Maintaining Continuous Compliance with Air Quality Regulations

Air and Waste Management Association Conference

Presented by: Steven Babler and Taylor Dunworth

February 27, 2018
Introduction

• Purpose
  » Compliance maintenance staff assistance
  » Environmental staff? None / Small / Busy / Repurposed
  » What do I have to do?
  » Who is going to do it?
  » How do I do it?
  » Simple approach

• POWER Engineers
  » Acquired Sega, Inc. July 1, 2017
  » Generation / Power Delivery / Environmental
  » Facilities / Communications
Outline

• What Are Your Facilities’ Requirements?
  » Air Construction Permits
  » Air Operating Permits
  » Air Quality Regulations
  » Common Mistakes

• Simple Compliance Tools
  » Compliance Tracking Documents
  » Standard Operating Procedures (SOPs)
  » Compliance Calendar
What Are Your Facility’s Requirements?

Presented by: Steven Babler
What are your facility’s requirements?

The first step to maintaining continuous compliance with air quality regulations is to know your compliance requirements.

- All regulatory requirements can be found in the local/state/federal code of regulations
  - K.A.R. 28-19 Kansas Air Quality Regulations
  - CFR Title 40 Protection of the Environment
  - Missouri State Rules 10 CSR Chapters 1-6
- In practice most requirements (with a few exceptions) are found in the facilities’ various air permits.
What Are Your Facility’s Requirements?

Permit Types
Permit Types

Construction Permits / Approvals
- Major Source / Major modification of existing source (PSD)
- Minor Source / Minor modification
- Synthetic Minor
- Approvals

Operating Permits
- Major (Title V)
- Minor (State Specific)
What Are Your Facility’s Requirements?

Air Construction Permits
AIR EMISSIONS SOURCE CONSTRUCTION PERMIT

Source ID No.: 1254135
Effective Date: October 16, 2015
Source Name: Coffeyville Municipal Light & Power Generating Facility No. 2
SIC Code: 4911, Electric Services
NAICS Code: 237110, Gas and Electric Fuel Distribution
Source Location: 1501 N. 5th Industrial Rd.
Coffeyville Municipal Park
Coffeyville, Kansas 67337

Mailing Address: P.O. Box 129
Coffeyville, Kansas 67337
Contact Person: Michael Stock

This permit is issued pursuant to K.S.A. 65-2008 as amended.

1. Description of Activity Subject to Air Pollution Control Regulations

The Coffeyville Municipal Light and Power (Coffeyville) proposes to build a 56.8 megawatt (MW) electric generating facility in Coffeyville, Montgomery County, Kansas. The facility will be comprised of the equipment listed and described in Section III, Air Emission Unit Technical Specifications section of this permit. An Air Emission Source Construction Permit as referenced by C-1254135 was originally issued on October 16, 2015 for this proposed activity. This permit revision is reviewing the said permit to reflect the change in the design of the equipment which Coffeyville ended up installing in lieu of facility, to ensure the emission information table is a result of this change, and to incorporate certain operational restrictions and requirements that are deemed appropriate to be included in the permit.

Emissions of oxides of nitrogen (NOx), carbon monoxide (CO), sulfur oxides (SOx), volatile organic compounds (VOCs), leachate air pollutants (HAPs), particulate matter (PM) and PM soot sized at 10μm diameter less than or equal to 1μm (PM10) were evaluated as part of the review process. The proposed activity is subject to the provisions of K.A.R. 18-40-300 (Construction permits and approvals, applicability). A construction permit is required for the project because the potential to emit of NOx, VOCs, individual HAPs, combined HAPs, PM, and PM10 exceeds the permitting thresholds in K.A.R. 18-40-300(a).

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 645 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: 122015-003 Project Number: 2016-03-06
Installation Name: Columbia Municipal Power Plant
Installation Address: 1501 Business Loop 70 East, Columbia, MO 65201
Location Information: Boone County, S7, T-9NM, R12W

Application for Authority to Construct was made for:
Conversion of Boilers 6 and 7 to burn 100% woody biomass, replacement of the grate and fuel feeder on Boilers 6 and 7, installation of overfire air on Boilers 6 and 7, installation of an economizer on Boiler 8, and installation of low NOx burners with 20% flue gas recirculation on Boiler 8. This review was conducted in accordance with Section (4) of Missouri State Rule 10 CSR 10-6.000 Construction Permits Requires:

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

Prepared by
Alana Hess
New Source Review Unit

Effective Date 8/23/15
What Are Your Facility’s Requirements?

