

From: Chris Waltman
To: [DEQ-ROP](#)
Cc: [Kathryn S. Anderson](#); [Olivia I. Dawson-Olson](#); [Brad Stermer](#); [Jerry Castillo](#); [Richard Connor](#)
Subject: ANR REED CITY SRN B3721 ROP RENEWAL APPLICATION
Date: Friday, June 29, 2018 6:08:21 PM
Attachments: [4. ANR Reed City B3721 ROP Renewal Application 6-27-18 - Plans.pdf](#)
[1. ANR Reed City B3721 ROP Renewal Application 6-27-18 - Text and Forms.PDF](#)
[2. ANR Reed City B3721 ROP Renewal Application 6-27-18 ROP MARK-UP.docx](#)
[3. ANR-Reed City B3721 ROP Renewal Application 6-27-18 - Calcs.xlsx](#)

Dear Sir or Madam,

Attached is the Renewable Operating Permit (ROP) renewal application for ANR Pipeline Company Reed City Compressor Station. The Renewable Operating Permit (ROP) No. MI-ROP-B3721-2014a for the Reed City Compressor Station expires on February 6, 2019. As required under Section A.35 of the Reed City Station ROP, ANR is submitting this permit renewal application no later than 6 months prior to expiration of the permit or August 6, 2018. ANR Pipeline Company submits both the attached electronic forms of the application and two copies of ROP Application Package to the MDEQ Cadillac District Office, and thus requests that the determination of administrative completeness of the application be completed within 15 days of receipt of this hard copy version of the application by AQD.

Please find attached the renewal application including all necessary materials as listed below:

- ROP Application Form
- ROP mark-up
- Supplemental Data
- Plans referenced in the ROP

If you have any questions or comments concerning this request, please contact me at (715) 758-3341 or via email at chris_waltman@transcanada.com.

Sincerely,

Chris Waltman

Senior Environmental Specialist

Environmental Department

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ANR Pipeline Company

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June 29, 2018

Michigan Department of Environmental Quality – Air Quality Division
Cadillac District – Cadillac Office
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Re: Renewable Operating Permit Renewal Application
ANR Pipeline Company – Reed City Compressor Station
Reed City, MI
State Registration Number (SRN): B3721
ANR Pipeline Company

Dear Sir or Madam,

Enclosed is the Renewable Operating Permit (ROP) renewal application for ANR Pipeline Company for the Reed City Compressor Station. The Renewable Operating Permit (ROP) No. MI-ROP-B3721-2014a for the Reed City Compressor Station expires on February 6, 2019. As required under Section A.35 of the Reed City Station ROP, ANR is submitting this permit renewal application no later than 6 months prior to expiration of the permit or August 6, 2018. ANR Pipeline Company submits both the attached hard copy of the application and an electronic version of the ROP Application Package to DEQ-ROP@michigan.gov and thus requests that the determination of administrative completeness of the application be completed within 15 days of receipt of this hard copy version of the application by AQD.

Please find attached the renewal application including all necessary materials as listed below:

- ROP Application Form
- ROP mark-up
- Supplemental Data
- Plans referenced in the ROP

If you have any questions or comments concerning this request, please contact me at (715) 758-3341 or via email at chris_waltman@transcanada.com.

Sincerely,

Chris Waltman
TransCanada US Pipelines
Senior Environmental Specialist

ANR Pipeline Company
Reed City Compressor Station
Osceola County, Michigan

Title V Renewable
Operating Permit Application
Permit No.: MI-ROP-B3721-2014a

Prepared for:
ANR Pipeline Company



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Table of Contents

| | | |
|------------|---|------------|
| 1.0 | TECHNICAL SUPPORT DOCUMENTATION | 1-3 |
| 1.1 | Introduction | 1-3 |
| 1.2 | Process Description | 1-3 |
| 1.3 | Emissions Source Description | 1-4 |
| 1.3.1 | Compressor Engines (EURC002-EURC008, EURC011, EURC012) and Generator Engines (EURC019, EURC020) | 1-4 |
| 1.3.2 | Glycol Dehydration Systems (EURC015 and EURC024) | 1-4 |
| 1.3.3 | Gas Withdrawal Heaters (EURC016 and EURC017) | 1-5 |
| 1.3.4 | Boilers (EURC025, EURC027 and EURC028) | 1-5 |
| 1.3.5 | Insignificant Activities | 1-5 |
| 1.3.6 | Emissions Sources Exempt from Obtaining a Permit to Install | 1-6 |
| 1.3.7 | Single Source Determination | 1-6 |
| 1.4 | Permitting Summary and Compliance History | 1-7 |
| 1.5 | Federal and State Regulatory Review | 1-7 |
| 1.5.1 | Prevention of Significant Deterioration (PSD) | 1-7 |
| 1.5.2 | New Source Performance Standards (NSPS) | 1-8 |
| 1.5.3 | National Emission Standards for Hazardous Air Pollutants (NESHAP) | 1-9 |
| 1.5.4 | Compliance Assurance Monitoring (CAM) | 1-11 |
| 1.5.5 | Chemical Accident Prevention Provision and Risk Management Plan | 1-11 |
| 1.5.6 | Acid Rain Regulation | 1-12 |
| 1.5.7 | Michigan State Air Pollution Control Rules (R336) | 1-12 |
| 1.6 | Proposed Changes To Existing Renewal Operating Permit | 1-13 |
| 1.7 | Summary | 1-14 |
| 2.0 | APPLICATION FORMS | 2-1 |
| 2.1 | Renewable Operating Permit Renewal Application Form | 2-1 |
| 2.2 | AI-001 – Additional Information for Part C of the ROP Renewal Application Form | 2-1 |

Table of Contents (Cont.)

APPENDICES

- A Area Maps and Process Flow Diagrams
- B Emission Calculations
- C Permit Mark-up of ROP No.: MI-ROP-B3721-2014a
- D Plans Referenced within the ROP

1.0 Technical Support Documentation

1.1 INTRODUCTION

ANR Pipeline Company (ANR) owns and operates several facilities in Michigan that are used in both natural gas transmission and storage. The function of some of the ANR compressor stations, including Reed City Compressor Station, is to maintain pressure in pipelines to transport natural gas to other ANR companies and end users. The ANR Reed City Compressor Station (Reed City Station) is a natural gas storage and transmission station that operates nine (9) compressor engines and two (2) glycol dehydration systems. The ANR Reed City Station is located at 7677 230th Avenue, near Reed City, Michigan in Osceola County.

The Title V regulations established emission thresholds of 100 tons per year (tpy) for all criteria pollutants and 25 tpy for total Hazardous Air Pollutants (HAPs) or 10 tpy for an individual HAP to classify a stationary source as major. The Reed City Station is considered a Title V Part 70 major source due to CO, NO_x, VOC, and total HAP emissions in excess of the applicability threshold.

The Renewable Operating Permit (ROP) No. MI-ROP-B3721-2014a for the Reed City Station expires on February 6, 2019. As required under Section A.35 of the Reed City Station ROP, ANR is submitting this permit renewal application no later than 6 months prior to expiration of the permit or August 6, 2018. Therefore, according to R336.1210(7), this is considered a timely renewal application and the station will be authorized to continue to operate until Michigan Department of Environmental Quality (MDEQ) takes final action on this application. There have been no new Permits to Install (PTI) issued by MDEQ since the issuance of the current ROP (MI-ROP- B3721-2014a), however a Minor Permit Modification Application was submitted in October 2017 and the ROP has not yet been reissued to reflect the update. This ROP renewal application is comprised of the following information:

- ▲ Section 1 consists of technical support documentation;
- ▲ Section 2 consists of the ROP renewal application forms;
- ▲ Appendix A consists of the area maps and process flow diagrams;
- ▲ Appendix B contains the emission calculations;
- ▲ Appendix C contains a mark-up of the current Reed City Station ROP; and
- ▲ Appendix D contains all plans referenced within the ROP, as required by Question C10 of the ROP Renewal Application Form.

1.2 PROCESS DESCRIPTION

The Reed City Station is a natural gas transmission and compressor station which operates two natural gas storage fields, the Loreed and the Reed City Stray Storage Fields. The station is located approximately four miles northwest of Reed City in the northeast part of Section 30 Lincoln Township (T18N-R10W). Figure 1 in Appendix A illustrates the location of the Reed City Compressor Station, the Reed City Stray Storage Field, the Loreed Storage Field, and surrounding geographical features. Figure 2-1 in Appendix A shows the general process flow diagram for the Reed City Station.

The Reed City Station operates under varying conditions. The pipeline transports natural gas to and from the storage reservoirs and typically operates between 400 and 1800 psig.

During gas withdrawal, gas withdrawn from the Reed City Stray Storage Field and the Loreed Storage Field must be conditioned through the two glycol dehydration systems, one at each storage field, in order to remove liquids that are transported out of the reservoir with the gas and return the gas to pipeline quality before the gas is compressed using the various engines on-site. During injection to the storage reservoirs, natural gas free flows into the reservoir until the field pressure approaches pipeline pressure. At this point, one or more engines are used to compress the natural gas into the reservoir. Compression injection usually continues until the field reaches its maximum rated pressure. The station utilizes nine natural gas-fired engines for transmission and processing. Depending on storage and delivery contracts, gas availability, and demand by end-users, the engines may operate simultaneously, independently, or not at all.

1.3 EMISSIONS SOURCE DESCRIPTION

The Reed City Station consists of nine natural gas-fired internal combustion compressor engines, two natural gas-fired generators, two glycol dehydration systems, three natural gas-fired boilers, two natural gas-fired withdrawal heaters, and various exempt sources such as a flare, and storage tanks.

1.3.1 Compressor Engines (EURC002-EURC008, EURC011, EURC012) and Generator Engines (EURC019, EURC020)

As indicated previously, the Reed City Station utilizes nine natural gas fired compressor engines to compress natural gas into or withdraw gas from the Reed City Stray or the Loreed Storage Fields. Of the nine engines, seven are used to compress gas from either storage field: four 1000 Hp, 4-stroke lean burn (4SLB) White Superior engines (EURC002-EURC005), two 2000 Hp, 4SLB, Ingersoll-Rand engines (EURC006 & EURC007), and the 8600 Hp, 2SLB, Clark TCVD engine (EURC008). Two 660 Hp 4-stroke rich burn (4SRB) White Superior engines (EURC011 & EURC012) are used to compress gas separated at the condensate batteries directly into the pipeline. Two 4-stroke rich burn (4SRB) emergency generators (EURC019 and EURC020) were installed to provide power to the station in the event of a power outage. The Caterpillar G379 is 355 hp, and the Waukesha L616GSIU is 475 hp. All of the engines fire exclusively pipeline quality natural gas. Depending on storage and delivery contracts, gas availability, and demand by end users, the engines may operate simultaneously, independently, or not at all. The Clark engine was installed in 1973, while the other compressor engines were installed between 1963 and 1965. The emergency generators were installed in 1973 and 1979. Air use permits were not required at the time of installation.

Emissions from the engines are estimated and included in Appendix B. It should be noted that all emissions are estimated for representation purposes only and are not intended to convey any limitations or restrictions.

1.3.2 Glycol Dehydration Systems (EURC015 and EURC024)

The Reed City Compressor Station services two storage fields. The Loreed storage field is serviced by a glycol dehydration system (EURC015) and the Reed City stray storage field is serviced by a glycol dehydration system (EURC024). The Reed City Stray System was installed in 1979 and is located on the east side of 230 Avenue County Road. The Loreed system was installed in 1968 and is located in the compressor station yard. The glycol dehydration systems remove liquids from the natural gas withdrawn from the reservoir. This action is necessary to return the gas to pipeline quality. Moist natural gas enters the bottom

of the absorber where it is contacted counter currently with lean triethylene glycol (TEG). The dried gas then exits the top of the absorber. The rich glycol exits the bottom of the absorber and proceeds to a flash vessel. During the absorption process, a minor amount of natural gas is absorbed by the glycol. The flash vessel separates most of the absorbed natural gas. At the Loreed storage field, vapors generated in the flash tank are routed to a flare. After passing through a series of heat exchangers and filters, the rich glycol enters a still column and reboiler/surge tank where the absorbed water is distilled from the glycol. The lean glycol from the surge tank is pumped back to the absorber. Water removed from the natural gas is condensed from the still column and collected in a vessel. A typical flow diagram showing glycol dehydration is included as Figure 2-2 in Appendix A.

1.3.3 Gas Withdrawal Heaters (EURC016 and EURC017)

The Reed City Station uses two natural gas-fired withdrawal heaters. The withdrawal heaters are used during free flow gas withdrawal stage to pre-heat the gas stream prior to pressure regulation. EURC016 has a rated output of 25.5 MMBtu/hr and EURC017 has a rated output of 25.54 MMBtu/hr.

1.3.4 Natural Gas Combustion Units (EURC027 and EURC028)

The Reed City Station operates three natural gas-fired combustion units. Two of the units, EURC027 and EURC028, are boilers that provide process heat and each have a rated heat output of 2.97 MMBtu/hr, each.

EURC027 and EURC028 replaced EURC001, a Kewanee natural gas-fired boiler rated at 8.00 MMBtu/hr. ANR Pipeline Company submitted an Operational Flexibility Notification to authorize the removal of EURC001 and an Off-Permit Change Notification to authorize the installation of the EURC027 and EURC028 boilers on September 21, 2017. ANR Pipeline Company submitted a Minor Permit Modification Application in October of 2017 to update the ROP to incorporate EURC026 and EURC027 into the permit. The ROP has not yet been reissued to reflect the update. Please note that the minor permit modification application misidentified the new boilers as EURC026 and EURC027. The new boilers are actually to be identified as EURC027 and EURC028.

EURC025 with a rated output of 0.125 MMBtu/hr meets the definition of a hot water heater and has. Therefore, this combustion unit is not subject to the Boiler MACT and it is proposed to be listed as an exempt emission unit. See the discussion in Section 1.6 of this document.

1.3.5 Insignificant Activities

Activities identified as “insignificant” pursuant to R 336.1212 (2) do not need to be included in an administratively complete application for a renewable operating permit. These activities do not significantly contribute to the actual emissions or the potential to emit. The following activities, identified under R 336.1212 (2) as insignificant, may be performed at the Reed City Station:

- ▲ Repair and maintenance of grounds and structures (including painting, welding, etc.);
- ▲ All activities and changes pursuant to sections (a) through (f) of Rule 285, Permit to install exemptions; miscellaneous, unless any compliance monitoring requirements in the renewable operating permit would be affected by the change;

- ▲ All activities and changes pursuant to sections (f) through (h) of Rule 287, Surface coating equipment, unless any compliance monitoring requirements in the renewable operating permit would be affected by the change;
- ▲ Use of office supplies;
- ▲ Use of housekeeping and janitorial supplies;
- ▲ Sanitary plumbing and associated stacks or vents;
- ▲ Temporary activities related to the construction or dismantlement of buildings, utility lines, pipelines, wells, earthworks, or other structures;
- ▲ Storage and handling of drums or other transportable containers that are sealed during storage and handling;
- ▲ Fire protection equipment, firefighting and training in preparation for fighting fires (prior approval by the department for open burning associated with training in preparation for fighting fires will be obtained pursuant to R 336.1310);
- ▲ Use, servicing, and maintenance of motor vehicles, except where the activity is subject to an applicable requirement;
- ▲ Construction, repair, and maintenance of roads or other paved or unpaved areas, except where the activity is subject to an applicable requirement;
- ▲ Piping and storage of natural gas, including venting from pressure relief valves and purging of gas lines; and
- ▲ Compressor unit oil demisters.

1.3.6 Emissions Sources Exempt from Obtaining a Permit to Install

Certain processes and process equipment exempt by state rule from obtaining a PTI may be subject to inclusion in the ROP application. The guidelines for determining whether an exempt process or process equipment must be included in the ROP application are summarized as follows:

- ▲ Process or process equipment exempt under R336.1212(3) need not be included in the ROP application, provided there are no applicable requirements;
- ▲ Process or process equipment exempt under R336.1212(4) need to be listed in the ROP application as Exempt Devices, provided there are no process-specific emission limitations or standards; and,
- ▲ If a process or process equipment identified as exempt under 212(3) or 212(4) has an applicable requirement with a process-specific emission limitation or standard, it must be included as an emission group in the ROP.

There are several sources at the Reed City Station that qualify for the above exemptions. These sources are also exempt from the requirement of obtaining a PTI. These sources are identified in Section D of the ROP Renewal Application Form included in Section 2 of the application.

1.3.7 Single Source Determination

ANR Pipeline Company operates a number of support facilities along the pipeline near the Reed City Compressor Station. Near the Reed City Station, ANR Pipeline operates several

Tank Batteries for further storage and processing of liquids separated from the natural gas and several Saltwater Stations for storage and disposal of water/brine from the same process. These satellite areas include Tank Batteries #1 - #3, the State Brine Disposal Site, the Sweet Brine Disposal Site, the Morrison Brine Disposal Well, and the Walker Brine Disposal Site. Historically, ANR Pipeline has identified the heaters at the Tank Batteries, and the engines at the Saltwater Stations as insignificant activities at the Reed City Station that are exempt from permitting.

However, the definition of a major source at 40 CFR 71.2 was revised on August 2, 2016 and now states that "For onshore activities belonging to Standard Industrial Classification (SIC) Major Group 13: Oil and Gas Extraction, pollutant emitting activities shall be considered adjacent if they are located on the surface site; or if they are located on surface sites within a quarter mile of one another (measured from the center of the equipment on the surface site) and they share equipment."

In order to be considered a single source in determining major source status, sites must be adjacent. None of the four Saltwater Stations or three Tank Battery areas near the Reed City Station are within one quarter mile of the facility, as shown on Figure 3 in Appendix A. These sources are not considered part of the Reed City Station in permitting of the Station.

1.4 PERMITTING SUMMARY AND COMPLIANCE HISTORY

There have been no administrative or judicial actions taken against ANR within the past five years pertaining to operation of the Reed City Station. There are currently no outstanding violations of state or federal environmental laws or regulations at the Reed City Station. There have been no new PTI issued by MDEQ since the issuance of the initial ROP effective date. Since its issuance, ANR has complied with the terms and conditions of the existing ROP.

1.5 FEDERAL AND STATE REGULATORY REVIEW

The Reed City Station is subject to a variety of federal and state air quality regulations which are discussed in this section.

1.5.1 Prevention of Significant Deterioration (PSD)

The Prevention of Significant Deterioration (PSD) applicability is triggered by construction of a "major stationary source" or "major modification" to an existing major stationary source. PSD regulations in 40 CFR 52.21 define a major source as any source type (belonging to a list of 28 categories) that emits or has the potential to emit 100 tpy or more of any regulated pollutant under the CAA, or any other source type that emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy [40 CFR 52.21 (b)(1)(i)(b)]. The potential to emit is based on the maximum design capacity of a source, subject to federally enforceable permit limitations (e.g., limits on annual hours of operation) and takes into account pollution control efficiency.

Reed City Compressor Station is not subject to PSD regulations because the process equipment was constructed/installed prior to the promulgation of the PSD regulations. Therefore, information regarding the ambient air impacts of criteria pollutants is not required and is not addressed herein. Future modifications of the process equipment may be subject to PSD requirements.

1.5.2 New Source Performance Standards (NSPS)

NSPS contained in 40 CFR 60 require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the relevant regulations. The following NSPS regulations were reviewed and all were confirmed to be non-applicable to the Reed City Station. The results of this review are summarized by regulatory citation in Table 1.5.2-1 below.

Table 1.5.2-1 NSPS Regulatory Review

| Regulatory Citation | Non-Applicability Determination |
|--|--|
| 40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units | This standard is not applicable to the Reed City Station because there are no natural gas-fired boilers with a design heat input capacity of 2.9 MW (10 MMBtu/hr) or greater. |
| 40 CFR 60 Subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973 and prior to May 19, 1978 | There are no petroleum storage vessels with capacity greater than 40,000 gallons at this facility. Therefore, this regulation is not applicable. |
| 40 CFR 60 Subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and prior to July 23, 1984 | There are no petroleum storage vessels with capacity greater than 40,000 gallons at this facility. Therefore, this regulation is not applicable. |
| 40 CFR 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 | There are no volatile organic liquid storage vessels with capacity greater than 75 cubic meters at this facility. Therefore, this regulation is not applicable. |
| 40 CFR 60 Subpart KKK-Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants | This regulation is not applicable to the Reed City Station because the facility is not a natural gas processing plant as defined in the regulation. |
| 40 CFR 60 Subpart LLL - Standards of Performance for Onshore Natural Gas Processing: SO ₂ Emissions | The Reed City Station processes natural gas but does not operate a sweetening unit or a sulfur recovery unit. Therefore, this regulation is not applicable. |
| 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE) | The Reed City Station does not operate any stationary CI ICE; therefore, this regulation does not apply. |
| 40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE) | The engines at the Reed City Station were constructed prior to June 12, 2006 and have not been modified or reconstructed since June 12, 2006. Therefore, this regulation does not apply. |

1.5.3 National Emission Standards for Hazardous Air Pollutants (NESHAP)

Federal NESHAP regulations promulgated pursuant to Section 112 of the CAA are found in 40 CFR Parts 61 and 63. In general, NESHAP, or Maximum Achievable Control Technology (MACT) standards apply to major stationary sources of HAP emissions, defined as potential-to-emit of 10 tons or more per year of any single HAP or 25 tons or more per year of any combination of HAP and minor stationary sources of HAP emissions (thresholds less than a major source). The Reed City Station is considered a major source of HAPs due to potential total HAPs emissions that exceed 25 tpy, and potential formaldehyde emissions that exceed 10 tpy. Potentially applicable NESHAPs are discussed below.

40 CFR 61 Subpart M - National Emission Standard for Asbestos

The Reed City Station may at times engage in demolition and/or renovation activities involving asbestos-containing materials (ACM). Therefore, the facility could be potentially subject to Subpart M, Standards for Demolition and Renovation (40 CFR 61.145). Procedures are in place to ensure the facility complies with these standards.

40 CFR 63 Subpart HH - NESHAP from Oil and Natural Gas Production Facilities

This regulation is not applicable to the Reed City Station because the facility is a transmission and storage facility and is not an oil and gas production facility as defined in this regulation.

40 CFR 63 Subpart HHH - NESHAP from Natural Gas Transmission and Storage Facilities

40 CFR 63 Subpart HHH establishes national emission limitations and operating limitations for natural gas transmission and storage facilities that are major sources of HAP emissions. The rule affects facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final user. The Reed City Station is a natural gas compression and storage facility and is potentially subject to this regulation. The facility is a major source of HAPs and operates two glycol dehydration units (affected sources). However, the General Standard cited under Subpart 63.1274(d)(2) allows for an exemption from the requirements associated with the rule if actual average emissions of benzene from the glycol dehydration unit process vents to the atmosphere are less than 0.90 megagram per year. Reed City's dehydration units qualify for the exemption because the benzene emissions are less than 0.90 megagrams (1.1 tons) per year. The existing Title V Permit limits benzene emission to less than one ton per year for both dehydration units. The Reed City Station is in compliance with this requirement and will continue to comply.

40 CFR 63 Subpart EEEE – NESHAP for Organic Liquids Distribution (non-Gasoline)

40 CFR 63 Subpart EEEE was promulgated on August 25, 2003 and applies to organic liquids distribution (OLD) operations that are located at, or are part of, a major source of hazardous air pollutant (HAP) emissions as defined in section 112(a) of the Clean Air Act. This regulation does not apply to the tanks or loading operations at the Reed City Station because per 40 CFR 63.2334(c)(2), OLD operations located at Natural Gas Transmission and Storage facilities as defined in 40 CFR 63 Subpart HHH are exempt from the requirements of 40 CFR 63 Subpart EEEE (OLD MACT).

40 CFR 63 Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE)

40 CFR 63 Subpart ZZZZ regulates HAP emissions from existing, new, and reconstructed stationary compression ignition (CI) and spark ignition (SI), emergency and non-emergency, RICE located at major and area sources of HAP emissions. This standard is potentially applicable to the Reed City Station because the facility is a major source for HAP emissions and operates reciprocating internal combustion engines. Six (6) of the nine (9) non-emergency compressor engines (EURC002- EURC007) are existing (constructed prior to December 19, 2002) 4-stroke lean-burn RICE with site ratings greater than 500 hp. Per 63.6600(c), existing four-stroke lean burn stationary RICE located at a major source of HAP with a site rating of more than 500 hp do not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d or operating limitations in Tables 1b and 2b.

One (1) of the nine (9) non-emergency compressor engines is an existing two-stroke lean burn RICE with a site rating of 8,600 hp (EURC008). The standard exempts existing, two-cycle, lean burn RICE with greater than 500 hp located at a major source of HAP emissions from the emission and operating limitations of the regulation (40 CFR §63.6600(c)). Therefore, EURC008 is exempt from the emission and operating limitations in Subpart ZZZZ.

The last two (2) of the nine (9) non-emergency compressor engines are four-stroke rich burn engines rated at 660 hp (EURC012 and EURC013). Per 63.6600(a), existing, spark ignition 4SRB stationary RICE with a site rating of more than 500 brake hp located at a major source of HAP emissions, must comply with the emission limitations in Table 1a and the operating limitations in Table 1b. These conditions are currently included in the existing Operating permit. The Reed City Station is in compliance with these requirements and will continue to comply.

The facility's two natural gas-fired emergency generators (355 hp & 475 hp) are existing (installed in 1973 and 1979) four-stroke rich burn engines. As such, the rule imposes monitoring, recordkeeping, and maintenance requirements; however, there are no emission or operating limitations imposed by the regulation for emergency SI RICE less than 500 hp. These conditions are currently included in the existing Operating permit. Reed City Station is in compliance with these requirements and will continue to comply.

40 CFR 63 Subpart DDDDD – NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters

The Industrial/Commercial/Institutional Boilers and Process Heaters MACT for major sources was promulgated on March 21, 2011, and regulates HAP emissions from new and existing industrial, commercial, or institutional boilers and process heaters located at major sources of HAP emissions. The EPA subsequently issued a notice on May 18, 2011 to postpone the effective dates of the final rule until the completion of reconsideration or judicial review, whichever is earlier. On January 9, 2012, the EPA vacated the May 18, 2011 notice that delayed the effective dates of the Boiler MACT rule.

This rule is potentially applicable to the boilers and process heaters located at Reed City, since the Station is a major source of HAP.

Four of the units (EURC016, EURC017, EURC027 and EURC028) are classified as new gaseous fueled boilers and process heaters and are also subject to performance tune-up and reporting requirements. Frequency of tune-ups and reporting is based on heat input capacity of the equipment. These conditions are currently included in the existing Operating permit for EURC016 and EURC 017. ANR submitted a Minor Permit Modification Application in October 2017 to update the ROP to reflect requirements for EURC027 and EURC028 at the Reed City Station. The ROP has not yet been reissued to reflect the update. The Reed City Station will continue to comply with the applicable requirements of this regulation.

