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DEPT. OF WATER, ENERGY, AND ENVIRONMENT

Jim Pillen, Governor

AIR QUALITY GENERAL CONSTRUCTION PERMIT

PERMIT NUMBER: GCP-INC-2 **Permit Name: Incinerator (controlled)**

Project Description: Incinerators with a maximum capacity of no more than 250 pounds per hour and maximum heat input rate of 10 MMBtu/hr.

Typical Standard Industrial Classification Code: Various

Pursuant to Chapter 10 of the Nebraska Air Quality Regulations, the public has been notified by prominent advertisement of this proposed construction of an air contaminant source and the thirty (30) day period allowed for comments has elapsed. This general construction permit approves the construction of qualified incinerators. This permit document and the application make up the complete permit for the source.

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 Title 129 – Nebraska Air Quality Regulations as amended September 28, 2022.

November 4, 2025

Date

Reuel S. Anderson, Administrator
Permitting & Engineering 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
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
NDWEE	Nebraska Department of Water, Energy, and Environment
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. STANDARD CONDITIONS

The following Standard Conditions apply to this permit unless otherwise provided for in the Specific Conditions of this permit.

(A) Regulatory authority:

(1) Title 40 Protection of Environment, Code of Federal Regulations that apply to the source including those not currently delegated to Nebraska or not yet included in Title 129; and

(2) Title 129 as approved by EPA under 40 CFR Part 52, Subpart CC or 40 CFR Part 70, Appendix A as of the date of issuance of this permit (federally enforceable requirements); and Title 129 as amended September 28, 2022 (state only enforceable requirements).

(B) The source shall allow the NDWEE, USEPA or an authorized representative, upon presentation of credentials (Neb. Rev. Statute §81-1504; Title 129, Chapter 6, Section 003.11) to:

(1) Enter upon the source's premises during reasonable hours where a source subject to this permit is located, emissions-related activity is conducted, or where records must be kept under the conditions of this permit, for the purpose of ensuring compliance with this permit or applicable requirements;

(2) Have access to and copy, during reasonable hours, any records that must be kept under the conditions of this permit, for the purpose of ensuring compliance with this permit or applicable requirements;

(3) Inspect during reasonable hours any facilities, pollution control equipment, including monitoring and air pollution control equipment, practices, or operations regulated or required under this permit, for the purpose of ensuring compliance with this permit or applicable requirements;

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

(C) All requested permit amendments and revisions must adhere to the requirements of Title 129, Chapter 9.

(D) The following methods may be used to determine compliance with the terms and conditions in this permit (Title 129, Chapter 15, Section 005.08):

(1) Any compliance test method specified in the State Implementation Plan;

(2) Any test or monitoring method approved for the source in a permit issued pursuant to Title 129, Chapters 3, 4, or 13, Section 004;

(3) Any test or monitoring method provided for in Title 129; or

(4) Any other test, monitoring, or information-gathering method that produces information comparable to that produced by any method described in Condition I.(D)(1) through (3).

(E) Application for review of plans or advice furnished by the Director will not relieve the source of legal compliance with any provision of these regulations, or prevent the Director from enforcing or implementing any provision of these regulations (Title 129, Chapter 1, Section 001.06).

(F) If and when the Director declares an air pollution episode as defined in Title 129, Chapter 2, Section 006.01, the source shall immediately take all required actions listed in Title 129, Appendix II, Paragraph 1.1, 1.2, and 1.3, respectively, until the Director declares the air pollution episode terminated (Title 129, Chapter 2, Section 006.03).

(G) Recordkeeping: To ensure compliance with this permit, records shall be maintained as outlined below. Records include: electronic and/or paper copies of all application materials, notifications, reports, test protocols, test results, and plans; and, electronic and/or original paper copies of all required monitoring results, measurements, inspections, and observations (Title 129, Chapter 15, Section 005.06; Neb. Rev. Stat. §81-1504):

(1) All records required by this permit shall be kept for a minimum of five (5) years and shall be clear and readily accessible to NDWEE representatives during an inspection, unless otherwise specified in this permit.

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

(3) The source shall keep the following records for each malfunction, start-up and shutdown where emissions were, or may have been, in excess of an emission limitation or standard (Title 129, Chapter 11, Sections 002 and 005; Chapter 15, Sections 006.02, 006.04 and 006.05):

(a) The identity of the equipment.

(b) Reason for, or cause of, the malfunction, shutdown, or start-up.

(c) Duration of period of excess emissions.

(d) Date and time of the malfunction, shutdown, or start-up.

(e) Physical and chemical composition of pollutants whose emissions are affected by the action.

(f) Methods, operating data, and/or calculations used to determine these emissions.

(g) Quantification of emissions in the units of the applicable emission control regulation.

(h) All measures utilized to minimize the extent and duration of excess emissions during the malfunction, shutdown, and start-up.

(4) The source shall keep records of maintenance performed on components of permitted emission units that would affect or potentially affect the emission rate of that unit and on control and monitoring equipment associated with the permitted emission unit (Title 129, Chapter 15, Sections 005.06, 006.06B, and 006.06E).

(5) All records of opacity readings, instrument readings, visual equipment inspections, log book/sheet entries, and any other record of equipment performance shall identify the individual who entered the record, except for continuously generated electronic records.

(6) 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

(H) All permitted emission units, associated emissions conveyances, required control equipment, and required monitoring equipment shall be properly installed, operated, and maintained (Title 129, Chapter 6, Sections 003.01 and 003.13; Chapter 15, Section 005.06; Neb. Rev. Stat. §81-1504 and §81-1506).

(1) All emissions from emission units using required controls shall be captured and routed through associated emission conveyances to the required control equipment, except for uncaptured emissions described in the permit application and any additional information submitted prior to permit issuance.