Air Operating Permits
AIR EMISSION SOURCE
CLASS I OPERATING PERMIT

Source ID No.: 0459014
Initial Date: December 23, 2003
Renewal Date: May 5, 2009
Expiration Date: May 4, 2014
Source Name: Lawrence Energy Center
SIC Code: 4911; Electric Services - electric power generation, transmission, or distribution. 4931, Electric and other services
NAICS Code: 221112; Fossil Fuel Power Generation
Source Location: 1259 North 1800 Road
Lawrence, Kansas 66044
Mailing Address: P.O. Box 240
Lawrence, Kansas 66044

DIVISION OF ENVIRONMENT
Bureau of Air & Radiation
Air Permitting Section
CURTIS STATE OFFICE BUILDING, 1000 W JACOBS STREET, STE 310, TOPEKA, KS 66612-1366
Voice 785-298-1570  Fax 785-291-5933

DEPARTMENT OF NATURAL RESOURCES
www.kans.gov

Mr. Leon Daggett
Director
Independence Power & Light - Missouri City Station
P.O. Box 1019
Independence, MO 64052

Re: Independence Power & Light - Missouri City Station (047-0096)
Permit Number: OP2013-015

Dear Mr. Daggett:

Enclosed with this letter is your Part 70 operating permit. Please review this document carefully.
Operation of your installation in accordance with the rules and regulations cited in this document is
necessary for continued compliance. It is very important that you read and understand the
requirements contained in your permit.

You may appeal this permit to the Administrative Hearing Commission (AHC), P.O. Box 1357,
Jefferson City, MO 65102, as provided in 40CFR64.378.16 and 621.210.3. 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 no 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 have any questions or need additional information regarding this permit, please contact the
Air Pollution Control Program at (573) 721-4817, or you may write to the Air Pollution Control
Program, P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

Michael J. Staafeldt, P.E.
Operating Permit Unit Chief

Enclosures

c: Robert Cheever, US EPA Region VII
PAMS File: 2014-08-038

AIR POLLUTION CONTROL PROGRAM
KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT
What Are Your Facility’s Requirements?

Air Quality Regulations
Air Quality Regulations

Air permits do not specify all your requirements
  • For example, NSPS details may only be referenced, not listed or spelled out.

Changes in Regulatory Requirements
  • Air regulatory requirements have changed frequently over the last 10 years.

How do I know if they have changed?
  • Read the Federal Register and State Registers
  • EPA/KDHE/MDNR Website
  • Trade Association Publications
  • Attend Conferences (Like this one)
  • Consultants
Air Quality Regulations

Changes in Regulatory Requirements

• New or modified regulatory requirements after permit issuance.
  » Federal Register (Daily)
  » State Register (Weekly)
Air Quality Regulations

Regulations not required to be included in operating permit:

- Greenhouse Gas Reporting (40 CFR 98)
  » Report emissions to the EPA by March 31st using e-GGRT

Regulations that require separate permit:

- Acid Rain Rule
What Are Your Facilities’ Requirements?

Common Mistakes
Differences between Permit Application, Construction Permit, Operating Permit and Actual Equipment.

• Watch out for changes made during construction process.
  » Apply for permit modifications when different from permit application

• Comply with stated information in permit application.
  » Emission calculations might be based on certain things.

• Review draft permits.
  » Communicate with agency if changes are necessary.
Non-compliance with Construction Permit Requirements

- Construction permit requirements not always listed in operating permit.
  » Construction permits are lifelong permits and must be complied with after receiving the operating permit.
  » Check agency issued draft operating permit and when necessary suggest changes.
Common Mistakes

Differences Between the Construction and Operating Permits

2. Compliance requirements in periods for which the exemption is not in effect include:
   a. Acid Rain Program Special Provisions as described in 40 CFR 72.7(f)(1)(ii).
   b. Acid Rain Program affected units requirements as described in 40 CFR 72.7(f)(4).
   c. Acid Rain permit application requirements as described in 40 CFR 72.7(f)(4)(ii).

