue coverage under a GCP to an individual source without repeating the notice and comment procedures required in Chapter 14 of Title 129. The NDEQ shall maintain a list of all sources covered by general permits, which shall be available for public review.

DESCRIPTION OF THE SOURCE GROUP:

This GCP allows the installation of a New Source Performance Standard (NSPS) Subpart IIII manufacturer-certified compression ignition (CI) reciprocating internal combustion engine(s) (RICE) fired exclusively by diesel fuel (#2 fuel oil) and limited to 500 annual hours of operation per engine. Engines installed under this GCP must be model year 2014 or later and each engine must have a displacement of less than 30 liters per cylinder (L/cyl). In addition, this GCP allows for the source to construct less than or equal to 20 MMBtu/hr of external combustion heat input capacity (e.g., space heaters or boilers) fired by any combination of diesel fuel, liquefied petroleum gas (LPG), and natural gas.

Coverage under this GCP may be granted to new facilities which consist only of the operations discussed above or to existing facilities that plan to add emergency equipment. Operations at existing facilities may be covered by one or more additional permits.

TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:

Emissions result from the operation of the engine(s) and external combustion units. Potential emissions were calculated using a combination of emission factors from the USEPA's Compilation of Air Pollutant Emission Factors, 5th Edition, Volume 1 (AP-42), 40 CFR Part 60, Subpart IIII, and 40 CFR Part 98. Potential emission calculations are shown in the fact sheet attachment. Within the restrictions listed above, an engine or group of engines for a source may be as small as 575 horsepower (hp) or may be as large as 10,000 hp.

The maximum allowable potential to emit (PTE) for a source that can be covered by this GCP is displayed in the table below:

Regulated Pollutant	Project PTE (tons/year)
Particulate Matter (PM)	2.10
PM smaller than or equal to 10 microns (PM_{10})	2.10
PM smaller than or equal to 2.5 microns ($PM_{2.5}$)	2.10
Sulfur Dioxide (SO_2)	9.73
Oxides of Nitrogen (NO_x)	39.91

Regulated Pollutant	Project PTE (tons/year)
Carbon Monoxide (CO)	24.54
Volatile Organic Compounds (VOC)	7.23
Hazardous Air Pollutants (HAPs)	0.23
Greenhouse Gases (GHG):	
Mass Basis	17,138
CO_2e Basis	17,195

APPLICABLE REQUIREMENTS AND VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS:

Chapter 4 – Ambient Air Quality Standards:

Based on the limits in this GCP, the potential emissions of all regulated air pollutants from this permitting action are below the air dispersion modeling thresholds for which modeling is typically required, as established in the NDEQ modeling guidance document entitled *Atmospheric Dispersion Modeling Guidance for Permits* (September 2005). Based on the March 1, 2011 memo from Tyler Fox of the EPA to the Regional Air Division Directors, intermittent sources such as emergency engines are not required to model for 1-hour NO_2. As a result, the NDEQ does not expect this source to cause or contribute to any violations of any ambient air quality standards.

Chapters 5 and 7 – Operating Permit Requirements:

For the operating permit program, a major or Class I source is one that emits, or has the potential to emit, greater than 100 tons per year (tpy) of any criteria pollutant, 10 tpy of any individual HAP, 25 tpy of total HAPs, or 5 tpy of lead. A minor or Class II source is any facility which does not exceed the major source thresholds, but has actual emissions greater than one half of these thresholds.

Before issuance of coverage under this permit, the potential emissions from facilities may or may not exceed the major source thresholds. Most facilities will not have other significant sources of air pollutants, and will therefore be a "No Permit Required – Synthetic Minor" or "No Permit Required – Natural Minor" source for the operating permit program because potential and actual emissions will be below the minor source thresholds after coverage is issued.

However, a facility with other sources of emissions, such as equipment covered by another construction permit, may exceed Class II or Class I thresholds for the operating permit program. Each facility covered by this GCP must determine if they are obligated to apply for an operating permit, or revise an existing operating permit, due to coverage under this general construction permit. Fugitive emissions may or may not need to be included when determining operating permit program applicability depending on if the source is or isn't one of the listed categories in Chapter 2, Section 002.

Chapter 17 – Construction Permit Requirements:

The source is required to obtain a construction permit because the potential emissions, prior to general construction permit coverage, exceed the thresholds of Chapter 17, Section 001.01.

