Ms. Mary West-Calcagno
Director of Public Utilities
City of Moberly Waste Water Plant
1429 County Road 2350
Moberly, MO 65270

RE: New Source Review Permit - Project Number: 2019-06-039

Dear Ms. West-Calcagno:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: http://dnr.mo.gov/regions/. The online CAV request can be found at http://dnr.mo.gov/cav/compliance.htm.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.
If you have any questions regarding this permit, please do not hesitate to contact Jonathan Halla, at the Department of Natural Resources’ Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:hja

Enclosures

c: Northeast Regional Office
PAMS File: 2019-06-039

Permit Number: 082019-011
PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 082019-011  Project Number: 2019-06-039
Installation Number: 175-0086

Parent Company: City of Moberly
Parent Company Address: 101 W. Reed St., Moberly, MO 65270
Installation Name: City of Moberly Waste Water Plant
Installation Address: 1429 County Road 2350, Moberly, MO 65270
Location Information: Randolph County, S33, T54N, R13W

Application for Authority to Construct was made for:
Status change of the existing 800 kW generator-engine set from emergency use to non-emergency use. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, Construction Permits Required.

☐ Standard Conditions (on reverse) are applicable to this permit.
☑ Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

Director or Designee
Department of Natural Resources
AUG 29 2019
Effective Date
STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

**Contact Information:**
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
http://dnr.mo.gov/regions/
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted to the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (3)(E). "Conditions required by permitting authority."

City of Moberly Waste Water Plant
Randolph County, S33, T54N, R13W

1. NOx Emission Limitations
   A. City of Moberly Waste Water Plant shall limit the hours of operation for the generator-engine set (EP-01) to 4,500 hours in any consecutive 12-month period.
   B. City of Moberly Waste Water Plant shall demonstrate compliance with Special Condition 1.A using Attachment A or another equivalent form, including an electronic form.

2. Fuel Requirement-Engine(s)
   A. City of Moberly Waste Water Plant shall burn exclusively low sulfur diesel fuel in its engine (EP-01) with a sulfur content less than or equal to 15 ppm by weight (0.0015% by weight).
   B. City of Moberly Waste Water Plant shall demonstrate compliance with Special Condition 2.A by obtaining records of the fuel's sulfur content from the vendor for each shipment of fuel received or by testing each shipment of fuel for the sulfur content in accordance with the method described in 10 CSR 10-6.040 Reference Methods.

3. Record Keeping and Reporting Requirements
   A. City of Moberly Waste Water Plant shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.
   B. City of Moberly Waste Water Plant shall report to the Air Pollution Control Program's Compliance/Enforcement Section, by mail at P.O. Box 176, Jefferson City, MO 65102 or by email at AirComplianceReporting@dnr.mo.gov, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.
REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW
Project Number: 2019-06-039
Installation ID Number: 175-0086
Permit Number: 082019-011

Installation Address: City of Moberly Waste Water Plant
1429 County Road 2350
Moberly, MO 65270

Parent Company: City of Moberly
101 W. Reed St.
Moberly, MO 65270

Randolph County, S33, T54N, R13W

REVIEW SUMMARY

- City of Moberly Waste Water Plant has applied for authority to change the status of the existing 800 kW generator-engine set from emergency use to non-emergency use.

- The application was deemed complete on June 18, 2019.

- HAP emissions are expected from the proposed equipment from the combustion of diesel fuel, however, the total HAP emissions are expected to be less than their respective SMAL.


- The Maximum Achievable Control Technology (MACT) applies to the installation. 40 CFR 63 Subpart ZZZZ, National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, applies to the existing 800 kW generator-engine set. However, this unit is a non-emergency RICE at an area HAP source and therefore is subject to 40 CFR 60 IIII. If the requirements of Subpart III, Standards of Performance for Stationary Compression Ignition Internal Combustion Engine are met, then no further Subpart ZZZZ requirements apply.

- No air pollution control equipment is being used in association with the new equipment.

- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of NOx are conditioned below de minimis levels.
• This installation is located in Randolph County, an attainment/unclassifiable area for all criteria pollutants.

• This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.

• Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.

• No Operating Permit is required for this installation.

• Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

City of Moberly Waste Water Plant is located at 1429 County Road 2350 in Randolph County. No permits have been issued to City of Moberly Waste Water Plant from the Air Pollution Control Program. The generator-engine set was previously exempt from permitting since the unit had been used only for emergency use with a limit of five hundred (500) hours per year per 10 CSR 10-6.061(3)(A)2.BB. This unit is also currently the only air emission source on site.

PROJECT DESCRIPTION

This project is for the status change of the 800 kW Cummins DQCC-6366109 diesel-fired generator with a 1,220 bhp Cummins QSK23-G7 NR2 Tier 2 certified engine manufactured January 16, 2008 (EP-01) from emergency use to non-emergency use for the Ameren demand response program. The equipment is rated at 7.62 MMBtu/hr. The generator-engine set is attached to a 1,500 gallon storage tank (EP-02). Ultra Low Sulfur Diesel will be used.

The 4,500 hours of operation limit was given because as long as the generator-engine set is below this, the NOx emissions will be under 40 tpy.

Emission points of this project are listed in Table 1.

Table 1: Emission Point List

<table>
<thead>
<tr>
<th>Emission Point</th>
<th>Description</th>
<th>MHDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP-01</td>
<td>800 kW Generator-Diesel Engine Set</td>
<td>7.62 mmBtu/hr</td>
</tr>
<tr>
<td>EP-02</td>
<td>1,500 Gallon Tank</td>
<td>27,600 gal/year</td>
</tr>
</tbody>
</table>
EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis for the SOx and HAPs were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 3.4 *Large Stationary Diesel and All Stationary Dual-Fuel Engines* (October 1996). The emission factor used for the NOx was obtained from the manufacturer specifications for the generator-engine set. The emission factors for the CO, PM, and VOC were obtained from the EPA *Nonroad Compression-Ignition Engines: Exhaust Emission Standards*, March 2016 under the Tier 2 category.

The working and breathing losses for the VOC emissions from the 1,500 gallon storage tank were calculated using the equations from AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 7.1 *Organic Liquid Storage Tanks* (November 2006). They were found to have a VOC emission total of 0.00016 tpy, which was added to the engine’s VOC emissions.

The following table provides an emissions summary for this project. There are no existing potential emissions because City of Moberly Waste Water Plant has never been permitted before. Potential emissions of the application represent the potential of the modified equipment, assuming continuous operation (8,760 hours per year). The New Installation Conditioned Potential column represents the emissions at the plant’s desired operation limit (4,500 hours per year).

### Table 2: Emissions Summary (tpy)

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Regulatory De Minimis Levels / SMAL&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Existing Potential Emissions</th>
<th>Existing Actual Emissions (2018 EIQ)</th>
<th>Potential Emissions of the Project</th>
<th>New Installation Conditioned Potential</th>
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</thead>
<tbody>
<tr>
<td>PM&lt;sup&gt;b&lt;/sup&gt;</td>
<td>25.0</td>
<td>N/A</td>
<td>N/A</td>
<td>1.77</td>
<td>0.91</td>
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<tr>
<td>PM&lt;sub&gt;10&lt;/sub&gt;</td>
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<td>N/A</td>
<td>N/A</td>
<td>1.77</td>
<td>0.91</td>
</tr>
<tr>
<td>PM&lt;sub&gt;2.5&lt;/sub&gt;&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>N/A</td>
<td>1.77</td>
<td>0.91</td>
</tr>
<tr>
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<td>N/A</td>
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<td>0.03</td>
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<td>N/A</td>
<td>76.69</td>
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<td>VOC</td>
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<td>N/A</td>
<td>56.19</td>
<td>28.87</td>
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<td>CO</td>
<td>100.0</td>
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<td>N/A</td>
<td>30.75</td>
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<tr>
<td>Total HAPs</td>
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<td>N/A</td>
<td>N/A</td>
<td>0.05</td>
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<tr>
<td>Acetaldehyde</td>
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<td>N/A</td>
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<td>0.0004</td>
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<td>N/A</td>
<td>N/A</td>
<td>0.0002</td>
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<td>N/A</td>
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<td>Toluene</td>
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<td>N/A</td>
<td>N/A</td>
<td>0.0094</td>
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<tr>
<td>Formaldehyde</td>
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<td>N/A</td>
<td>N/A</td>
<td>0.0026</td>
<td>0.0014</td>
</tr>
<tr>
<td>Napthaleine</td>
<td>10</td>
<td>N/A</td>
<td>N/A</td>
<td>0.0043</td>
<td>0.0022</td>
</tr>
<tr>
<td>Xylenes</td>
<td>10</td>
<td>N/A</td>
<td>N/A</td>
<td>0.0064</td>
<td>0.0033</td>
</tr>
</tbody>
</table>