C. The turbines were constructed after February 18, 2005 and have a heat input at peak load equal to or greater than 10 MMBtu per hour, and are subject to the requirements of 40 CFR Part 66, Subpart KKKK. Compliance requirements include:
   1. Emission limits for nitrogen oxides (NOx) as described in 40 CFR 60.4320(a), 60.4320(b), and Table 1 to 40 CFR Part 66 Subpart KKKK.
   2. Emission limits for sulfur dioxide (SO2) as described in 40 CFR Part 60.4330(a);
   3. Fuel requirements as described in 40 CFR Part 60.4330(a)(2);
   4. General compliance requirements as described in 40 CFR 60.4333(a);

D. The black start generator meets the definition of an affected source under 40 CFR 63.6590(a)(1), and is therefore subject to 40 CFR Part 63 Subpart ZZZZ. The black start generator is a compression ignition engine, and so must meet the requirements of 40 CFR Part 63 Subpart ZZZZ by meeting the requirements of 40 CFR Part 60 Subpart IIII. The engine is a 2007 or later model year, non-emergency, compression ignition internal combustion engine with a maximum engine power less than 1,500 hp and a displacement of less than 10 liters per cylinder. Compliance requirements include:
   1. Emission standards of 40 CFR 60.4201(a) as required by 40 CFR 60.4204(b);
   2. Operational and maintenance standards as required by 40 CFR 60.4206;
   3. Operational and maintenance standards as required by 40 CFR 60.4211(a)(1)+(2);
   4. Applicable requirements of 40 CFR parts 89, 94 and/or 108 as described in 40 CFR 60.4211(a)(3);
   5. Engine emission standards certification as required by 40 CFR 60.4211(e);
   6. Installation and configuration specifications as required by 40 CFR 60.4211(e);
   7. Fuel requirements of 40 CFR 60.510(b) as required by 40 CFR 60.4207(b).

E. Except as provided in K.A.R. 28-19-11, opacity of visible emissions from the turbines and black start engine are limited to 20%. [K.A.R. 28-19-655(a)(2)]

### IV. Permit Limitation Requirements

A. The following requirements to limit NOx below 250 tons per year apply plant-wide. [K.A.R. 28-19-302(b)]
   1. The owner or operator shall restrict the use of natural gas fuel combusted in the turbines to 1,500 NMMcf per year.
   2. The owner or operator shall restrict the use of the diesel black start engine to 500 hours per year.

### V. Monitoring Requirements

A. The following air emission monitoring requirements apply for the plant-wide limit on NOx. [K.A.R. 28-19-302(b)]
   1. Pipeline quality natural gas shall be the only fuel combusted in the turbines.
   2. The owner or operator shall install a non-resettable flow meter for natural gas prior to the turbines to measure the amount of natural gas combusted in the turbines each month.
   3. The owner or operator shall monitor the amount of natural gas combusted in the turbines using meter readings.

<table>
<thead>
<tr>
<th>Pollutant type</th>
<th>Potential-to-emit (PTE)² (tons per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-permit</td>
</tr>
<tr>
<td>Nitrogen Oxides (NOx)</td>
<td>281.7</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>79.7</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO2)</td>
<td>1.77</td>
</tr>
<tr>
<td>Volatile Organic Compounds (VOCs)</td>
<td>122.2</td>
</tr>
<tr>
<td>Particulate Matter (PM10)</td>
<td>19.3</td>
</tr>
<tr>
<td>Particulate Matter (PM2.5)</td>
<td>21.58</td>
</tr>
<tr>
<td>Total Hazardous Air Pollutants (Total HAPs)</td>
<td>3.04</td>
</tr>
</tbody>
</table>
Not reviewing “Statement of Basis” or “Review of Application for Authority to Construct and Operate”
• Typically attachments to permits that explain agency regulatory determinations.
  » Review closely and comment where necessary
  » Part of your permit.