The source-wide potential emissions including fugitives from the source, after issuance of coverage under this permit, falls into one of the following construction permit fee categories:

Category I (Fee $250):
Less than 50 tons per year of any listed air pollutant;
Less than 2.5 tons per year of any single HAP; or
Less than 10 tons per year of any combination of HAPs

Category II (Fee $1,500):
50 tons or more but less than 100 tons per year of any listed air pollutant;
2.5 tons or more but less than 10 tons per year of any single HAPs; or

10 tons or more but less than 25 tons per year of any combination of HAPs

Category III (Fee $3,000):
100 tons or more per year of any listed air pollutant;
10 tons or more per year of any single HAP; or
25 tons or more per year of any combination of HAPs

Therefore, the source must submit a fee to obtain coverage under this GCP, in accordance with Chapter 17, Section 003.01 and Chapter 9. The NDEQ does not consider PM a regulated pollutant when determining the fee for a construction permit.

Chapter 18 – New Source Performance Standards (NSPS):

The emergency engines this GCP covers will all be compression ignition (CI) internal combustion engines (ICE). The GCP is requiring all emergency engines to be subject to and comply with the emission standards in NSPS, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Therefore, the emergency engines are subject to NSPS Subpart IIII and Subpart A - General Provisions. In addition, the external combustion units at the source may be subject to Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Other requirements might become applicable based on source classification. A brief description of Subparts A, Dc, and IIII is provided below.

Subpart A – General Provisions:
NSPS Subpart A, adopted by reference in Title 129, Chapter 18, Section 001.01, applies to all units subject to an NSPS unless specifically stated otherwise in the rule. The engine(s) covered under this GCP are subject to the requirements of NSPS Subpart IIII and are therefore subject to the requirements of this subpart. The external combustion units covered under this GCP may be subject to Subpart Dc, and may also therefore be subject to the requirements of this subpart. Subparts Dc and IIII lists the sections of Subpart A that are applicable to the source.

Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units:
This subpart, adopted by reference in Title 129, Chapter 18, Section 001.52, applies to each steam generating unit with a maximum design heat input capacity between 10 and 100 MMBtu/hr that commenced construction, modification, or reconstruction after June 9, 1989. If the source has boilers with a heat input rate of over 10 MMBtu/hr, the source will be subject to this subpart. Requirements under this subpart include: SO_2 emissions controls, PM emissions controls, and reporting and recordkeeping requirements.

Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines:
This subpart, adopted by reference in Title 129, Chapter 18, Section 001.76, applies to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) of specific sizes manufactured after specific dates as detailed within the subpart. The subpart limits emissions of CI ICE based on engine size (hp, cylinder displacement), type of use (emergency or non-emergency), and model year. Requirements under this subpart include: emission standards; fuel requirements; monitoring requirements; installation, operation, and maintenance requirements; testing requirements; and, notification, reporting, and recordkeeping requirements.

Engines installed under this GCP are required to be certified to NSPS Subpart IIII standards by manufacturer's guarantee.

It is the source's obligation to comply with all applicable NSPS subparts and requirements regardless of their inclusion in this permitting action or Title 129. These rules are subject to change. Additional and updated information on all NSPS is on the NDEQ NSPS Notebook, which can be located by visiting the NDEQ website at http://deq.ne.gov/, and first selecting the "Air" tab, then the "Air Grants, Planning and Outreach Program" dropdown menu tab, then the "New Source Performance Standards (NSPS) Program" dropdown menu tab, and then select "New Source Performance Standards (NSPS) Program". Or alternately use the

"Search NDEQ Web" search box on the upper right of the webpage and enter "New Source Performance Standards".

Chapter 19 – Prevention of Significant Deterioration (PSD):

If the source falls into one of the 28 categories listed in Title 129, Chapter 2, Section 008.01, a 100 ton per year PSD regulated pollutant threshold applies as described. Otherwise, a 250 ton per year PSD regulated pollutant threshold applies to the facility. Fugitive emissions may or may not need to be included when determining PSD applicability depending on if the source is or isn't one of the listed categories in Chapter 2, Section 002.

New and existing minor sources are not subject to any PSD requirements as part of this permit because the project PTE is below the PSD major source threshold. Existing major sources are not required to go through PSD review solely for the installation of emissions units authorized by this GCP because the increase in emissions is below the PSD Significance thresholds found in Chapter 19, Section 010.

Chapter 20 – Particulate Matter Emissions:

Section 002 – Particulate Emissions from Combustion Sources: In accordance with Section 008, because the engine(s) at the source is/are subject to 40 CFR Part 60 Subpart IIII, which includes a PM emission limitation that is more stringent than the limitation provided in this chapter, the engine(s) is/are not subject to Section 002. The source will comply with this regulation by purchasing engine(s) certified by a manufacturer to comply with Subpart IIII, combusting only diesel fuel in each engine, and by properly operating and maintaining all emission units.

If the source constructs external combustion units, they will comply with Section 002 by exclusively combusting the fuels permitted in this GCP, and by properly operating and maintaining all equipment.