N/A = Not Applicable; N/D = Not Determined

<sup>a</sup> SMAL of all individual HAPs

<sup>b</sup> PM and PM<sub>2.5</sub> are assumed to be equal to PM<sub>10</sub>
PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of NOx are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

City of Moberly Waste Water Plant shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

• Start-Up, Shutdown, and Malfunction Conditions, 10 CSR 10-6.050

• Submission of Emission Data, Emission Fees and Process Information, 10 CSR 10-6.110
  o Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.

• Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin, 10 CSR 10-6.170

• Restriction of Emission of Visible Air Contaminants, 10 CSR 10-6.220

• Restriction of Emission of Odors, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

• New Source Performance Regulations, 10 CSR 10-6.070
  o Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 CFR Part 60, Subpart III

• MACT Regulations, 10 CSR 10-6.075
  o National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63, Subpart ZZZZ

• Control of Sulfur Dioxide Emissions, 10 CSR 10-6.261, this engine complies by the use of ultra-low sulfur diesel of 15ppm of sulfur.
STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 13, 2019, received June 17, 2019, designating City of Moberly as the owner and operator of the installation.
Attachment A – Hours of Operation Compliance Worksheet

City of Moberly Waste Water Plant
Randolph County, S33 T54N R13W
Project Number: 2019-06-039
Installation ID Number: 175-0086
Permit Number: 082019-011

This sheet covers the period from (month, year) to (month, year).

<table>
<thead>
<tr>
<th>Month</th>
<th>Monthly Hours of Operation of Generator-Engine Set</th>
<th>12-Month Rolling Total Hours of Operation of Generator-Engine Set¹</th>
</tr>
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<tbody>
<tr>
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¹Add the monthly hours of operation to the sum of the monthly hours of operation from the previous eleven (11) months. A total of less than 4,500 hours of operation for the Generator-Engine Set (EP-01) per consecutive twelve (12) months is necessary for compliance.
APPENDIX A