(2) All equipment must be maintained to minimize the amount of uncontrolled pollutants that are-released to the atmosphere. Proper equipment maintenance activities may include repair or replacement, and include, but are not limited to activities in response to the following:

(a) cracks, holes or gaps,

(b) broken, cracked, or otherwise damaged seals or gaskets, and

(c) broken, missing or open hatches, access covers, caps, or other closure devices.

(I) When the source makes physical or operational changes to an emissions unit or associated control equipment that may cause an increase in emissions that makes the original testing not representative of current operating conditions or emissions, the source shall submit a notification of the change. Such notification shall be received by NDWEE within fifteen (15) days after such change. The NDWEE may require performance testing based on review of the specific changes identified in the notification and the resulting potential impact on emissions from the unit(s) and/or performance of the control equipment (Title 129, Chapter 15, Section 005.01).

(1) This notification requirement applies to emissions units and/or control equipment that meet the following requirements, except as provided in Condition I.(I)(5):

(a) Emissions from the emissions unit and/or control equipment is subject to an emissions limit;

(b) A valid performance test has been conducted for the pollutant to which the emissions limit applies;

(c) Changes that may cause emissions to increase or invalidate prior testing include, but are not limited to, increasing the capacity of an emissions unit, changing the operational parameters of any control equipment outside of the range allowed for under this permit that makes the control equipment less efficient, changing the type of scrubber packing, or increasing the inlet pollutant loading of any control equipment.

(2) For emission units that have had a performance test conducted after January 1, 2012, the source shall make a one-time notification to the NDWEE within fifteen (15) days of when there is a 10% increase in daily production/throughput rate, over the tested rate recorded during the most recent valid performance test unless otherwise specified in this permit. If there are subsequent 10% increases over the rate most recently notified to the NDWEE, the source shall make a one-time notification to the NDWEE of each such subsequent increase. This will not apply to emissions that already have emission rates that are normalized to production and/or throughput rates.

(3) The notification shall include the date of the changes, a description of the changes made, and an evaluation of the expected impact on emissions from the emissions units and/or control equipment.

(4) The following definitions apply for purposes of Condition I.(I)(2) above:

(a) "rate" shall mean the production or throughput of an emissions unit in the same units of production or throughput as the "tested rate" as defined below; and,

(b) "tested rate" shall mean the production or throughput rate of an emissions unit as recorded in the most recent valid performance test and reported to the NDWEE in the source's written copy of the test results, or test report, documenting the maximum capacity of the unit(s). The tested rate shall be extrapolated to daily. Examples include, but are not limited to, tons per hour to tons per day or gallons per hour to gallons per day.

(5) The above notification requirements do not apply when compliance with the emission limitation is demonstrated through the use of a CEMS, PEMS or COMS.

(J) No person shall cause or allow emissions, from any source, 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 except as provided for in Chapter 15, Sections 001.05 or 001.06 (Title 129, Chapter 15, Section 001.04).

(K) Open fires are prohibited except as allowed by Title 129, Chapter 15, Section 002.

(L) Particulate Matter – General Requirements (Title 129, Chapter 15, Section 003):

(1) The source 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 source 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.

(M) Testing:

(1) Performance testing if required by this permit or required by the NDWEE shall be completed as follows:

(a) The source shall provide the NDWEE a written notice at least thirty (30) days prior to testing to afford the NDWEE an opportunity to have an observer present. The NDWEE 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 (Title 129, Chapter 15, Section 005.03).

(b) The notification required by Condition I.(M)(1)(a) shall include the following (Title 129, Chapter 15, Section 005.03):

(i) Facility Name, Address and FID number.

(ii) Company Name, Address and Contact Person's name.

(iii) Test schedule including date and estimated start time of testing.

(iv) List all applicable regulatory requirements that testing is being conducted for (permit condition, MACT, NSPS, etc.).

(v) Types of pollutants to be sampled including applicable emission limits and demonstration requirements.

(vi) Test methods and documentation of any proposed variations from the specified procedures and reason for variance.

(c) Testing shall be conducted according to the methodologies found in Title 129, Chapter 15, Section 005.02, or other NDWEE approved methodologies (Title 129, Chapter 15, Section 005.02).

(d) Performance tests shall be performed under those representative (normal) conditions that: represent the range of combined process and control measure conditions under which the facility expects to operate (regardless of the frequency of the conditions); and are likely to most challenge the emissions control measures of the facility with regard to meeting the applicable emission standards, but without creating an unsafe condition. (Title 129, Chapter 15, Section 005).

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

(f) The source shall monitor and record the operating parameters for process and control equipment during the performance testing required in the permit.

(g) A certified written copy of the test results, signed by the person conducting the test, shall be provided to the NDWEE within sixty (60) days of completion of the test, unless a different time period is specified in the underlying requirements of an applicable federal rule, and will, at a minimum, contain the following items (Title 129, Chapter 15, Section 005.02G):

(i) A description of:

1. The operating parameters for the emissions unit during testing. Examples include, but are not limited to, production rates, process throughputs, firing rates of combustion equipment, or fuel usage; and,

2. The operating parameters for the control equipment during testing. Examples include, but are not limited to, baghouse fan speeds, scrubber liquid flow rates, or pressure drop across the control device.

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

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

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

II. GENERAL CONSTRUCTION PERMIT CONDITIONS

The following General Conditions apply to this permit unless otherwise provided for in the Specific Conditions of this permit.

(A) The source shall provide the following notifications to the NDWEE:

(1) The date construction, reconstruction, or modification commenced as defined in Chapter 1. Notification shall be received by NDWEE no later than thirty (30) days after such date and include a summary description of the event associated with the commencement of construction. The source may use either of the following to determine that construction commenced (Title 129, Chapter 3, Section 003.02):

(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 the agreement or contract cannot be cancelled or modified without substantial loss to the source.