Section 004 – Opacity: No person may cause or allow emissions which are of an opacity equal to or greater than twenty percent (20%) as evaluated by an EPA-approved method, or recorded by a continuous opacity monitoring system operated and maintained pursuant to 40 CFR Part 60 Appendix B. The source will comply with this requirement by properly operating and maintaining equipment.

Chapter 27 – Hazardous Air Pollutants:

The equipment covered by this GCP is not subject to the requirements of this chapter because the proposed increase in PTE of any single HAP and total HAPs are less than the 2.5 and 10 tons per year thresholds listed in Section 002 of this chapter.

Chapter 28 – Hazardous Air Pollutant Emission Standards (NESHAPs):

The source is an area source of HAPs if the PTE for any single HAP is below 10 tons per year and the PTE for total HAPs is below 25 tons per year; otherwise, if the PTE exceeds those thresholds, the source is a major source of HAPs. Other requirements might become applicable based on source classification. The following NESHAPs apply to the source.

Subpart A – General Provisions: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.01, applies to all sources subject to a NESHAP standard unless otherwise stated in the rule. The engine(s) covered under this GCP are subject to the requirements of NESHAP Subpart ZZZZ and may also therefore be subject to the requirements of this subpart. The external combustion units covered under this GCP may be subject to Subparts DDDDD or JJJJJJ, and may also therefore be subject to the requirements of this subpart. Subparts ZZZZ, DDDDD, and JJJJJJ lists the sections of Subpart A that are applicable to the source.

Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.88, applies to existing, new, or reconstructed stationary reciprocating internal combustion engines (RICE) located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand. This subpart contains requirements based on engine size (hp), type of use (emergency or non-emergency), installation date (new or existing, as defined

in the subpart), designation of facility (area or major source), and type of engine (spark-ignition or compression-ignition).

The engines covered under this GCP will comply with this subpart by complying with NSPS Subpart IIII.

Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.70, applies to each new, reconstructed, and existing industrial, commercial, and institutional boiler and process heater located at a major source of HAPs. The external combustion units at the source will be subject to this subpart if the source is considered a major source of HAPs.

Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.71, applies to each new, reconstructed, and existing industrial, commercial, and institutional boiler located at an area source of HAPs. The external combustion units at the source that combust diesel fuel will be subject to this subpart if the source is considered an area source of HAPs.

It is the source's obligation to comply with all applicable NESHAP subparts and requirements regardless of their inclusion in this permitting action or Title 129. These rules are subject to change. Additional and updated information on all NESHAP is on the NDEQ Air Toxics Notebook, which can be located by visiting the NDEQ website at http://deq.ne.gov/, and first selecting the "Air" tab, then the "Air Grants, Planning and Outreach Program" dropdown menu tab, then the "Air Toxics Program" dropdown menu tab, and then select "Air Toxics Program". Or alternately use the "Search NDEQ Web" search box on the upper right of the webpage and enter "Air Toxics".

Permit conditions specific to the proposed permit are discussed as follows:

II.(A) When a source undertakes a program of construction, reconstruction, or modification they are required to notify the NDEQ when they begin construction/reconstruction/modification and when the source or modification becomes operational. In addition, the NDEQ is requiring that the source submit an equipment list that includes the maximum rated capacity of each unit associated with the project as authorized under this GCP. These notifications help the NDEQ and source determine when an operating permit application (or revision to an existing operating permit) may be necessary and also whether some emission increases or decreases are within the contemporaneous period. This notification is either for initial operation of the source as a whole (if constructing a new source) or initial operation of the completed project (if modifying an existing source), not individual emission units. Individual emission units subject to specific NSPS or NESHAP standards may have additional notification requirements specific to those federal standards that are independent of this requirement. Startup of individual emission units (such as a boiler subject to an NSPS) does not necessarily mean the source or project has begun operations.

II.(B) This condition contains general recordkeeping and reporting requirements that apply to all permitted emission units, control equipment, and monitoring devices. These requirements establish several things, including: a completion date when records must be completed, how long records need to be maintained, and identifying specific types of records that must be maintained. Records are required to be maintained to ensure compliance with all applicable requirements, specifically those required in this permit. However, additional recordkeeping requirements may be established in the future to better ensure compliance. Documentation detailing operation and maintenance can be operational and maintenance manuals provided by the manufacturer. If manufacturer manuals are not available, the owner or operator must develop a document containing proper operation and maintenance requirements for each permitted emission unit and piece of required control equipment.

II.(C) This condition requires all permitted emissions units, control equipment, and monitoring equipment to be properly installed, operated, and maintained as required in Specific Condition II.(B)(5).

Emission estimates for this permitting action are based on the requirement that all equipment be properly operated and maintained, and comply with the conditions of the permit and regulations.