EURC025 with a rated output of 0.125 MMBtu/hr, is used for maintenance purposes only, and meets the Boiler MACT definition of a hot water heater. Therefore, EURC025 is not subject to the Boiler MACT and it is proposed to be listed as an exempt emission unit. See the discussion in Section 1.6 of this document for additional information.

Subpart JJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers Area Sources

The Industrial/Commercial/Institutional Boilers and Process Heaters for area sources was promulgated on March 21, 2011, and regulates HAP emissions from industrial, commercial, or institutional boilers located at area sources of HAP emissions. The Reed City Station is a major source of HAP; therefore, this regulation does not apply.

1.5.4 Compliance Assurance Monitoring (CAM)

Compliance Assurance Monitoring (CAM) is applicable to sources that have a potential to emit in excess of major source thresholds, not considering "tailpipe" emission controls, and use an "active" control device to achieve compliance with the emission limit. Combustion controls may be considered in evaluating the potential to emit.

The emissions of NO_x and formaldehyde from the nine natural gas fired compressor engines are in excess of the appropriate major source thresholds. However, these units do not employ an active device to control these emissions.

The two glycol dehydration units at the Reed City Station are subject to VOC emission limitations and use a condenser and/or a thermal oxidizer to achieve compliance with the VOC emission limitations. However, the potential pre-controlled emissions of VOC from the glycol dehydration unit are below the major source threshold of 100 tpy, and the units are subject to federally enforceable emission limits.

The two glycol dehydration units at the Reed City Station are also subject to Benzene emission limitations and use a condenser and/or a thermal oxidizer to achieve compliance with the Benzene emission limitations. The emissions of benzene from the glycol dehydration unit process vents are less than 1 ton (0.90 megagram) per year, and the units are subject to federally enforceable emission limits.

Therefore, there are no units at the Reed City Station that are subject to CAM.

1.5.5 Chemical Accident Prevention Provision and Risk Management Plan

The Reed City Station is not subject to the Chemical Accident Prevention Provisions of 40 CFR Subpart 68. Applicability to this regulation is based on the type and quantity of certain regulated substances stored at a facility, and the Reed City Station does not exceed the

applicability thresholds (40 CFR 68.10). The facility is not considered a stationary source under 40 CFR 68.3 (Chemical Accident Prevention) because it is regulated under 49 CFR 192, DOT.

1.5.6 Acid Rain Regulation

The Reed City Station is not subject to the federal acid rain regulations found in 40 CFR Parts 72 through 77 because the Station does not own or operate an affected unit as defined in 40 CFR part 72.6.

1.5.7 Michigan State Air Pollution Control Rules (R336)

The following paragraphs discuss the general compliance with various relevant Michigan state air pollution control rules.

Part 2 – Air Use Approval

This part requires facilities in Michigan to obtain a permit to install prior to installation, construction, reconstruction, relocation, or modification of any process or process equipment, including associated control equipment, that has the potential to emit any pollutant to the atmosphere. In addition, some facilities are required to obtain a renewable operating permit.

All processes or process equipment at this facility either have a permit to install or qualify under one of the various exemptions provided in the rule. This facility was also required to obtain a renewable operating permit. A complete and timely application was originally submitted in 1997 and a ROP was issued in 2001. The most recent renewal application was submitted in May 2012 and the ROP was issued on February 6, 2015. This application is being submitted in order to renew this renewable operating permit.

Part 3 – Emission Limitations and Prohibitions- Particulate Matter

The processes and the process equipment at this facility will be subject to the visible emission limitations specified in R336.1301(1). All sources at the facility will be operated in compliance with these requirements. It should be noted that for natural gas-fired fuel burning equipment, compliance with this requirement is demonstrated by using pipeline quality natural gas.

R336.1331 of this part limits the emissions of particulate matter from a process or process equipment. This facility does not operate any sources listed in Table 31. The rule also establishes a particulate matter emission limit based on a process weight rate. However, no particulate matter emissions, other than fuel combustion sources, are anticipated from the processes at this facility. Therefore, the rule is not currently applicable to the facility.

Part 4 – Emissions Limitations and Prohibitions- Sulfur-Bearing Compounds

R336.1403 limits emissions of sour gas from an oil- or natural gas-producing or transporting facility, of a natural gas-producing facility. This facility does not handle sour gas. Therefore, this part is not applicable.

Part 6 – Emission Limitations and Prohibitions- Existing Sources of Volatile Organic Compound Emissions

This part limits emissions of volatile organic compounds from various sources including storage vessels, loading facilities, and natural gas processing plants. The facility is in compliance with all the applicable requirements of this regulation. R336.1629 requires a monitoring program to control emissions of volatile organic compounds from components of existing process equipment used in natural gas processing. The rule only applies to facilities located in Kent, Livingston, Macomb, Monroe, Muskegon, Oakland, Ottawa, St. Clair, Washtenaw, and Wayne Counties. This facility is not a natural gas processing plant and is not located in one of the counties listed above. Therefore, the rule does not apply.

Part 7 – Emission Limitations and Prohibitions- New Sources of Volatile Organic Compound Emissions

This part limits emissions of volatile organic compounds from all new sources. A “new source” is defined as a process or process equipment which is either placed into operation on or after July 1, 1979, or for which a permit to install is made to the DEQ on or after July 1, 1979. Some of the sources at the facility may be subject to this regulation. The facility is in compliance with all the applicable requirements of this regulation.

Part 9 – Emission Limitations and Prohibitions- Miscellaneous

Part 9 specifies numerous miscellaneous limitations and prohibitions. Rule 336.1911 requires the facility to develop a malfunction abatement plan if and when requested by the department. The facility will develop and implement a malfunction abatement plan upon receipt of such request from the department.

Part 10 – Intermittent Testing and Sampling

Part 10 allows the department to require the owner or operator of a source to conduct performance tests using reference test methods or the department to conduct the tests on behalf of the state. Upon receipt of any such request from the department, the facility will conduct the specified performance test within the established time lines and following the agreed upon reference test methods. If the department intends to perform the test, the owner or operator will provide the necessary performance test facilities.

1.6 PROPOSED CHANGES TO EXISTING RENEWAL OPERATING PERMIT

As requested in the October 2017 Minor Permit Modification application, ANR would like to remove all references to EURC001 from the operating permit, which is currently listed in the FGMACTDDDDDD-EXISTINGGAS1 flexible group.

In addition, it is proposed the other boiler listed in the FGMACTDDDDDD-EXISTINGGAS1 flexible group, EURC025, be removed from the permit and instead identified as an exempt unit under R336.1212(4). EURC025 is a water heater of less than 120 gallons that has a heat input of 0.125 MMBtu/hr. Upon a site walk down as part of the permit renewal application process, it was identified the water heater is only used to provide hot water for a car wash and to fill water tanks that are used to thaw frozen pipes in the yard. As it is not a process heater and meets the definition of hot water heater as defined in 40 CFR 63 Subpart DDDDD, EURC025 is not subject to the Boiler MACT. Therefore, ANR is proposing that EURC025 be corrected as an exempt unit and removed from the ROP. In addition, ANR is requesting to remove the FGMACTDDDDDD-EXISTINGGAS1 flexible group from the permit as there will no longer be any units in this group.

ANR would like to add in the two new boilers that replaced EURC001 and all applicable requirements for the new boilers. The new boilers are identified as EURC027 and EURC028 and have a heat input capacity of 2.97 MMBtu/hr each. The boilers will be a part of the flexible group FGMACTDDDDDD-NEWGAS1 containing requirements for new boilers subject to NESHAP Subpart DDDDD. New boilers subject to the Boiler MACT are required to perform tune-ups and submit subsequent compliance reports at a schedule determined by the heat input capacity of the boiler. The units already in this flexible group (EURC016 and EURC017) each have heat input capacities greater than 10 MMBtu/hr, requiring tune-ups and compliance reports at an annual frequency. EURC027 and EURC028 have a heat input capacity of 2.97 MMBtu/hr each, which requires the facility to perform tune-ups of the boilers and submit compliance reports every 5 years. ANR has proposed adding language with the 5-year frequency of tune-ups and reports based on heat input capacity to the FGMACTDDDDDD-NEWGAS1 flexible group. ANR also proposes to replace the language in this flexible group to reflect the new Boiler MACT template issued by Michigan DEQ.

Additionally, ANR proposes modification to the FGMACTZZZZ flexible group language to include the optional formaldehyde emission limit provided under 40 CFR 63.6600(a). The requirement allows engines to meet a 76% or more reduction in formaldehyde emission limits or limit the concentration of formaldehyde in the engine exhaust to 350 ppbvd or less at 15 percent O₂. While the former limit was included in the permit, ANR has proposed language adding the latter limit to the FGMACTZZZZ flexible group.

A mark-up of the current ROP with the above proposed changes is included in Appendix C.

1.7 SUMMARY

This document contains all the necessary elements for ANR to meet the requirements for a complete ROP renewal application under the MDEQ rules and guidance. ANR requests that this renewal application be reviewed and a draft ROP be issued at the earliest convenience.

2.0 Application Forms

2.1 RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

2.2 AI-001 – ADDITIONAL INFORMATION FOR PART C OF THE ROP RENEWAL APPLICATION FORM



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, “Renewable Operating Permits (ROP)/Title V”, then “ROP Forms & Templates”).

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

| | | | | |
|--|------------------|----------------------|---|--------------------------------|
| SRN B3721 | SIC Code 4922 | NAICS Code 486210 | Existing ROP Number MI-ROP-B3721-2014a | Section Number (if applicable) |
| Source Name ANR Pipeline Company – Reed City Compressor Station | | | | |
| Street Address 7677 230 th Avenue | | | | |
| City Reed City | State MI | ZIP Code 49677 | County Osceola | |
| Section/Town/Range (if address not available) | | | | |
| Source Description The ANR Pipeline Company owns and operates several sites in Michigan including facilities used in both natural gas transmission and storage. This facility is a compressor station that has a function of maintaining pressure in pipelines transporting natural gas from ANR’s southwest mainline to storage facilities located in Michigan or to local distribution companies. The Reed City Compressor Station operates two storage fields, nine natural gas-fired internal combustion compressor engines, two glycol dehydration systems, two natural gas-fired generators, three natural gas-fired boilers, and two natural gas-fired withdrawal heaters. The station also operates exempt sources such as various tanks and a flare. | | | | |
| <input checked="" type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP. See Part E of this form, and Section 1.6 of application text for details. | | | | |

OWNER INFORMATION

| | | | | |
|--|--------------------------------|-------------------|------------------|----------------|
| Owner Name ANR Pipeline Company | Section Number (if applicable) | | | |
| Mailing address (<input type="checkbox"/> check if same as source address) 700 Louisiana Street, Suite 700 | | | | |
| City Houston | State TX | ZIP Code 77002 | County Harris | Country USA |

Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

| | |
|------------|---------------------------------|
| SRN: B3721 | Section Number (if applicable): |
|------------|---------------------------------|

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

| | | | | |
|--|-------------|---|-------------------|----------------|
| Contact 1 Name Mr. Christian Waltman | | Title Senior Environmental Specialist | | |
| Mailing address (<input type="checkbox"/> check if same as source address) N4956 Oakcrest Dr | | | | |
| City Bonduel | State WI | ZIP Code 54107 | County Shawano | Country USA |
| Phone number 715-758-3341 | | E-mail address chris_waltman@transcanada.com | | |

| | | | | |
|---|----------------|----------|--------|---------|
| Contact 2 Name (optional) | | Title | | |
| Mailing address (<input type="checkbox"/> check if same as source address) | | | | |
| City | State | ZIP Code | County | Country |
| Phone number | E-mail address | | | |

RESPONSIBLE OFFICIAL INFORMATION

| | | | | |
|--|-------------|---|-------------------|----------------|
| Responsible Official 1 Name Mr. Richard Connor | | Title Director, US Pipeline Operations, Great Lakes Region | | |
| Mailing address (<input type="checkbox"/> check if same as source address) 11039 150 th Ave | | | | |
| City Big Rapids | State MI | ZIP Code 49307 | County Mecosta | Country USA |
| Phone number 231-527-2122 | | E-mail address Richard_connor@transcanada.com | | |

| | | | | |
|---|----------------|----------|--------|---------|
| Responsible Official 2 Name (optional) | | Title | | |
| Mailing address (<input type="checkbox"/> check if same as source address) | | | | |
| City | State | ZIP Code | County | Country |
| Phone number | E-mail address | | | |

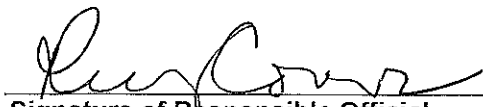
| |
|---|
| <input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID: |
|---|

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

| Listing of ROP Application Contents. Check the box for the items included with your application. | |
|--|---|
| <input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required) | <input type="checkbox"/> Compliance Plan/Schedule of Compliance |
| <input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required) | <input type="checkbox"/> Stack information |
| <input type="checkbox"/> Copies of all Permit(s) to Install that have not been incorporated into existing ROP (required) | <input type="checkbox"/> Acid Rain Permit Initial/Renewal Application |
| <input checked="" type="checkbox"/> HAP/Criteria Pollutant Potential to Emit Calculations | <input type="checkbox"/> Cross State Air Pollution Rule (CSAPR) Information |
| <input type="checkbox"/> MAERS Forms (to report emissions not previously submitted) | <input type="checkbox"/> Confidential Information |
| <input type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP | <input checked="" type="checkbox"/> Paper copy of all documentation provided (required) |
| <input type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan | <input checked="" type="checkbox"/> Electronic documents provided (optional) |
| <input checked="" type="checkbox"/> Other Plans (e.g. Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.) | <input type="checkbox"/> Other, explain: |

| Compliance Statement | |
|---|---|
| This source is in compliance with <u>all</u> of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| This source will meet in a timely manner applicable requirements that become effective during the permit term. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP. | |
| If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form. | |

| | |
|---|-----------|
| Name and Title of the Responsible Official (Print or Type) | |
| Richard Connor, Director, USPO Great Lakes Region | |
| <i>As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.</i> | |
|  | 6-27-2018 |
| Signature of Responsible Official | Date |

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

| | |
|---|--|
| <p>C1. Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes, identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.</p> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <p>C2. Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)</p> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>C3. Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes, a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?</p> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>C4. Does the source belong to one of the source categories that require quantification of fugitive emissions? If Yes, identify the category on an AI-001 Form and include the fugitive emissions in the PTE calculations for the source. <i>See ROP Renewal Application instructions.</i></p> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <p>C5. Does this stationary source have the potential to emit (PTE) of 100 tons per year or more of any criteria pollutant (PM-10, PM 2.5, VOC, NO_x, SO₂, CO, lead)? If Yes, include potential emission calculations for each identified pollutant on an AI-001 Form.</p> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>C6. Does this stationary source emit any hazardous air pollutants (HAPs) regulated by the federal Clean Air Act, Section 112? If Yes, include potential and actual emission calculations for HAPs on an AI-001 Form. Fugitive emissions must be included in HAP calculations.</p> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>C7. Are any emission units subject to the Cross State Air Pollution Rule (CSAPR)? If Yes, identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.</p> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <p>C8. Are any emission units subject to the federal Acid Rain Program? If Yes, identify the specific emission unit(s) subject to the Federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?</p> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <p>C9. Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes, identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to the MDEQ, one must be included with the ROP renewal application on an AI-001 Form. Is a CAM plan included with this application?</p> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <p>C10. Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes, then a copy must be submitted as part of the ROP renewal application.</p> | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <p>C11. Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes, then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.</p> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| <input checked="" type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-001 | |

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. Yes No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

| Emission Unit ID | Emission Unit Description | Rule 201 Exemption Rule Citation [e.g. Rule 282(2)(b)(i)] | Rule 212(4) Citation [e.g. Rule 212(4)(c)] |
|------------------|---|--|---|
| EURC025 | 0.125 MMBTU/hr maintenance hot water heater less than 120 gallons. Meets definition of hot water heater under Boiler MACT, and therefore not subject. | R 336.1282(2)(b)(i) | R 336.1212(4)(b) |
| EURC029 | Four 10,000 gallon oil storage tanks: T-116 (Engine Oil), T-117 (Lube Oil), T-119 (Lube Oil), T-130 (Used Oil) | R 336.1284(2)(c) | R 336.1212(3)(e) |
| EURC034 | 1,760 gallon maintenance oil storage tank: T-118 | R 336.1284(2)(c) | R 336.1212(3)(e) |
| EURC043 | Seven < 500 gallon oil storage tanks (185 gallon Used Oil tank: T-121; One 500 gallon Maintenance Oil tank: T-122; One 487 gallon Maintenance Oil tank: T-123; One 94 gallon Lube Oil tank: T-124; One 300 gallon Used Oil tank: T-131; One 129 gallon Lube Oil tank: T-169; One 300 gallon Compressor Oil tank: T-173) | R 336.1284(2)(c) | R 336.1212(3)(e) |
| EURC026 | 1,200 gallon condensate storage tank | R 336.1284(2)(e) | R 336.1212(4)(d) |
| EURC059 | 2,000 gallon condensate storage tank | R 336.1284(2)(e) | R 336.1212(4)(d) |
| EURC031 | 2,400 gallon condensate storage tank: T-136 | R 336.1284(2)(e) | R 336.1212(4)(d) |
| EURC032 | Two 8,460 gallon hydrocarbon (condensate) storage tanks: T-134, T-135 | R 336.1284(2)(e) | R 336.1212(4)(d) |
| EURC033 | 1,200 gallon hydrocarbon (condensate) storage tank: T-175 | R 336.1284(2)(e) | R 336.1212(4)(d) |
| EURC044 | Four 8,820 gallon hydrocarbon (condensate) storage tanks at the Reed City Stray across the road from Reed City Compressor Station: T-159, T-160, T-161, T-162 | R 336.1284(2)(e) | R 336.1212(4)(d) |
| EURC030 | 7,500 gallon methanol storage tank: T-168 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC035 | 8,460 gallon glycol storage tank: T-110 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC036 | 500 gallon diesel storage tank: T-106 | R 336.1284(2)(i) | R 336.1212(4)(d) |

| | | | |
|--|---|------------------|------------------|
| EURC037 | 500 gallon gasoline fuel storage tank: T-107 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC038 | 15,000 gallon waste water storage tank: T-170 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC039 | 4,500 gallon Ambitrol storage tank: T-102 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC040 | 365 gallon Ambitrol storage tank: T-104 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC041 | 13,000 gallon Ambitrol storage tank T-101 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC042 | 7,500 gallon glycol storage tank: T-113 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC045 | 12,800 gallon glycol storage tank at the Reed City Stray across the road from Reed City Compressor Station: T-163 | R 336.1284(2)(i) | R 336.1212(4)(d) |
| EURC063 | Flare | R 336.1285(2)(f) | R 336.1212(2)(b) |
| Comments: | | | |
| <input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: AI- | | | |

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to all emission units and all applicable requirements in the existing ROP.

| | |
|--|--|
| <p>E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP?</p> <p>If Yes, identify changes and additions on Part F, Part G and/or Part H. See Section 1.6 of the application text for discussion.</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> |
| <p>E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If Yes, identify the stack(s) that was/were not reported on applicable MAERS form(s).</p> | <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> |
| <p>E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI?</p> <p>If Yes, complete Part F with the appropriate information.</p> | <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> |
| <p>E4. Have any emission units identified in the existing ROP been dismantled? If Yes, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> |
| <p>Comments:</p> <p>EURC001 has been dismantled and replaced with EURC027 and EURC028, as documented in the minor modification to the ROP application dated October 2017. The ROP has not yet been reissued to reflect this change. Please note, in the minor modification application, EURC027 and EURC028 are incorrectly labeled and referred to as EURC026 and EURC027.</p> <p>See Section 1.6 of the application text for discussion.</p> | |
| <p><input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-</p> | |

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. Yes No
 If No, go to Part G.

| Permit to Install Number | Emission Units/Flexible Group ID(s) | Description (Include Process Equipment, Control Devices and Monitoring Devices) | Date Emission Unit was Installed/ Modified/ Reconstructed |
|--------------------------|-------------------------------------|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. Yes No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. Yes No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identify the stack(s) that were not reported on the applicable MAERS form(s). Yes No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. Yes No

Comments:

Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: **AI-**

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.
 If Yes, identify the emission units in the table below. If No, go to Part H. Yes No
Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

| Origin of Applicable Requirements | Emission Unit Description – Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices | Date Emission Unit was Installed/ Modified/ Reconstructed |
|---|---|---|
| <input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation | | |
| <input type="checkbox"/> Rule 287(2)(c) surface coating line | | |
| <input type="checkbox"/> Rule 290 process with limited emissions | | |

Comments:

Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

| | |
|--|---|
| H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If Yes, answer the questions below. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If Yes, describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If Yes, identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| H4. Does the source propose to add new state or federal regulations to the existing ROP? If Yes, on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If Yes, list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| H6. Does the source propose to add, change and/or delete source-wide requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| H7. Are you proposing to streamline any requirements? If Yes, identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below. | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

FGMACTZZZZ: ANR requests the addition of the option in 40 CFR 63.6600(a) to achieve a 76% or more reduction in formaldehyde emissions OR limit the concentration of formaldehyde in the engine exhaust to 350 ppbvd or less at 15% O₂. The latter which is allowed by the RICE MACT was not previously in the permit.

H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

FGMACTDDDDD-EXISTINGGAS1: ANR proposes removing requirements for EURC001 which was removed from the facility (see minor permit modification submitted October 2017). ANR also proposed removing EURC025, a water heater of less than 120 gallons that has a heat input of 0.125 MMBtu/hr. It was identified the heater meets the definition of hot water heater as defined in the Boiler MACT and is therefore not subject. It is proposed the designation of EURC025 be corrected as an exempt unit and removed from the ROP. As a result, it is also proposed the FGMACTDDDDD-EXISTINGGAS1 flexible group be entirely removed from the permit. See Section 1.6 of the application text.

FGMACTDDDDD-NEWGAS1: ANR proposes adding the 5-year performance tune-up requirements for EURC027 and EURC028, new boilers that replaced EURC001 (see minor permit modification submitted October 2017).

H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

FGMACTDDDDDD-EXISTINGGAS1: ANR proposes removing FGMACTDDDDDD-EXISTINGGAS1 flexible group – see discussion in item H10.

FGMACTDDDDDD-NEWGAS1: ANR proposes adding the 5-year compliance report requirements for EURC027 and EURC028, new boilers that replaced EURC001 (see minor permit modification submitted October 2017).

SRN: B3721

Section Number (if applicable):

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-**



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

| | |
|------------|---------------------------------|
| SRN: B3721 | Section Number (if applicable): |
|------------|---------------------------------|

| |
|---|
| 1. Additional Information ID AI-001 |
|---|

| |
|-------------------------------|
| Additional Information |
|-------------------------------|

| |
|---|
| 2. Is This Information Confidential? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
|---|

As Required by Part C: Source Requirement Information of the ROP Renewal Application Form, the following documents have been included as part of either Appendix B (Emissions Calculations) or Appendix D (Plans referenced in the ROP) of the application:

C5. Potential emission calculations for each criteria pollutant for which the source has the potential to emit (PTE) of 100 tons per year or more. Calculations of PTE have been included for all criteria pollutants. The source has PTE exceeding 100 tons per year for NOx, CO and VOC.

C6. Potential (equal to actual) emission calculations for HAPs.