(2) Notification of the date on which the source or modification first becomes operational, shall be received by the NDWEE within fifteen (15) days after such date (Title 129, Chapter 6, Section 002.01A).

(3) 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 NDWEE in accordance with Title 129, Chapter 15, Section 006.05.

(B) Approval to construct, reconstruct, and/or modify the source will become invalid if a continuous program of construction is not commenced within 18 months after the date of issuance of the construction permit except upon a showing by the source that the complexity of the construction, reconstruction and/or modification requires additional time, or if construction, reconstruction or modification is discontinued for a period of 18 months or more, or if construction, reconstruction and/or modification is not completed within a reasonable period of time (Title 129, Chapter 3, Section 003.02).

(C) This permit is not transferable to another location, unless otherwise specified in this permit (Title 129, Chapter 3).

(D) Holding of this permit does not relieve 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 (Title 129, Chapter 3, Section 001).

(E) Any source who failed to submit any relevant facts or who submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. If the permittee wishes to make changes at the source that will result in change(s) to values, specifications, and/or locations of emission points that were indicated in the permit application (or other supplemental information provided by the permittee and reviewed by the NDWEE in issuance of this permit), the source must notify the NDWEE before the change(s) can be made. In addition, the source must notify the NDWEE if any modification which may result in an adverse change to the air quality impacts predicted by atmospheric dispersion modeling (such

as changes in stack parameters or increases in emission rates, potential emissions, or actual emissions). The permittee shall provide all necessary information to verify that there are no substantive changes affecting the basis upon which this permit was issued. Information may include, but not be limited to, additional engineering, modeling, and ambient air quality studies (Title 129, Chapter 3, Sections 002.02B, 002.03B, and 002.03C).

(F) When requested by the NDWEE, the permittee shall submit completed emission inventory forms for the preceding year to the NDWEE by March 31 of each year (Title 129, Chapter 11).

(G) If required, performance tests shall be conducted in accordance with Standard Condition I.(M) 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 NDWEE (Title 129, Chapter 15, Section 005.07).

(H) If applicable, the following conditions apply to the verification of NAAQS modeling analysis (Title 129, Chapter 2):

(1) The stack dimensions of the emission points identified in the air dispersion modeling analysis shall be constructed such that the reliability of the air dispersion modeling analysis associated with the permit application is maintained. A site survey or similar documentation containing the as-built stack dimensions, shall be maintained on-site and kept for the life of the source. If the as-built stack dimensions do not meet the criteria used in air dispersion modeling analysis, the permittee shall notify the NDWEE prior to start-up of any emission unit associated with a stack not meeting the above criteria and, if requested by NDWEE, submit a revised air dispersion modeling analysis to NDWEE to ensure that the source will not interfere with the attainment or maintenance of the ambient air quality standards in Title 129 Chapter 2.

(2) The source shall sufficiently restrict public access to the source at the ambient air boundary relied upon in the air dispersion modeling analysis for the NAAQS compliance demonstration. A site survey, or similar documentation containing the locations of the boundary vertices, shall be maintained on-site and kept for the life of the source. If the boundary dimensions do not comply with the boundary information in the air dispersion model (plus or minus 25 meters), the permittee shall notify the NDWEE prior to start-up of any emission unit and, if requested, submit a revised air dispersion modeling analysis to the NDWEE to ensure that the source will not interfere with the attainment or maintenance of the ambient air quality standards in Title 129 Chapter 2.

III.(A) Specific Conditions for Incinerator

(1) Permitted Emission Points: The source is permitted to construct the emission point and associated emission unit identified in the following table. The emission unit shall be controlled by the required control equipment as indicated:

Emission Point ID#	Emission Unit ID# and Description	Required Control Equipment	Maximum Incinerator Capacity	Maximum Heat Input Rating [1]	Permitted Fuel Type
EP-1	EU-1: Incinerator	CE-1: Afterburner	250 lb/hr	10 MMBtu/hr	Diesel, Natural Gas, or Propane

[1] Including the afterburner (secondary chamber)

(2) Emission Limitations and Testing Requirements:

(a) The emission limitations of Chapter 15, Sections 001.02 and 001.04 apply to EP-1. (Chapter 15)

(b) The emission limitation of Chapter 14 is identified in the following table. (Chapter 14)

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
EP-1	PM	0.10 grains/dscf corrected to seven (7) percent oxygen	3-hr or test method average	Chapter 14	Yes

(c) The NDWEE may waive the testing requirement of Condition III.(A)(2)(b) if the source submits valid performance test results demonstrating compliance with the emission limitation of Chapter 14, Section 002. (Chapters 3 and 15)

(3) Operational and Monitoring Requirements and Limitations:

(a) The maximum burning capacity of the incinerator (EU-1) shall not exceed 250 lb/hr of combustible material, as guaranteed by the manufacturer. (Chapter 3)

(b) The maximum heat input rating of the incinerator, including the afterburner, shall not exceed 10 MMBtu/hr. (Chapter 3)

(c) An afterburner control device (i.e., secondary combustion chamber) shall be installed on the incinerator. The afterburner shall be operated and controlling emissions at all times the incinerator primary chamber is in operation. (Chapter 3)

(i) The temperature of the afterburner, as indicated by a temperature measuring device, shall not be less than the manufacturer's recommended temperature or that of a valid performance test of the unit. (Chapter 3)

(d) Each incinerator shall consist of a refractory lined combustion chamber utilizing a design that provides maximum combustion of the materials to be burned. (Chapter 14)

(e) The materials incinerated by EU-1 shall be limited to pathological waste and medical/infectious waste. (Chapter 3)

(i) Non-pathological waste shall not exceed ten (10) percent by weight, in aggregate, of all materials incinerated during any calendar month.