STATEMENT OF BASIS

Permit Reference Documents
These documents were relied upon in the preparation of the operating permit. Because they are not incorporated by reference, they are not an official part of the operating permit.
1) Part 70 Operating Permit Application, received March 16, 2004, and found to be complete May 28, 2004:
2) 2008 Emissions Inventory Questionnaire:
RE: New Source Review Permit - Project Number: 2015-03-068

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, and submittal of a revised Part 70 operating permit renewal 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.
Common Mistakes

Tricky Requirements

• Electronic Reporting
  » ERT (MACT Stack Testing)
  » CEDRI (MACT Compliance Reports & Other)
  » e-GGRT (Greenhouse Gas Reporting)
  » CAMD (Acid Rain & CSAPR)

(3) You must submit all reports required by Table 9 of this subpart electronically to the EPA via the CEDRI. (CEDRI can be accessed through the EPA’s CDX.) You must use the appropriate electronic report in CEDRI for this subpart. Instead of using the electronic report in CEDRI for this subpart, you may submit an alternate electronic file consistent with the XML schema listed on the CEDRI Web site [http://www.epa.gov/ttn/chief/cedri/index.html], once the XML schema is available. If the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, you must submit the report to the Administrator at the appropriate address listed in §63.13. You must begin submitting reports via CEDRI no later than 90 days after the form becomes available in CEDRI.
Tricky Requirements

- Site-Specific Monitoring Plans (Common requirement in newer rules)
  - Greenhouse Gas Reporting Rule
  - MACT Rules (Major and Area Source Boiler MACT)
  - Acid Rain/CSAPR
What is the most common problem I see at facilities in the Midwest?

- Only ONE person that knows how the facility complies with its air regulatory requirements.

  » Develop Simple Compliance Tools
    – Compliance Tracking Documents
    – Standard Operating Procedures
    – Compliance Schedule

  » Centralize location for documentation
# Compliance Tracking Documents - Compliance Requirements Table

<table>
<thead>
<tr>
<th>OPERATING LIMITS</th>
<th>Total Over 12 months</th>
<th>Data found in VAMP System or VAMP System through the WISE System. See SOP for details.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Less than 1,825 startups and less than 515 hours in startup mode.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Less than 1,825 shutdowns and less than 36 hours in shutdown mode.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Operate SCR, lean-burn combustor &amp; OXCell when engines running</td>
<td>At All Times</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CALCULATIONS</th>
<th>Completed Before the End of the Next Month</th>
<th>Use compliance spreadsheet to calculate values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Separately total each engine's number of startups, shutdowns, startup mode hours, and shutdown mode hours for previous 12 months.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Compare totals to the 12 month limits. Report exceedance if anything is over.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Calculate each engine's number of startups, shutdowns, startup mode hours, and shutdown mode hours for the previous 4 calendar quarters and compare to 85% of the 12 month limits. Report exceedance if anything is over.</td>
<td>Quarterly: Completed Before the End of the Next Month (after the End of Quarter +45 Days if Reporting)</td>
<td></td>
</tr>
<tr>
<td>4. Calculate emissions using calculation methodology in Greenhouse Gas Rule, Subpart C.</td>
<td>Annually</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TESTING</th>
<th>Within 30 Days After First Achieving Max. Load, But No Longer Than 180 Days After First Firing Test</th>
<th>Initial Testing Dates Engine G November 2, 2018  Engine G November 2, 2016 Engine 12 November 10, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conduct initial emission compliance test for each engine</td>
<td>After Operating No More Than 8,760 Hours or Every 3 Calendar Years (whichever is First)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MAINTENANCE</th>
<th>Throughout the Year as Required in Plan</th>
<th>See plant records.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Write separate maintenance plan for engines and air pollution control equipment.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Perform maintenance described in maintenance plans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Log all routine and other maintenance, malfunctions, repairs, and actions taken</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RECORDS</th>
<th>Data found in WISE System. See calculations. See SOP for details.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Update maintenance plans and maintenance performed.</td>
<td>See plant records.</td>
</tr>
<tr>
<td>2. All notifications and support documents submitted to comply with regs.</td>
<td>See plant records.</td>
</tr>
<tr>
<td>3. Amount of fuel combusted annually.</td>
<td>See plant records.</td>
</tr>
<tr>
<td>4. Heating value of the natural gas (from natural gas supplier)</td>
<td>Twice per Year</td>
</tr>
<tr>
<td>5. Annual operating hours for all three engines.</td>
<td>Monthly</td>
</tr>
<tr>
<td>6. Keep records for greenhouse gas rule on file for at least 2 years.</td>
<td>Keep for At Least 2 years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REPORTS &amp; SUBMISSIONS</th>
<th>Mailed or Delivered the 1st Working Day After Discovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Report any operational excellence</td>
<td>Within 90 Days of Exceedance Discovery</td>
</tr>
<tr>
<td>2. Submit compliance plan if there is an operational expenditure</td>
<td>45 Days from the End of the Quarter</td>
</tr>
<tr>
<td>3. Report past 4 quarters of startups/shutdowns, actual operations exceeding 85% of a limit</td>
<td></td>
</tr>
<tr>
<td>4. Submit annual emissions inventory</td>
<td>March 1st</td>
</tr>
<tr>
<td>5. Submit notification of planned emissions compliance test</td>
<td>At Least 30 Calendar Days Prior to Test</td>
</tr>
<tr>
<td>6. Submit report of each emissions compliance test</td>
<td>Within 30 Days After Test is Completed</td>
</tr>
<tr>
<td>7. Submit report the greenhouse gas rule to the EPA if emissions greater than 25,000 metric tons per calendar year</td>
<td>March 1st</td>
</tr>
</tbody>
</table>
## Compliance Tracking Documents – Compliance Requirements Table