II.(D) General performance testing requirements. When performance testing is required, it is intended to demonstrate and ensure the source will be in compliance on a continuous basis. As such, testing is generally required to be conducted under conditions producing the highest emissions or loading to a control device. This typically is done at the maximum capacity, which at that level would not create an unsafe condition, and the facility will operate at that level at least some of the time. For a comprehensive evaluation on representative testing conditions, please review the NDEQ guidance on stack testing available on our web site or the national stack testing guidance document found on EPA's web site. All performance tests required throughout this permit are required to be conducted in accordance with these conditions. The owner or operator must provide a testing protocol and written (i.e. hard copy, not electronic or verbal) notice prior to testing to ensure the NDEQ has the opportunity to witness the testing and review the proposed testing plan. Operating parameters are monitored and recorded to document the conditions under which the testing was conducted. The NDEQ may require additional testing if previous testing is not representative of current operations.

II.(E) This condition requires any emissions resulting from equipment failures, malfunctions, or other variations in control or process equipment performance that are, or may be, in excess of the applicable emission control regulations to be reported to the NDEQ in accordance with Title 129, Chapter 35, Section 005. The NDEQ must be notified when excess emissions have, or may have occurred along with the cause of the emissions in order to determine the appropriate response. These reports also assist with verifying proper operation and maintenance of process and control equipment.

III.(A) Specific Conditions for Emergency Engine(s)

III.(A)(1) This condition permits the source to construct the applicable emergency engine(s) and specifies the maximum capacity, fuel type, and displacement. It also specifies the model year restriction for the engine(s).

III.(A)(2) The source is subject to, and must comply with, the requirements of Chapter 20, Section 004; NSPS Subpart IIII; and NESHAP Subpart ZZZZ. In accordance with Chapter 20, Section 008, the emission points are not subject to the requirements of Chapter 20, Section 002 if a more stringent NSPS limitation applies to the emission point. The engines covered by this permit must be certified by the manufacturer in accordance with NSPS, Subpart IIII.

III.(A)(3) The source is limited to a maximum engine output, aggregated over all engines covered under this GCP, of 10,000 hp. The emergency engines are subject to an annual restriction of 500 hours of operation for each engine for each period of 12 consecutive months. Hours of operation must be tracked with a non-resettable hour meter. All emergency engines are permitted to combust only Number 2 Fuel Oil (diesel fuel). Each engine is subject to the operational and monitoring requirements and limitations of NSPS Subparts A and IIII, and NESHAP Subparts A and ZZZZ.

III.(A)(4) This condition identifies the applicable federal regulations that apply to the source.

III.(A)(5) The source is required to maintain records on the maximum engine output and model year for each engine for the lifetime of the engine. Hours of operation for each engine shall be logged on a monthly basis. The consecutive 12-month totals for the hours of operation must be calculated, updated monthly, and kept on file. The source is subject to the reporting and

recordkeeping requirements of NSPS Subparts A and IIII, and NESHAP Subparts A and ZZZZ.

III.(B) Specific Conditions for External Combustion Units

III.(B)(1) This condition permits the source to construct the applicable external combustion units and specifies the maximum capacity and permitted fuel types.

III.(B)(2) The source is subject to, and must comply with the requirements of Chapter 20, Section 002 and 004.

III.(B)(3) The source is limited to combusting only diesel fuel, LPG, and/or natural gas. The source may be subject to the operational and monitoring requirements and limitations of NSPS Subpart A and Dc, and/or NESHAP Subparts A and JJJJJJ or DDDDD.

III.(B)(4) This condition identifies the federal regulations that may apply to the external combustion units covered under this permit.

III.(B)(5) The source is required to maintain records on the maximum heat capacity of the external combustion units and fuel types combusted for the lifetime of the units. The source may be subject to the reporting and recordkeeping requirements of NSPS Subparts A and Dc, and/or NESHAP Subparts A and JJJJJJ or DDDDD.

STATUTORY OR REGULATORY PROVISIONS ON WHICH PERMIT REQUIREMENTS ARE BASED:

Applicable regulations: Title 129 - Nebraska Air Quality Regulations as amended July 6, 2015.

PROCEDURES FOR FINAL DETERMINATION WITH RESPECT TO THE PROPOSED CONSTRUCTION PERMIT:

The public notice, as required under Title 129 Chapter 14, shall be published on Thursday, February 25, 2016 in the Omaha World Herald newspaper and at http://deq.ne.gov/ under "Public Notices". Persons or groups shall have 30 days from that issuance of public notice (ending March 25, 2016) to provide the NDEQ with any written comments concerning the proposed permit action and/or to request a public hearing, in accordance with Title 129 Chapter 14. If a public hearing is granted by the Director, there will be a notice of that meeting published at least 30 days prior to the hearing.