C10. The following plans and their references in the existing ROP:

- Reed City CS Continuous Parameter Monitoring System Procedure (includes annual performance evaluation plan) and Continuous Parameter Monitoring System (CPMS) Monitoring Plan (referenced in FGMACTZZZZ Condition VI.1)
- RICE MACT Maintenance for emergency engines subject to NESHAP Subpart ZZZZ (referenced in FGMACTEMERGENCY Condition III.4)
- Leak Detection and Repair Plan for Glycol Dehydration Unit's Closed Vent System (referenced in FGMACTHHH Conditions VI.5 and IX.3)

Plans Referenced within the ROP:

D-1: Reed City CS Continuous Parameter Monitoring System
Procedure

D-2: Continuous Parameter Monitoring System (CPMS) Monitoring
Plan

D-3: RICE MACT Maintenance for emergency engines subject to
NESHAP Subpart ZZZZ

D-4: Leak Detection and Repair Plan for Glycol Dehydration Unit's
Closed Vent System



Michigan Department of Environmental Quality
Air Quality Division

EFFECTIVE DATE: February 6, 2014

REVISION DATE: November 16, 2015

ISSUED TO:

ANR Pipeline Company – Reed City Compressor Station

State Registration Number (SRN): B3721

LOCATED AT:
7677 230th Avenue, Reed City, Osceola County, Michigan 49677

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-~~B3721~~B3721-2014a

Expiration Date: February 6, 2019

Administratively Complete ROP Renewal Application Due Between:
August 6, 2017 and August 6, 2018

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

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SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-~~B3721~~B3721-2014a

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

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Michigan Department of Environmental Quality

Janis Ransom, Cadillac District Supervisor

TABLE OF CONTENTS

AUTHORITY AND ENFORCEABILITY 43

A. GENERAL CONDITIONS..... 54

Permit Enforceability 54

General Provisions..... 54

Equipment & Design 65

Emission Limits..... 65

Testing/Sampling 65

Monitoring/Recordkeeping 65

Certification & Reporting 75

Permit Shield 87

Revisions 98

Reopenings..... 98

Renewals 98

Stratospheric Ozone Protection 109

Risk Management Plan 109

Emission Trading 1149

Permit To Install (PTI) 1149

B. SOURCE-WIDE CONDITIONS 1244

C. EMISSION UNIT CONDITIONS 1342

EMISSION UNIT SUMMARY TABLE 1342

EURC024 1847

D. FLEXIBLE GROUP CONDITIONS 2120

FLEXIBLE GROUP SUMMARY TABLE 2120

FGRC001 2224

FGMACTZZZZ 2423

FGMACTEMERGENCY 2923

FGMACTHHH 3234

FGMACTDDDDD-NEWGAS1 4544

E. NON-APPLICABLE REQUIREMENTS 5948

APPENDICES 6049

Appendix 1. Abbreviations and Acronyms 6049

Appendix 2. Schedule of Compliance 6150

Appendix 3. Monitoring Requirements 6150

Appendix 4. Recordkeeping 6453

Appendix 5. Testing Procedures 6453

Appendix 6. Permits to Install 6453

Appendix 7. Emission Calculations 6453

Appendix 8. Reporting 6554

AUTHORITY AND ENFORCEABILITY 3

A. GENERAL CONDITIONS..... 4

Permit Enforceability 4

General Provisions..... 4

Equipment & Design 5

2014a

ROP No: MI-ROP-B3721B3721-

Formatted: Font: 10 pt

Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

Formatted: Font: 10 pt

2014a

| | |
|---|-----------|
| Emission Limits..... | 5 |
| Testing/Sampling..... | 5 |
| Monitoring/Recordkeeping..... | 5 |
| Certification & Reporting..... | 6 |
| Permit Shield..... | 7 |
| Revisions..... | 8 |
| Reopenings..... | 8 |
| Renewals..... | 9 |
| Stratospheric Ozone Protection..... | 9 |
| Risk Management Plan..... | 9 |
| Emission Trading..... | 10 |
| Permit To Install (PTI)..... | 10 |
| B. SOURCE-WIDE CONDITIONS..... | 11 |
| G. EMISSION UNIT CONDITIONS..... | 12 |
| EMISSION UNIT SUMMARY TABLE..... | 12 |
| EURC024..... | 17 |
| D. FLEXIBLE GROUP CONDITIONS..... | 20 |
| FLEXIBLE GROUP SUMMARY TABLE..... | 20 |
| FGRC001..... | 21 |
| FGMACTZZZZ..... | 23 |
| FGMACTEMERGENCY..... | 27 |
| FGMACTHHH..... | 30 |
| FGMACTDDDDD-EXISTING GAS1..... | 40 |
| FGMACTDDDDD-NEWGAS1..... | 43 |
| E. NON-APPLICABLE REQUIREMENTS..... | 48 |
| APPENDICES..... | 49 |
| Appendix 1. Abbreviations and Acronyms..... | 49 |
| Appendix 2. Schedule of Compliance..... | 50 |
| Appendix 3. Monitoring Requirements..... | 50 |
| Appendix 4. Recordkeeping..... | 53 |
| Appendix 5. Testing Procedures..... | 53 |
| Appendix 6. Permits to Install..... | 53 |
| Appendix 7. Emission Calculations..... | 53 |
| Appendix 8. Reporting..... | 54 |

2014a

ROP No: MI-ROP-B3721B3721-

Formatted: Font: 10 pt

Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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2014a

AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environmental Quality (MDEQ) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a source-wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements will be identified for each ROP term or condition. All terms and conditions that are included in a PTI, are streamlined or subsumed, or is state only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP. Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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2014a

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state only enforceable Source-wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source- wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as "state only" are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee's own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee

2014a

ROP No: MI-ROP-B3721B3721-

Formatted: Font: 10 pt

Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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2014a

to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Except as provided in Subrules 2, 3, and 4 of Rule 301, states in part; "a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of Rule 301(1)(a) or (b) unless otherwise specified in this ROP." The grading of visible emissions shall be determined in accordance with Rule 303. **(R 336.1301(1) in pertinent part):**
 - a. A 6-minute average of 20 percent opacity, except for one 6-minute average per hour of not more than 27 percent opacity.
 - b. A limit specified by an applicable federal new source performance standard.
12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.¹ **(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property.¹ **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1). **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(4))**

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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2014a

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate **(R 336.1213(3)(b))**:
- The date, location, time, and method of sampling or measurements.
 - The dates the analyses of the samples were performed.
 - The company or entity that performed the analyses of the samples.
 - The analytical techniques or methods used.
 - The results of the analyses.
 - The related process operating conditions or parameters that existed at the time of sampling or measurement.
17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a responsible official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
19. A responsible official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**
20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**
21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**:
- For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
 - For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
 - For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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2014a

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
- Submitting a certification by a responsible official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
 - Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a responsible official which states that, "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete". The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.
23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**
24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**
25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a responsible official in a manner consistent with the CAA. **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
- The applicable requirements are included and are specifically identified in the ROP.
 - The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.
- Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.
27. Nothing in this ROP shall alter or affect any of the following:
- The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
 - The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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- c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**
 - d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
- a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
 - d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**
31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**
32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(9))**
33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
- a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
 - b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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- c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
- d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(7))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR, Part 82, Subpart F.
37. If the permittee is subject to 40 CFR, Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR, Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR, Part 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR, Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).
39. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall comply with the requirements of 40 CFR, Part 68, no later than the latest of the following dates as provided in 40 CFR, Part 68.10(a):
 - a. June 21, 1999,
 - b. Three years after the date on which a regulated substance is first listed under 40 CFR, Part 68.130, or
 - c. The date on which a regulated substance is first present above a threshold quantity in a process.
40. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR, Part 68.
41. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c). **(40 CFR, Part 68)**

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit To Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule. ² **(R 336.1201(1))**
44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA. ² **(R 336.1201(8), Section 5510 of Act 451)**
45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ. ² **(R 336.1219)**
46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months, or has been interrupted for 18 months, the applicable terms and conditions from that PTI shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI. ² **(R 336.1201(4))**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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ROP No: MI-ROP-B3721B3721- |

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721- |

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B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

2014a

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Expiration Date: February 6, 2019
PTI No.: MI-PTI-B3721B3721-

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C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

| Emission Unit ID | Emission Unit Description (Including Process Equipment & Control Device(s)) | Installation Date/ Modification Date | Flexible Group ID |
|------------------|---|---|-----------------------------|
| EURC001 | Kewanee boiler L3W-200-G, 8MMBtu/hr | Pre - 6/04/2010 | FGMACTDDDD -EXISTINGGAS1 |
| EURC002 | White Superior 8GT825 Compressor Engine #1, 1000hp natural gas fired 4SLB reciprocating internal combustion engine used to compress natural gas. | 1/1/1964 | FGRC001 |
| EURC003 | White Superior 8GT825 Compressor Engine #2, 1000hp natural gas fired 4SLB reciprocating internal combustion engine used to compress natural gas. | 1/1/1964 | FGRC001 |
| EURC004 | White Superior 8GT825 Compressor Engine #3, 1000hp natural gas fired 4SLB reciprocating internal combustion engine used to compress natural gas. | 1/1/1965 | FGRC001 |
| EURC005 | White Superior 8GT825 Compressor Engine #4, 1000hp natural gas fired 4SLB reciprocating internal combustion engine used to compress natural gas. | 1/1/1965 | FGRC001 |
| EURC006 | Ingersol-Rand KVS Compressor Engine #5, 2000hp natural gas fired 4SLB reciprocating internal combustion engine used to compress natural gas. | 1/1/1965 | FGRC001 |
| EURC007 | Ingersol-Rand KVS Compressor Engine #6, 2000hp natural gas fired 4SLB reciprocating internal combustion engine used to compress natural gas. | 1/1/1965 | FGRC001 |
| EURC008 | Clark TCVD 16M Compressor Engine #7, 8600hp natural gas fired 2SLB reciprocating internal combustion engine used to compress natural gas. | 1/1/1973 | FGRC001 |
| EURC011 | White Superior 8G825 Compressor Engine #11, 660hp natural gas fired 4SRB reciprocating internal combustion engine used to compress natural gas, equipped with non-selective catalytic reduction for the control of NOx. | 1/1/1963 | FGRC001 FGMACTZZZZ |
| EURC012 | White Superior 8G825 Compressor Engine #12, 660hp natural gas fired 4SRB reciprocating internal combustion engine used to compress natural gas, equipped with non-selective catalytic reduction for the control of NOx. | 1/1/1963 | FGRC001 FGMACTZZZZ |

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-~~B3721B3721~~

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| Emission Unit ID | Emission Unit Description (Including Process Equipment & Control Device(s)) | Installation Date/ Modification Date | Flexible Group ID |
|-------------------------|---|--------------------------------------|--|
| EURC015 | Loreed glycol dehydration system removes water from the natural gas. System includes flash vessel, heat exchangers and filters, distillation column and a reboiler surge tank. This system is controlled by a thermal oxidizer with a condenser as back-up. | 1/1/1968 | FGMACTHHH |
| EURC016 | Gas withdrawal heater, 25.5 MMBtu/hr | 12/2013 | FGMACTDDDDD -NEWGAS1 |
| EURC017 | Gas withdrawal heater, 25.54 MMBtu/hr | 12/2013 | FGMACTDDDDD -NEWGAS1 |
| EURC019 | Caterpillar G379 4SRB 355 hp emergency generator. | 1973 | FGMACTEMER- GENCY |
| EURC020 | Waukesha L1616GSIU 4SRB 475 hp emergency generator. | 1979 | FGMACTEMER- GENCY |
| EURC024 | Reed City Stray glycol dehydration system removes water from the natural gas. System includes flash vessel, heat exchangers and filters, distillation column and a reboiler surge tank. This system is controlled by a thermal oxidizer with a condenser as back-up | 1/1/1979 | FGMACTHHH |
| EURC025 | Maintenance garage boiler, 0.125 MMBtu/hr, to provide hot water for maintenance work. | Pre 6/04/2010 | FGMACTDDDDD -EXISTINGGAS1 |
| EURC027 | Cleaver Brooks natural gas fired boiler, 2.97 MMBtu/hr | 10/2017 | FGMACTDDDDD -NEWGAS1 |
| EURC028 | Cleaver Brooks natural gas fired boiler, 2.97 MMBtu/hr | 10/2017 | FGMACTDDDDD -NEWGAS1 |

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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**EURC015
EMISSION UNIT CONDITIONS**

DESCRIPTION

EURC015 – Loreed glycol dehydration system. System includes flash vessel, heat exchangers and filters, distillation column and a reboiler surge tank.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Thermal oxidizer with condenser as backup.

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Monitoring/ Testing Method | Underlying Applicable Requirements |
|------------|------------------------------|---|-----------|----------------------------|------------------------------------|
| 1. VOC | 295 lb/day ² | Calendar day. | EURC015 | Conditions V.1, VI.3 | R 336.1901 R 336.1702(a) |
| 2. VOC | 19 tpy ² | 12-month rolling time period as determined at the end of each calendar month. | EURC015 | Conditions V.1, VI.3 | R 336.1702(a) |
| 3. Benzene | less than 1 tpy ² | 12-month rolling time period as determined at the end of each calendar month. | EURC015 | Conditions V.1, VI.4 | R 336.1205(1), |

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall not operate EURC015 unless it is equipped with a thermal oxidizer and the thermal oxidizer is operating properly, except as specified in condition III.2. Proper operation includes maintaining a minimum operating temperature of 1400°F and a minimum VOC destruction efficiency of 95% in the thermal oxidizer.² (R 336.1910, R 336.1901, R 336.1702(a), R 336.1205(1))
- If the thermal oxidizer malfunctions, the permittee may operate EURC015 if it is equipped with a condenser and the condenser is installed and operating properly. When EURC015 is controlled by the condenser, the permittee shall not operate EURC015 unless the condenser exhaust gas temperature is maintained at 120°F or less.² (R 336.1910, R 336.1901, R 336.1702(a), R 336.1205(1))
- The permittee shall not operate EURC015, unless a flash tank is installed and operating properly including routing the flash tank emissions to the glycol dehydrator reboiler burner and/or thermal oxidizer for destruction as fuel.² (R 336.1910, R 336.1901, R 336.1702(a), R 336.1205(1))
- The permittee shall limit the hours of operation of EURC015 to 6800 hrs/12 month rolling time period.² (R 336.1702(a), R 336.1901, R 336.1205(1))

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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5. The permittee shall not use stripping gas in EURC015.² (R 336.1702(a), R 336.1205(1), R 336.1901)

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip and maintain the thermal oxidizer with a temperature monitor.² (R 336.1205(1), R 336.1901, R 336.1702(a))
2. The permittee shall equip and maintain the condenser with an exhaust gas temperature monitor.² (R 336.1205(1), R 336.1901, R 336.1702(a))
3. The thermal oxidizer shall be designed with a minimum residence time of 0.5 second.² (R 336.1205(1), R 336.1901, R 336.1702(a))

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall analyze the natural gas processed in EURC015 to determine its VOC and benzene content and composition once every five years. VOC and benzene composition of the natural gas shall be determined by a method or methods standard in the natural gas industry, subject to approval by the Air Quality Division. (R 336.1213(3)(a))

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall continuously monitor the operating temperature of the thermal oxidizer and record the operating temperature on a daily basis when EURC015 is operating.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
2. The permittee shall continuously monitor the exhaust gas temperature of the condenser and record the exhaust gas temperature on a daily basis while the condenser is the primary control device for EURC015.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
3. The permittee shall calculate and record the VOC emission rate from EURC015 for each day, calendar month, and 12-month rolling time period using the equation in Appendix 7.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
4. The permittee shall calculate and record the benzene emission rate from EURC015 for each calendar month and 12-month rolling time period using the equation in Appendix 7.² (R 336.1205(1), R 336.1213(3)(a))
5. The permittee shall monitor and record the hours of operation of EURC015 for each calendar month and 12-month rolling time period while the condenser is the primary control device and while the thermal oxidizer is the primary control device.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
6. The permittee shall monitor and record the total hours of operation of the EURC015 for each calendar month and 12-month rolling time period using the equation in Appendix 7.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
7. The permittee shall monitor and record the amount of natural gas processed through EURC015 on a daily basis. (R 336.1205(1), R 336.1702(a), R 336.1213(3)(a))

See Appendix 7

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|
| 1. SVRC015A | NA | 35 ¹ | R 336.1901 |
| 2. SVRC015B | 4 ¹ | 35 ¹ | R 336.1901 |

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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**EURC024
EMISSION UNIT CONDITIONS**

DESCRIPTION

EURC024 – Reed City Stray glycol dehydration system removes water from the natural gas. System includes flash vessel, heat exchangers and filters, distillation column and a reboiler surge tank.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Thermal Oxidizer with Condenser as back up

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Monitoring/ Testing Method | Underlying Applicable Requirements |
|------------|------------------------------|---|-----------|----------------------------|-------------------------------------|
| 1. VOC | 90 lbs/day ² | Calendar day | EURC024 | Conditions V.1, VI.3 | R 336.1901 R 336.1702(a) |
| 2. VOC | 15.4 tpy ² | 12-month rolling time period as determined at the end of each calendar month. | EURC024 | Conditions V.1, VI.3 | R 336.1702(a) |
| 3. Benzene | less than 1 tpy ² | 12-month rolling time period as determined at the end of each calendar month. | EURC024 | Conditions V.1, VI.4 | R 336.1205(1) |

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EURC024 unless it is equipped with a thermal oxidizer and the thermal oxidizer is installed and operating properly, except as specified in condition III.2. Proper operation includes maintaining a minimum operating temperature of 1400°F and a minimum VOC destruction efficiency of 95 percent in the thermal oxidizer.² **(R 336.1910, R 336.1901, R 336.1702(a), R 336.1205(1))**
2. If the thermal oxidizer malfunctions, the permittee may operate EURC024 if it is equipped with a condenser and the condenser is installed and operating properly. The permittee shall not operate EURC024 for more than 2,300 hours per year based on a 12-month rolling time period as determined at the end of each calendar month while the condenser is EURC024's primary control device. When the condenser is the primary control device for EURC024, the permittee shall not operate EURC024 unless the condenser exhaust gas temperature is 115°F or less.² **(R 336.1910, R 336.1901, R 336.1702(a), R 336.1205(1))**
3. The permittee shall not operate EURC0024, unless a flash tank is installed and operating properly including routing the flash tank emissions to the glycol dehydrator reboiler burner and/or thermal oxidizer for destruction as fuel.² **(R 336.1910, R 336.1901, R 336.1702(a), R 336.1205(1))**

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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4. The permittee shall not use stripping gas in EURC024.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3))

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain the thermal oxidizer with an operating temperature monitor.² (R 336.1205(1), R 336.1901, R 336.1702(a))
2. The permittee shall equip and maintain the condenser with an exhaust gas temperature monitor.² (R 336.1205(1), R 336.1901, R 336.1702(a))
3. The thermal oxidizer shall be designed with a minimum residence time of 0.5 second.² (R 336.1205(1), R 336.1901, R 336.1702(a))

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall analyze the natural gas processed in EURC024 to determine its VOC and benzene content and composition once every five years. VOC and benzene composition of the natural gas shall be determined by a method or methods standard in the natural gas industry, subject to approval by the Air Quality Division. (R 336.1213(3)(a))

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall continuously monitor the operating temperature of the thermal oxidizer and record the operating temperature on a daily basis when EURC024 is operating.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
2. The permittee shall continuously monitor the exhaust gas temperature of the condenser and record the exhaust gas temperature on a daily basis while the condenser is the primary control device for EURC024.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
3. The permittee shall calculate and record the VOC emission rate from EURC024 for each day, calendar month, and 12-month rolling time period using the equation in Appendix 7.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
4. The permittee shall calculate and record the benzene emission rate from EURC024 for each calendar month and 12-month rolling time period using the equation in Appendix 7.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
5. The permittee shall monitor and record the hours of operation of EURC024 for each calendar month and 12-month rolling time period while the condenser is the primary control device.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))
6. The permittee shall monitor and record the amount of natural gas processed through EURC024 on a daily basis.² (R 336.1205(1), R 336.1901, R 336.1702(a), R 336.1213(3)(a))

See Appendix 7

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions(inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|------------------------------------|------------------------------------|------------------------------------|
| 1. SVRC024A | NA | 25 ¹ | R 336.1901 |
| 2. SVRC024B | 10 ¹ | 25 ¹ | R 336.1901 |

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019
PTI No.: MI-PTI-B3721B3721-

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D. FLEXIBLE GROUP CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

| Flexible Group ID | Flexible Group Description | Associated Emission Unit IDs |
|-------------------------------------|--|---|
| FGRC001 | (9) Compressor engines. | EURC002, EURC003, EURC004, EURC005, EURC006, EURC007, EURC008, EURC011, EURC012 |
| FGMACTZZZZ | (2) White Superior 660 Hp Engines subject to 40 CFR, Part 63, Subpart ZZZZ | EURC011, EURC012 |
| FGMACTEMERGENCY | One Caterpillar G379 4SRB 355 hp emergency generator and one Waukesha L1616GSIU 4SRB 475 hp emergency generator. | EURC019, EURC020 |
| FGMACTHHH | (2) Glycol dehydration systems. | EURC015, EURC024 |
| FGMACTDDDDD-EXISTINGGAS1 | (2) Existing natural gas fired boilers and process Heaters. | EURC001, EURC025 |
| FGMACTDDDDD-NEWGAS1 | (2) New 25.5MMBtu natural gas fired gas withdrawal heaters and (2) New 2.97 MMBtu natural gas fired boilers. | EURC016, EURC017, EURC027, EURC028 |

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Expiration Date: February 6, 2019
PTI No.: MI-PTI-B3721B3721-

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FGRC001
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

FGRC001; Four White Superior 8GT825 1000 hp natural gas fired 4SLB RICE, Two Ingersol-Rand KVS 2000hp natural gas fired 4SLB RICE, One Clark TCVD 16M 8600 hp natural gas fired 2SLB RIC, Two White Superior 8G825 660HP natural gas fired 4SRB RICE. E.

Emission Units: EURC002, EURC003, EURC004, EURC005, EURC006, EURC007, EURC008, EURC011, EURC012,

POLLUTION CONTROL EQUIPMENT

Non-selective catalytic reduction (NSCR) (EURC011 and EURC012)

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The natural gas used as fuel in FGRC001 shall not contain more than 20 grains of total sulfur per 100 cubic feet of natural gas.² (R 336.1201(3))

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

NA

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019
PTI No.: MI-PTI-B3721B3721-

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3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|
| NA | NA | NA | NA |

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019
PTI No.: MI-PTI-B3721B3721-

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FGMACTZZZZ
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

The facility uses two, four stroke, rich burn, natural gas-fired reciprocating internal combustion compressor engines (RICE) with a site-rating of 660 horsepower each to compress natural gas to recycle gas captured from the storage field liquid handling system. These MACT subject engines are used as needed to regulate flow to and from the storage field.

Emission Units: EURC011 and EURC012

POLLUTION CONTROL EQUIPMENT

Non-selective catalytic reduction (NSCR).

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Monitoring/ Testing Method | Underlying Applicable Requirements |
|-----------------|--|---------------------------------------|------------------------|-------------------------------|--|
| 1. Formaldehyde | <p>≤350 ppbvd @ 15% O₂</p> <p>-OR-</p> <p>76% reduction</p> | | EURC011 and EURC012 | Conditions V.1, VI.4 | 40 CFR 63.6600(a) |

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall be in compliance with the applicable emission and operating limitations at all times, except the requirement to reduce formaldehyde emissions by 76 percent or more or limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O₂ does not apply during periods of start-up. **(40 CFR 63.6600, 40 CFR 63.6605(a), Table 1a to Subpart ZZZZ of Part 63)**
2. The permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standard applicable to all times other than startup in Condition I.1 above apply. **(40 CFR 63.6625(h))**
3. The permittee shall not operate EURC011 or EURC012, unless the catalyst system is installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes the following: **(R 336.1213(3), 40 CFR 63.6600(a), 40 CFR 63.6605(b), Table 1b to Subpart ZZZZ of Part 63, Table 6 to Subpart ZZZZ of Part 63)**
 - a. Maintaining the catalyst so that the pressure drop across the catalyst does not change by more than two inches of water from the pressure drop measured during the most recent performance test.
 - b. Maintaining the catalyst inlet temperature greater than or equal to 750°F and less than or equal to 1250°F based on a 4-hour rolling average.

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ROP No: MI-ROP-~~B3721B3721~~-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-~~B3721B3721~~-

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- c. Operating EURC011 at no more than 75% load (± 10 percent).
- d. Operating EURC012 at no more than 87% load (± 10 percent).

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. If the catalyst is changed, the permittee shall re-establish the operating parameters measured during the initial performance test and conduct a subsequent performance test to demonstrate compliance with the applicable emission limitation. The permittee shall determine compliance with the percent reduction requirements using Equation 1 in 40 CFR 63.6620(e). (40 CFR 63.6620, 40 CFR 63.6640(b))
2. If the permittee chooses to limit the concentration of formaldehyde in the stationary RICE exhaust, the permittee shall conduct performance tests semiannually as specified in Table 3, Item 3 in accordance with Table 4 Item 3 of Subpart ZZZZ. If the permittee chooses to comply with the ≥ 76 percent reduction formaldehyde emission limit, the permittee shall conduct performance tests when a catalyst is changed in accordance with Table 4 Item 2 of Subpart ZZZZ. (40 CFR 63.6615, 40 CFR 63.6620, 40 CFR 63.6640(b), Table 3 and Table 4 to Subpart ZZZZ of Part 63)

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall install a continuous parameter monitoring systems (CPMS) consisting of a catalyst inlet temperature monitor for EURC011 and EURC012. (40 CFR 63.6625(b), R 336.1213(3))
 - a. Operate and maintain each catalyst inlet temperature monitor in continuous operation according to the procedures in the site-specific monitoring plan.
 - b. The catalyst inlet temperature monitoring system must collect data at least once every 15-minutes
 - c. The temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees F) or 1 percent of the measurement range, whichever is larger.
 - d. The catalyst inlet temperature monitor performance evaluation, system accuracy audit, or other audit procedures specified in the site-specific monitoring plan must be conducted in accordance with the site specific monitoring plant at least annually.
2. Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, the permittee must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels may not be used. All the valid data collected during all other periods must be used. (40 CFR 63.6625)
3. The permittee shall keep the following records which shall be made available to the Department upon request. (40 CFR 63.6655(a) and (b), R 336.1213(3))
 - a. A copy of each notification and report submitted to comply with Subpart ZZZZ, and the documentation supporting any notification.
 - b. Records of performance tests and evaluations as required in 40 CFR 63.10(b)(2)(viii).
 - c. For each CPMS, records described in 40 CFR 63.10(b)(2)(vi) through (xi).
 - d. For each CPMS, previous versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-~~B3721B3721~~-

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- e. Records of the occurrence and duration of each malfunction of process equipment or the air pollution control and monitoring equipment as required in 40 CFR 63.6655(a)(2).
- f. Records of all required maintenance performed on the air pollution control and monitoring equipment.
- g. Records of actions taken during periods of malfunction to minimize emissions in accordance with 63.6605(b), including corrective action to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation as required in 40 CFR 63.6655(a)(5).

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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4. The permittee shall demonstrate continuous compliance with each applicable emission and operating limitation according to methods specified in Table 6 to 40 CFR, Part 63, Subpart ZZZZ. The methods described below will be used to demonstrate compliance with the requirement to reduce formaldehyde emissions from EURC011 and EURC012 using NSCR. **(40 CFR 63.6640(a) and Table 6 of Subpart ZZZZ of Part 63, R 336.1213(3))**
 - a. Collect the catalyst inlet temperature data once every 15 minutes;
 - b. Reduce these data to 4-hour rolling averages;
 - c. Maintain the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature;
 - d. Measure the pressure drop across the catalyst once per month and demonstrate that the pressure drop across the catalyst does not change by more than two inches of water from the pressure drop established during the most recent performance test.
 - e. Monitoring of pressure drop across the catalysts for EURC011 and EURC12 shall comply with the United States Environmental Protection Agency (USEPA) approved Alternative Monitoring Methods.

See Appendix 3

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. No less than 60 days prior to testing, permittee must submit written notification of the intention to conduct performance testing and a complete site specific performance evaluation test plan shall be submitted to the AQD, as required in 63.7(b)(1). The final plan must be approved by the AQD prior to the scheduled testing. **(40 CFR 63.7 (b)(i), 40 CFR 63.6645(g))**
5. No less than 60 days following the last date of the test, permittee must submit a complete report of the test results to the AQD. **(R 336. 2001(5))**
6. The permittee shall submit to the AQD District Supervisor, a semi-annual compliance report, as specified in 40 CFR 63.6650 and Table 7 to Subpart ZZZZ of Part 63, which contains all deviations during the reporting period from any applicable emission limitation or operating limitation and all periods during which the CPMS for EURC011 or EURC012 was out of control as defined in 40 CFR 63.8(c)(7). If there were no deviations from any applicable emission limitations or operating limitations or no periods that the CPMS was out of control, the report shall contain a statement that there were no deviations and no periods during which the CPMS was out of control during the reporting period. **(40 CFR 63.6640(b)40 CFR 63.6650(a), 40 CFR 63.6650(e), 40 CFR 63.8(c)(7))**
7. Each semi-annual compliance report must cover the semi-annual period from January 1 through June 30, or from July 1 through December 31. The reports must be postmarked or delivered to the AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The compliance report must also contain the information, as specified in 40 CFR 63.6650 (c) and (e). **(40 CFR 63.6650(b))**

See Appendix 8

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|
| NA | NA | NA | NA |

IX. OTHER REQUIREMENT(S)

1. The permittee shall develop and maintain a site-specific monitoring plan that addresses the following requirements. **(40 CFR 63.6625(b)(1))**
 - a. Installation of the catalyst inlet temperature monitor or other interface at the appropriate location to obtain representative measurements.
 - b. Performance and equipment specifications for the sample interface, parametric signal analyzer, and the data collection and reduction systems.
 - c. Performance evaluation procedures and acceptance criteria.
 - d. Ongoing operation and maintenance procedures in accordance with the general requirements of 63.8(c)(1)(ii) and (c)(3).
 - e. Ongoing data quality assurance procedures in accordance with the general requirements of 63.8(d).
 - f. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 63.10(c), (e)(1), and (e)(2)(i).
2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. **(40 CFR, Part 63, Subparts A and ZZZZ)**

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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**FGMACTEMERGENCY
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

One Caterpillar G379 4SRB 355hp emergency generator and one Waukesha L1616GSIU 4SRB 475 hp emergency generator.