### Operating Limits

<table>
<thead>
<tr>
<th>Operating Limits</th>
<th>Total Over 12 months</th>
<th>Data found in VAMP System or VAMP System through the WISE System</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Less than 1,025 startups and less than 613 hours in startup mode.</td>
<td></td>
<td>See SOP for details.</td>
</tr>
<tr>
<td>2. Less than 1,025 shutdowns and less than 30 hours in shutdown mode.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Operate 3CF, lean-burn combustion &amp; OnCut when engines running.</td>
<td>At All Times</td>
<td></td>
</tr>
</tbody>
</table>

### Testing

<table>
<thead>
<tr>
<th>Testing</th>
<th>Within 60 Days After First Achieving Max. Load, But No Longer Than 100 Days After First Firing Fuel</th>
<th>Initial Testing Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conduct initial emission compliance test for each engine.</td>
<td></td>
<td>Engine 8, November 6, 2016</td>
</tr>
<tr>
<td>2. Conduct periodic emission compliance tests for each engine.</td>
<td>After Operating No More Than 3,760 Hours or Every 3 Calendar Years (Whichever is First)</td>
<td>Engine 8, November 6, 2016</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engine 10, November 10, 2016</td>
</tr>
</tbody>
</table>
# Compliance Tracking Documents – Compliance Schedule