During the 30-day public comment period, persons requiring further information about the proposed permit should contact:

Andrew Klescewski
Construction Permitting Section
NDEQ Air Quality Division
(402) 471-2189

Prior to the end of the 30-day public comment period, persons wanting to submit written comments or a written request for a public hearing may contact the Air Quality Division at:

ndeq.airquality@nebraska.gov

David Graiver, P.E.
Construction Permitting Unit
NDEQ Air Quality Division
P.O. Box 98922
Lincoln, NE 68509-8922

If no public hearing is requested, the permit may be granted at the close of the 30-day comment period. If a public hearing is requested, the Director of the NDEQ may choose to extend the date on which the permit is to be granted until after that public hearing has been held.

Telephone inquiries may be made at:

(402) 471-2186

TDD users should call (800) 833-7352 and ask the relay operator to call the Department at (402) 471-2186.

Attachments:
Fact Sheet Attachment

Fact Sheet Attachment

Facility Emissions Summary

Maximum Facility-Wide Emissions (tons/year)													
Pollutant:	PM	PM_{10}	$PM_{2.5}$	SO_x	NO_x	CO	VOC	CO_2	CH_4	N_2O	GHGs (Mass Basis)	GHGs (CO_2e Basis)	Total HAPs
Emergency Engine(s)	0.82	0.82	0.82	5.13	27.13	17.40	6.29	2,853	0.12	2.31E-02	2,854	2,863	0.07
External Combustion Unit(s)	1.28	1.28	1.28	4.60	12.79	7.14	0.95	14,284	0.58	0.85	14,284	14,332	0.16
Sum:	2.10	2.10	2.10	9.73	39.91	24.54	7.23	17,137	0.70	0.88	17,138	17,195	0.23

Emission Unit Summary

Process Description	Emission Unit ID	Maximum Capacity	Fuel Type
Emergency Engine(s)	EU-ENGINES	10,000 hp	Diesel
External Combustion Unit(s)	EU-EXTCOMB	20 MMBtu/hr	Natural Gas, LPG, and/or Diesel

Operation Parameters and Limitations

Maximum combined design capacity for emergency generator engines (hp) =	10,000
Maximum annual engine usage (hours) =	500
Model year for emergency generator engines:	2014 or later
Maximum displacement for emergency generator engines (L/cyl) =	< 30
Maximum combined design capacity for external combustion units (MMBtu/hr) =	20

Fact Sheet Attachment

Diesel-Fired Emergency Generator Engine(s): EP-ENGINES

[A] Engine Output (hp)	10,000
[B] Engine Heat Input (MMBtu/hr) = [A] x 7,000[1] / 1,000,000	70.00
[D] = [B] x [C] when [C] is lb/MMBtu	
[D] = [A] x [C] when [C] is lb/hp-hr	
[D] = [A] x [C] x 0.00220462 when [C] is g/hp-hr	
[E] Operating Hours (hrs/yr)[3]	500
[F] = [D] x [E]/2000	

Pollutant	[C] Emission Factor	Emission Factor Source[2]	[D] PTE (lbs/hr)	[F] PTE (tons/yr)
Particulate Matter	0.15 g/hp-hr	Reference 6	3.29	0.82
Particulate Matter ≤ 10 µm	0.15 g/hp-hr	Reference 6	3.29	0.82
Particulate Matter ≤ 2.5 µm	0.15 g/hp-hr	Reference 6	3.29	0.82
Sulfur Oxides	2.05E-03 lb/hp-hr	Reference 1	20.50	5.13
Nitrogen Oxides	4.92 g/hp-hr	Reference 6	108.50	27.13
Carbon Monoxide	6.96E-03 lb/hp-hr	Reference 1	69.60	17.40
Volatile Organic Compounds	2.51E-03 lb/hp-hr	Reference 1	25.14	6.29
Greenhouse Gases (GHGs)				
CO_2	73.96 kg/MMBtu	Reference 2	11,414	2,853
CH_4	3.00E-03 kg/MMBtu	Reference 3	4.63E-01	1.16E-01
N_2O	6.00E-04 kg/MMBtu	Reference 3	9.26E-02	2.31E-02
GHGs (mass basis)			11,414	2,854
CO_2e basis[5]			11,452	2,863
Hazardous Air Pollutants				
Acetaldehyde	7.67E-04 lb/MMBtu	Reference 5	5.37E-02	1.34E-02
Acrolein	9.25E-05 lb/MMBtu	Reference 5	6.48E-03	1.62E-03
Benzene	9.33E-04 lb/MMBtu	Reference 5	6.53E-02	1.63E-02
Formaldehyde	1.18E-03 lb/MMBtu	Reference 5	8.26E-02	2.07E-02
Naphthalene	1.30E-04 lb/MMBtu	Reference 4	9.10E-03	2.28E-03
Toluene	4.09E-04 lb/MMBtu	Reference 5	2.86E-02	7.16E-03
Xylene	2.85E-04 lb/MMBtu	Reference 5	2.00E-02	4.99E-03
Total PAH[4]	2.12E-04 lb/MMBtu	Reference 4	1.48E-02	3.71E-03
Total Hazardous Air Pollutants			2.81E-01	7.01E-02