(f) The incineration rate shall not exceed the maximum incinerator capacity, in pounds per hour, specified by the manufacturer. The incineration period shall be at least an amount of time equivalent to the weight of the load, in pounds, divided by the manufacturer's design incineration rate in pounds per hour. (Chapter 3)

(g) Observations of the incinerator shall be conducted at least once each day during operation to determine whether there are visible emissions, leaks, or other indications that may necessitate corrective action. If corrective action is required, it shall occur immediately. (Chapter 3)

(i) The results of the observations and any corrective actions shall be recorded in a log.

(h) Instructions for proper operation of the incinerator and afterburner shall be posted on site. (Chapter 14)

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

The NDWEE has not identified any NSPS, NESHAP, or MACT requirements that apply to the incinerator.

(5) Reporting and Recordkeeping Requirements:

(a) A certification that each operator has read the operating instructions for proper operation of the incinerator and afterburner, understands them, and intends to comply with them.

(b) Documentation from the manufacturer consisting of stack test results, or other similar documentation that verifies the incinerator will comply with the emission limitation in Condition III.(A)(2)(b).

(c) A description of the contents and weight of the material incinerated each operating cycle, and the length and temperature (primary chamber and afterburner) of the incineration cycle, to demonstrate compliance with Conditions III.(A)(3)(d), (f) and (g).

(d) Records documenting the date, time, observations, and corrective actions taken for each day the incinerator is operated.

Fact Sheet for General Construction Permit: GCP-INC-2
Date: November 4, 2025

Typical Standard Industrial Classification Code: Various

Typical North American Industry Classification Code: Various

DESCRIPTION OF GENERAL CONSTRUCTION PERMIT:

The Nebraska Department of Water, Energy, and Environment (NDWEE) has determined there are numerous similar sources in Nebraska that are subject to the same Federal and State regulatory requirements. Chapter 7 of Nebraska Administrative Code Title 129 - Air Quality Regulations allows the NDWEE to issue a general construction permit (GCP) for these sources. This GCP follows the applicable procedures of Chapters 3, 7, and 10 of Nebraska Administrative Code Title 129 - Air Quality Regulations. The owner of a source that qualifies for this GCP must apply to the NDWEE 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 NDWEE will notify the applicant of the determination of coverage under this GCP for the source identified in the application. If the Director of the NDWEE 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 NDWEE may issue coverage under a GCP to an individual source without repeating the notice and comment procedures required in Chapter 10 of Title 129. The NDWEE shall maintain a list of all sources covered by GCPs, which shall be available for public review.

DESCRIPTION OF THE SOURCE GROUP:

The types of facilities covered under this GCP utilize incinerators for veterinary or agricultural purposes to dispose of animal or livestock remains. Deceased livestock that is not suitable for resale may be incinerated at farms or other livestock operations as a way to safely dispose of the dead carcass. Incinerators may also be used as a deceased human crematorium at funeral homes.

This GCP is only applicable to incinerators with an afterburner control device, a combined heat input capacity of 10 MMBtu/hr, and a combustion capacity of 250 lbs/hr or less of incinerated material. An incinerator afterburner is typically a secondary chamber with separate fuel combustion used to reduce air pollutants contained in the exhaust gas stream (such as combustible gases and particles generated in the incinerator main chamber). The GCP allows fuel for the incinerators to be natural gas, liquefied petroleum gas (LPG, which is predominantly propane), Number 1 (No. 1) fuel oil, or Number 2 (No. 2) fuel oil.

This GCP allows for the construction, installation, and operation of an incinerator that has the potential to emit (PTE) air pollutants in quantities below the Nebraska Air Quality Regulations (Title 129), Chapter 3, Section 001.03 CP thresholds. An incinerator GCP may be approved by the NDWEE provided it meets the emission limitations, size requirements, and will not be subject to incinerator-related Code of Federal Regulations (CFR) discussed below.

If any source covered under this GCP contains emission units other than an incinerator covered under this GCP, it is the applicant's responsibility to comply with Title 129 and obtain additional permits if required.

TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:

Emissions for the incinerator were estimated using emission factors from USEPA's *Compilation of Air Pollutant Emissions Factors, 5th Edition, Volume 1 (AP-42)*; Bay Area AQMD Permit Handbook 11.6 for "Crematories" (2017); and USEPA's WebFIRE database. The potential emissions calculations with references are shown in the fact sheet attachment.

The following table lists the potential emissions for any incinerator covered by this GCP:

Regulated Pollutant	Potential Emissions (tons/year)
Particulate Matter (PM)	0.89
PM smaller than or equal to 10 microns (PM_{10})	1.30
PM smaller than or equal to 2.5 microns ($PM_{2.5}$)	1.30
Sulfur Dioxide (SO_2)	2.40
Oxides of Nitrogen (NO_x)	6.54
Carbon Monoxide (CO)	3.77
Volatile Organic Compounds (VOC)	1.60
Hazardous Air Pollutants (HAPs)	
Hydrogen Chloride	2.31
Total HAPs	2.50

APPLICABLE REQUIREMENTS AND VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS:

Chapter 2 – Ambient Air Quality Standards:

Potential emissions from projects covered under this GCP, are less than the thresholds for which air dispersion modeling may be required. Therefore, modeling is not being required to support coverage under this GCP.

Chapter 3 – Construction Permit Requirements:

The source is required to obtain a construction permit per Chapter 3, Section 001.03. The source must submit an application fee in order to apply for coverage under this GCP, in accordance with Chapter 3, Section 002.01 and Chapter 7. The NDWEE does not consider PM a regulated pollutant when determining the fee for a construction permit.