<table>
<thead>
<tr>
<th>Item</th>
<th>Notes</th>
<th>Task(s)</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Air Emissions Inventory Report</td>
<td>1</td>
<td>Submit emission inventory data to KCHIE</td>
<td>1st</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Engine 1 Emission Compliance Test Notification/Protocol</td>
<td>2</td>
<td>Submit notification and protocol to KCHIE prior to test</td>
<td>7th</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Engine 1 Periodic Emission Compliance Test</td>
<td>3, 4</td>
<td>Conduct emission compliance test on Engine 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Engine 1 Periodic Emission Compliance Test Report</td>
<td>5</td>
<td>Submit emission compliance test report to KCHIE</td>
<td></td>
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</tr>
<tr>
<td>Engine 2 Emission Compliance Test Notification/Protocol</td>
<td>2</td>
<td>Submit notification and protocol to KCHIE prior to test</td>
<td>7th</td>
<td></td>
<td></td>
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<tr>
<td>Engine 2 Periodic Emission Compliance Test</td>
<td>3, 6</td>
<td>Conduct emission compliance test on Engine 2</td>
<td></td>
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<td></td>
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<tr>
<td>Engine 2 Periodic Emission Compliance Test Report</td>
<td>5</td>
<td>Submit emission compliance test report to KCHIE</td>
<td></td>
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</tr>
<tr>
<td>Engine 3 Emission Compliance Test Notification/Protocol</td>
<td>2</td>
<td>Submit notification and protocol to KCHIE prior to test</td>
<td>7th</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Engine 3 Periodic Emission Compliance Test</td>
<td>3, 7</td>
<td>Conduct emission compliance test on Engine 3</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Engine 3 Periodic Emission Compliance Test Report</td>
<td>5</td>
<td>Submit emission compliance test report to KCHIE</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Monthly Calculation of 12-month Totals of Startup/Shutdown Number and Hours</td>
<td>9</td>
<td>Monitor and record monthly startup/shutdown occurrences and hours</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
</tr>
<tr>
<td>Quarterly Operations Calculations</td>
<td>9</td>
<td>Check quarter total startup/shutdown operations</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
<td>1st</td>
</tr>
<tr>
<td>Quarterly Operations Report (only if necessary)</td>
<td>10</td>
<td>Submit report to KCHIE if startup/shutdown occurrences and hours &gt; 5% of limit</td>
<td>14th</td>
<td>14th</td>
<td>14th</td>
<td>14th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request Natural Gas Heating Value</td>
<td>11</td>
<td>Monthly request Natural Gas Heating Value from Natural Gas Supplier</td>
<td>31st</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhouse Gas Calculations (and Report only if necessary)</td>
<td>12</td>
<td>Calculate GHG emissions. Report if GHG emissions &gt; threshold</td>
<td>31st</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. Annual Air Emissions Inventory due date is March 1st each year. If March 1st falls on a weekend, then due date is the next business day following March 1st. Class II facilities must pay fees now. They will also be due at the same time.
2. Written notification and test protocol should be submitted to the KCHIE at least 30 days before scheduled emission compliance test.
3. Periodic emission compliance test of each RICE required every 6,780 operating hours or every 3 calendar years, whichever comes first. Emission compliance tests should be conducted according to the procedure described in NPSG Subpart JJJ, 40 CFR 694-696.
4. The initial emission compliance test was completed November 3, 2018 on Engine 1. Therefore, periodic emission compliance tests will be due before Engine 1 is operated 6,780 hours or 3 calendar years (November 3, 2021).
5. The emission compliance test report must be submitted by the close of business on the 50th day following the completion of the emission compliance test.
6. The initial emission compliance test was completed November 9, 2018 on Engine 2. Therefore, periodic emission compliance tests will be due before Engine 2 is operated 6,780 hours or 3 calendar years (November 9, 2021).
7. The initial emission compliance test was completed November 10, 2018 on Engine 3. Therefore, periodic emission compliance tests will be due before Engine 3 is operated 6,780 hours or 3 calendar years (November 10, 2021).
8. Operations and maintenance records of the number of starting and shutting operations of each of the three RICE as well as the hours associated with startups and shutdowns are to be kept and reported to the KCHIE. The record is to be updated monthly, no later than the last day of the month following the month in which the records were kept. (i.e., January's record would need to be updated by February 28th).
9. Quarterly report: at the end of each calendar quarter, the cumulative total number of startups/shutdowns and the cumulative startup/shutdown operations hours for the previous 4 calendar quarters must be compared to 50 percent of the 12-month limit to determine if the 4 calendar quarter totals exceed operational limits and must be reported to the KCHIE. The calculation must be completed and recorded by the end of the month following the calendar quarter. This is tracked in the Compliance Tracking Spreadsheet. The cells will be highlighted in yellow if the reporting is required.
10. Quarterly report: at the end of each calendar quarter, the cumulative total number of startups/shutdowns and the cumulative startup/shutdown operations hours for the previous 4 calendar quarters must be compared to 50 percent of the 12-month limit. If the quarterly total exceeds the operational limit, the quarterly total must be reported to the KCHIE. The calculation must be completed and recorded by the end of the month following the calendar quarter.
11. Request Natural Gas Heating Value from the Natural Gas Supplier twice per year. This is used in the GHG calculations.
12. Greenhouse gas (CO2, CH4, NOx) emissions must be calculated annually using the procedures described in 40 CFR 693 to demonstrate GHG emission levels are less than 25,000 metric tons. Reporting requirements are explained in the Compliance Tracking Spreadsheet. The reports are due by March 1st each year.
## Compliance Tracking Documents – Compliance Schedule