Reference 1: AP-42 Table 3.3-1 as published October, 1996

Reference 2: 40 CFR 98 Table C-1 as published November 29, 2013

Reference 3: 40 CFR 98 Table C-2 as published November 29, 2013

Reference 4: AP-42 Table 3.4-4 as published October, 1996

Reference 5: AP-42 Table 3.3-2 as published October, 1996

Reference 6: 40 CFR 60, Subpart IIII Table 1

[1] 7,000 BTU/hp-hr taken from Reference 1

[2] Based on worst-case operating scenario for both small and large diesel engines

[3] 40 CFR 98 Table A-1 as published October 30, 2009

[4] Polycyclic Aromatic Hydrocarbons

Fact Sheet Attachment

External Combustion Unit(s)[1]: EP-EXTCOMB

[A] Aggregate Heat Input Capacity (MMBtu/hr)	20.00
[B] Diesel Fuel Heat Content (MMBtu/gal)[1]	0.137
[C] Maximum Fuel Capacity (10^3 gal/hr) = [A]/[B]/1000	0.15
[D] Maximum Sulfur Content of Fuel (%)	0.05
[E] for Sulfur Oxides = {142 x [D]} + {2 x [D]}	
[F] = [C] x [E] when [E] is lb/10^3 gal	
[F] = [A] x [E] x 2.20462 when [E] is kg/MMBtu	
[G] Operating Hours (hrs/yr)	8,760
[H] = [F] x [G]/2000	

Pollutant	[E] Emission Factor	Units	Emission Factor Source	[F] PTE (lbs/hr)	[H] PTE (ton/yr)
Particulate Matter	2.00	lb/10^3 gal	Reference 1	0.29	1.28
Particulate Matter ≤ 10 µm	2.00	lb/10^3 gal	Reference 2,3	0.29	1.28
Particulate Matter ≤ 2.5 µm	2.00	lb/10^3 gal	Reference 2,3	0.29	1.28
Sulfur Oxides	7.20	lb/10^3 gal	Reference 1	1.05	4.60
Nitrogen Oxides	20.00	lb/10^3 gal	Reference 1	2.92	12.79
Carbon Monoxide	5.00	lb/10^3 gal	Reference 1	0.73	3.20
Volatile Organic Compounds	0.34	lb/10^3 gal	Reference 4	0.05	0.22
Greenhouse Gases (GHGs)					
CO_2	73.96	kg CO_2/MMBtu	Reference 5	3,261	14,284
CH_4	3.00E-03	kg CH_4/MMBtu	Reference 6	0.13	0.58
N_2O	6.00E-04	kg N_2O/MMBtu	Reference 6	0.03	0.12
GHGs (mass basis)				3,261	14,284
CO_2e basis[2]				3,272	14,332
Hazardous Air Pollutants					
1,1,1-Trichloroethane	2.36E-04	lb/10^3 gal	Reference 7	3.45E-05	1.51E-04
Benzene	2.14E-04	lb/10^3 gal	Reference 7	3.12E-05	1.37E-04
Ethylbenzene	6.36E-05	lb/10^3 gal	Reference 7	9.28E-06	4.07E-05
Formaldehyde	6.10E-02	lb/10^3 gal	Reference 8	8.91E-03	3.90E-02
Naphthalene	1.13E-03	lb/10^3 gal	Reference 7	1.65E-04	7.23E-04
Polycyclic Organic Matter	3.30E-03	lb/10^3 gal	Reference 8	4.82E-04	2.11E-03
Toluene	6.20E-03	lb/10^3 gal	Reference 7	9.05E-04	3.96E-03
o-Xylene	1.09E-04	lb/10^3 gal	Reference 7	1.59E-05	6.97E-05
Arsenic Compounds	5.48E-04	lb/10^3 gal	Reference 9	8.00E-05	3.50E-04
Beryllium Compounds	4.11E-04	lb/10^3 gal	Reference 9	6.00E-05	2.63E-04
Cadmium Compounds	4.11E-04	lb/10^3 gal	Reference 9	6.00E-05	2.63E-04
Chromium Compounds	4.11E-04	lb/10^3 gal	Reference 9	6.00E-05	2.63E-04
Lead Compounds	1.23E-03	lb/10^3 gal	Reference 9	1.80E-04	7.88E-04
Manganese Compounds	8.22E-04	lb/10^3 gal	Reference 9	1.20E-04	5.26E-04
Mercury Compounds	4.11E-04	lb/10^3 gal	Reference 9	6.00E-05	2.63E-04
Nickel Compounds	4.11E-04	lb/10^3 gal	Reference 9	6.00E-05	2.63E-04
Selenium Compounds	2.06E-03	lb/10^3 gal	Reference 9	3.00E-04	1.31E-03
Total Hazardous Air Pollutants				1.15E-02	5.05E-02