Chapter 6 – Operating Permit Requirements:

After issuance of this GCP, an operating permit (OP) or OP revision is required in accordance with Title 129, Chapter 6, Section 001.03B. Either an OP or an OP revision application must be submitted within twelve (12) months of startup of the incinerator.

Chapter 12 - New Source Performance Standards (NSPS):

By complying with the requirements of the GCP, the incinerator(s) covered under this GCP will not be subject to any NSPS. Potentially applicable NSPS are discussed below for informational purposes and to help identify these incinerators.

Subpart Cb - Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors: This subpart, not yet adopted by reference in Title 129, Chapter 12, applies to each municipal waste combustor unit with a combustion capacity greater than 250 tons per day of municipal solid waste for which construction was commenced on or before September 20, 1994. Incinerators covered under this GCP are not subject to this subpart because they have a combustion capacity less than 250 tons per day.

Subpart Ce –Emission Guidelines and Compliance Times for Hospital/Medical/Infectious Waste Incinerators (HMIWI): This subpart, not yet adopted by reference in Title 129, Chapter 12,, applies to each individual HMIWI for which construction was commenced on, before or after June 20, 1996 but no

later than December 1, 2008, or which commenced modification after March 16, 1998, but no later than April 6, 2010. Co-fired combustors are units that combust hospital waste and/or medical/infectious waste along with other wastes such as pathological waste. To be considered a co-fired combustor, an enforceable requirement limiting combustion to ten percent or less of medical/infectious waste must be in place. An incinerator covered under this GCP is not subject to this subpart because it is considered co-fired combustor.

Subpart E - Standards of Performance for Incinerators: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.06, applies to each incinerator with a charging rate of more than 50 tons per day that commences construction or modification after August 17, 1971. Incinerators covered under this GCP are not subject to this subpart because they have a maximum charging rate less than 50 tons per day.

Subpart Ea - Standards of Performance for Municipal Waste Combustors: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.07, applies to each municipal waste combustor unit with a municipal waste combustor unit capacity greater than 250 tons per day of municipal solid waste which commenced construction after December 20, 1989 and on or before September 20, 1994, or commenced reconstruction or modification after December 20, 1989 and on or before June 19, 1996. An incinerator covered under this GCP is not subject to this subpart because it has a combustion capacity less than 250 tons per day and is not considered a municipal waste combustor.

Subpart Eb - Standards of Performance for Large Municipal Waste Combustors: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.08, applies to each municipal waste combustor unit with a combustion capacity greater than 250 tons per day of municipal solid waste for which construction, modification, or reconstruction is commenced after September 20, 1994. An incinerator covered under this GCP are not subject to this subpart because it has a combustion capacity less than 250 tons per day and is not considered a municipal waste combustor.

Subpart Ec - Standards of Performance for Hospital/Medical/Infectious Waste Incinerators (HMIWI): This subpart, adopted by reference in Title 129, Chapter 12, Section 001.09, applies to each individual HMIWI for which construction commenced after June 20, 1996, but no later than December 1, 2008, or for which a modification commenced after March 16, 1998, but no later than April 6, 2010. Incinerators covered under this GCP are not considered HMIWI units, but rather co-fired combustors. Co-fired combustors are units that combust hospital waste and/or medical/infectious waste along with other wastes such as pathological waste. To be considered a co-fired combustor, an enforceable requirement limiting combustion to ten percent or less of medical/infectious waste must be in place.

Subpart AAAA - Standards of Performance for Small Municipal Waste Combustion Units: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.68, applies to each municipal waste combustion unit for which construction is commenced after August 30, 1999 or for which modification or reconstruction is commenced after June 6, 2001; the incinerator must also have the capacity to combust 35 tons per day but no more than 250 tons per day of municipal solid waste or refuse-derived fuel. An incinerator covered under this GCP is not subject to this subpart because it has a combustion capacity less than 35 tons per day and is not considered a municipal waste combustor.

Subpart BBBB—Emission Guidelines and Compliance Times for Small Municipal Waste Combustion Units: This subpart, not yet adopted by reference in Title 129, Chapter 18, applies to existing small municipal waste combustion units that commenced construction on or before August 30, 1999. Incinerators covered under this GCP are not subject to this subpart because they are not small municipal waste combustors (MWC). A small MWC unit has the capacity to combust at least 35 tons/day of municipal solid waste, but not more than 250 tons/day of municipal solid waste or refuse-derived fuel. An incinerator covered under this GCP is capable of combusting 3 tons per day maximum and is therefore not subject.

Subpart CCCC - Standards of Performance for Commercial and Industrial Solid Waste Incineration (CISWI) Units: This subpart, adopted by reference into Title 129, Chapter 12, Section 001.75, applies to each CISWI unit that commenced construction after June 4, 2010 or commenced reconstruction or

modification after August 7, 2013. Subpart CCCC does not apply to incinerators covered under this GCP. An incinerator covered under this GCP is not considered a CISWI unit and is exempt because it burns over 90% pathological waste. Pathological waste means waste material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).

The facility must notify the Administrator that the unit meets these criteria, and must keep records on a calendar quarter basis of the weight of pathological waste and non-pathological waste (e.g. medical/infectious waste) burned in the unit. The application of this GCP is considered notification and keeping records of the weight of pathological, low-level radioactive, and/or chemotherapeutic waste as well as the weight of any other non-pathological waste combusted is a condition of the GCP.

Subpart DDDD - Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration (CISWI) Units: This subpart, adopted by reference into Title 129, Chapter 12, Section 001.77, applies to each CISWI unit which commenced construction on or before June 4, 2010, or commenced modification or reconstruction after June 4, 2010 but no later than August 7, 2013. Subpart DDDD does not apply to incinerators covered under this GCP. An incinerator covered under this GCP is not considered a CISWI unit and is exempt because it burns over 90% pathological waste.