Emission Units: EURC019, EURC020

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee may operate FGMACTEMERGENCY as necessary during emergencies with no time limit. **(40 CFR 63.6640(f)(1))**
2. The permittee may operate FGMACTEMERGENCY for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the engine manufacturer or vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engines. Maintenance checks and readiness testing is limited to 100 hours per calendar year. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year. **(40 CFR 63.6640(f)(2)(i))**
3. The permittee may operate FGMACTEMERGENCY for up to 50 hours per engine per calendar year in non-emergency situations. The 50 hours are counted as part of the 100 hours of operation allowed under condition III.2. The 50 hours cannot be used for peak shaving, or non-emergency demand response or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. **(40 CFR 63.6640(f)(3))**
4. The permittee must operate and maintain FGMACTEMERGENCY according to the manufacturer's emission-related written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 63.6625(e))**
5. The permittee must comply with the following operational requirements:
 - a. Change oil and filter every 500 hours of operation or annually, whichever comes first, except as allowed in condition III.6;
 - b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first and replace as necessary;

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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- c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary

If FGMACTEMERGENCY is being operated during an emergency and it is not possible to shut down an engine to perform the work practice standards on the schedule required the work practice standard can be delayed until the emergency is over. The work practice should be performed as soon as practicable after the emergency has ended. The permittee must report any failure to perform the work practice on the schedule required. **(40 CFR 63.6602, 40 CFR, Part 63, Subpart ZZZZ, Table 2c, Item 6)**

6. The permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in condition III.5. The oil analysis must be performed at the same frequency specified for changing the oil in condition III.5. The oil analysis shall test for the following limits:
 - a. Total Acid Number has increased by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new;
 - b. Viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or
 - c. Percent water content (by volume) is greater than 0.5%.

If any of the limits are exceeded, the permittee must change the oil within 2 business days of receiving the results of the analysis. If the engine is not in operation when the results of the analysis are received, the permittee must change the oil within 2 business days or before commencing operation, whichever is later. The analysis program must be part of the maintenance plan for FGMACTEMERGENCY. **(40 CFR 63.6625(j))**

7. The permittee shall minimize each engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. **(40 CFR 63.6625(h))**
8. The permittee must be in compliance with the emission limitations and operating limitations in this subpart that apply to FGMACTEMERGENCY at all times. **(40 CFR 63.6605(a))**
9. The permittee at all times must operate and maintain FGMACTEMERGENCY in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of FGMACTEMERGENCY. **(40 CFR 63.6605(b))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall equip each engine in FGMACTEMERGENCY with a non-resettable hour meter. **(R 336.1213(3), 40 CFR 63.6625(f))**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep the following records: **(40 CFR 63.6655)**
 - a. A copy of each notification and report submitted to comply with Subpart ZZZZ of Part 63, including all documentation supporting any Initial Notification or Notification of Compliance status, according to the requirements of 40 CFR 63.10(b)(2)(xiv).
 - b. Records of the occurrence and duration of each malfunction of the engines of FGMACTEMERGENCY.

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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- c. Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.6605(b), including corrective actions to restore malfunctioning equipment to its normal or usual manner of operation.
 - d. Records to demonstrate continuous compliance with operating limitations in condition III.5.
 - e. Keep records of the maintenance conducted on FGMACTEMERGENCY in order to demonstrate that FGMACTEMERGENCY are operated and maintained according to the maintenance plan.
 - f. Records of hours of operation recorded through the non-resettable hour meter. The permittee shall document how many hours were spent during emergency operation; including what classified the operation as emergency and how many hours were spent during non-emergency operation.
2. The permittee must keep records of the parameters that are analyzed as part of the oil analysis program in Condition III.6, the results of the analysis, and the oil changes for the engine. **(40 CFR 63.6625(j))**

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|
| NA | NA | NA | NA |

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall comply with all applicable requirements of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR, Part 63, Subparts A and ZZZZ for Stationary Reciprocating Internal Combustion Engines by the initial compliance date of October 19, 2013. **(40 CFR, Part 63, Subparts A and ZZZZ)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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**FGMACTHHH
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two affected small glycol dehydration units as defined in 40 CFR 63.1271 constructed prior to August 23, 2011 which must attain compliance with the requirements in 40 CFR, Part 63, Subpart HHH by October 15, 2015.

Emission Units: EURC015, EURC024

POLLUTION CONTROL EQUIPMENT

Condenser, thermal oxidizer

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Monitoring/ Testing Method | Underlying Applicable Requirements |
|-----------|---|---------------------------------|--------------------|--------------------------------|------------------------------------|
| 1. BTEX | Calculated using the equation in Appendix 7 | Annual | EURC015 EURC024 | Conditions V.2, V.4, VI.9, V.5 | 40 CFR 63.1275(b)(1)(iii) |

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The process vents from EURC015 and EURC024 shall be vented to a control device or a combination of control devices through a closed-vent system. **(40 CFR 63.1275(b)(1)(iii)(A))**
2. The control device(s) shall be one of those specified below and must be designed and operated in accordance with the following requirements: **(40 CFR 63.1281(f)(1))**
 - a. A thermal oxidizer that reduces the concentration of BTEX to meet the emission limit in Condition I.1, or the TOC or total HAP concentration in the exhaust gases at the outlet of the incinerator is reduced to a level equal to or less than 20 ppmv on a dry basis corrected to 3% oxygen.
 - b. A condenser or other non-destructive control device that is designed and operated to reduce the mass content of BTEX in the gases vented by 95%.
3. The permittee shall control HAP emissions from each GCG separator (flash tank) vent unless BTEX emissions from the reboiler vent and the flash tank are reduced to a level less than the limit in Condition I.1. **(40 CFR 63.1275(c)(3))**
4. The permittee shall operate and maintain FGMACTHHH, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. **(40 CFR 63.1274(h))**

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5. The permittee shall operate each control device in accordance with the requirements specified below: **(40 CFR 63.1281(f)(2))**
 - a. Each control device used to comply with 40 CFR Part 63 Subpart HHH shall be operating at all times. More than one unit may be vented to a control device.
 - b. For each control device monitored in accordance with the requirements of Conditions VI.8 - 13, the permittee shall demonstrate compliance according to the requirements of Condition VI.2 (§ 63.1282(e)).
6. When using a condenser to demonstrate continuous compliance with emission limits the control device shall be operated at a maximum operating temperature established in accordance with the requirements of Condition VI.8. When using a thermal oxidizer to demonstrate continuous compliance with emission limits the control device shall be operated at the minimum operating temperature established in accordance with the requirements of Condition VI.8 or a minimum of 1400°F. **(40 CFR 63.1282(e)(1))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The closed vent system shall be designed and operated in accordance with the following requirements: **(40 CFR 63.1281(c), 40 CFR 63.1283(c)(2)(iii))**
 - a. The closed-vent system shall route all gases, vapors, and fumes emitted from the material in and emission unit to a control device that meets the requirements specified in Condition III.2.
 - b. The closed-vent system shall be designed and operated with no detectable emissions.
 - c. Any bypass devices in the closed-vent system that could divert emissions from entering the control device shall be equipped with a flow indicator at the inlet to the bypass device that takes readings every 15 minutes, and that sounds an alarm when the bypass device is open; or the bypass device valve at the inlet to the bypass device shall be secured using a car-seal or lock and key.
2. Each continuous parameter monitoring system (CPMS) shall meet the following specifications and requirements: **(40 CFR 63.1283(d)(1))**
 - a. Each CPMS shall measure data values at least once every hour and record either:
 - i. Each measured data value; or
 - ii. Each block average value for each 1-hour period or shorter periods calculated from all measured data values during each period. If values are measured more frequently than once per minute, a single value for each minute may be used to calculate the hourly (or shorter period) block average instead of all measured values.
3. The permittee shall install a device equipped with a continuous recorder to measure the values of operating parameters appropriate for the control device as specified below. **(40 CFR 63.1283(d)(3))**
 - a. For a thermal oxidizer, the temperature monitoring device shall have a minimum accuracy of ± 2 percent of the temperature being monitored in °C, or $\pm 2.5^\circ\text{C}$, whichever value is greater. The temperature sensor shall be installed at a location representative of the combustion zone temperature
 - b. For a condenser, the temperature monitoring device shall have a minimum accuracy of ± 2 percent of the temperature being monitored in °C, or $\pm 2.5^\circ\text{C}$, whichever value is greater. The temperature sensor shall be installed at a location in the exhaust vent stream from the condenser.

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. Determination of the actual flow rate of natural gas to EURC015 and EURC024 shall be made using either of the following procedures: **(40 CFR 63.1282(a)(1))**
 - a. Install and operate a monitoring instrument that directly measures natural gas flowrate to EURC015 and EURC024 with an accuracy of ± 2 percent or better. The annual natural gas flowrate shall be converted to a daily average by dividing the annual flowrate by the number of days per year each EU processed natural gas.
 - b. Document to the AQD's satisfaction, the actual annual average natural gas flowrate to EURC015 and EURC024.

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2. Determination of the actual average BTEX emissions from EURC015 and EURC024 with condenser and/or thermal oxidizer control device shall be made using the following procedure: **(40 CFR 63.1282(a)(2))**
 - a. Use GRI-GLYCalc™, Version 3.0 or higher. Inputs to the model shall be representative of actual operating conditions of each glycol dehydration unit.
3. The Permittee shall perform “no detectable emissions” testing for closed vent systems using the test methods and procedures specified in 40 CFR 63.1282(b). **(40 CFR 63.1282(b))**
4. If the permittee chooses to conduct a performance test to demonstrate that a control device meets the requirements of Condition III.2 (40 CFR 1281(f)(1)) the permittee shall conduct emissions testing for compliance with the BTEX emission limit calculated using Equation 1 or the 20 ppmv TOC or Total HAP exhaust gas concentration reduction requirement using the following test methods and procedures: **(40 CFR 63.1282(d)(3))**
 - a. Method 1 or 1A, 40 CFR, Part 60, Appendix A, as appropriate, shall be used for selection of the sampling sites. The sampling site shall be located at the outlet of the combustion device.
 - b. The gas volumetric flowrate shall be determined using Method 2, 2A, 2C, or 2D, 40 CFR, Part 60, Appendix A, as appropriate.
 - c. To determine compliance with the BTEX emission limit or the 20 ppmv TOC or Total HAP exhaust gas concentration reduction requirement, the permittee shall use one of the following methods: Method 18, 40 CFR, Part 60, Appendix A; ASTM D6420-99 (Reapproved 2004); or any other method or data that have been validated according to the applicable procedures in Method 301, 40 CFR, Part 63, Appendix A.
 - d. The permittee shall conduct performance tests according to the following schedule:
 - i. An initial performance test shall be conducted no later than October 15, 2015.
 - ii. The first periodic performance test shall be conducted not later than 60 months after the initial performance test. Subsequent periodic performance tests shall be conducted at intervals no longer than 60 months following the previous periodic performance test or whenever a source desires to establish a new operating limit. Combustion control devices meeting either of the following criteria are not required to conduct periodic performance tests:
 - A. A combustion control device whose model is tested under, and meets the criteria of manufacturers performance test in 40 CFR 63.1282(g).
 - B. A combustion control device demonstrating during the performance test that combustion zone temperature is an indicator of destruction efficiency and operates at a minimum temperature of 1400 degrees F.
5. For condenser control devices the Permittee may use the procedures documented in the GRI report entitled “Atmospheric Rich/Lean method for Determining Glycol Dehydrator Emissions”. (GRI-95/0368.1) as inputs for the model GRI-GLYCalc™, version 3.0 or higher, to generate a condenser performance curve as an alternative to the performance testing required in Condition V.4. **(40 CFR 63.1282(d)(5))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall maintain records of the annual facility natural gas throughput each year. **(40 CFR 63.1270(a)(3))**
2. The permittee shall continuously monitor and record the temperature on the thermal oxidizer or condenser and calculate the daily average temperature for each operating day. **(40 CFR 63.1282(e), 40 CFR 63.1283(d)(4))**
 - a. Establish a site specific maximum (condenser) or minimum (thermal oxidizer) temperature to define the conditions at which the control device must be operated to continuously achieve compliance with the emission limit.
 - b. Calculate the daily average of the condenser or thermal oxidizer temperature readings in accordance with Condition VI.7.
 - c. Compliance is achieved when the daily average of the temperature readings calculated under Condition VI.2.b. is either equal to or greater than the minimum or equal to or less than the maximum monitoring value established under Condition VI.2.a.

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3. When using a condenser as the control device the permittee may demonstrate compliance with BTEX emission reductions by complying with the following requirements: **(40 CFR 63.1282(f))**
 - a. The permittee shall establish a site-specific condenser performance curve according to the procedures specified in Condition VI.8.d.
 - b. The permittee must calculate the daily average condenser outlet temperature in accordance with Condition VI.7.
 - c. The permittee shall determine the condenser efficiency for the current operating day using the daily average condenser outlet temperature and the condenser performance curve.
 - d. At the end of each operating day the permittee shall calculate the 30-day average BTEX emission reduction from the condenser efficiencies for the preceding 30 operating days.
 - e. Compliance is achieved if the average BTEX emission reduction is equal to or greater than the minimum percent reduction established in Condition VI.8.
4. For each closed-vent system, the permittee shall comply with the following requirements:
(40 CFR 63.1283(c)(2-4))
 - a. Except for parts of the closed-vent system that are designated unsafe to inspect or difficult to inspect, each closed-vent system and each bypass device shall be inspected according to the procedures specified below according to the following schedule:
 - i. For each closed-vent system joints, seams, or other connections that are permanently or semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted or gasketed ducting flange):
 - A. Conduct an initial inspection to demonstrate that the closed-vent system operates with no detectable emissions.
 - B. Conduct annual visual inspections for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in piping; loose connections; or broken or missing caps or other closure devices.
 - ii. For closed-vent system components other than those specified in Condition VI.4.a.i above:
 - A. Conduct an initial inspection to demonstrate that the closed-vent system operates with no detectable emissions.
 - B. Conduct annual inspections to demonstrate that the components or connections operate with no detectable emissions.
 - C. Conduct annual visual inspections for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork; loose connections; or broken or missing caps or other closure devices.
 - iii. For each bypass device, except low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices, the permittee shall either:
 - A. At the inlet to the bypass device that could divert the steam away from the control device to the atmosphere, set the flow indicator to take a reading at least once every 15 minutes; or
 - B. If the bypass device valve installed at the inlet to the bypass device is secured in the non-diverting position using a car-seal or a lock-and-key type configuration, visually inspect the seal or closure mechanism at least once every month to verify that the valve is maintained in the non-diverting position and the vent stream is not diverted through the bypass device.
 - b. In the event that a leak or defect is detected, the permittee shall repair the leak or defect as soon as practicable, except as provided in Condition VI.4.c.
 - i. A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.
 - ii. Repair shall be completed no later than 15 calendar days after the leak is detected.
 - c. Delay of repair of a closed-vent system for which leaks or defects have been detected is allowed if the repair is technically infeasible without a shutdown, as defined in § 63.1271, or if the permittee determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be completed by the end of the next shutdown.
5. Any parts of the closed-vent system that are designated, as described below, as unsafe to inspect are exempt from the inspection requirements of Condition VI.4 if:
(40 CFR 63.1283(c)(5))

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- a. The permittee determines that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with Condition VI.4.a.i or ii.
 - b. The permittee has a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
6. Any parts of the closed-vent system that are designated, as described below, as difficult to inspect are exempt from the inspection requirements of Condition VI.4 if: **(40 CFR 63.1283(c)(6))**
- a. The permittee determines that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface; and
 - b. The permittee has a written plan that requires inspection of the equipment at least once every 5 years.
7. Using the data recorded by the monitoring system, except for inlet gas flowrate, the permittee must calculate the daily average value for each monitored operating parameter for each operating day. If the emissions unit operation is continuous, the operating day is a 24-hour period. If the emissions unit operation is not continuous, the operating day is the total number of hours of control device operation per 24-hour period. Valid data points must be available for 75 percent of the operating hours in an operating day to compute the daily average. **(40 CFR 63.1283(d)(4))**
8. For the control devices used to comply with 40 CFR Part 63 Subpart HHH, the permittee shall establish a minimum operating parameter value or a maximum operating parameter value, as appropriate for the control device, to define the conditions at which the control device must be operated to continuously achieve the emission limits in Section I of FGMACTHHH. Each minimum or maximum operating parameter value shall be established as follows: **(40 CFR 63.1283(d)(5)(i))**
- a. If the permittee conducts performance tests to demonstrate that the control device achieves the applicable performance requirements, then the minimum operating parameter value or the maximum operating parameter value shall be established based on values measured during the performance test and supplemented, as necessary, by a condenser design analysis or control device manufacturer's recommendations or a combination of both.
 - b. If the permittee uses a condenser design analysis to demonstrate that the control device achieves the applicable performance requirements, then the minimum operating parameter value or the maximum operating parameter value shall be established based on the condenser design analysis and may be supplemented by the condenser manufacturer's recommendations.
 - c. If the permittee operates a control device where the performance test requirement was met under manufacturers' performance test to demonstrate that the control device achieves the applicable performance requirements, then the maximum inlet gas flowrate shall be established based on the performance test and supplemented, as necessary, by the manufacturer recommendations.
 - d. When using condensers as the control device the permittee shall also establish a condenser performance curve showing the relationship between condenser outlet temperature and condenser control efficiency. The curve shall be established using the procedures documented in the GRI report entitled, "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI-95/0368.1) as inputs for the model GRI-GLYCalc™, Version 3.0 or higher, to generate a condenser performance curve. **(40 CFR 63.1283(d)(5)(ii))**
9. A deviation for a control device is determined to have occurred when the monitoring data or lack of monitoring data result in any one of the criteria specified below being met. When multiple operating parameters are monitored for the same control device and during the same operating day, and more than one of these operating parameters meets an excursion criterion specified below, then a single excursion is determined to have occurred for the control device for that operating day. **(40 CFR 63.1283(d)(6)(i-iii))**
- a. When the daily average value of a monitored operating parameter is less than the minimum operating parameter limit (or, if applicable, greater than the maximum operating parameter limit) established for the operating parameter.
 - b. When the 30-day average condenser efficiency calculated according to the requirements of Condition VI.3.d is less than the identified 30-day required percent reduction.
 - c. When the monitoring data are not available for at least 75 percent of the operating hours in a day.

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10. A deviation occurs for a closed-vent system containing one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device when:
(40 CFR 63.1283(d)(6)(iv))
 - a. The flow indicator indicates that flow has been detected and that the stream has been diverted away from the control device to the atmosphere.
 - b. If the seal or closure mechanism has been broken, the bypass line valve position has a changed, the key for the lock-and-key type lock has been checked out, or the car-seal has broken.
11. For each deviation, the permittee shall be deemed to have failed to have applied control in a manner that achieves the required operating parameter limits. Failure to achieve the required operating parameter limits is a violation of this standard. **(40 CFR 63.1283(d)(7))**
12. Nothing in Conditions VI.8. through VI.13 shall be construed to allow or excuse a monitoring parameter deviation caused by any activity that violates other applicable provisions of this subpart.
(40 CFR 63.1283(d)(9))
13. The permittee shall maintain the records specified in 40 CFR 63.10(b)(2). **(40 CFR 63.1284(b)(2))**
14. The permittee shall maintain the following records:
(40 CFR 63.1284(b)(4), 40 CFR 63.1284(g))
 - a. Continuous records of the equipment operating parameters specified to be monitored in Conditions VI.8-10.
 - b. Records of the daily average value of each continuously monitored parameter for each operating day determined according to the procedures specified in Condition VI.8.
 - c. For condensers using reduction efficiency for compliance, records of the annual 30-day rolling average condenser efficiency determined in Condition VI.3.d shall be kept in addition to the daily averages.
 - d. The following records for a control device whose model is tested under the manufacturers' performance test:
 - i. All visible emission readings and flowrate calculations made during the compliance determination
 - ii. All hourly records and other recorded periods when the pilot flame is absent.
 - e. Hourly records of the times and durations of all periods when the vent stream is diverted from the control device or the device is not operating.
 - f. Where a seal or closure mechanism is used to comply with the closed vent bypass, hourly records of flow are not required. In such cases, the owner or operator shall record that the monthly visual inspection of the seals or closure mechanism has been done, and shall record the duration of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out, and records of any car-seal that has broken.
15. The permittee shall maintain records identifying all parts of the closed-vent system that are designated as unsafe to inspect in accordance with Condition VI.5, an explanation of why the equipment is unsafe to inspect, and the plan for inspecting the equipment. **(40 CFR 63.1284(b)(5))**
16. The permittee shall maintain records identifying all parts of the closed-vent system that are designated as difficult to inspect in accordance with Condition VI.6, an explanation of why the equipment is difficult to inspect, and the plan for inspecting the equipment. **(40 CFR 63.1284(b)(6))**
17. The permittee shall maintain the following records for each inspection conducted in accordance with Condition VI.4 during which a leak or defect is detected. **(40 CFR 63.1284(b)(7))**
 - a. The instrument identification numbers, operator name or initials, and identification of the equipment.
 - b. The date the leak or defect was detected and the date of the first attempt to repair the leak or defect.
 - c. Maximum instrument reading measured by the method specified in Condition V.3 after the leak or defect is successfully repaired or determined to be non-repairable.
 - d. "Repair delayed" and the reason for the delay if a leak or defect is not repaired within 15 calendar days after discovery of the leak or defect.
 - e. The name, initials, or other form of identification of the permittee (or designee) whose decision it was that repair could not be affected without a shutdown.

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- f. The expected date of successful repair of the leak or defect if a leak or defect is not repaired within 15 calendar days.
 - g. Dates of shutdowns that occur while the equipment is unrepaired.
 - h. The date of successful repair of the leak or defect.
18. For each inspection conducted in accordance with Condition VI.4 during which no leaks or defects are detected, the permittee shall maintain a record that the inspection was performed, the date of the inspection, and a statement that no leaks or defects were detected. **(40 CFR 63.1284(b)(8))**
19. The permittee shall maintain records of the occurrence and duration of each malfunction of process equipment or the air pollution control equipment and monitoring equipment. The permittee shall maintain records of actions taken during periods of malfunction to minimize emissions in accordance with Condition III.4 including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation. **(40 CFR 63.1284(f))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee shall submit the notification of the planned date of a performance test and site-specific test plan at least 60 days before the test. **(40 CFR 63.1285(b)(3))**
5. The permittee shall submit a Notification of Compliance Status Report as required under § 63.9(h) within 180 days after October 15, 2015. In addition to the information required under § 63.9(h) the Notification of Compliance Status Report shall include the information specified in Condition VII.5.a. through i. of this section. If an owner or operator submits the required information at different times, and/or different submittals, subsequent submittals may refer to previous submittals instead of duplicating and resubmitting the previously submitted information. **(40 CFR 63.1285(d))**
 - a. If a closed-vent system and a control device other than a flare are used to comply with § 63.1274, the owner or operator shall submit the information in Condition VII.5.a.iii. and the information in either Condition 5.a.i. or ii.
 - i. The condenser design analysis documentation specified in § 63.1282(d)(4) if the owner or operator elects to prepare a design analysis; or
 - ii. If the owner or operator is required to conduct a performance test, the performance test results including the information specified in Condition VII.5.a.ii.A. and B. Results of a performance test conducted prior to the compliance date of this subpart can be used provided that the test was conducted using the methods specified in § 63.1282(d)(3), and that the test conditions are representative of current operating conditions. If the owner or operator operates a combustion control device model tested under § 63.1282(g), an electronic copy of the performance test results shall be submitted via email to *Oil_and_Gas_PT@EPA.GOV* unless the test results for that model of combustion control device are posted at the following Web site: *epa.gov/airquality/oilandgas/*.
 - A. The percent reduction of HAP or TOC, or the outlet concentration of HAP or TOC (parts per million by volume on a dry basis), determined as specified in § 63.1282(d)(3); and
 - B. The value of the monitored parameters specified in § 63.1283(d), or a site-specific parameter approved by the permitting agency, averaged over the full period of the performance test.
 - iii. The results of the closed-vent system initial inspections performed according to the requirements in § 63.1283(c)(2)(i) and (ii).

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- b. The owner or operator shall submit one complete test report for each test method used for a particular source.
 - i. For additional tests performed using the same test method, the results specified in Condition VII.5.a.ii. shall be submitted, but a complete test report is not required.

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- ii. A complete test report shall include a sampling site description, description of sampling and analysis procedures and any modifications to standard procedures, quality assurance procedures, record of operating conditions during the test, record of preparation of standards, record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, documentation of calculations, and any other information required by the test method.
 - c. For each control device other than a flare used to meet the requirements of § 63.1274, the owner or operator shall submit the information specified in Condition VII.5.c.i. through iii. for each operating parameter required to be monitored in accordance with the requirements of § 63.1283(d).
 - i. The minimum operating parameter value or maximum operating parameter value, as appropriate for the control device, established by the owner or operator to define the conditions at which the control device must be operated to continuously achieve the applicable performance requirements of § 63.1281(d)(1) or (e)(3)(ii).
 - ii. An explanation of the rationale for why the owner or operator selected each of the operating parameter values established in § 63.1283(d)(5). This explanation shall include any data and calculations used to develop the value, and a description of why the chosen value indicates that the control device is operating in accordance with the applicable requirements of § 63.1281(d)(1), (e)(3)(ii), or (f)(1).
 - iii. A definition of the source's operating day for purposes of determining daily average values of monitored parameters. The definition shall specify the times at which an operating day begins and ends.
 - d. Results of any continuous monitoring system performance evaluations shall be included in the Notification of Compliance Status Report.
 - e. The owner or operator shall comply with all requirements for compliance status reports contained in the source's ROP, including reports required under 40 CFR, Part 63, Subpart HHH. Each time a notification of compliance status is required under this subpart, the owner or operator of such source shall submit the notification of compliance status to the appropriate permitting authority following completion of the relevant compliance demonstration activity specified in this subpart.
 - f. The owner or operator shall submit an analysis demonstrating whether an affected source is a major source using the maximum throughput calculated according to § 63.1270(a).
 - g. The owner or operator shall submit a statement as to whether the source has complied with the requirements of this subpart.
 - h. If the owner or operator installs a combustion control device model tested under the manufacturer's performance test procedures in § 63.1282(g), the Notification of Compliance Status Report shall include the data listed under § 63.1282(g)(8).
 - i. For each combustion control device model tested under § 63.1282(g), the information listed in Conditions VII.5.i.i. through vi. below.
 - i. Name, address and telephone number of the control device manufacturer.
 - ii. Control device model number.
 - iii. Control device serial number.
 - iv. Date the model of control device was tested by the manufacturer.
 - v. Manufacturer's HAP destruction efficiency rating.
 - vi. Control device operating parameters, maximum allowable inlet gas flowrate.
6. The Permittee shall prepare Periodic Reports in accordance with a. and b. below and submit them to the Administrator. **(40 CFR 63.1285(e))**
- a. The permittee shall submit Periodic Reports semiannually. The reports shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. The report shall include certification by a responsible official of truth, accuracy, and completeness.
 - b. The permittee shall include the following information and any other information as applicable in §63.1285(e)(2).
 - i. A description of all deviations as defined in Conditions VI.9-11 that have occurred during the 6-month reporting period, and the information described in §63.1285(e)(2)(ii).
 - ii. For each inspection conducted in accordance with Condition VI.4 during which a leak or defect is detected, the records described in Condition VI.18 must be included in the next Periodic Report.
 - iii. For each closed-vent system with a bypass line, records required under Condition VI.17.e and f.
 - iv. A statement identifying if there were no deviations during the reporting period.
 - v. Any change in compliance methods as described in §63.1282(e).