Reference 1: AP-42 Table 1.3-1 (05/10)

Reference 2: AP-42 Table 1.3-2 (05/10)

Reference 3: AP-42 Table 1.3-7 (05/10)

Reference 4: AP-42 Table 1.3-3 (05/10)

Reference 5: 40 CFR 98 Table C-1, as published November 29, 2013

Reference 6: 40 CFR 98 Table C-2, as published November 29, 2013

Reference 7: AP-42 Table 1.3-9 (05/10)

Reference 8: AP-42 Table 1.3-8 (05/10)

Reference 9: AP-42 Table 1.3-10. Converted from lb/10^{12} Btu to lb/10^3 gal (05/10)

[1] Worst-case scenario between diesel, natural gas, and liquefied petroleum gas was used

[2] 40 CFR 98 Table A-1 as published October 30, 2009

Fact Sheet Attachment

NG External Combustion Unit(s)[1]: EP-EXTCOMB

[A] Aggregate Heat Input Capacity (MMBtu/hr)	20.00
[B] Diesel Fuel Heat Content (Btu/scf)[1]	1,030
[C] Maximum Fuel Capacity (MMscf/hr)	1.94E-02
[D] Maximum Sulfur Content of Fuel (%)	0.0085
[E] for Sulfur Oxides = {142 x [D]} + {2 x [D]}	
[F] = [C] x [E] when [E] is lb/103 gal	
[F] = [A] x [E] x 2.20462 when [E] is kg/MMBtu	
[G] Operating Hours (hrs/yr)	8,760
[H] = [F] x [G]/2000	

Pollutant	[E] Emission Factor	Units	Emission Factor Source	[F] PTE (lbs/hr)	[H] PTE (ton/yr)
Particulate Matter	1.90	lb/MMscf	Reference 1	0.04	0.16
Particulate Matter ≤ 10 µm	7.60	lb/MMscf	Reference 1	0.15	0.65
Particulate Matter ≤ 2.5 µm	7.60	lb/MMscf	Reference 1	0.15	0.65
Sulfur Oxides	0.60	lb/MMscf	Reference 1	0.01	0.05
Nitrogen Oxides	100.00	lb/MMscf	Reference 2	1.94	8.50
Carbon Monoxide	84.00	lb/MMscf	Reference 2	1.63	7.14
Volatile Organic Compounds	5.50	lb/MMscf	Reference 1	0.11	0.47
Greenhouse Gases (GHGs)					
CO2	53.06	lb/MMscf	Reference 1	2,340	10,247
CH4	1.00E-03	lb/MMscf	Reference 1	4.41E-02	0.19
N2O	1.00E-04	lb/MMscf	Reference 1	4.41E-03	1.93E-02
GHGs (mass basis)				2,340	10,247
CO2e basis[2]				2,342	10,257
Hazardous Air Pollutants					
Formaldehyde	0.08	lb/MMscf	Reference 3	1.46E-03	6.38E-03
Hexane	1.80	lb/MMscf	Reference 3	3.50E-02	0.15
Other Hazardous Air Pollutants	7.40E-03	lb/MMscf		1.44E-04	6.29E-04
Total Hazardous Air Pollutants				3.67E-02	0.16

Reference 1: AP-42 Table 1.4-2 (07/98)

Reference 2: AP-42 Table 1.4-1 (07/98)

Reference 3: AP-42 Table 1.4-3 (07/98)

[1] Worst-case scenario between diesel, natural gas, and liquefied petroleum gas was used

Fact Sheet Attachment

LPG/Propane External Combustion Unit(s)[1]: EP-EXTCOMB

[A] Aggregate Heat Input Capacity (MMBtu/hr)	20.00
[B] Propane Heat Content (MMBtu/gal)	0.09
[C] Maximum Fuel Capacity (10^3 gal/hr) = [A]/[B]/1000	0.22
[D] Maximum Sulfur Content of Fuel (gr/100 scf)	5.00
[E] for Sulfur Oxides = {0.10 x [D]}	
[F] = [C] x [E] when [E] is lb/10^3 gal	
[F] = [A] x [E] x 2.20462 when [E] is kg/MMBtu	
[G] Operating Hours (hrs/yr)	8,760
[H] = [F] x [G]/2000	