The facility must notify the Administrator that the unit meets these criteria, and must keep records on a calendar quarter basis of the weight of pathological waste and non-pathological waste (e.g. medical/infectious waste) burned in the unit. The application of this GCP is considered notification and keeping records of the weight of pathological, low-level radioactive, and/or chemotherapeutic waste as well as the weight of any other non-pathological waste combusted is a condition of the GCP.

Subpart EEEE - Standards of Performance for Other Solid Waste Incineration (OSWI) Units for Which Construction is Commenced After December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.78, applies to each OSWI unit or an air curtain incinerator that commenced construction after December 9, 2004 or reconstruction or modification on or after June 16, 2006. Incinerators covered under this GCP are not considered OSWI units and are excluded because they burn at least 90% pathological waste by weight.

Subpart FFFF - Emission Guidelines and Compliance Times for OSWI Units That Commenced Construction On or Before December 9, 2004: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.79, applies to each facility with an OSWI unit or air curtain incinerator that commenced construction on or before December 9, 2004. An incinerator covered under this GCP is not subject to this subpart because it is not considered an OSWI unit as described in subpart FFFF. An incinerator covered under this GCP is not considered an OSWI unit and is excluded because it burns at least 90% pathological waste by weight.

The NSPS rules are subject to change. It is the applicant's obligation to comply with applicable NSPS subparts and requirements whether or not they are identified in this permitting action or Title 129. Detailed and up-to-date information related to NSPS subparts can be found on the NDWEE NSPS Notebook located on the NDWEE website (http://dee.ne.gov), when selecting "Air" and "Air Grants, Planning and Outreach Program". The NSPS Notebook is under the New Source Performance Standards (NSPS) Program. Refer to the NSPS Notebook for more updated and detailed information regarding NSPS.

Chapter 13 - National Emission Standards for Hazardous Air Pollutants (NESHAP):

By complying with the requirements of the GCP, the incinerator(s) covered under this GCP will not be subject to any NESHAP. Potentially applicable NESHAP are discussed below for informational purposes and to help identify these incinerators.

Subpart EEE - National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors: This subpart, adopted by reference in Title 129, Chapter 13, Section 002.41, applies to all hazardous waste combustors: hazardous waste incinerators, hazardous waste cement kilns, hazardous waste lightweight aggregate kilns, hazardous waste solid fuel boilers, hazardous waste liquid fuel boilers, and hazardous waste hydrochloric acid production furnaces. An incinerator covered under this GCP is not subject to this subpart because it does not combust hazardous waste.

There are no potentially applicable NESHAP subparts identified in the application. It is the applicant's responsibility to be aware of and comply with applicable NESHAP subparts and requirements whether or not they are identified in this permitting action or Title 129. The NESHAP rules are subject to change. Information regarding NESHAP can be found on the NDWEE Air Toxics Notebook. This page can be found on the NDWEE website http://dee.ne.gov when selecting "Air" and "Air Grants, Planning and Outreach Program". The Air Toxics Notebook is under the Air Toxics Program. Refer to the Air Toxics Notebook for more updated and detailed information regarding NESHAP.

Chapter 14 – Incinerators:

This chapter applies to all incinerators except those listed in Chapter 14, Sections 001.01 - 001.04.

Section 002- Particulate Matter Emissions

PM emissions from the incinerator are not to exceed 0.10 grains per dry standard cubic foot (gr/dscf) of exhaust gas, corrected to 7% oxygen.

The source must conduct performance testing in accordance with Method 5 of 40 CFR 60 Appendix A-3 no later than 180 days after start-up of operation to ensure the incinerator will not emit more than 0.10 gr/dscf of exhaust gas, corrected to 7% oxygen. The NDWEE may waive the testing requirement provided documentation from the manufacturer, such as stack test results that the incinerator will comply with the limitation, is submitted.

Section 003- Burning Capacity

The maximum rated combustion capacity of an incinerator approved under this GCP may not be greater than 250 pounds per hour as guaranteed by the designer or manufacturer.

Section 004- Performance Testing

Should performance testing be required the testing will be done in accordance with Chapter 34. The waste combusted during the performance test shall be representative of the waste normally processed by the applicant at this stationary source. The maximum combustion rate of the incinerator must not exceed the lesser of the manufacturer-rated burning capacity or the 250 pounds per hour maximum rated burning capacity of the incinerator.

Section 005- Proper Operation

Instructions for proper operation of the incinerator shall be posted on-site and written certification that each operator has read these instructions, understands them, and intends to comply, shall be kept on record by the owner for the life of the unit.

Section 006- Proper Design

The incinerator must be a refractory lined combustion furnace that is designed for the maximum combustion of materials placed in the incinerator. Each incinerator must vent the combustion emissions through a stack, duct, or chimney that is adequate for that particular incinerator.

SPECIFIC PERMIT CONDITIONS DISCUSSION:

Condition III includes conditions that are specific to the emissions units and emission points listed in each respective condition. Permit conditions that require no additional discussion are not included in this section.

III.(A) Specific Conditions for Incinerator:

(1) This condition identifies each incinerator emission unit authorized for coverage under this GCP. A maximum 250 pound-per-hour rating and maximum heat input rate of 10 MMBtu/hr rating was utilized in the GCP development to ensure NDWEE modeling thresholds are not exceeded. Liquid fuels are limited to diesel. Gaseous fuels are limited to utility grade natural gas (primarily methane, CH_4) and LPG, which is commonly referred to as "propane."