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- vi. The results of any periodic test conducted during the reporting period.
- 7. Whenever a process change is made, or a change in any of the information submitted in the Notification of Compliance Status Report, the permittee shall submit a report within 180 days after the process change is made or as a part of the next Periodic Report, whichever is sooner. The report shall include: **(40 CFR 63.1285(f))**
 - a. A brief description of the process change;
 - b. A description of any modification to standard procedures or quality assurance procedures;
 - c. Revisions to any of the information reported in the original Notification of Compliance Status Report under Condition VII.5
 - d. Information required by the Notification of Compliance Status Report under Condition VII.5 for changes involving the addition of processes or equipment.
- 8. Within 60 days after the date of completing a performance test (defined in § 63.2) you must submit the results of the performance tests to EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). Performance test data must be submitted in the file format generated through use of EPA's Electronic Reporting Tool (ERT) (see <http://www.epa.gov/ttn/chief/ert/index.html>). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. All reports required by this subpart not subject to the above electronic reporting requirements must be sent to the Administrator at the appropriate address. The Administrator may request a report in any form suitable for the specific case (e.g., by commonly used electronic media such as Excel spreadsheet, on CD or hard copy). The Administrator retains the right to require submittal of reports in paper format. **(40 CFR 63.1285(g))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|
| NA | NA | NA | NA |

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall determine major source status using the maximum annual facility natural gas throughput calculated according to 40 CFR 63.1270(a)(1)(i) through (a)(1)(iv). As an alternative to calculating the maximum natural gas throughput, the owner or operator of a new or existing source may use the facility design maximum natural gas throughput to estimate the maximum potential emissions. **(40 CFR 63.1270(a)(1))**

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2. The permittee shall determine the maximum values for other parameters used to calculate potential emissions as the maximum over the same period for which maximum throughput is determined. These parameters shall be based on an annual average or the highest single measured value. For estimating maximum potential emissions from glycol dehydration units, the glycol circulation rate used in the calculation shall be the unit's maximum rate under its physical and operational design consistent with the definition of potential to emit in 40 CFR 63.2. **(40 CFR 63.1270(a)(4))**
3. A site-specific monitoring plan must be prepared that addresses the monitoring system design, data collection, and the quality assurance and quality control elements. Each CPMS must be installed, calibrated, operated, and maintained in accordance with the procedures in your approved site-specific monitoring plan. The permittee may request approval of monitoring system quality assurance and quality control procedures alternative to those specified below and in your site-specific monitoring plan. **(40 CFR 63.1283(d)(1)(ii-iv))**
 - a. The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;
 - b. Sampling interface (e.g., thermocouple) location such that the monitoring system will provide representative measurements;
 - c. Equipment performance checks, system accuracy audits, or other audit procedures;
 - d. Ongoing operation and maintenance procedures in accordance with provisions in § 63.8(c)(1) and (c)(3);
 - e. Ongoing reporting and recordkeeping procedures in accordance with provisions in § 63.10(c), (e)(1), and (e)(2)(i).
 - f. The permittee must conduct the CPMS equipment performance checks, system accuracy audits, or other audit procedures specified in the site-specific monitoring plan at least once every 12 months.
 - g. The permittee must conduct a performance evaluation of each CPMS in accordance with the site-specific monitoring plan.
4. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart HHH, for Natural Gas Transmission and Storage Facilities by October 15, 2015. **(40 CFR, Part 63, Subparts A and HHH)**

Footnotes:

¹This Condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This Condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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**FGMACTDDDDD-EXISTING GAS1
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Unit Designed to Burn Gas 1 Subcategory requirements for Existing Boilers and Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD with heat input values less than 50 mmbtu/hr.

Emission Units: EURC001 (8 MMBtu/hr) Kewanee boiler L3W-200-G, EURC025 (0.125 MMBtu/hr) Maintenance garage boiler.

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Monitoring/ Testing Method | Underlying Applicable Requirements |
|-----------|-------|---------------------------------|-----------|----------------------------|------------------------------------|
| NA | NA | NA | NA | NA | NA |

II. MATERIAL LIMIT(S)

| Material | Limit | Time Period/ Operating Scenario | Equipment | Monitoring/ Testing Method | Underlying Applicable Requirements |
|----------|-------|---------------------------------|-----------|----------------------------|------------------------------------|
| NA | NA | NA | NA | NA | NA |

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The Permittee must conduct an initial performance tune-up no later than January 31, 2016 for EURC001 according to § 63.7540(a)(11). Subsequent biennial tune-ups must be conducted no more than 25 months after the previous tune-up. (40 CFR 63.7510(e), 40 CFR 63.7515(d), 40 CFR 63.7540(a)(11), 40 CFR, Part 63, Subpart DDDDD, Table 3.3)
2. The Permittee must conduct an initial performance tune-up no later than January 31, 2016 for EURC025 according to § 63.7540(a)(12). Subsequent 5-year tune-ups must be conducted no more than 61 months after the previous tune-up. (40 CFR 63.7510(e), 40 CFR 63.7515(d), 40 CFR 63.7540(a)(12), 40 CFR, Part 63, Subpart DDDDD, Table 3.3)
3. The permittee shall complete a one-time energy assessment specified in Table 3.4(a) through (h) no later than January 31, 2016 for all Emission Units in FGMACTDDDDD-EXISTINGGAS1. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements, satisfies the energy assessment requirement. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following:
 - a. A visual inspection of the boiler or process heater system.
 - b. An evaluation of operating characteristics of the boiler or process heater systems, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints.
 - c. An inventory of major energy use systems consuming energy from affected boilers and process heaters and which are under the control of the boiler/process heater owner/operator.

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- d. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage.
- e. A review of the facility's energy management practices and provide recommendations for improvements consistent with the definition of energy management practices, if identified.
- f. A list of cost-effective energy conservation measures that are within the facility's control.
- g. A list of the energy savings potential of the energy conservation measures identified.
- h. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.
(40 CFR 63.7510(e), 40 CFR, Part 63, Subpart DDDDD, Table 3.4)

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- 1. The Permittee shall maintain a copy of each notification and report submitted to comply with 40 CFR Part 63, Subpart DDDDD including all documentation supporting any Initial Notification or Notification of Compliance Status or Semiannual Compliance report that was submitted, according to the requirements in § 63.10(b)(2)(xiv) and any records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in § 63.10(b)(2)(viii). (40 CFR 63.7555)

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))
- 4. A compliance report containing the following information shall be submitted by January 31, 20018 and biennially thereafter for EURC001 and by January 31, 2021 and every 5 years thereafter for EURC025.
 - a. Company and Facility name and address.
 - b. Process unit information, emissions limitations, and operating parameter limitations.
 - c. Date of report and beginning and ending dates of the reporting period.
 - d. The total operating time during the reporting period.
 - e. Include the date of the most recent tune-up for EURC001 and EURC025. Include the date of the most recent burner inspection if it was not done biennially for EURC001, or on a 5-year period for EURC025 and was delayed until the next scheduled or unscheduled unit shutdown.
(40 CFR 63.7550(b), 40 CFR 63.7550(c)(5))

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~~4. The permittee shall submit a Notification of Compliance Status (NOCS) following the initial compliance demonstration. The NOCS must contain the following:~~

~~a. A description of each Emission Unit including identification of which subcategories the EU is in and the design heat input capacity of the EU~~

~~b. The following certifications of compliance, as applicable, and signed by a responsible official:~~

~~i. "This facility complies with the required initial tune-up according to the procedures in § 63.7540(a)(10)(i) through (vi)."~~

~~ii. "This facility has had an energy assessment performed according to § 63.7530(e) and is an accurate depiction of the facility at the time of the assessment."
(40 CFR 63.7530(d),(e) and (f), 40 CFR 63.7545(e))~~

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|
| NA | NA | NA | NA |

IX. OTHER REQUIREMENT(S)

~~1. The Permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart DDDDD: Industrial, Commercial, and Institutional Boilers and Process Heaters no later than January 31, 2016. (40 CFR, Part 63, Subpart DDDDD, 40 CFR 63.7495(b))~~

Footnotes:

¹This Condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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**FGMACTDDDDD-NEWGAS1
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Gas 1 Fuel Subcategory requirements for new Boilers/Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD. These new boilers or process heaters must comply with this subpart upon startup.

Emission Units:

| | |
|--|-------------------------|
| <u>Less than 5 MMBtu/hr</u> | <u>EURC027, EURC028</u> |
| <u>Equal to or greater than 5 MMBtu/hr and less than 10 MMBtu/hr</u> | <u>None</u> |
| <u>Equal to or greater than 10 MMBtu/hr</u> | <u>EURC016, EURC017</u> |

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

| <u>Pollutant</u> | <u>Limit</u> | <u>Time Period/ Operating Scenario</u> | <u>Equipment</u> | <u>Monitoring/ Testing Method</u> | <u>Underlying Applicable Requirements</u> |
|------------------|--------------|--|------------------|-----------------------------------|---|
| <u>NA</u> | <u>NA</u> | <u>NA</u> | <u>NA</u> | <u>NA</u> | <u>NA</u> |

II. MATERIAL LIMIT(S)

1. The permittee shall only burn fuels as allowed in the Unit designed to burn gas 1 subcategory definition in 40 CFR 63.7575. (40 CFR 63.7499(I))

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must meet the requirements in paragraphs (a)(1) and (3) of 40 CFR 63.7500, as listed below, except as provided in paragraphs (b) and (e) of 40 CFR 63.7500, stated in SC III.2 and SC III.3. The permittee must meet these requirements at all times the affected unit is operating. (40 CFR 63.7500(a))
 - a. The permittee must meet each work practice standard in Table 3 of 40 CFR Part 63, Subpart DDDDD that applies to the boiler or process heater, for each boiler or process heater at the source. (40 CFR 63.7500(a)(1))

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b. At all times, the permittee must operate and maintain any affected source (as defined in 40 CFR 63.7490, stated in SC IX.1), including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. (40 CFR 63.7500(a)(3))

2. As provided in 40 CFR 63.6(g), EPA may approve use of an alternative to the work practice standards. (40 CFR 63.7500(b))

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3. Boilers and process heaters in the units designed to burn gas 1 fuels subcategory are not subject to the emission limits in Tables 1 and 2 or 11 through 13 of 40 CFR Part 63, Subpart DDDDD, or the operating limits in Table 4 of 40 CFR Part 63, Subpart DDDDD. Boilers and process heaters in the units designed to burn gas 1 fuel subcategory with a heat input capacity: (40 CFR 63.7500(e))

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a. Of greater than 10 MMBtu per hour must complete an annual tune-up as specified in 40 CFR 63.7540, stated in SC IX.5. (40 CFR 63.7500(e))

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b. Of less than or equal to 5 MMBtu per hour must complete a tune-up every 5-years as specified in 40 CFR 63.7540, stated in SC IX.5. (40 CFR 63.7500(e))

4. The permittee must demonstrate initial compliance with the applicable work practice standards in Table 3 to 40 CFR Part 63, Subpart DDDDD within the applicable annual or 5-year schedule as specified in 40 CFR 63.7515(d), stated in SC III.5, following the initial compliance date specified in 40 CFR 63.7495(a), stated in SC IX.2. Thereafter, you are required to complete the applicable annual or 5-year tune-up as specified in 40 CFR 63.7515(d), stated in SC III.5. (40 CFR 63.7510(g))

5. If the permittee is required to meet an applicable tune-up work practice standard, the permittee must:

a. Conduct the first annual tune-up no later than 13-months after the initial startup of the new or reconstructed boiler or process heater, or the first 5-year tune-up no later than 61-months after the initial startup of the new or reconstructed boiler or process heater.

b. Conduct an annual performance tune-up according to 40 CFR 63.7540(a)(10), stated in SC IX.5.a; or 5-year performance tune-up according to 40 CFR 63.7540(a)(12), stated in SC IX.5.b. Each annual tune-up specified in 40 CFR 63.7540(a)(10) must be no more than 13-months after the previous tune-up. Each 5-year tune-up specified in 40 CFR 63.7540(a)(12) must be conducted no more than 61-months after the previous tune-up. (40 CFR 63.7515(d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (40 CFR 63.7560(b))

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1. The permittee must keep records according to paragraphs (a)(1) and (2) of 40 CFR 63.7555, as listed below. (40 CFR 63.7555(a))
 - a. A copy of each notification and report that the permittee submitted to comply with 40 CFR Part 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status or semiannual compliance report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv). (40 CFR 63.7555(a)(1))
 - b. Records of performance tests, fuel analyses, or other compliance demonstrations and performance evaluations as required in 40 CFR 63.10(b)(2)(viii). (40 CFR 63.7555(a)(2))
2. If the permittee operates a unit in the unit designed to burn gas 1 subcategory that is subject to 40 CFR Part 63, Subpart DDDDD, and the permittee uses an alternative fuel other than natural gas, refinery gas, gaseous fuel subject to another subpart under 40 CFR Part 63, other gas 1 fuel, or gaseous fuel subject to another subpart of 40 CFR Part 60 or Parts 61, Part 63, or Part 65, the permittee must keep records of the total hours per calendar year that alternative fuel is burned and the total hours per calendar year that the unit operated during periods of gas curtailment or gas supply emergencies. (40 CFR 63.7555(h))
3. The permittee's records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1). (40 CFR 63.7560(a))
4. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5-years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. (40 CFR 63.7560(b))
5. The permittee must keep each record on site, or they must be accessible from on-site (for example, through a computer network), for at least 2-years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off site for the remaining 3-years. (40 CFR 63.7560(c))

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See Appendices 3 and 4

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))
4. The permittee must meet the notification requirements in 40 CFR 63.7545 according to the schedule in 40 CFR 63.7545, both stated in SC VII.6 through SC VII.11, and in Subpart A of 40 CFR Part 63. (40 CFR 63.7495(d))

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5. The permittee must report each instance in which they did not meet each emission limit and operating limit in Tables 1 through 4 to this subpart that applies. These instances are deviations from the emission limits or operating limits, respectively, in this subpart. These deviations must be reported according to the requirements in 40 CFR 63.7550, cited in SC VII.12. (40 CFR 63.7540(b))
6. The permittee must submit to the Administrator all of the notifications in 40 CFR 63.7(b) and (c), 40 CFR 63.8(e), (f)(4) and (6), and 40 CFR 63.9(b) through (h) that apply to the permittee by the dates specified. (40 CFR 63.7545(a))
7. As specified in 40 CFR 63.9(b)(2), if the permittee starts up the affected source before January 31, 2013, the permittee must submit an Initial Notification not later than 120 days after January 31, 2013. (40 CFR 63.7545(b))
8. As specified in 40 CFR 63.9(b)(4) and (5), if the permittee starts up the new or reconstructed affected source on or after January 31, 2013, the permittee must submit an Initial Notification not later than 15-days after the actual date of startup of the affected source. (40 CFR 63.7545(c))
9. If the permittee operates a unit designed to burn natural gas, refinery gas, or other gas 1 fuels that is subject to 40 CFR Part 63, Subpart DDDDD, and the permittee intends to use a fuel other than natural gas, refinery gas, gaseous fuel subject to another subpart of 40 CFR Part 63, Part 60, Part 61, or Part 65, or other gas 1 fuel to fire the affected unit during a period of natural gas curtailment or supply interruption, as defined in 40 CFR 63.7575, the permittee must submit a notification of alternative fuel use within 48 hours of the declaration of each period of natural gas curtailment or supply interruption, as defined in 40 CFR 63.7575. The notification must include the information specified in paragraphs (f)(1) through (5) of 40 CFR 63.7545, as listed below. (40 CFR 63.7545(f))
 - a. Company name and address. (40 CFR 63.7545(f)(1))
 - b. Identification of the affected unit. (40 CFR 63.7545(f)(2))
 - c. Reason the permittee is unable to use natural gas or equivalent fuel, including the date when the natural gas curtailment was declared or the natural gas supply interruption began. (40 CFR 63.7545(f)(3))
 - d. Type of alternative fuel that the permittee intends to use. (40 CFR 63.7545(f)(4))
 - e. Dates when the alternative fuel use is expected to begin and end. (40 CFR 63.7545(f)(5))
10. If the permittee intends to commence or recommence combustion of solid waste, the permittee must provide 30 days prior notice of the date upon which the permittee will commence or recommence combustion of solid waste. The notification must identify: (40 CFR 63.7545(g))
 - a. The name of the owner or operator of the affected source, as defined in 40 CFR 63.7490, stated in SC IX.1, the location of the source, the boiler(s) or process heater(s) that will commence burning solid waste, and the date of the notice. (40 CFR 63.7545(g)(1))
 - b. The currently applicable subcategories under 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7545(g)(2))
 - c. The date on which the permittee became subject to the currently applicable emission limits. (40 CFR 63.7545(g)(3))
 - d. The date upon which the permittee will commence combusting solid waste. (40 CFR 63.7545(g)(4))
11. If the permittee has switched fuels or made a physical change to the boiler or process heater and the fuel switch or physical change resulted in the applicability of a different subcategory, the permittee must provide notice of the date upon which the permittee switched fuels or made the physical change within 30-days of the switch/change. The notification must identify: (40 CFR 63.7545(h))

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- a. The name of the owner or operator of the affected source, as defined in 40 CFR 63.7490, stated in SC IX.1, the location of the source, the boiler(s) and process heater(s) that have switched fuels, were physically changed, and the date of the notice. (40 CFR 63.7545(h)(1))
- b. The currently applicable subcategory under 40 CFR Part 63, Subpart DDDDD. (40 CFR 63.7545(h)(2))
- c. The date upon which the fuel switch or physical change occurred. (40 CFR 63.7545(h)(3))

12. The permittee must submit each report in Table 9 of 40 CFR Part 63, Subpart DDDDD that applies. (40 CFR 63.7550(a))

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13. Unless the EPA Administrator has approved a different schedule for submission of reports under 40 CFR 63.10(a), the permittee must submit each report, according to paragraph (h) of 40 CFR 63.7550, stated in SC VII.15, by the date in Table 9 of 40 CFR Part 63, Subpart DDDDD and according to the requirements in paragraphs (b)(1) through (4) of 40 CFR 63.7550, as listed below. For units that are subject only to a requirement to conduct an annual tune-up according to 40 CFR 63.7540(a)(10), stated in SC IX.5.a, or 5-year tune-up according to 40 CFR 63.7540(a)(12), stated in SC IX.5.b, and not subject to emission limits or operating limits, the permittee may submit only an annual or 5-year compliance report, as applicable, as specified in paragraphs (b)(1) through (4) of 40 CFR 63.7550, as listed below, instead of a semi-annual compliance report. (40 CFR 63.7550(b))

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- a. When submitting an annual, or 5-year compliance report, the first compliance report must cover the period beginning on the compliance date specified for each boiler or process heater in 40 CFR 63.7495 and ending on December 31 within 1, or 5-years, as applicable, after the compliance date that is specified in 40 CFR 63.7495. (40 CFR 63.7550(b)(1))
- b. The first annual, or 5-year compliance report must be postmarked or submitted no later than March 15. (40 CFR 63.7550(b)(2), 40 CFR 63.7550(b)(5))
- c. Annual compliance reports must cover the 1 year periods from January 1 to December 31. 5-year compliance reports must cover the applicable 5-year period from January 1 to December 31. (40 CFR 63.7550(b)(3))
- d. Annual and 5-year compliance reports must be postmarked or submitted no later than March 15. (40 CFR 63.7550(b)(4), (40 CFR 63.10(a)(5))

14. A compliance report must contain the following information depending on how the permittee chooses to comply with the limits set in this rule. (40 CFR 63.7550(c))

- a. If the facility is subject to the requirements of a tune up the permittee must submit a compliance report with the information in paragraphs (c)(5)(i) through (iii), (xiv), and (xvii) of 40 CFR 63.7550. (40 CFR 63.7550(c)(1))
- b. 40 CFR 63.7550(c)(5)(i) through (iii), (xiv), and (xvii) is as follows:
 - i. Company and Facility name and address. (40 CFR 63.7550(c)(5)(i))
 - ii. Process unit information, emissions limitations, and operating parameter limitations. (40 CFR 63.7550(c)(5)(ii))
 - iii. Date of report and beginning and ending dates of the reporting period. (40 CFR 63.7550(c)(5)(iii))
 - iv. Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual tune-up according to 40 CFR 63.7540(a)(10), stated in SC IX.5.a, or 5-year tune-up according to 40 CFR 63.7540(a)(12), stated in SC IX.5.b. Include the date of the most recent burner inspection if it was not done annually, biennially, or on a 5-year period and was delayed until the next scheduled or unscheduled unit shutdown. (40 CFR 63.7550(c)(5)(xiv))
 - v. Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report. (40 CFR 63.7550(c)(5)(xvii))

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15. The permittee must submit the reports according to the procedures specified in paragraph (h)(3) of 40 CFR 63.7550, as listed below. (40 CFR 63.7550(h))

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a. The permittee must submit all reports required by Table 9 of 40 CFR Part 63, Subpart DDDDD electronically to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). (CEDRI can be accessed through the EPA's CDX.) The permittee must use the appropriate electronic report in CEDRI for 40 CFR Part 63, Subpart DDDDD. Instead of using the electronic report in CEDRI for 40 CFR Part 63, Subpart DDDDD, the permittee 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 40 CFR Part 63, Subpart DDDDD is not available in CEDRI at the time that the report is due, the permittee must submit the report to the Administrator at the appropriate address listed in 40 CFR 63.13. The permittee must begin submitting reports via CEDRI no later than 90-days after the form becomes available in CEDRI. (40 CFR 63.7550(h)(3))

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VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

IX. OTHER REQUIREMENT(S)

| <u>Stack & Vent ID</u> | <u>Maximum Exhaust Dimensions (inches)</u> | <u>Minimum Height Above Ground (feet)</u> | <u>Underlying Applicable Requirements</u> |
|----------------------------|--|---|---|
| <u>NA</u> | <u>NA</u> | <u>NA</u> | <u>NA</u> |

1. 40 CFR Part 63, Subpart DDDDD applies to new or reconstructed affected sources as described in paragraph (a)(2) of 40 CFR 63.7490, as listed below. (40 CFR 63.7490(a))

a. The affected source of 40 CFR Part 63, Subpart DDDDD is each new or reconstructed industrial, commercial, or institutional boiler or process heater, as defined in 40 CFR 63.7575, located at a major source. (40 CFR 63.7490(a)(2))

2. A boiler or process heater is:

a. New if the permittee commences construction of the boiler or process heater after June 4, 2010, and the permittee meets the applicability criteria at the time the permittee commences construction. (40 CFR 63.7490(b))

b. Reconstructed if the permittee meets the reconstruction criteria as defined in 40 CFR 63.2, the permittee commences reconstruction after June 4, 2010, and the permittee meets the applicability criteria at the time the permittee commence reconstruction. (40 CFR 63.7490(c))

3. For affected sources, as defined in 40 CFR 63.7490, that switch subcategory consistent with 40 CFR 63.7545(h), stated in SC VII.11, after the initial compliance date, the permittee must demonstrate compliance within 60 days of the effective date of the switch, unless the compliance demonstration for this subcategory has been conducted within the previous 12 months. (40 CFR 63.7510(k))

4. For affected sources (as defined in 40 CFR 63.7490, stated in SC IX.1) that have not operated since the previous compliance demonstration and more than one year has passed since the previous compliance demonstration, the permittee must complete a subsequent tune-up by following the procedures described in

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40 CFR 63.7540(a)(10)(i) through (vi), stated in SC IX.5.a and b, and the schedule described in 40 CFR 63.7540(a)(13), stated in SC IX.5.c, for units that are not operating at the time of their scheduled tune-up. (40 CFR 63.7515(g))

5. The permittee must demonstrate continuous compliance with the work practice standards in Table 3 of 40 CFR Part 63, Subpart DDDDD that applies according to the methods specified in paragraphs (a)(10) through (13) of 40 CFR 63.7540, as listed below. (40 CFR 63.7540(a))
- a. If the boiler or process heater has a heat input capacity of 10 MMBtu per hour or greater, the permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (vi) of 40 CFR 63.7540, as listed below. The tune-up must be conducted while burning the type of fuel or fuels in case of units that routinely burn a mixture) that provided the majority of the heat input to the boiler or process heater over the 12-months prior to the tune-up. This frequency does not apply to units with continuous oxygen trim systems that maintain an optimum air to fuel ratio. (40 CFR 63.7540(a)(10))
- i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may perform the burner inspection any time prior to the tune-up or delay the burner inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36-months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment. (40 CFR 63.7540(a)(10)(i))
- ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available. (40 CFR 63.7540(a)(10)(ii))
- iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36-months from the previous inspection. (40 CFR 63.7540(a)(10)(iii))
- iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_x requirement to which the unit is subject. (40 CFR 63.7540(a)(10)(iv))
- v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. (40 CFR 63.7540(a)(10)(v))
- vi. Maintain on-site and submit, if requested by the Administrator, a report containing the information in paragraphs (a)(10)(vi)(A) through (C) of 40 CFR 63.7540, as listed below. (40 CFR 63.7540(a)(10)(vi))
- (1) The concentrations of CO in the effluent stream in ppm by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater. (40 CFR 63.7540(a)(10)(vi)(A))
- (2) A description of any corrective actions taken as a part of the tune-up. 40 CFR 63.7540(a)(10)(vi)(B)
- (3) The type and amount of fuel used over the 12-months prior to the tune-up, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel used by each unit. (40 CFR 63.7540(a)(10)(vi)(C))
- b. If the boiler or process heater has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 MMBtu per hour and the unit is in the units designed to burn gas 1 subcategory, the permittee must conduct a tune-up of the boiler or process heater every 5-years as specified in paragraphs (a)(10)(i) through (vi) of 40 CFR 63.7540 to demonstrate continuous compliance. The permittee may delay the burner inspection specified in paragraph (a)(10)(i) of 40 CFR 63.7540 until the next scheduled or unscheduled unit shutdown, but the permittee must inspect each burner at least once every 72-months. If an oxygen trim system is utilized on a unit without emission

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standards to reduce the tune-up frequency to once every 5-years, set the oxygen level no lower than the oxygen concentration measured during the most recent tune-up. (40 CFR 63.7540(a)(12))

c. If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30-calendar days of startup. (40 CFR 63.7540(a)(13))

6. Table 10 of 40 CFR Part 63, Subpart DDDDD shows which parts of the General Provisions in 40 CFR 63.1 through 63.15 applies to the permittee. (40 CFR 63.7565)

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Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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DESCRIPTION

Unit Designed to Burn Gas 1 Subcategory requirements for New or Reconstructed Boilers and Process Heaters at major sources of Hazardous Air Pollutants per 40 CFR Part 63, Subpart DDDDD. New and reconstructed boilers or process heaters must comply with this subpart upon startup.