Pollutant	[E] Emission Factor	Units	Emission Factor Source	[F] PTE (lbs/hr)	[H] PTE (ton/yr)
Particulate Matter	0.20	lb/10^3 gal	Reference 1	0.04	0.19
Particulate Matter ≤ 10 µm	0.20	lb/10^3 gal	Reference 1	0.04	0.19
Particulate Matter ≤ 2.5 µm	0.20	lb/10^3 gal	Reference 1	0.04	0.19
Sulfur Oxides	0.50	lb/10^3 gal	Reference 1	0.11	0.47
Nitrogen Oxides	0.90	lb/10^3 gal	Reference 1	0.19	0.85
Carbon Monoxide	7.50	lb/10^3 gal	Reference 1	1.62	7.10
Volatile Organic Compounds	1.00	lb/10^3 gal	Reference 1	0.22	0.95
Greenhouse Gases (GHGs)					
CO_2	12,500	lb CO_2/10^3 gal	Reference 1	2,703	11,838
CH_4	0.20	lb CH_4/10^3 gal	Reference 1	0.04	0.19
N_2O	0.90	lb N_2O/10^3 gal	Reference 1	0.19	0.85
GHGs (mass basis)				2,703	11,839
CO2e basis[2]				2,764	12,106
Hazardous Air Pollutants					
Total Hazardous Air Pollutants[2]				3.67E-02	0.16

Reference 1: AP-42 Table 1.5-1 (07/08)

[1] Worst-case scenario between diesel, natural gas, and liquefied petroleum gas was used

[2] Because AP-42 does not include HAP emission factors for LPG, emission factors from Natural Gas were used as a most similar scenario

Fact Sheet Attachment

External Combustion Unit(s): EP-EXTCOMB

Worst Case Scenario for External Combustion Unit Emissions

Pollutant	Diesel PTE	NG PTE	LPG PTE	Max PTE (ton/yr)	Corresponding Fuel
Particulate Matter	1.28	0.16	0.19	1.28	Diesel
Particulate Matter ≤ 10 µm	1.28	0.65	0.19	1.28	Diesel
Particulate Matter ≤ 2.5 µm	1.28	0.65	0.19	1.28	Diesel
Sulfur Oxides	4.60	0.05	0.47	4.60	Diesel
Nitrogen Oxides	12.79	8.50	0.85	12.79	Diesel
Carbon Monoxide	3.20	7.14	7.10	7.14	Natural Gas
Volatile Organic Compounds	0.22	0.47	0.95	0.95	LPG
Greenhouse Gases (GHGs)					
CO_2	14,284	10,247	11,838	-	
CH_4	0.58	0.19	0.19	-	
N_2O	0.12	0.02	0.85	-	
GHGs (mass basis)	14,284	10,247	11,839	14,284	Diesel
CO_2e basis[2]	14,332	10,257	12,106	14,332	Diesel
Hazardous Air Pollutants					
Total Hazardous Air Pollutants	0.05	0.16	0.16	0.16	Natural Gas/LPG

Fact Sheet Attachment

Particulate Matter (PM) Emissions for Emergency Backup Generator Engines:

Total Heat Input (MMBtu/hr)	Maximum Allowable Emissions of PM (lbs/MMBtu) [B]
10 or less	0.6
Between 10 and 10,000	$1.026/I^{0.233}$ Where I = Total Heat Input in MMBUT/hr
10,000 or more	0.12

[D] NSPS Subpart IIII PM Allowable (grams/kW-hr)[2]: 0.20

[F] NSPS Subpart IIII PM Allowable (grams/hp-hr): 0.15

[F] = [D] / 1.341

[G] NSPS Subpart IIII PM Allowable (lbs/MMBtu)

[G] = [F] x 2.20462E-03 x 1,000,000 / 7,000

Combustion Unit(s)	[E] Engine Output (hp)	[A] Heat Input (MMBtu/hr)	[B] Chapter 20 PM Allowable (lbs/MMBtu)	[G] NSPS Subpart IIII PM Allowable (lbs/MMBtu)	Unit PM Emission Rate (lbs/MMBtu)
EP-ENGINES	10,000	70.00	0.38	4.70E-02	4.70E-02

[1] Title 129, Chapter 20, Section 002, Table 20-1

[2] 40 CFR 89 Subpart B §89.112 Table 1 as published July 13, 2005

Combustion Unit(s)	[A] Heat Input	[B] Chapter 20 PM Allowable	Unit PM emission rate
	(MMBtu/hr)	(lbs/MMBtu)	(lbs/MMBtu)
EP-EXTCOMB (Diesel)	20.00	0.51	1.46E-02
EP-EXTCOMB (Natural Gas)	20.00	0.51	1.84E-06
EP-EXTCOMB (LPG)	20.00	0.51	2.16E-03