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Week(s)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine 3 Emission Compliance Test Notification/Protocol</td>
<td>2</td>
<td>Submit notification and protocol to KDHE prior to test</td>
</tr>
<tr>
<td>Engine 3 Periodic Emission Compliance Test</td>
<td>3, 7</td>
<td>Conduct emission compliance test on Engine 3</td>
</tr>
<tr>
<td>Engine 3 Periodic Emission Compliance Test Report</td>
<td>5</td>
<td>Submit emission compliance test report to KDHE</td>
</tr>
<tr>
<td>Monthly Calculation of 12-month Totals of Startup/Shutdowns</td>
<td>8</td>
<td>Monitor and record monthly startup/shutdown occurrences and hours</td>
</tr>
<tr>
<td>Quarterly Operations Calculations</td>
<td>9</td>
<td>Check 4 quarter total startup/shutdown operations</td>
</tr>
</tbody>
</table>
1. **Limitation or Standard:**

   The SCCT and the reciprocating engines are limited such that the following inequality is met:
   \[ 5.53 \times 10^{-7} (T) + 1.62 \times 10^{-2} (E_{\text{diesel}}) + 1.18 \times 10^{-3} (E_{\text{dual fuel}}) < 249 \text{ tons NO}_x \text{ per year} \]
   when any consecutive 12 month period.

   Where,
   
   - \( T \) is the kilowatt-hours generated by the turbine,
   - \( E_{\text{diesel}} \) is the kilowatt-hours generated by the reciprocating engines while burning straight diesel,
   - \( E_{\text{dual fuel}} \) is the kilowatt-hours generated by the reciprocating engines while burning dual fuel.

   [KDHE Construction Permit dated May 1, 2001, Permit Conditions No. 1.]

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**Limitation or Standard:**

Emissions of NOx from EU-BLR05 are limited to 40 tons per consecutive 365 day period as determined by the following inequality: [October 23, 1996 Construction Permit]

\[ 0.0385 \times 10^6 \times C_5 < 40 \]

\( C_5 = \text{cubic feet (cf) of natural gas burned in EU-BLR05 in each consecutive 365 day period} \)

40 = Forty (40) tons of emissions of NOx per consecutive 365 day period.
Compliance Tracking Documents – Compliance Tracking Spreadsheet

**Air Emission Source Construction Permit Tracking Requirements:**

**Limitation, Recordkeeping, and Reporting Requirements**

C. For each natural gas-fired 814SLB RICE, the owner or operator shall limit the **startups** to 1,825 occurrences and 913 hours; and the **shutdowns** to 1,825 occurrences and 30 hours, during each consecutive 12-month period.

<table>
<thead>
<tr>
<th>Engine #</th>
<th>Current 12 Month Total Startups (Limit 1,825)</th>
<th>Current 12 Month Total Shutdowns (Limit 1,825)</th>
<th>Current 12 Month Total Startup Time (Limit 1,825)</th>
<th>Current 12 Month Total Shutdown Time (Limit 30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine 8</td>
<td>43</td>
<td>43</td>
<td>21.5</td>
<td>0.7</td>
</tr>
<tr>
<td>Engine 9</td>
<td>42</td>
<td>42</td>
<td>21</td>
<td>0.7</td>
</tr>
<tr>
<td>Engine 10</td>
<td>36</td>
<td>36</td>
<td>18</td>
<td>0.6</td>
</tr>
</tbody>
</table>

B. If, at the end of any calendar quarter, the facility’s actual operations exceed 85% of the operational limitations (i.e., if the facility exceeds 1,551 occurrences of startups, 776 hours of startups, 1,551 occurrences of shutdowns, and 25 hours of shutdowns) for the past four calendar quarters, the owner or operator shall report the actual operations to the department for that period of time. This report shall be submitted to KDHE within 45 days of the last day of the month following the conclusion of the calendar quarter.

After data entry on January 1, April 1, July 1, and October 1 verify that none of the above 12 month totals are greater than 85% of the limit (if they are greater than 85% of the limit they will automatically become highlighted in yellow or red). If 85% of the limit is exceeded then report the amount to KDHE within 45 days.