Emission Units: EURC016 25.5 MMBtu gas withdrawal heater, EURC017 25.5 MMBtu gas withdrawal heater, EURC027 2.97 MMBtu natural gas fired boiler, EURC028 2.97 MMBtu natural gas fired boiler.

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period/ Operating Scenario | Equipment | Monitoring/ Testing Method | Underlying Applicable Requirements |
|-----------|-------|---------------------------------|-----------|----------------------------|------------------------------------|
| NA | NA | NA | NA | NA | NA |

II. MATERIAL LIMIT(S)

1. The permittee shall only burn fuels as allowed in the Unit Designed to Burn Gas 1 Subcategory definition in 40 CFR 63.7575. (40 CFR 63.7499(I))

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee must meet the requirements in paragraphs (a)(1) and (3) of 40 CFR 63.7500, as listed below, except as provided in paragraphs (b) and (e) of 40 CFR 63.7500, stated below. (40 CFR 63.7500(a))

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a. The permittee must meet each work practice standard in Table 3 of 40 CFR Part 63, Subpart DDDDD that applies to FGMACTDDDD-NEWGAS1. Boilers and process heaters in the Units Designed to Burn Gas 1 Subcategory with a heat input capacity of greater than 10 million Btu per hour (EURC016 and EURC017) must complete an annual tune-up as specified in 40 CFR 63.7540, stated in SC III.3. Boilers and process heaters in the Units Designed to Burn Gas 1 Subcategory with a heat input capacity of less than or equal to 5 million Btu per hour (EURC027 and EURC028) must complete a tune-up every 5-years as specified in 40 CFR 63.7540, stated in SC III.3. (40 CFR 63.7500(a)(1))

b. At all times, the permittee must operate and maintain FGMACTDDDD-NEWGAS1, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may

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PTI No.: MI-PTI-B3721B3721-

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~~include, but is not limited to, monitoring results, review of operation and maintenance procedures, (40 CFR 63.7500(a)(3))~~

- ~~2. For new affected sources (as defined in §63.7490), you must demonstrate initial compliance with the requirement to conduct a tune-up within the applicable annual or 5-year schedule as specified in §63.7540(a), as stated in SC III.4, upon startup. Thereafter, you are required to complete the applicable annual or 5-year tune-up as specified in §63.7540(a). (40 CFR 63.7540(a))~~
- ~~3. The permittee must conduct an annual performance tune-up according to 40 CFR 63.7540(a)(10), stated in SC III.4.3.a; or 5-year performance tune-up according to 40 CFR 63.7540(a)(12), stated in SC III.4.b. Each annual tune-up specified in 40 CFR 63.7540(a)(10) must be no more than 13 months after the previous tune-up. Each 5-year tune-up specified in 40 CFR 63.7540(a)(12) must be conducted no more than 61 months after the previous tune-up. (40 CFR 63.7545(d))~~
- ~~4. The permittee must demonstrate continuous compliance with the work practice standards (Tune-ups) in Table 3 of 40 CFR Part 63, Subpart DDDDD that applies according to the methods specified in paragraphs (a)(10) through (13) of 40 CFR 63.7540, as listed below. (40 CFR 63.7540(a))~~
 - ~~a. If the boiler or process heater has a heat input capacity of 10 million Btu per hour or greater, the permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in paragraphs (a)(10)(i) through (vi) of 40 CFR 63.7540, as listed below. This frequency does not apply to units with continuous oxygen trim systems that maintain an optimum air to fuel ratio. (40 CFR 63.7540(a)(10))~~
 - ~~i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the permittee may delay the burner inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection. At units where entry into a piece of process equipment or into a storage vessel is required to complete the tune-up inspections, inspections are required only during planned entries into the storage vessel or process equipment. (40 CFR 63.7540(a)(10)(i))~~
 - ~~ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available. (40 CFR 63.7540(a)(10)(ii))~~
 - ~~iii. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the permittee may delay the inspection until the next scheduled unit shutdown). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection. (40 CFR 63.7540(a)(10)(iii))~~
 - ~~iv. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any NO_x requirement to which the unit is subject. (40 CFR 63.7540(a)(10)(iv))~~
 - ~~v. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. (40 CFR 63.7540(a)(10)(v))~~
 - ~~vi. Maintain on-site and submit, if requested by the Administrator, an annual report containing the information listed below. (40 CFR 63.7540(a)(10)(vi))~~
 - ~~(1). The concentrations of CO in the effluent stream in parts per million by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler or process heater. (40 CFR 63.7540(a)(10)(vi)(A))~~
 - ~~(2). A description of any corrective actions taken as a part of the tune-up. (40 CFR 63.7540(a)(10)(vi)(B))~~
 - ~~— If the boiler or process heater has a continuous oxygen trim system that maintains an optimum air to fuel ratio, or a heat input capacity of less than or equal to 5 MMBtu per hour and the unit is in the units designed to burn gas 1 subcategory, the permittee must conduct a tune-up of the boiler or process heater every 5 years as specified in paragraphs (a)(10)(i) through (vi) of 40 CFR 63.7540 to demonstrate continuous compliance. The permittee may delay the burner inspection specified in paragraph (a)(10)(i) of 40 CFR 63.7540 until the next scheduled or unscheduled unit shutdown, but the permittee must inspect each burner~~

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~~at least once every 72 months. If an oxygen trim system is utilized on a unit without emission standards to reduce the tune-up frequency to once every 5 years, set the oxygen level no lower than the oxygen concentration measured during the most recent tune-up. (40 CFR 63.7540(a)(12))~~

~~b. If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 calendar days of startup. (40 CFR 63.7540(a)(13))~~

~~5. The permittee must be in compliance with the work practice standards of 40 CFR Part 63, Subpart DDDDD. These limits apply at all times. (40 CFR 63.7505(a))~~

~~6. If EURC016 or EURC017 have not operated since the previous tune-up and more than one year has passed since the previous tune-up, the permittee must complete a subsequent tune-up within 30 calendar days of startup for units that are not operating at the time of their scheduled tune-up. (40 CFR 63.7515(g))~~

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

~~Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))~~

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VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee must keep records as listed below. **(40 CFR 63.7555)**
 - a. A copy of each notification and report that the permittee submitted to comply with 40 CFR Part 63, Subpart DDDDD, including all documentation supporting any Initial Notification or Notification of Compliance Status report that the permittee submitted, according to the requirements in 40 CFR 63.10(b)(2)(xiv). **(40 CFR 63.7555(a)(1))**
 - b. The permittee must maintain records of the calendar date, time, occurrence and duration of each startup and shutdown. **(40 CFR 63.7555(i))**
 - c. The permittee must maintain records of the type(s) and amount(s) of fuels used during each startup and shutdown. **(40 CFR 63.7555(j))**
2. The permittee's records must be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1). **(40 CFR 63.7560(a))**
3. As specified in 40 CFR 63.10(b)(1), the permittee must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. **(40 CFR 63.7560(b))**
4. The permittee must keep each record on site, or they must be accessible from on-site (for example, through a computer network), for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The permittee can keep the records off-site for the remaining 3 years. **(40 CFR 63.7560(c))**

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. The permittee must meet the notification requirements in 40 CFR 63.7545 according to the schedule in 40 CFR 63.7545 as stated in SC VII.9 and in Subpart A of 40 CFR 63. **(40 CFR 63.7495(d))**
5. The permittee must submit a signed statement in the Notification of Compliance Status report that indicates that the permittee conducted a tune-up of the unit. **(40 CFR 63.7530(d))**
6. The permittee must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in 40 CFR 63.7545(e), stated in SC VII.9. **(40 CFR 63.7530(f))**
7. The permittee must report each instance in which they did not meet a work practice standard in Table 3 of 40 CFR Part 63, Subpart DDDDD. These instances are deviations from the work practice standards. These deviations must be reported according to the requirements in 40 CFR 63.7550, cited in SC VII.10. **(40 CFR 63.7540(b))**
8. The permittee must submit to the Administrator all of the notifications in 40 CFR 63.9(b) through (h) that apply to the permittee by the dates specified. **(40 CFR 63.7545(a))**

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9. ~~The permittee must submit a Notification of Compliance Status according to 40 CFR 63.9(h)(2)(ii). For the initial compliance demonstration for each boiler or process heater, the permittee must submit the Notification of Compliance Status before the close of business on the 60th day following the completion of all initial compliance demonstrations (tune-ups) for all boiler or process heaters at the facility according to 40 CFR 63.10(d)(2). The Notification of Compliance Status must only contain the information specified in paragraphs (e)(1) and (8) as stated below. (40 CFR 63.7545(e))~~
- a. ~~A description of the affected unit(s) including identification of which subcategories the unit is in, the design heat input capacity of the unit, a description of the add-on controls used on the unit to comply with 40 CFR Part 63, Subpart DDDDD, description of the fuel(s) burned, including whether the fuel(s) were a secondary material determined by the permittee or the EPA through a petition process to be a non-waste under 40 CFR 241.3, whether the fuel(s) were a secondary material processed from discarded non-hazardous secondary materials within the meaning of 40 CFR 241.3, and justification for the selection of fuel(s) burned during the compliance demonstration. (40 CFR 63.7545(e)(1))~~
 - b. ~~In addition to the information required in 40 CFR 63.9(h)(2), your notification of compliance status must include the following certification(s) of compliance, as applicable, and signed by a responsible official: (40 CFR 63.7545(e)(8))~~
 - i. ~~"This facility complies with the required initial tune-up according to the procedures in 40 CFR 63.7540(a)(10)(i) through (vi)." (40 CFR 63.7545(e)(8)(i))~~
10. ~~The permittee must submit each the compliance report in Table 9 of 40 CFR Part 63, Subpart DDDDD that applies. (40 CFR 63.7550(a))~~
11. ~~The permittee must submit each annual or 5-year compliance report as specified in paragraphs (b)(1), (2), (3) and (4), and (5) of 40 CFR 63.7550, as listed below. (40 CFR 63.7550(b))~~
- ~~When submitting an annual, or 5-year compliance report, the first compliance report must cover the period beginning on the compliance date specified for each boiler or process heater in 40 CFR 63.7495 and ending on December 31 within 1, or 5 years, as applicable, after the compliance date that is specified in 40 CFR 63.7495. (40 CFR 63.7550(b)(1))~~
 - ~~The first annual, or 5-year compliance report must be postmarked or submitted no later than March 15. (40 CFR 63.7550(b)(2), 40 CFR 63.7550(b)(5))~~
 - a. ~~Annual compliance reports must cover the 1 year periods from January 1 to December 31. 5-year compliance reports must cover the applicable 5-year period from January 1 to December 31. (40 CFR 63.7550(b)(3))~~
 - b. ~~Annual and 5-year compliance reports must be postmarked or submitted no later than March 15. (40 CFR 63.7550(b)(4), 40 CFR 63.10(a)(5))~~
12. ~~A compliance report must contain the following information depending on how the permittee chooses to comply with the limits set in this rule. (40 CFR 63.7550(c))~~
- a. ~~If the facility is subject to the requirements of a tune up they must submit a compliance report with the information in paragraphs (c)(5)(i) through (iv) and (xiv) of 40 CFR 63.7550. (40 CFR 63.7550(c)(1))~~
 - b. ~~40 CFR 63.7550(c)(5) is as follows:~~
 - i. ~~Company and Facility name and address. (40 CFR 63.7550(c)(5)(i))~~
 - ii. ~~Process unit information, emissions limitations, and operating parameter limitations. (40 CFR 63.7550(c)(5)(ii))~~
 - iii. ~~Date of report and beginning and ending dates of the reporting period. (40 CFR 63.7550(c)(5)(iii))~~
 - iv. ~~The total operating time during the reporting period. (40 CFR 63.7550(c)(5)(iv))~~
 - v. ~~Include the date of the most recent tune-up for each unit subject to only the requirement to conduct an annual tune-up according to 40 CFR 63.7540(a)(10). Include the date of the most recent burner inspection if it was not done annually and was delayed until the next scheduled or unscheduled unit shutdown. (40 CFR 63.7550(c)(5)(xiv))~~
13. ~~The permittee must submit all reports required by Table 9 of 40 CFR Part 63, Subpart DDDDD to USEPA electronically using CEDRI that is accessed through the EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to 40 CFR Part 63, Subpart DDDDD is not available in CEDRI at the time that the report is due the report the permittee must submit the report to the Administrator at~~

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~~the appropriate address listed in 40 CFR 63.13. At the discretion of the Administrator, the permittee must also submit these reports, to the Administrator in the format specified by the Administrator. (40 CFR 63.7550(h)(3))~~

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VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|-----------------|-------------------------------------|------------------------------------|------------------------------------|
| NA | NA | NA | NA |

IX. OTHER REQUIREMENT(S)

- The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart DDDDD for Industrial, Commercial and Institutional Boilers and Process Heaters. **(40 CFR Part 63, Subparts A and DDDDD)**

Footnotes:

¹This Condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This Condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that no non-applicable requirements have been identified for incorporation into the permit shield provision set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii).

APPENDICES

Appendix 1. Abbreviations and Acronyms

The following is an alphabetical listing of abbreviations/acronyms that may be used in this permit.

| | | | |
|------------------|---|-----------------|---|
| AQD | Air Quality Division | MM | Million |
| acfm | Actual cubic feet per minute | MSDS | Material Safety Data Sheet |
| BACT | Best Available Control Technology | MW | Megawatts |
| BTU | British Thermal Unit | NA | Not Applicable |
| °C | Degrees Celsius | NAAQS | National Ambient Air Quality Standards |
| CAA | Federal Clean Air Act | NESHAP | National Emission Standard for Hazardous Air Pollutants |
| CAM | Compliance Assurance Monitoring | NMOC | Non-methane Organic Compounds |
| CEM | Continuous Emission Monitoring | NOx | Oxides of Nitrogen |
| CFR | Code of Federal Regulations | NSPS | New Source Performance Standards |
| CO | Carbon Monoxide | NSR | New Source Review |
| COM | Continuous Opacity Monitoring | PM | Particulate Matter |
| department | Michigan Department of Environmental Quality | PM-10 | Particulate Matter less than 10 microns in diameter |
| dscf | Dry standard cubic foot | pph | Pound per hour |
| dscm | Dry standard cubic meter | ppm | Parts per million |
| EPA | United States Environmental Protection Agency | ppmv | Parts per million by volume |
| EU | Emission Unit | ppmw | Parts per million by weight |
| °F | Degrees Fahrenheit | PS | Performance Specification |
| FG | Flexible Group | PSD | Prevention of Significant Deterioration |
| GACS | Gallon of Applied Coating Solids | psia | Pounds per square inch absolute |
| GC | General Condition | psig | Pounds per square inch gauge |
| gr | Grains | PeTE | Permanent Total Enclosure |
| HAP | Hazardous Air Pollutant | PTI | Permit to Install |
| Hg | Mercury | RACT | Reasonable Available Control Technology |
| hr | Hour | ROP | Renewable Operating Permit |
| HP | Horsepower | SC | Special Condition |
| H ₂ S | Hydrogen Sulfide | scf | Standard cubic feet |
| HVLP | High Volume Low Pressure * | sec | Seconds |
| ID | Identification (Number) | SCR | Selective Catalytic Reduction |
| IRSL | Initial Risk Screening Level | SO ₂ | Sulfur Dioxide |
| ITSL | Initial Threshold Screening Level | SRN | State Registration Number |
| LAER | Lowest Achievable Emission Rate | TAC | Toxic Air Contaminant |
| lb | Pound | Temp | Temperature |
| m | Meter | THC | Total Hydrocarbons |
| MACT | Maximum Achievable Control Technology | tpy | Tons per year |
| MAERS | Michigan Air Emissions Reporting System | µg | Microgram |
| MAP | Malfunction Abatement Plan | VE | Visible Emissions |
| MDEQ | Michigan Department of Environmental Quality | VOC | Volatile Organic Compounds |
| mg | Milligram | yr | Year |
| mm | Millimeter | % | Percentage |

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 pounds per square inch gauge (psig).

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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Appendix 2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and Conditions of this ROP. A Schedule of Compliance is not required. (R 336.1213(4)(a), R 336.1119(a)(ii))

Appendix 3. Monitoring Requirements

The following monitoring procedures, methods, or specifications are the details to the monitoring requirements identified and referenced in FGMACTZZZ.

ANR Pipeline Company requested that US EPA approve an Alternative Monitoring Method in accordance with 40 CFR, Part 63, Subpart ZZZZ (RICE MACT). On September 19, 2007 the USEPA approved and described the Alternative Monitoring Methods in the following letter.

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

AE-17J

SEP 19 2007

Juan J. Rios
Senior Environmental Scientist
ANR Pipeline Company
P.O. Box 2446
Houston, Texas 77252-2446

Dear Mr. Rios:

The United States Environmental Protection Agency (U.S. EPA), Region 5, is in receipt of your July 18, 2007, letter addressed to Greg Fried, in which you formally request approval of alternate monitoring methods at three compressor stations. These stations - Woolfolk Compressor Station and Reed City Compressor Station in Michigan and St. John Compressor Station in Indiana - are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE) at 40 C.F.R. Part 63, Subpart ZZZZ. Your request also includes alternate performance testing for the Reed City station. U.S. EPA's Office of Enforcement and Compliance Assurance has referred your request to my office for review.

ANR Pipeline Company (ANR) makes three specific requests for alternative monitoring. First, ANR requests that should a RICE at one of these compressor stations not be operating during a particular month, the company will not be required to start up the RICE for the sole purpose of recording the pressure drop across the catalyst, as normally required at 40 C.F.R. § 63.6640(a). This request is consistent with U.S. EPA's policy as articulated in its memorandum from Michael Alushin, dated September 30, 2005. Accordingly, U.S. EPA approves this request. ANR, however, must document periods when the RICE was not operating as required in 40 C.F.R. § 63.6650.

Second, ANR requests that, should a RICE be operated during a given month below the "target window" for percent load, it not be required to increase the load for the sole purpose of measuring the pressure drop. U.S. EPA approves this request pursuant to the Alushin memorandum; however, ANR will be required to measure the pressure drop once the load is increased to the target window, or when operations exceed 30 days (regardless of load), and to document the time periods when the RICE is operated below the target window in its semi-annual report.

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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Third, ANR requests that, for a RICE that can never be operated at the target window, it monitor the pressure drop when the established lower-load baseline (see discussion below) is achieved in any given month. This is acceptable to U.S. EPA for NESHAP compliance purposes only. U.S. EPA recommends monthly pressure drop measurements when the units are operating to assure catalyst performance, even if the units are operating at a reduced load below the target window. Also, please be aware that State agencies may require additional monitoring for other purposes, and that this determination does not obviate the need to comply with any applicable State requirements.

ANR also requested an alternative test method for its two 660 horsepower RICE at Reed City. The NESHAP at 40 C.F.R. § 63.6620 requires performance tests be conducted at any load condition within plus or minus 10 percent of 100 percent load. ANR wishes to test these units at 50 to 80 percent full load. These RICE, according to ANR, do not have the ability to operate at full load due to restrictive operating parameters associated with the gas service that they support. The additional information you supplied by means of electronic mail on August 30, 2007, indicates that an attempt to test at full load would cause undesirable pipeline pressures, thus causing pressure relief valves to be activated, and service to shut down.

This request is acceptable provided that ANR establishes a lower maximum load rate and appropriate differential pressure ranges for the reduced load. Please contact Allen Retlewski of the Michigan Department of Environmental Quality's Cadillac District Office, at (231) 775-3960, to discuss details related to establishing the correct parameters and incorporating them into the facility permits as necessary.

If you have any questions, feel free to contact Jeffrey Gahrns, of my staff, at (312) 886-6794.

Sincerely yours,

George T. Czerniak, Chief
Air Enforcement and Compliance Assurance Branch

cc: Janis Denman, Supervisor, Cadillac District
Michigan Department of Environmental Quality

Heidi Hollenbach, Supervisor, Grand Rapids District
Michigan Department of Environmental Quality

Dave Cline, Chief, Compliance Data Section
Indiana Department of Environmental Management

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ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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Appendix 4. Recordkeeping

Specific recordkeeping requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 5. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-B3721-2007. Those ROP revision applications that are being issued concurrently with this ROP renewal are identified by an asterisk (*). Those revision applications not listed with an asterisk were processed prior to this renewal. Source-Wide PTI No MI-PTI-B3721-2007a is being reissued as Source-Wide PTI No. MI-PTI-B3721-2014.

| Permit to Install Number | ROP Revision Application Number | Description of Equipment or Change | Corresponding Emission Unit(s) or Flexible Group(s) |
|--------------------------|---------------------------------|--|---|
| NA | 200900066 | Remove EU00048 (exempt 7500 gallon methanol storage tank) and FGR290 from ROP. | FGR290 |
| 109-12 | 201200164 | Add conditions from PTI 109-12, change in gas sampling frequency, replace "sweet" natural gas with "pipeline quality" natural gas. | EURC015, EURC024, FGRC001 |

Appendix 7. Emission Calculations

EURC024 and EURC015

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in EURC024, EURC015.

A. Glycol Dehydration Systems, Tables EURC024 and EURC015

$$\text{VOC emissions} \left(\frac{\text{pounds}}{\text{day}} \right) = \frac{10^6 \text{ scuft of natural gas processed}}{\text{day}} \times \text{EF}$$

$$\text{VOC emissions} \left(\frac{\text{tons}}{\text{month}} \right) = \frac{10^6 \text{ scuft of natural gas processed}}{\text{month}} \times \text{EF} \times \frac{1 \text{ ton}}{2000 \text{ pounds}}$$

$$\text{Benzene emissions} \left(\frac{\text{tons}}{\text{month}} \right) = \frac{10^6 \text{ scuft of natural gas processed}}{\text{month}} \times \text{EF} \times \frac{1 \text{ ton}}{2000 \text{ pounds}}$$

2014a

ROP No: MI-ROP-B3721B3721-

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Expiration Date: February 6, 2019

PTI No.: MI-PTI-B3721B3721-

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Where EF is an emission factor expressed as pounds of VOC or benzene emitted per million cubic feet of gas processed. EF is based on calculations from the GRI-GLYCalc™ computer model as provided to the Air Quality Division by the permittee. However, EF shall be recalculated, using GRI-GLYCalc™ Version 3.0 or higher, after each gas sampling. Inputs to the GRI-GLYCalc™ shall be representative of actual operating conditions of the glycol dehydration unit. The calculated EF is subject to approval by the District Supervisor of the Air Quality Division.

B. Glycol Dehydration Systems, Tables EURC015

$$T + 5.7C \leq \frac{6800 \text{ hours}}{12 \text{ month rolling time period}}$$

Where:

T = hours of operation per 12-month rolling time period with the thermal oxidizer as the glycol regenerator still primary control device.

C = hours of operation per 12-month rolling time period with the condenser as the glycol regenerator still primary control device

FGMACTHHH

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in FGMACTHHH (40 CFR 63.1275 equation 1).

$$EL_{BTEX} = 3.10 \times 10^{-4} \cdot \text{Throughput} \cdot C_{iBTEX} \cdot 365 \frac{\text{days}}{\text{yr}} \cdot \frac{1 \text{ Mg}}{1 \times 10^6 \text{ grams}} \quad \text{Equation 1}$$

Where:

EL_{BTEX} = Unit-specific BTEX emission limit, megagrams per year;

3.10 × 10⁻⁴ = BTEX emission limit, grams BTEX/standard cubic meter-ppmv;

Throughput = Annual average daily natural gas throughput, standard cubic meters per day;

C_{iBTEX} = Annual average BTEX concentration of the natural gas at the inlet to the glycol dehydration unit, ppmv.



Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the MDEQ, AQD, Report Certification form (EQP 5736) and MDEQ, AQD, Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

| | | | | |
|--|----------------------------|----------------|--------------------|---|
|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  In business to deliver |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 1 of 10 |

NOTE

Ownership for this document has been accepted by the appropriate TransCanada department. The document contact has been identified to provide clarity for field personnel. The responsible TOP Owner/Management Approval contact will be updated during the next review cycle.

Document Contact: Chris Waltman

1.0 PURPOSE

The purpose of this Procedure is to describe the continuous parameter monitoring system (CPMS) monitoring requirements for the Reed City Compressor Station to meet the requirements for Reciprocating Internal Combustion Engine (RICE) Maximum Achievable Control Technology (MACT) National Emission Standard for Hazardous Air Pollutants (NESHAP), Subpart ZZZZ of 40 CFR part 63. These regulations require continuous monitoring of the exhaust catalyst inlet temperature to ensure compliance with a specified temperature operating limit. This Facility Monitoring Procedure must be available for review if requested by the EPA or delegated state or local air quality agencies.

Additionally, this Procedure documents the Startup, Shutdown, Malfunction Plan required for the CPMS (but not the engines) per 40 CFR 63.6(e)(3) as referenced by 40 CFR 63.8(c)(1)(i) and (iii).

2.0 SCOPE



This Procedure applies to the TransCanada ANR Reed City Compressor Station located at 7677 230th Ave. Reed city, MI, 49677 which is wholly owned and operated by TransCanada.

3.0 REFERENCES

- All other TOP documents can be accessed from the TOPs database using this link [TOPs](#).
Note: TOP documents referenced in this document will have their titles underlined and can be opened up by using the hyperlink below or going to the TOPs database using the above TOPs link.
- [Continuous Parameter Monitoring System for RICE MACT](#) compliance list (EDMS No. 006974318)

4.0 PROCEDURE

| | |
|---------------------|--|
| 4.1 | Affected Source(s) and Associated CPMS Equipment |
| 4.2 | Temperature Monitoring System Performance Evaluation and Periodic QA/QC Procedures |
| 4.3 | CPMS Operation and Maintenance |

| | | | | |
|--|----------------------------|----------------|--------------------|--|
|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  <i>In business to deliver</i> |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 2 of 10 |

| | |
|---------------------|--------------------------------------|
| 4.4 | Data Management |
| 4.5 | Startup, Shutdown, Malfunction Plan |
| 5.0 | Documentation/Reporting Requirements |
| 6.0 | Definitions |

Notes:

1. Each Activity should be performed after reviewing the appropriate TOP Procedures (Example Safety, Environmental, Health Hygiene etc.).

Hazards: The Document Contact has presently not identified any hazards for stakeholders with respect to this document.

Special Resources: The Document Contact has presently not identified any special resources for stakeholders with respect to this document.

Qualification Requirement(s): The Document Contact has presently not identified any qualifications requirements for stakeholders with respect to this document.

4.1 Affected Source(s) and Associated CPMS Equipment

This section provides information on the affected RICE and the CPMS instrumentation and equipment. Per §63.6625(b)(1)(i), the CPMS Monitoring Plan must include monitoring system design specification and equipment performance criteria for the sample interface, detector signal analyzer, and data acquisition and calculations.