Abbreviations and Acronyms

% .............. percent
°F .............. degrees Fahrenheit
acfm .......... actual cubic feet per minute
BACT ......... Best Available Control Technology
BMPs ........ Best Management Practices
Btu .......... British thermal unit
CAM ......... Compliance Assurance Monitoring
CAS .......... Chemical Abstracts Service
CEMS ...... Continuous Emission Monitor System
CFR .......... Code of Federal Regulations
CO .......... carbon monoxide
CO₂ .......... carbon dioxide
CO₂e ........ carbon dioxide equivalent
COMS ...... Continuous Opacity Monitoring System
CSR ........ Code of State Regulations
dscf ...... dry standard cubic feet
EIQ .......... Emission Inventory Questionnaire
EP ............. Emission Point
EPA ............ Environmental Protection Agency
EU ............ Emission Unit
fps ............ feet per second
ft ............. feet
GACT ...... Generally Available Control Technology
GHG .......... Greenhouse Gas
gpm .......... gallons per minute
gr .............. grains
GWP ........ Global Warming Potential
HAP ........ Hazardous Air Pollutant
hr .............. hour
hp ............ horsepower
lb ............ pound
lbs/hr ........ pounds per hour
MACT ...... Maximum Achievable Control Technology
μg/m³ ........ micrograms per cubic meter
m/s ........... meters per second
Mgal ....... 1,000 gallons
MW ........ megawatt
MHDR ...... maximum hourly design rate
MMBtu ... Million British thermal units
MMCF .... million cubic feet
MSDS ...... Material Safety Data Sheet
NAAQS .... National Ambient Air Quality Standards
NESHAPs National Emissions Standards for Hazardous Air Pollutants
NOₓ ........ nitrogen oxides
NSPS ....... New Source Performance Standards
NSR ........ New Source Review
PM .......... particulate matter
PM₂.₅ ... particulate matter less than 2.5 microns in aerodynamic diameter
PM₁₀ ...... particulate matter less than 10 microns in aerodynamic diameter
ppm .......... parts per million
PSD .......... Prevention of Significant Deterioration
PTE ........ potential to emit
RACT ...... Reasonable Available Control Technology
RAL ......... Risk Assessment Level
SCC .......... Source Classification Code
scfm ........ standard cubic feet per minute
SDS .......... Safety Data Sheet
SIC .......... Standard Industrial Classification
SIP .......... State Implementation Plan
SMAL ....... Screening Model Action Levels
SOₓ .......... sulfur oxides
SO₂ .......... sulfur dioxide
SSM .......... Startup, Shutdown & Malfunction
tph .......... tons per hour
tpy .......... tons per year
VMT ......... vehicle miles traveled
VOC .......... Volatile Organic Compound
<table>
<thead>
<tr>
<th>CO</th>
<th>NOx</th>
<th>PM</th>
<th>SO2</th>
<th>Tier 2 Emission Factors (g/hp-hr)</th>
<th>Manufacturer Emission Factors (g/hp-hr)</th>
<th>Ap-42 Emission Factors (g/hp-hr)</th>
<th>Engine hp</th>
<th>Emissions of Engine (lb/hr)</th>
<th>Emissions of Engine (tpy)</th>
<th>Emission of Working and Breathing Losses of Tank (tpy)</th>
<th>Total Project Emissions (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.61</td>
<td>4.77</td>
<td>0.15</td>
<td>4.77</td>
<td>0.33</td>
<td>0.005504339</td>
<td>0.1</td>
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<td>30.74710646</td>
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<td>0.000163464</td>
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</tbody>
</table>

**Operating 8760 hours per year**

<table>
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<tr>
<th>CO</th>
<th>NOx</th>
<th>PM</th>
<th>SO2</th>
<th>Tier 2 Emission Factors (g/hp-hr)</th>
<th>Manufacturer Emission Factors (g/hp-hr)</th>
<th>Ap-42 Emission Factors (g/hp-hr)</th>
<th>Engine hp</th>
<th>Emissions of Engine (lb/hr)</th>
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<th>Emission of Working and Breathing Losses of Tank (tpy)</th>
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**Operating 4500 hours per year**

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<th>Tier 2 Emission Factors (g/hp-hr)</th>
<th>Manufacturer Emission Factors (g/hp-hr)</th>
<th>Ap-42 Emission Factors (g/hp-hr)</th>
<th>Engine hp</th>
<th>Emissions of Engine (lb/hr)</th>
<th>Emissions of Engine (tpy)</th>
<th>Emission of Working and Breathing Losses of Tank (tpy)</th>
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<tr>
<td>HAPs</td>
<td>Emission Factor (lbs/MMBtu)</td>
<td>MHDR (MMBtu/hr)</td>
<td>Emissions (lbs/hr)</td>
<td>Emissions (tpy)</td>
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<tr>
<td>Acetaldehyde</td>
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