(2) This condition specifies that the incinerator is subject to the requirements of Chapter 15, Sections 001.02 and 001.04. Compliance with Section 001.02 is demonstrated through the use fuel types, as limited by the GCP. Section 001.04 limits the opacity of visible emissions from the incinerator to less than 20%. The table contains an emission limitation from Chapter 14, Section 001.02 which applies to emissions resulting from both the fuel and materials being incinerated. Performance testing of the incinerator for the Chapter 14 PM emission limit using EPA Method 5 is required no later than 180 days after start-up. The NDWEE may waive this test requirement if the emission limitation in Condition III.(A)(2)(b) is certified by the manufacturer or permit holder using valid performance test results.

(3) This condition identifies the operational and monitoring requirements associated with the incinerator. A 250 pound per hour limit on processing throughput (by way of the limit on the rated capacity of the incinerator) and 10 MMBtu/hr maximum heat input rating is necessary to prevent the source from exceeding the emission limits established by the NDWEE modeling thresholds. Limitations on the types of materials that may be combusted are necessary to avoid applicability of Federal Standards. Instructions for the proper operation of each incinerator must be posted and written certification that each operator has read them and intends to follow them. Observations of the incinerator must be conducted each day of operation, and corrective action must be taken immediately if problems such as visible emissions are occurring.

(4) This condition clarifies that there are no Federal NSPS, NESHAP, or MACT requirements applicable to the incinerator covered under this GCP. As discussed in the Chapter 12 and 13 discussions above, there are applicable Federal requirements for certain other incinerator types that do not qualify for coverage under this GCP (e.g. medical waste, hazardous waste, or large municipal waste incinerators).

(5) This condition specifies recordkeeping and reporting requirements as well as other documentation for the incinerator. The recordkeeping includes instructions for proper operation being posted and read by the operators, manufacturer specifications and emission certifications, and records of the weight and type of material combusted each month, as well as the length and temperature of each incineration cycle. There are also records required for observations made to detect anything unusual during operation that may indicate the incinerator is not functioning properly and requires maintenance or other corrective action to resolve a problem.

Fact Sheet Attachment

Potential Emissions Summary

Pollutant	Process Emissions (ton/yr)	Combustion Emissions (ton/yr)	Total Worst Case Emissions (ton/yr)
PM	0.26	0.63	0.89
PM_{10} [1]	0.26	1.05	1.30
$PM_{2.5}$ [1]	0.26	1.05	1.30
SO_2	0.12	2.29	2.40
NO_x	0.19	6.35	6.54
CO	0.16	3.61	3.77
VOC	0.02	1.59	1.60
HAPS			
HCl	2.31	-	2.31
Total HAPS	2.42	0.08	2.50

[1] For conservatism, PM_{10} and $PM_{2.5}$ emission are assumed equal to Total PM process emissions.

Fact Sheet Attachment

Incineration Process Emissions (EP-1)

Human Cremation	Emission Factor [1]	Emission Factor [2]
	lb/body	lb/ton
Acetaldehyde	1.30E-04	1.73E-03
Dibenzofurans	1.40E-09	1.87E-08
Formaldehyde	3.40E-05	4.53E-04
Mercury	0.01	0.17

Human Cremation	Emission Factor [3]	Emission Factor [2]
	lb/body	lb/ton
Antimony	3.02E-05	4.03E-04
Arsenic	3.00E-05	4.00E-04
Beryllium	1.37E-06	1.83E-05
Cadmium	1.11E-05	1.48E-04
Chromium [4]	4.34E-05	5.79E-04
Cobalt	1.75E-06	2.33E-05
Hydrogen chloride	0.07	0.96
Hydrogen fluoride	6.55E-04	0.01
Lead	6.62E-05	8.83E-04
Mercury	3.29E-03	0.04
Nickel	3.82E-05	5.09E-04
Polycyclic aromatic hydrocarbons	3.76E-06	5.01E-05
Selenium	4.36E-05	5.81E-04

Medical Waste Incineration	Emission Factor [5]
	lb/ton
Antimony	0.01
Arsenic	2.42E-04
Beryllium	6.25E-06
Cadmium	5.48E-03
Chromium	7.75E-04
Chlorine	0.11
Hydrogen fluoride	0.15
HCl	33.5
Polychlorinated Biphenyls	4.65E-05
Manganese	5.67E-04
Mercury	0.11
Nickel	5.90E-04
NO_X	3.56
CO	2.95
SO_X	2.17
PM	4.67
VOC	0.30

[1] Emission Factors from the Bay Area Air Quality Management District (BAAQD) Permit Handbook (2017).

[2] Average body weight assumed to be 150 pounds. This is equivalent to 13.33 bodies per ton.

[3] Emission factors from EPA's Webfire database.

[4] Includes the emission factor for Chromium Dioxide (Chromium IV)

[5] Emission Factors from AP-42 Tables 2.3-1 through 2.3-10

Fact Sheet Attachment

Incineration Process Emissions (EP-1)

Permitted Incineration Limit 250 lb/hr
Permitted Incineration Limit 0.125 ton/hr

Maximum Values	Emission Factor lb/ton	Emissions lb/hr	Emissions ton/yr
Antimony [1]	1.64E-03	2.05E-04	8.99E-04
Arsenic [1]	4.00E-04	5.00E-05	2.19E-04
Beryllium [1]	1.83E-05	2.28E-06	1.00E-05
Cadmium [1]	6.81E-04	8.51E-05	3.73E-04
Chlorine [2]	0.11	1.31E-03	0.01
Chromium [1]	5.98E-04	7.48E-05	3.28E-04
Cobalt	2.33E-05	2.92E-06	1.28E-05
Dibenzofurans	1.87E-08	2.33E-09	1.02E-08
hydrogen chloride [1]	4.21	0.53	2.31
hydrogen fluoride [1]	0.02	2.84E-03	0.01
Lead	8.83E-04	1.10E-04	4.83E-04
Manganese [2]	5.67E-04	7.09E-06	3.10E-05
Mercury [1]	0.17	0.02	0.09
Nickel [1]	5.17E-04	6.47E-05	2.83E-04
Polycyclic aromatic Hydrocarbons	5.01E-05	6.27E-06	2.74E-05
Polychlorinated Biphenyls [2]	4.65E-05	5.81E-07	2.55E-06
Selenium	5.81E-04	7.27E-05	3.18E-04
PM [2]	4.67	0.06	0.26
CO [2]	2.95	0.04	0.16
NOx [2]	3.56	0.04	0.19
SO_x [2]	2.17	0.03	0.12
VOC [2]	0.30	3.74E-03	0.02