4.1.1 Affected Source(s) Description



TransCanada Pipelines operates existing four-stroke, rich-burn engines, identified in Table 1 below, at the Reed City CS are subject to emission limitations and operating limitations per RICE MACT.

| Engine ID | Engine Description | | Site-Rated HP | Emission Controls (NSCR/AFRC or Oxy-Cat) |
|-----------|--------------------|--------|---------------|--|
| | Manufacturer | Model | | |
| EGRC011 | White Superior | 8G-825 | 660 | NSCR/AFRC |
| EGRC012 | White Superior | 8G-825 | 660 | NSCR/AFRC |

4.1.2 System Design Considerations

The purpose of the CPMS is to:

- Monitor the catalyst inlet temperature every 15 minutes, not including periods of startup, shutdown or malfunction.
- Average the data on a 4-hour rolling basis.

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|--|----------------------------|----------------|--------------------|--|
|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  <i>In business to deliver</i> |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 3 of 10 |

- Ensure the catalyst inlet temperature is maintained between the established temperature range: 750 °F to 1250 °F.

The system consists of the following equipment:

1. Temperature Measurement Device Specifications

The following specifications apply to the temperature measurement device:

| Parameter | Specification |
|-------------|---|
| Location | Immediately upstream of the catalyst face with an insertion depth of at least 1/3 pipe diameter and no more than 1/2 pipe diameter into the flow stream. Based on exhaust piping layout and the inclusion of mixing baffles in the catalyst housing, turbulent flow is assured so relatively uniform temperatures are anticipated along an axis across the exhaust duct. |
| Device Type | A NIST traceable RTD. |
| Tolerance | Minimum tolerance of 5°F or 1% of the measurement range, whichever is larger. [§63.6625(b)(4)] |

2. Wiring

Conduit cable will be installed per the latest edition of the National Electric Code.

3. Data Acquisition System

The Data Acquisition System (DAS, aka PLC) will provide the operator with the following local readouts: [§63.8(c) (2) (ii)]

- Instantaneous catalyst inlet temperature.
- 15-minute snapshot temperature readings.
- 1-hour average temperatures.
- 4-hour rolling average temperatures.
- Readout or other indication of operation must be readily accessible on site.

Data will be retained for at least 6 days in the DAS for retrieval in the event of a failure reporting system. Additionally, the operator will have the capability of generating a screen print from the DAS in the event of a failure of the reporting system.



4. Reporting System

A PC with reporting software installed will be connected to the DAS for data retention and report generation. The software is used to collect the data from the DAS, collate into a report formatted for printing and for long term retention of the data.

4.2 Temperature Monitoring System Performance Evaluation and Periodic QA/QC

4.2.1 Periodicity

An initial verification of the CPMS was performed upon original equipment installation. [§63.8(c)(3)]
Annual QA/QC evaluations of the CPMS shall be conducted as described below. [§63.6625(b)(5)]

| | | | | |
|--|----------------------------|----------------|--------------------|---|
|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  In business to deliver |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 4 of 10 |

4.2.2 Methodology

One of the following methods shall be used for performance evaluations:

1. RTD Replacement

The RTD shall be replaced with a factory calibrated unit meeting the design requirements listed above. The calibration certification sheets or other appropriate documentation shall be retained demonstrating factory calibration.

Concurrently, a calibrated RTD simulator shall be used to test the remaining elements of the CPMS system in accordance with manufacturer's recommendations and company policies and procedures. A written work plan or SAP work order documenting steps to be followed shall be used. [§63.8(d)(2) – (3)]

2. Calibration

The calibration of the RTD shall be checked in place in accordance with manufacturer's recommendations and company policies and procedures. The methods used shall address both the RTD and the DAS. A written work plan or SAP work order documenting steps to be followed shall be used. [§63.8(d)(2) – (3)]

4.2.3 Notification

Notification to MDEQ prior to conducting the performance evaluation or with results after testing is not required.

4.2.4 Malfunctioning CPMS



In the event of a malfunction of the CPMS, the engine shall be shut down until such time as troubleshooting can occur. Operation of the engines for the purpose of troubleshooting a malfunctioning CPMS is acceptable. Possible indications of malfunctioning CPMS include, but are not limited to:

- Temperatures out of range high or low.
- Failure to generate daily printouts of the logs.
- Erroneous or nonsensical data on the printed logs.
- Failure of the visual display of temperatures from the DAS.
- Failure of the reporting system PC.

A failure of the reporting system PC that lasts less than 24 hours is not considered a malfunction since data can be recovered from the DAS. However, since there is limited data storage on the DAS, repairing or replacing the reporting system PC should not be unnecessarily delayed.

4.2.5 Troubleshooting a Malfunctioning CPMS

Malfunctioning CPMS shall be troubleshot in accordance with manufacturer's recommendations, company policy and procedures and good operating practices.

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|--|----------------------------|----------------|--------------------|---|
|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  In business to deliver |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 5 of 10 |

4.3 CPMS Operation and Maintenance

4.3.1 CPMS Operation

The CPMS will be in operation whenever the monitored engine operates with the exception of monitoring malfunctions, associated repairs, and required quality assurance or control activities. Data will be collected as follows:

- Sample the catalyst inlet temperature at least once every 15 minutes including start-up, shutdown, and malfunction periods.
- Average the 15-minute samples on an hourly basis. Average the hourly average on a 4-hour rolling average basis. Averaging should start from "end of a startup event", i.e., when the oil pressure switch off from the compressor oil crankcase reaches (12-15 lbs) pressure and should stop at the "beginning of shutdown (issuance of the stop command) or malfunction event".
- An hour is defined as a 60 minute period beginning at the o-clock (i.e. 1:00, 2:00 etc.).
- If a unit starts midway through an hour, record 15-minute data points but begin averaging only if there are at least two data points for the first clock based 60 minute period. Each of the two data points should represent a 15-minute period.
- If a unit stops midway through an hour, the 15-minute data points will be monitored and recorded; however, the average for that last clock based 60 minute period should only be computed if at least two data points are available. Each of the two data points should represent a 15 minute period.
- Each 4-hour average calculation will include the most current hourly average and the 3 previous hourly average values collected during normal sequential engine operation.
- A 4-hour average will not be calculated until four 1-hour average values have been tabulated in sequence.
- Each engine shutdown will reset the averaging process.



Alarms and shutdowns shall be provided as follows:

- The CPMS shall alarm when the catalytic converter inlet temperature hourly average reaches 760 °F decreasing or 1245 °F increasing.
- The CPMS shall shut down the unit when the catalytic converter inlet temperature is below 750 °F for 20 minutes or exceeds 1250 °F for 20 minutes.
- Alarms and shutdowns shall be disabled as follows:
 - High Temperature: Never.
 - Low Temperature: During Unit Startup until steady state operations is achieved, not to exceed 30 minutes.

4.3.2 CPMS Maintenance

1. Preventive Maintenance

CPMS Maintenance will be conducted in accordance with company policy and procedures [§63.8(d)(2)(iii)]. Alternately, the RTDs may be replaced annually with a concurrent performance evaluation as described above. Additionally, daily station walkdowns take place (when the station is manned) to check on obvious signs of physical failure of the equipment.

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|--|----------------------------|----------------|--------------------|--|
|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  <i>In business to deliver</i> |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 6 of 10 |

2. Corrective Maintenance

Corrective maintenance will be conducted according to manufacturer's recommendations, company policy and procedures and good operating practices in a manner consistent with safety and good air pollution control practices for minimizing emissions in the event of a CPMS malfunction, impending malfunction, or out-of-control CPMS. In lieu of conducting immediate corrective maintenance, Operations may shutdown the associated engine until such time as corrective maintenance can be performed as per above.

Corrective Maintenance actions taken will be documented in SAP. To the extent practical, a written plan will be used when conducting corrective maintenance. [63.8(d)(2)(vi)]

4.3.3 Spare Parts

A set list of spare parts for the CPMS will not be maintained in inventory. If a spare part for the system is not available when needed, the affected engine will be shut down until such time as the necessary spare part can be procured and installed. [§63.8(d)(2)].

4.4 Data Management

4.4.1 Valid Data

Valid data is defined as data not "recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities." [§63.6635] Specifically, valid data is comprised of:

- 15-minute readings not recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities.
- Hourly averages consisting of two (2) valid 15-minute readings.
- 4-hour rolling averages consisting of four (4) valid hourly averages.

4.4.2 Data Review



Operations shall review the CPMS data daily reports to: [§63.8(c)(6)]

- Confirm all required data was collected.
- Identify any data collected that was not valid data as defined above.
- Confirm that no exceedances of temperature limits occurred.

Missing data may be recovered by:

- Forcing a new printout from the reporting software.
- Calling the Automation group to assist in recovering data from the DAS/PLC.
- Generating a screen print from the HMI panel.

If missing data is unrecoverable (e.g., due to power failure), exceedances are identified, or non-valid data is identified, the Environment Department shall be notified immediately. Additionally, in the event of repeated instances of missing data, whether recoverable or unrecoverable, over a short duration of time, the Environment Department shall be notified such that an investigation as to the causes can be conducted.

| | | | | |
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|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  In business to deliver |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 7 of 10 |

4.5 Startup, Shutdown, Malfunction Plan

Note: This section addresses the Startup, Shutdown, Malfunction Plan (SSMP) required by 40 CFR 63.6(e)(3) as referenced by 40 CFR 63.8(c)(1)(i) and (iii). The SSMP only address the CPMS and does not address the underlying engines. Per 40 CFR 63 Subpart ZZZZ, work practices were promulgated by USEPA in lieu of SSMP requirements for the engines.

Note: In accordance with 63.6(e)(3)(vi) “the owner or operator may use the affected source's standard operating procedures (SOP) manual...or other plan, provided the alternative plans meet all the requirements of this section and are made available for inspection or submitted when requested by the Administrator.” Insofar as this Procedure constitutes the SOP (aka TOP) for the CPMS, only requirements not otherwise addressed in this Procedure are documented in this section.

1. Actions taken in accordance with this Procedure shall be documented in accordance with the provisions of this Procedure.
2. If actions are taken not in accordance with this Procedure as it relates to a startup, shutdown or malfunction of the CPMS, US Environment shall be promptly notified.
3. If actions are required that are not addressed this Procedure as it relates to a startup, shutdown or malfunction of the CPMS, US Environment shall be promptly notified.



5.0 DOCUMENTATION/REPORTING REQUIREMENTS

1. Closeout of the SAP work order shall be considered sufficient documentation provided factory calibration sheets, field readings and/or other results as appropriate are included in the closeout comments or attached to the work order.
2. Logs documenting the malfunction of the CPMS, immediate actions and corrective actions shall be taken in accordance with Section 5.1.1 of this plan. Additionally the Environment Department shall be notified immediately of the malfunction. The Environment Department is responsible for reporting the malfunction in accordance with Section 5.1.2 of this plan.
3. The Environment Department shall review the data prior to filing Quarterly Deviation Reports, Semiannual Reports, or Annual Compliance Certifications as appropriate.
4. Revisions to this monitoring plan must be retained for 5 years from the date of the revision per §63.8(d) (2).

5.1.1 Recordkeeping

The following records collected by the CPMS are required to be retained for a period of five years. At minimum the most recent two year data shall be available on site. The other three years data may be stored off site but should be accessible within a reasonable time. [§63.10(b)(1) and §63.6660] These records can be retained either electronically, via hard copy or both and shall be easily accessible.

- Each 4-hour average. (COMET/File 1.5.5)
- Each hourly average used to calculate the 4-hour average values. (COMET/File 1.5.5)
- Each 15-minute data point used to calculate hourly average values, as well as 15-minute data points during start-up and shutdowns. [§63.10(b)(2)(vii)] (COMET/File 1.5.5)

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|--|----------------------------|----------------|--------------------|---|
|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  In business to deliver |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 8 of 10 |

- The algorithm/calculation procedure used to reduce data. (this document)
- All readings taken during periods of CPMS breakdowns and out-of-control periods. (File 1.5.5)

Additionally, the following records shall be created and retained by Operations regarding the CPMS:

- The date and time identifying each period during which the CPMS was inoperative except for zero (low-level) and high-level checks. (File 1.5.5)
- The date and time identifying each period during which the CMS was out of control. (File 1.5.5)
- The date and time of commencement and completion of each time period of where the CPMS 4-hour rolling temperature was out of the specified limits in this plan other than during periods other than startups, shutdowns, and malfunctions of the affected source. (File 1.5.5)
- The nature and cause of any malfunction (if known). (File 1.5.5)
- The corrective action taken or preventive measures adopted. (File 1.5.5)
- The nature of the repairs or adjustments to the CPMS that was inoperative or out of control. (File 1.5.5)
- The total process operating time during the reporting period. (File 1.5.5)
- Documentation of any QA/QC procedures performed for CPMS. (AVANTIS)

5.1.2 Reports

1. Daily Data Reports



A daily report for each unit shall be generated and printed after midnight for the previous calendar day. The report shall include, at a minimum, the following

- Each 15-minute data sample of the catalyst inlet temperature.
- Each hourly average of the catalyst inlet temperature.
- Each 4-hour rolling average of the catalyst inlet temperature.
- Each engine shutdown.
- Each CPMS malfunction event and the occurrence and duration of that event (begin time and end time).
- Every CPMS alarm; Operations should consult with the Field Environmental Specialist or the Houston Air Group to determine the applicability of these events with regard to the MACT rules.

2. Compliance Reports

The Environment Department is responsible for compiling all compliance reports to be sent to regulatory agencies, including, but not limited to:

- Immediate notifications of non-compliance where required by state rules.
- Quarterly deviation reports where required by state rules.
- Semiannual Reports and Annual Compliance Reports.
- Notification of malfunctioning and out-of-control CPMS events.
- Notification of intent to conduct performance tests.

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|  TRANSCANADA OPERATING PROCEDURE (PROCEDURE) | | | |  <i>In business to deliver</i> |
| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 9 of 10 |



- Notification of Compliance Status at the completion of performance tests.
- Semiannual startup, shutdown, and malfunction report required in §63.10(d)(5) for the CPMS, including, but not limited to, any revisions to this Procedure per §63.6(e)(3)(viii).
- Notification within 2 working days if an action taken during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with this Procedure and the source exceeds any applicable emission limitation per §63.6(e)(3)(iv).

6.0 DEFINITIONS

| | |
|----------------|--|
| Malfunction | Any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. This definition is provided for information only. Operations should consult with the Environmental Coordinator to determine whether or not a malfunction has occurred due to any unit alarm or shutdown for purposes related to the MACT rules. |
| Out-of-Control | A CPMS is out-of-control if the zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or The CPMS fails a performance test audit, relative accuracy audit, relative accuracy test audit, or linearity test audit. |
| Unit Startup | Unit Startup is initiated in all cases when fuel and ignition are turned on and is considered complete when the unit bypass valve is fully closed. |
| Unit Stop | Unit Stop is initiated with the issuance of a stop command, pushing the stop button or reducing the unit load with intent to stop if stopping manually. The shutdown is complete when fuel and ignition have been turned off. |

7.0 LATEST REVISION

| | |
|-----------------------------|---|
| Description: | Revision 03: New document contact assigned by manager. Section 3.0 References first bullet updated. Hazards and statement added. Special Resources and Qualification resources added statement for each item. Periodic review done for document with the following. 1. No SAP issues exist with respect to this document. 2. All applied Lines of Business are correct. 3. Permits or certificates etc. required for this document reviewed. 4. Impact Assessment Information in TOPs database completed for revision 03. 5. Feedbacks have been taken in to consideration. |
| Rationale Statement: | Maintain document at the pre-determined level of correctness so it is current with respect |

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| Title: Reed City CS Continuous Parameter Monitoring System Procedure | | | | |
| Revision: 04 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 10 of 10 |

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| | to the subject matter contained within the document. |
| Impact Assessment Summary: | Only minor issues found with the document while performing the periodic review and contact update so minimum impact. |

8.0 APPROVAL

| | Name -Position-Department | Signature-Date |
|-----------------------------|--|-----------------------|
| TOP Document Contact | Tiffany Grady Air Quality Specialist Air Emissions and Climate Change Services | |
| Management Approver | Chad Edwards Manager Air Emissions and Climate Change Services | |

**Reciprocating Internal Combustion Engine (RICE)
National Emission Standard for Hazardous Air Pollutants
(NESHAP)**

[40 CFR 63 Subpart ZZZZ]

**CONTINUOUS PARAMETER MONITORING SYSTEM (CPMS)
MONITORING PLAN**

Reed City Compressor Station

**Revision 0
2 Sept 2011**

| Monitoring Plan Revision History¹ | | | |
|---|-------------------|----------------------|---|
| Revision No. | Revised By | Revision Date | Comments (e.g. Description of Revisions) |
| 0 | RT Mitchell | 2 Sept 2011 | Initial Promulgation |
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¹ Revisions must be retained for 5 years from the date of the revision per §63.8(d)(2)

Table of Contents

1.0 CPMS Monitoring Plan Overview 1
 1.1 Regulatory Requirement 1
 1.2 Definitions..... 1
2.0 Affected Source(s) and Associated CPMS Equipment 2
 2.1 Affected Source(s) Description..... 2
 2.2 System Design Considerations 2
 2.2.1 Temperature Measurement Device Specifications 2
 2.2.2 Wiring..... 3
 2.2.3 Data Acquisition System..... 3
 2.2.4 Reporting System 3
3.0 Temperature Monitoring System Performance Evaluation and Periodic QA/QC
Procedures..... 4
 3.1 Periodicity 4
 3.2 Methodology 4
 3.2.1 RTD Replacement 4
 3.2.2 Calibration..... 4
 3.3 Notification..... 4
 3.4 Documentation 4
 3.5 Malfunctioning CPMS 4
 3.5.1 Recordkeeping and Reporting..... 4
 3.5.2 Troubleshooting a Malfunctioning CPMS 5
4.0 CPMS Operation and Maintenance 6
 4.1 CPMS Operation 6
 4.2 CPMS Maintenance 6
 4.2.1 Preventive Maintenance 6
 4.2.2 Corrective Maintenance..... 6
 4.3 Spare Parts 7
5.0 Data Management..... 8
 5.1 Valid Data 8
 5.2 Data Review 8
 5.3 Recordkeeping 8
 5.4 Reports..... 9
 5.4.1 Daily Data Reports..... 9
 5.4.2 Compliance Reports 9

1.0 CPMS MONITORING PLAN OVERVIEW

Facility: Reed City Compressor Station
Physical Address: 7677 230th Avenue, Reed City, MI 49677

1.1 Regulatory Requirement

The Reciprocating Internal Combustion Engine (RICE) National Emission Standard for Hazardous Air Pollutants (NESHAP), Subpart ZZZZ of 40 CFR part 63, requires continuous monitoring of the exhaust catalyst inlet temperature for affected units at the Reed City Compressor Station. The primary monitoring requirements are defined §63.6625(b) and §63.6635 of Subpart ZZZZ. Additional requirements are defined in the General Provisions (part 63, Subpart A). §63.6625(b) requires a Monitoring Plan for the continuous parameter monitoring system (CPMS) that monitors catalyst inlet temperature to ensure compliance with a specified temperature operating limit. Common criteria associated with CPMS instrumentation and its operation can be used at multiple sites, but Subpart ZZZZ requires a site-specific Monitoring Plan that must be available for review if requested by EPA or delegated state or local air quality agencies.

1.2 Definitions

The following definitions apply:

- Unit Startup: Unit Startup is initiated in all cases when fuel and ignition are turned on and is considered complete when the unit bypass valve is fully closed.
- Unit Stop: Unit Stop is initiated with the issuance of a stop command, pushing the stop button or reducing the unit load with intent to stop if stopping manually. The shutdown is complete when fuel and ignition have been turned off.
- Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. This definition is provided for information only. Operations should consult with the Environmental Coordinator to determine whether or not a malfunction has occurred due to any unit alarm or shutdown for purposes related to the MACT rules.
- A CPMS is out-of-control if:
 - The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or
 - The CPMS fails a performance test audit, relative accuracy audit, relative accuracy test audit, or linearity test audit.

2.0 AFFECTED SOURCE(S) AND ASSOCIATED CPMS EQUIPMENT

This section provides information on the affected RICE and the CPMS instrumentation and equipment. Per §63.6625(b)(1)(i), the CPMS Monitoring Plan must include monitoring system design specification and equipment performance criteria for the sample interface, detector signal analyzer, and data acquisition and calculations.

2.1 Affected Source(s) Description

TransCanada Pipelines operates existing four-stroke, rich-burn engines, identified in Table 1 below, at the Woolfolk Compressor Station are subject to emission limitations and operating limitations per RICE MACT.

| Table 1 - IC Engines Subject to RICE MACT & Provisions of this Plan | | | | |
|---|--------------------|--------|---------------|--|
| Engine ID | Engine Description | | Site-Rated HP | Emission Controls (NSCR/AFRC or Oxy-Cat) |
| | Manufacturer | Model | | |
| EGRC012 | White Superior | 8G-825 | 660 | NSCR/AFRC |
| EGRC013 | White Superior | 8G-825 | 660 | NSCR/AFRC |

2.2 System Design Considerations

The purpose of the CPMS is to:

- Monitor the catalyst inlet temperature every 15 minutes, not including periods of startup, shutdown or malfunction.
- Average the data on a 4-hour rolling basis.
- Ensure the catalyst inlet temperature is maintained between the established temperature range – 750 °F to 1250 °F.

The system consists of the following equipment:

2.2.1 Temperature Measurement Device Specifications

The following specifications apply to the temperature measurement device:

| Parameter | Specification |
|-------------|---|
| Location | Immediately upstream of the catalyst face with an insertion depth of at least 1/3 pipe diameter and no more than 1/2 pipe diameter into the flow stream. Based on exhaust piping layout and the inclusion of mixing baffles in the catalyst housing, turbulent flow is assured so relatively uniform temperatures are anticipated along an axis across the exhaust duct. |
| Device Type | A NIST traceable RTD. |
| Range | Maximum service temperature shall be at least 1320°F |
| Tolerance | Minimum tolerance of 5°F or 1% of the measurement range, whichever is larger. [§63.6625(b)(4)] |

2.2.2 Wiring

Conduit cable will be installed per the latest edition of National Electric Code.

2.2.3 Data Acquisition System

The Data Acquisition System (DAS, aka PLC) will provide the operator with the following local readouts: [§63.8(c)(2)(ii)]

- Instantaneous catalyst inlet temperature.
- 15-minute snapshot temperature readings.
- 1-hour average temperatures.
- 4-hour rolling average temperatures.
- Readout or other indication of operation must be readily accessible on site.

Data will be retained for at least 6 days in the DAS for retrieval in the event of a failure reporting system. Additionally, the operator will have the capability of generating a screen print from the DAS in the event of a failure of the reporting system.

2.2.4 Reporting System

A PC with reporting software installed will be connected to the DAS for data retention and report generation. The software is used to collect the data from the DAS, collate into a report formatted for printing and for long term retention of the data.

3.0 TEMPERATURE MONITORING SYSTEM PERFORMANCE EVALUATION AND PERIODIC QA/QC PROCEDURES

3.1 Periodicity

An initial verification of the CPMS was performed upon original equipment installation. [§63.8(c)(3)] Annual QA/QC evaluations of the CPMS shall be conducted as described below. [§63.6625(b)(5)]

3.2 Methodology

One of the following methods shall be used for performance evaluations

3.2.1 RTD Replacement

The RTD shall be replaced with a factory calibrated unit meeting the design requirements listed above. The calibration certification sheets or other appropriate documentation shall be retained demonstrating factory calibration.

Concurrently, a calibrated RTD simulator shall be used to test the remaining elements of the CPMS system in accordance with manufacturer's recommendations and company policies and procedures. A written work plan or Avantis work order documenting steps to be followed shall be used. [§63.8(d)(2) – (3)]

3.2.2 Calibration

The calibration of the RTD shall be checked in place in accordance with manufacturer's recommendations and company policies and procedures. The methods used shall address both the RTD and the DAS. A written work plan or Avantis work order documenting steps to be followed shall be used. [§63.8(d)(2) – (3)]

3.3 Notification

Notification to MDEQ prior to conducting the performance evaluation or with results after testing is not required.

3.4 Documentation

Closeout of the Avantis work order shall be considered sufficient documentation provided factory calibration sheets, field readings and/or other results as appropriate are included in the closeout comments or attached to the work order.

3.5 Malfunctioning CPMS

In the event of a malfunction of the CPMS, the engine shall be shut down until such time as troubleshoot can occur. Operation of the engines while troubleshooting a malfunctioning CPMS is acceptable. Possible indications of a malfunctioning CPMS include, but are not limited to:

- Temperatures out of range high or low.
- Failure to generate daily printouts of the logs.
- Erroneous or nonsensical data on the printed logs.
- Failure of the visual display of temperatures from the DAS.

3.5.1 Recordkeeping and Reporting

Logs documenting the malfunction of the CPMS, immediate actions and corrective actions shall be taken in accordance with Section 5.3 of this plan. Additionally the Environment Department

shall be notified immediately of the malfunction. The Environment Department is responsible for reporting the malfunction in accordance with Section 5.4 of this plan.

3.5.2 Troubleshooting a Malfunctioning CPMS

A malfunctioning CPMS shall be troubleshoot in accordance with manufacturer's recommendations, company policy and procedures and good operating practices.

4.0 CPMS OPERATION AND MAINTENANCE

4.1 CPMS Operation

The CPMS will be in operation whenever the monitored engine operates with the exception of monitoring malfunctions, associated repairs, and required quality assurance or control activities. Data will be collected as follows:

- Sample the catalyst inlet temperature at least once every 15 minutes including start-up, shutdown, and malfunction periods.
- Average the 15-minute samples on an hourly basis. Average the hourly average on a 4-hour rolling average basis. Averaging should start from "end of a startup event", i.e., when the bypass valve is fully closed and should stop at the "beginning of shutdown (issuance of the stop command) or malfunction event".
- An hour is defined as a 60 minute period beginning at the o'clock (i.e. 1:00, 2:00 etc.).
- If a unit starts midway through an hour, record 15-minute data points but begin averaging only if there are at least two data points for the first clock based 60 minute period. Each of the two data points should represent a 15-minute period.
- If a unit stops midway through an hour, the 15-minute data points will be monitored and recorded; however, the average for that last clock based 60 minute period should only be computed if at least two data points are available. Each of the two data points should represent a 15 minute period.
- Each 4-hour average calculation will include the most current hourly average and the 3 previous hourly average values collected during normal sequential engine operation.
- A 4-hour average will not be calculated until four 1-hour average values have been tabulated in sequence.
- Each engine shutdown will reset the averaging process.

Alarms and shutdowns shall be provided as follows:

- The CPMS shall alarm when the catalytic converter inlet temperature reaches 760 °F decreasing or 1245 °F increasing.
- The CPMS shall shut down the unit when the catalytic converter inlet temperature is below 750 °F for 20 minutes or exceeds 1250 °F for 20 minutes.
- Alarms and shutdowns shall be disabled as follows:
 - High Temperature: Never.
 - Low Temperature: During Unit Startup.