C. The owner or operator shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution practice for minimizing emissions. In addition, the owner or operator shall conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance. [40 CFR 60.4243(b)(2)(ii)]

<table>
<thead>
<tr>
<th>Engine #</th>
<th>Date of Last Test</th>
<th>Hours of Operation Since Last Test</th>
<th>3 Years after Last Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine 8</td>
<td>November 8, 2016</td>
<td>0</td>
<td>November 9, 2019</td>
</tr>
<tr>
<td>Engine 9</td>
<td>November 9, 2016</td>
<td>0</td>
<td>November 10, 2019</td>
</tr>
<tr>
<td>Engine 10</td>
<td>November 10, 2016</td>
<td>0</td>
<td>November 11, 2019</td>
</tr>
</tbody>
</table>

Every month check that the hours of operation for each engine has not exceeded 8,760 hours since the last stack test. The cells will highlight in red at >7,500 hours. At this time or if it has been greater than 30 months since the last stack test it is advised that you begin the stack testing process. KDHE requires a 60 day notification prior to testing.
Compliance Tracking Documents – Compliance Tracking Spreadsheet

It is required to record each engine's monthly number of starts and operating hours. After the end of each month the latest month's data need to be entered into this spreadsheet using the following procedures:

(The procedures for finding this data is in the On-Going Air Quality Compliance Requirements Manual.)

1) Enter the previous month and year in cell A16. Data must be in the format of Month Year. For example, March of 2014 would be entered as March 2014.
2) Enter monthly total engine operating hours in Cells B16, D16, and F16.
3) Enter the number of starts from the VAMP system for each engine in Cells C16, E16, and G16. (The number of starts tracked in the VAMP system is a totalizer reading. The spreadsheet subtracts the current reading from the reading taken last month.)
4) Hit the "Enter" button on the keyboard then Click the Data Entry Button.
5) Save Spreadsheet

<table>
<thead>
<tr>
<th></th>
<th>Engine 8</th>
<th></th>
<th>Engine 9</th>
<th></th>
<th>Engine 10</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Month Year</td>
<td>Operating Hours</td>
<td>Starts</td>
<td>Operating Hours</td>
<td>Starts</td>
<td>Operating Hours</td>
<td>Starts</td>
</tr>
<tr>
<td>December 2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Month Year</td>
<td># of Startup and Shutdowns</td>
<td>Time in Startup</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------</td>
<td>----------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Engine 8 (# of Starts &amp; Shutdowns)</td>
<td>Engine 9 (# of Starts &amp; Shutdowns)</td>
<td>Engine 10 (# of Starts &amp; Shutdowns)</td>
<td>Engine 8 (Startup Time)</td>
<td>Engine 9 (Startup Time)</td>
<td>Engine 10 (Startup Time)</td>
</tr>
<tr>
<td>Date</td>
<td>Monthly Starts</td>
<td>12 Month Rolling</td>
<td>Monthly Starts</td>
<td>12 Month Rolling</td>
<td>Monthly Starts</td>
<td>12 Month Rolling</td>
</tr>
<tr>
<td>November 2016</td>
<td>45</td>
<td>43</td>
<td>42</td>
<td>42</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>December 2016</td>
<td>43</td>
<td>0</td>
<td>-42</td>
<td>0</td>
<td>-36</td>
<td>0</td>
</tr>
<tr>
<td>January 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>February 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>March 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>April 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>May 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>June 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>July 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>August 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>September 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>October 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>November 2017</td>
<td>0</td>
<td>-43</td>
<td>0</td>
<td>-42</td>
<td>0</td>
<td>-36</td>
</tr>
<tr>
<td>December 2017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Simple Compliance Tools

Standard Operating Procedures (SOPs)
Standard Operating Procedures (SOPs)

Figure 2.1 - Communication Settings Box

7. Each engine at the facility has a different network address. To access the data in the VAMP system for the desired engine, enter one of the following addresses into the “Network Address” field.

<table>
<thead>
<tr>
<th>Engine</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Address</td>
<td>10.1.40.35</td>
<td>10.1.40.55</td>
<td>10.1.40.75</td>
</tr>
</tbody>
</table>

8. Once the desired engine network address has been input into the field, click the “Apply” button.

9. Click the “Connect” button on the menu bar at the top of the screen. See Figure 2.2 for an example.
Standard Operating Procedures (SOPs)

1. Remove the cover that protects the screen.
2. Use the down arrow until “Runh” is the selected category on the left side of the screen.
3. Information will be displayed to the right of that column. The desired value is “Starts”. The number of shutdowns should be considered equal to the number of startups.

4. Replace the protective cover once information has been gathered.

Figure 2.3 - VAMP System Screen on Control Panel
Simple Compliance Tools

Compliance Calendar
Contact Information

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