[1] For common pollutants between Human Cremation (Webfire and BAAQD) emission factors and Medical Waste Incineration (AP-42) emission factors, a ratio of 9:1 was applied respectively. This is consistent with the permit condition that limits the incineration of medical waste to 10% by weight.

[2] For pollutants specific to medical incineration, it was assumed only 10% by weight is incinerated. This is based on the permit condition that limits the incineration of medical waste to 10% by weight.

Fact Sheet Attachment

External Combustion if Natural Gas-Fired

Maximum Incinerator(s) Capacity	10.0	MMBtu/hr
Combustion Total	87,600	MMBtu/year
Natural Gas Heating Value	1,020	MMBtu/10^6 SCF
Annual Natural Gas Use[1]	85.88	10^6 SCF/year

External combustion emissions (natural gas)

Pollutant	Emission Factor[2] (lb/10^6 SCF)	PTE (ton/yr)
PM	1.9	0.08
PM_{10}	7.6	0.33
$PM_{2.5}$	7.6	0.33
SO_2	0.6	0.03
NO_x	100	4.29
CO	84	3.61
VOC	5.5	0.24
Hazardous Air Pollutants (HAPs)		
Benzene	2.10E-03	9.02E-05
Dichlorobenzene	1.20E-03	5.15E-05
Formaldehyde	7.50E-02	3.22E-03
Hexane	1.80	7.73E-02
Lead Compounds	5.00E-04	2.15E-05
Polycyclic Organic Matter	6.98E-04	3.00E-05
Toluene	3.40E-03	1.46E-04
Arsenic Compounds	2.00E-04	8.59E-06
Beryllium Compounds	1.20E-05	5.15E-07
Cadmium Compounds	1.10E-03	4.72E-05
Chromium Compounds	1.40E-03	6.01E-05
Cobalt Compounds	8.40E-05	3.61E-06
Manganese Compounds	3.80E-04	1.63E-05
Mercury Compounds	2.60E-04	1.12E-05
Nickel Compounds	2.10E-03	9.02E-05
Selenium Compounds	2.40E-05	1.03E-06
Total HAPs		8.11E-02

[1]Based upon operating 8,760 hours

[2]AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (6/1998)

Fact Sheet Attachment

External Combustion if LPG-Fired

Total Boiler Capacity	10.0	MMBtu/hr
LPG Heat Content	92	MMBtu/10^3 gal
LPG Heat Input	87,600	MMBtu/yr
Maximum LPG Use	952	10^3 gal/year
LPG Sulfur Content[1], [2]	185	ppmw
	16.19	gr/100 ft^3

External combustion emissions (LPG)

Pollutant	Emission Factor[2] (lb/10^3 gal)	LPG PTE (ton/yr)
PM	0.2	0.10
PM_{10}	0.7	0.33
$PM_{2.5}$	0.7	0.33
SO_2	1.46	0.69
NO_x	13	6.19
CO	7.5	3.57
VOC	0.8	0.38
Hazardous Air Pollutants[3]		0.08

[1]LPG sulfur content assumed 185 ppmw based upon data from Gas Producer's Association Standard 2140-92. Based upon a density of 0.125 lb/ft3 from Marathon Technical Service, http://www.marathontech.ca/assets/reference-material/fueltbl.pdf.

[2]AP-42 Table 1.5-1 (7/08) for all emission factors except HAPs.

[3]It is assumed HAP emissions are the same as natural gas.

Fact Sheet Attachment

External Combustion if Distillate Oil Fired

Maximum Combined Capacity	10.0	MMBtu/hr
Annual Diesel Use[1]	635	10^3 gal/year

External combustion emissions (distillate oil)

Pollutant	Emission Factor[2] ($lb/10^3$ gal)	PTE (ton/yr)
PM	2	0.63
PM_{10}	3.3	1.05
$PM_{2.5}$	3.3	1.05
SO_2	7.2	2.29
NO_x	20	6.35
CO	5	1.59
VOC	0.34	0.11
Organic Hazardous Air Pollutants (HAPs)		
Benzene	2.14E-04	6.79E-05
Ethylbenzene	6.36E-05	2.02E-05
Formaldehyde	3.30E-02	1.05E-02
Polycyclic Organic Matter	1.19E-03	3.78E-04
1,1,1-Trichloroethane	2.36E-04	7.49E-05
Toluene	6.20E-03	1.97E-03
o-Xylene	1.09E-04	3.46E-05
Metallic HAPs	**($lb/10^{12}$ Btu)**	
Arsenic	4	1.75E-04
Beryllium	3	1.31E-04
Cadmium	3	1.31E-04
Chromium	3	1.31E-04
Lead	9	3.94E-04
Manganese	6	2.63E-04
Mercury	3	1.31E-04
Nickel	3	1.31E-04
Selenium	15	6.57E-04
Total HAPs		1.52E-02

[1]Based upon operating 8,760 hours and 138 MMBtu/10^3 gal.

[2]AP-42 Tables 1.3-1, 1.3-2, 1.3-3, 1.3-9, and 1.3-10 (5/10)