4.2 CPMS Maintenance

4.2.1 Preventive Maintenance

CPMS Maintenance will be conducted in accordance with company policy and procedures [§63.8(d)(2)(iii)]. Alternately, the RTDs may be replaced annually with a concurrent performance evaluation as described above. Additionally, daily station walkdowns take place (when the station is manned) to check on obvious signs of physical failure of the equipment.

4.2.2 Corrective Maintenance

Corrective maintenance will be conducted according to manufacturer's recommendations, company policy and procedures and good operating practices in a manner consistent with safety and good air pollution control practices for minimizing emissions in the event of a CPMS malfunction, impending malfunction, or out-of-control CPMS. In lieu of conducting immediate

corrective maintenance, Operations may shutdown the associated engine until such time as corrective maintenance can be performed as per above.

Corrective Maintenance actions taken will be documented in Avantis. To the extent practical, a written plan will be used when conducting corrective maintenance. [63.8(d)(2)(vi)]

4.3 Spare Parts

A set list of spare parts for the CPMS will not be maintained in inventory. If a spare part for the system is not available when needed, the affected engine will be shut down until such time as the necessary spare part can be procured and installed. [§63.8(d)(2)]

5.0 DATA MANAGEMENT

5.1 Valid Data

Valid data is defined as data not “recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities.” [§63.6635] Specifically, valid data is comprised of:

- 15-minute readings not recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities.
- Hourly averages consisting of two (2) valid 15-minute readings.
- 4-hour rolling averages consisting of four (4) valid hourly averages.

5.2 Data Review

Operations shall review the CPMS data daily reports to: [§63.8(c)(6)]

- Confirm all required data was collected.
- Identify any data collected that was not valid data as defined above.
- Confirm that no exceedances of temperature limits occurred.

Missing data may be recovered by:

- Forcing a new printout from XLReporter.
- Calling the Automation group to assist in recovering data from the DAS/PLC.
- Generating a screen print from the HMI panel.

If missing data is unrecoverable (e.g., due to power failure), exceedances are identified, or non-valid data is identified, the Environment Department shall be notified immediately. Additionally, in the event of repeated instances of missing data, whether recoverable or unrecoverable, over a short duration of time, the Environment Department shall be notified such that an investigation as to the causes can be conducted.

The Environment Department shall review the data prior to filing Quarterly Deviation Reports, Seminannual Reports, or Annual Compliance Certifications as appropriate.

5.3 Recordkeeping

The following records collected by the CPMS are required to be retained for a period of five years. At minimum the most recent two year data shall be available on site. The other three years data may be stored off site but should be accessible within a reasonable time. [§63.10(b)(1) and §63.6660] These records can be retained either electronically, via hard copy or both and shall be easily accessible.

- Each 4-hour average.
- Each hourly average used to calculate the 4-hour average values.
- Each 15-minute data point used to calculate hourly average values, as well as 15-minute data points during start-up and shutdowns. [§63.10(b)(2)(vii)]
- The algorithm/calculation procedure used to reduce data.
- All readings taken during periods of CPMS breakdowns and out-of-control periods.

Additionally, the following records shall be created and retained by Operations regarding the CPMS:

- The date and time identifying each period during which the CPMS was inoperative except for zero (low-level) and high-level checks.

- The date and time identifying each period during which the CMS was out of control.
- The date and time of commencement and completion of each time period of where the CPMS 4-hour rolling temperature was out of the specified limits in this plan other than during periods other than startups, shutdowns, and malfunctions of the affected source.
- The nature and cause of any malfunction (if known).
- The corrective action taken or preventive measures adopted.
- The nature of the repairs or adjustments to the CPMS that was inoperative or out of control.
- The total process operating time during the reporting period.
- Documentation of any QA/QC procedures performed for CPMS.

5.4 Reports

5.4.1 Daily Data Reports



A daily report for each unit shall be generated and printed after midnight for the previous calendar day. The report shall include, at a minimum, the following

- Each 15-minute data sample of the catalyst inlet temperature.
- Each hourly average of the catalyst inlet temperature.
- Each 4-hour rolling average of the catalyst inlet temperature.
- Each malfunction event and the occurrence and duration of that event (begin time and end time).
- Every unit alarm and shutdown; Operations should consult with the Field Environmental Specialist or the Houston Air Group to determine the applicability of these events with regard to the MACT rules.

5.4.2 Compliance Reports

The Environment Department is responsible for compiling all compliance reports to be sent to regulatory agencies, including, but not limited to:

- Immediate notifications of non-compliance where required by state rules.
- Quarterly deviation reports where required by state rules.
- Semiannual Reports and Annual Compliance Reports.
- Notification of malfunctioning and out-of-control CPMS events.
- Notification of intent to conduct performance tests.
- Notification of Compliance Status at the completion of performance tests.

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| Revision: 05 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 1 of 13 |

NOTE

Ownership for this document has been accepted by the appropriate TransCanada department. The document contact has been identified to provide clarity for field personnel. The responsible TOP Owner/Management Approval contact will be updated during the next review cycle.

Document Owner: Chris Waltman

1.0 PURPOSE

The purpose of this task package is to describe maintenance practices for certain reciprocating engines identified below to meet the requirements for Reciprocating Internal Combustion Engine (RICE) Maximum Achievable Control Technology (MACT) National Emission Standard for Hazardous Air Pollutants (NESHAP), Subpart ZZZZ of 40 CFR part 63.

2.0 SCOPE

This Task Package applies to all U. S. Storage and Natural Gas Transmission assets which are wholly owned and operated by TransCanada as well as all partially owned entities and/or joint ventures where TransCanada has operational control for the facilities as follows:

1. Natural gas or diesel fired reciprocating Emergency Engines (e.g., APUs and Fire Water Pumps) listed in [Appendix A](#).
2. Janesville Compressor Units 1 and 2.
3. TransOK, all non-emergency reciprocating compressor units.
4. Custer Compressor Station Units 1-6
5. Wadsworth non-emergency reciprocating compressor unit.

3.0 FREQUENCY(S)

RICE MACT requires maintenance be conducted on an M12 basis or by hours run, whichever comes first. The hours run is a not to exceed basis (subject to the emergency note 1) and the M12 basis is every 12 months not to exceed 13 months from the previous maintenance activity. For hours run on Natural Gas and Diesel Fired Emergency Engines the Preventative Maintenance Program will be Condition Directed to avoid misalignment with APU Maintenance M36, all others will be by hours or M12, whichever comes first.

3.1 Standard Frequency Direction Sections

The Standard Frequencies for performing the tasks outlined in this Task Package are as follows:



| Description | <u>Oil Change/ Analysis</u> | <u>Inspect Spark Plugs</u> | <u>Inspect Belts and Hoses</u> | <u>Inspect Air Cleaner</u> |
|---|---|---|---|--------------------------------|
| Natural Gas Fired Emergency Engines ¹ | H0.5K (CD)/M12 | H0.5K (CD)/M12 ² | H0.5K (CD)/M12 | NA |
| Diesel Fired Emergency Engines ¹ | H0.5K (CD)/M12 | N/A | H0.5K (CD)/M12 | H1K (CD)/M12 |
| Janesville Compressor Units 1 & 2 ³ | 4,320 run hours/annually Schedule at H4K/M12 | 4,320 run hours/annually Schedule at H4K/M12 | 4,320 run hours/annually Schedule at H4K/M12 | NA |
| TransOK ³ Custer Units 1-6 ³ Wadsworth ³ | 2,160 run hours/annually Schedule at H2K/M12 | 2,160 run hours/annually Schedule at H2K/M12 | 2,160 run hours/annually Schedule at H2K/M12 | NA |

Notes:

1. Intervals may be adjusted based on nonstandard local requirements by following the Technical and Physical Change Procedure and upon receiving proper approval.
2. If it is not possible to perform the management practice requirements on the schedule required due to an emergency situation, the management practice can be delayed until the emergency is over. The management practice should be performed as soon as practicable after the emergency has ended. Notify the Air Quality Specialists within Health Safety and Environment as soon as practical.
3. The regulatory requirement is to check the spark plugs once every 1000 hours of operation or annually whichever comes first. However, TransCanada has decided it is prudent from a compliance assurance standpoint to make the periodicity the same as for oil changes/checks and belts and hoses checks.
4. The regulatory requirement is a “not to exceed” scheduling requirement. To meet this requirement and to accommodate limitations in the scheduling program, slightly lower run time limits have been selected.
5. Annually/M12 means every 12 months not to exceed 13 months from the previous maintenance activity.
6. Conditionally Directed (CD) by hours run means, if in the rare occurrence the APU approaches not to exceed basis (subject to the emergency note 1), Operations is to inform Regional/Area Planner and Environmental Personnel to create a WO from the CD Preventative Maintenance Program.

3.1.1 Potential Deviation Parameters

| Standard Frequency | Regulatory / Best Practice | Potential Deviation Parameters |
|--------------------|----------------------------|--------------------------------|
| H0.5 K | Regulatory | No Deviation Permitted |
| H1K | Regulatory | No Deviation Permitted |
| H2K | Regulatory | No Deviation Permitted |
| H4K | Regulatory | No Deviation Permitted |

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| Title: RICE MACT Maintenance | | | | |
| Revision: 05 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 3 of 13 |

| Standard Frequency | Regulatory / Best Practice | Potential Deviation Parameters |
|--------------------|----------------------------|--------------------------------|
| M12 | Regulatory | No Deviation Permitted |

Note: Please note above potential deviation parameters should be requested via Master Data (MD) notification for future work, and should NOT be used as a schedule reference for current work.

3.2 Conditionally Directed Section

The conditionally directed frequencies are incorporated in the Table in Section 3.1 and Note 6.

4.0 WORK INSTRUCTIONS

| | |
|---------------------|---|
| 4.1 | Oil Change/Analysis |
| 4.2 | Inspect Spark Plugs |
| 4.3 | Inspect Belts and Hoses |
| 4.4 | Inspect Air Cleaner |
| 4.5 | Diesel-Fired Engine Oil Analysis Program |
| 4.6 | Natural Gas-Fired Engine Oil Analysis Program |
| 5.0 | Documentation/Reporting Requirements |
| 6.0 | Acronyms/Definitions |

Notes:

- Each Activity should be performed after reviewing the appropriate TOP Procedures (Example Safety, Environmental, Health Hygiene etc.).
- Every effort should be made to schedule in conjunction with APU Engine Maintenance (M36) to avoid repetitive sampling. One sample will meet requirements in both procedures. If APU Engine Maintenance (M36) triggers sampling earlier in the calendar year than this work order, the RICE MACT Maintenance oil sampling should be repeated so that the “not to exceed” 13-month requirement is met in future years.



Hazards: The Document Owner has presently not identified any hazards for stakeholders with respect to this document.

Qualification Requirement(s): Qualified Technician.

Special Resources: The Document Owner has presently not identified any special resources for stakeholders with respect to this document.

References:

- OEM Maintenance Service Manual(s)
- All TOP documents can be accessed from the TOPs database using this link [TOPs](#).
Note: TOP documents referenced in this document will have their titles underlined and can be opened up by using the hyperlink below or going to the TOPs database using the above TOPs link.

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|  TRANSCANADA OPERATING PROCEDURE (TASK PACKAGE) | | | |  In business to deliver |
| Title: RICE MACT Maintenance | | | | |
| Revision: 05 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 4 of 13 |

- [Technical and Physical Change Procedure \(Cdn-US-Mex\)](#) (EDMS No. 007728761)
- [RICE MACT Maintenance Record Sheet](#) (EDMS No. 008834053)
- [Oil Sampling Preventive Maintenance Program](#) (EDMS No. 003832580)
- [Reciprocating Engine Spark Plug Replacement](#) (EDMS No. 004496494)
- [APU Engine Maintenance](#) (EDMS No. 003834681)

4.1 Oil Change/Analysis



1. If conducting an engine oil analysis, run the engine for at least 1 hour prior to drawing a sample. If the engine is an emergency engine (i.e., APU) conduct this in conjunction with the monthly runtime check.
2. Change the oil per manufacturer's instructions or conduct an engine oil analysis per [Oil Sampling Preventive Maintenance Program](#) prior to exceeding the run time or calendar limit specified in [Section 3.0](#).

Note: The oil change and analysis requirement is interchangeable. Only one needs to be accomplished (unless the analysis fails, then an oil change is required).

- a. Follow manufacturer's instructions for oil changes.
 - b. See [APU Engine Maintenance](#) for guidance on oil types to use.
 - c. Record the engine oil type and oil manufacturer on the chain of custody submitted to FluidLife.
3. Upon receipt of the engine oil analysis, if taken, TransCanada Laboratory Services shall:
 - a. Verify the Baseline readings in the Fluid Life database.

Note: At a minimum, the baseline must have the following three parameters: Total Acid/Base Number, viscosity, and percent water content. If any of these parameters are missing, it is not a valid baseline. A new baseline should be requested immediately.

- b. Verify the parameters are within the requirements of [Section 4.5](#) or [Section 4.6](#) as applicable.
4. If the engine oil analysis fails:
 - a. TransCanada Laboratory Services will create a notification recording any relevant information (work required, observations, deficiencies, anomalies) in your Computerized Maintenance Management System (CMMS), with a 24 hour priority and notify via email key operations personnel (including but not limited to Field Work Planner and the Area Manager) and Environmental Field Specialist upon receipt of the condemned analysis.
 - b. The Field Work Planner will schedule an engine oil replacement.
 - c. Operational personnel will change the oil per manufacturer's instructions within the periodicity specified in [Section 4.5](#) or [Section 4.6](#) as applicable.

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|  TRANSCANADA OPERATING PROCEDURE (TASK PACKAGE) | | |  TransCanada <i>In business to deliver</i> | |
| Title: RICE MACT Maintenance | | | | |
| Revision: 05 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 5 of 13 |

4.2 Inspect Spark Plugs

1. Inspect the spark plugs by ensuring all cylinders are igniting appropriately.
2. If the inspection fails:
 - a. Create a corrective Work Order recording any relevant information (work required, observations, deficiencies, anomalies) in your CMMS.
Replace per Reciprocating Engine Spark Plug Replacement.

4.3 Inspect Belts and Hoses

1. Inspect belts and hoses for signs of frets, wear, leaks or other signs of abnormal or excessive wear.
2. If the belts or hoses fail the visual inspection:
 - a. Create a corrective Work Order recording any relevant information (work required, observations, deficiencies, anomalies) in your CMMS.
Replace per manufacturer's instructions.

4.4 Inspect Air Cleaner

1. Inspect the air cleaner for cleanliness and integrity.
2. If the Air Cleaner fails the visual inspection:
 - a. Create a corrective Work Order recording any relevant information (work required, observations, deficiencies, anomalies) in your CMMS.
Replace per manufacturer's instructions.



4.5 Diesel-Fired Engine Oil Analysis Program

Note: The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits imposed by the USEPA for these parameters are as follows:

1. Total Base Number is less than 30 percent of the Total Base Number of the oil when new;
2. Viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new (measured at 100 degrees F); or
3. Percent water content (by volume) is greater than 0.5.

Note: If none of these condemning limits are exceeded, an oil change is not required. If any of the limits are exceeded, the oil change must occur as follows:

1. Engine in Operation
 - a. Within 2 days of receiving the results of the analysis

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|--|----------------------------|----------------|--------------------|---|
|  TRANSCANADA OPERATING PROCEDURE (TASK PACKAGE) | | | |  In business to deliver |
| Title: RICE MACT Maintenance | | | | |
| Revision: 05 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 6 of 13 |

2. Engine not in Operation:

- a. Within 2 days of receiving the results of the analysis, or
- b. Before commencing operation, whichever is later?

Note: If the engine operates in response to an emergency power failure, and the engine oil is not changed within the two business days of receipt of a condemned analysis, contact the Field Environmental Specialist and the Houston Air Group Representative as soon as practical.

4.6 Natural Gas-Fired Engine Oil Analysis Program

Note: The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits imposed by the United States Environmental Protection Agency (USEPA) for these parameters are as follows:

- 1. Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new;
- 2. Viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new (measured at 100 degrees F); or
- 3. Percent water content (by volume) is less than 0.5.

Note: If none of these condemning limits are exceeded, an oil change is not required. If any of the limits are exceeded, the oil change must occur as follows:

4. Engine in Operation

- a. Within 2 business days of receiving the results of the analysis



5. Engine not in Operation:

- a. Within 2 business days of receiving the results of the analysis, or
Before commencing operation, whichever is later?

Note: If the engine operates in response to an emergency power failure, and the engine oil is not changed within the two business days of receipt of a condemned analysis, contact the Field Environmental Specialist and the Houston Air Group Representative as soon as practical.

5.0 DOCUMENTATION/REPORTING REQUIREMENTS

- 1. Ensure that Computerized Maintenance Management System (CMMS) equipment/entity/device information is current. Record relevant observations, deficiencies, anomalies, and repairs for each system inspected in CMMS and schedule any additional maintenance to be completed in a timely manner. Record discrepancies in CMMS.
- 2. Complete the RICE MACT Maintenance Record Sheet and attach it to the relevant work order in the CMMS.
- 3. Documentation must be retained for at least 5 years.
- 4. Engine Oil Analysis results shall be retained in the oil analysis (FluidLife) database.

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|  TRANSCANADA OPERATING PROCEDURE (TASK PACKAGE) | | | |  TransCanada <i>In business to deliver</i> |
| Title: RICE MACT Maintenance | | | | |
| Revision: 05 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 7 of 13 |

6.0 ACRONYMS/DEFINITIONS

| Acronym | Description |
|---------|---|
| APU | Auxiliary Power Unit |
| CMMS | Computerized Maintenance Management System |
| CY | Calendar Year |
| MACT | Maximum Achievable Control Technology |
| NESHAP | National Emission Standard for Hazardous Air Pollutants |
| NSPS | New Source Performance Standard |
| RICE | Reciprocating Internal Combustion Engine |
| USEPA | United States Environmental Protection Agency |
| Term | Definition |
| | |

7.0 LATEST REVISION



| | |
|--------------------------------|---|
| Description of Changes: | <p>Revision 04:</p> <ol style="list-style-type: none"> 1. Document Owner has been updated from Alena Polk to Ruth Jensen 2. Document has been formatted to the current TOPs Task Package template. 3. References and hyperlinks have been updated throughout the document. 4. The North Hamilton Compressor Rental Unit has been removed from the Scope of this document. 5. Section 3.0: <ol style="list-style-type: none"> a. This section has been formatted to the current TOPs Task Package template. b. Note 5 has been updated from “Annually/M12 means once per calendar year. However, the tasks should be scheduled 9-15 months apart when feasible.” To what is shown in revision 04. c. Note 6 has been added. 6. As a result of formatting, the Hazards section has been added to Section 4.0. 7. Note 2 in Section 4.0 has been updated from “Schedule in conjunction with <u>Oil Sampling Preventive Maintenance Program</u> to avoid repetitive sampling. One sample will meet requirements in both procedures.” To what is shown in revision 04. 8. Section 4.1: <ol style="list-style-type: none"> a. Step 3 has been updated from ... the Station Technician ... to TransCanada Laboratory Services. b. Step 3i has been updated from “Verify the Baseline readings are included on the analysis.” to what is shown in revision 04. |
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- c. Note i has been added to Step 3i.
- 9. Step 4 in Section 5.0 has been updated to indicate Engine Oil Analysis results shall be retained in the oil analysis (FluidLife) Database.
- 10. Section 6.0 has been updated to align with the current revision.
- 11. The following Impacted Emergency Engines were removed from Appendix A:

| Pipeline | Station | Manufacturer | Model | Unit Type | Fuel Type | Rated HP |
|----------|--------------------|-------------------|----------------|-----------|-----------|----------|
| ANR | Brownsville | WAUKESHA | L36GLD | APU | NG | 750 |
| ANR | Celestine | CATERPILLAR | 3412 | APU | NG | 690 |
| ANR | Central Charlton | WAUKESHA | F3521GSIU | APU | NG | 515 |
| ANR | Cold Springs 12 | WAUKESHA | VHP510 | APU | NG | 580 |
| ANR | Cold Springs 12 | WAUKESHA | VHP5108G | APU | NG | 580 |
| ANR | Cottage Grove | WAUKESHA | VGf36GL | APU | NG | 880 |
| ANR | Defiance | WAUKESHA | P48GL | APU | NG | 1094 |
| ANR | Delhi | WAUKESHA | DSG1201DV | APU | NG | 754 |
| GLGT | Deward | Ford | LR6 425I 6005A | APU | NG | |
| ANR | Eaton Rapids | WAUKESHA | F2895-GSIU | APU | NG | 600 |
| ANR | Edgar G Hill | CATERPILLAR | G3516B LE | APU | NG | 1818 |
| ANR | Eunice | Waukeshaw | F2895G | APU | NG | 421 |
| ANR | Excelsior | CATERPILLAR (OOS) | 399SI | APU | NG | 490 |
| ANR | Goodwell | WAUKESHA | H24CL HCR | APU | NG | 585 |
| ANR | Grand Chenier | WAUKESHA | 3412 | Fire | Diesel | 227 |
| ANR | Greenville | CUMMINS INC | GTA 28 | APU | NG | 738 |
| ANR | Jena | CATERPILLAR | 3412 | APU | NG | 620 |
| ANR | Lagrange | WAUKESHA | L1616gs10 | APU | NG | 700 |
| ANR | Madisonville | WAKASHAW | H24GL | APU | NG | 585 |
| ANR | Moorland | Waukesha | VGf36GL | APU | NG | 775 |
| ANR | Patterson | WAUKESHA | VHP2900GSI | APU | NG | 636 |
| ANR | Patterson Terminal | WAUKESHA | L36GL | APU | NG | 825 |
| ANR | Patterson Terminal | CATERPILLAR | | Fire | Diesel | 277 |
| ANR | Portland | CATERPILLAR | 3406 | APU | NG | 691 |
| ANR | Rapid River 35 | WAUKESHA - OOS | F2895GU | APU | NG | 302 |
| ANR | Saint John | WAUKESHA | UNK | APU | NG | 825 |
| ANR | Sandwich | | VGf-24-GL | APU | NG | 610 |
| ANR | Sardis | WAUKESHA | L36GL | APU | NG | 760 |
| ANR | Shelbyville | CATERPILLAR | G3512 | APU | NG | 814 |
| ANR | Stanfield | | | | | |
| ANR | Winfield | | | APU | | |
| ANR | Woolfolk | WAUKESHA | VGf36GL | APU | NG | 880 |
| GLGT | Farwell | CATERPILLAR | G3516 | APU | NG | 1053 |

| | | | | | | | |
|--|------------------------------------|------------------------|-----------------|----------------|-----------|-----------|----------|
| | GLGT | Saint Vincent | CATERPILLAR | G3516 | APU | NG | 1085 |
| | GTN | Wallula | CAT ELECTRONICS | G398 | APU | NG | 450 |
| | GTN | Wallula | ONAN | | APU | | |
| | ANR | Sulphur Springs | CATERPILLAR | 3412 SI | APU | NG | 675 |
| 12. The following Impacted Emergency Engines were added to Appendix A: | | | | | | | |
| | Pipeline | Station | Manufacturer | Model | Unit Type | Fuel Type | Rated HP |
| | GTN | Athol | CATERPILLAR | G3412 TA | APU | NG | 690 |
| | GTN | Malin MS | CUMMINGS/ONAN | RS45000-42GGFE | APU | NG | |
| | NBPL | LaMoille | CATERPILLAR | 3306 | APU | Diesel | 329 |
| | NBPL | Lone Tree | CATERPILLAR | 3306 | APU | Diesel | 329 |
| | NBPL | Aberdeen MS | 5012379 | | APU | NG | NBPL |
| | NBPL | Monchy MS | 5012006 | | APU | NG | NBPL |
| | NBPL | Ventura MS | 5012329 | | APU | NG | NBPL |
| 13. Appendix A: | | | | | | | |
| <ul style="list-style-type: none"> a. SAP Equipment Number column has been added. b. Sault Ste. Marie MS was moved to the GLGT section. c. Changed the Deward Pipeline from ANR to GLGT and moved it to the GLGT section. d. The following Line items were changed from the following to what is shown in Revision 04: | | | | | | | |
| | Pipeline | Station | Manufacturer | Model | Unit Type | Fuel Type | Rated HP |
| | ANR | Deward | Ford | LR6-425I-6005A | APU | NG | |
| | NBPL | CHANNAHON FUTURE CS 19 | 5012452 | APU | NG | NBPL | |
| | NBPL | FUTURE CS 15 | 5012362 | APU | NG | NBPL | |
| | NBPL | LAMOILLE (COM) | 5012435 | APU | NG | NBPL | |
| | NBPL | LONE TREE (COM) | 5012379 | APU | NG | NBPL | |
| 14. All pending change requests and feedbacks were addressed in this revision. | | | | | | | |
| 15. Regulatory section of the TOPs database was reviewed for accuracy and any new or outdated items. | | | | | | | |
| 16. No IITs or SAP issued exist with respect to this document. | | | | | | | |
| 17. No external or internal permits or certificates, etc. required for this document. | | | | | | | |
| 18. Lines of Business are accurate. | | | | | | | |
| 19. Reviewers included Ronald White, Robert Lukens, Mark Cantwell, Marvin Hough, Bruce Bendes, Chase Lyles, Robert Rushman, Terry Anderson, Lee Romack, Tiffany Grady, Dan Maguire, Brad Stermer, Sara Briggs, Melinda Holdsworth, Tina Harrison, Troy Aud and Chris Menefee. | | | | | | | |
| Document Modification Form: | EDMS No. 009572881 | | | | | | |

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|---|----------------------------|----------------|--------------------|---|
|  TRANSCANADA OPERATING PROCEDURE (TASK PACKAGE) | | | |  In business to deliver |
| Title: RICE MACT Maintenance | | | | |
| Revision: 05 | Effective Date: 2018/02/01 | Status: Issued | Driver: Regulatory | Page 10 of 13 |

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| | Note: Refer to the Document Modification form for further information regarding this revision of the document. |
| Impact Assessment Summary: | As the TOP is currently written it does not comply with the RICE MACT regulation. EPA has determined that maintenance should be performed annually not to exceed 13 months rather than once per calendar year. The list of facilities applicable to this regulation is incorrect. Major HAP sources that have emergency generators greater than 500 HP are not subject to the maintenance requirements and are being deleted from Appendix A. Elimination of these sources will result in a decrease in costs. Certain facilities were incorrectly deleted from the list the last time this TOP was updated. Updates have been made to correctly describe the TransCanada organization responsible for certain requirements. By not making these changes, TransCanada risks being out of compliance with RICE MACT requirements. |

8.0 APPROVAL

| | Name – Position – Department | Signature – Date |
|----------------------------|--|-------------------------|
| Document Owner | Ruth Jensen Air Quality Specialist US Environmental Services | |
| Management Approver | Troy Aud Manager US Environmental Services | |

APPENDIX A – IMPACTED EMERGENCY ENGINES AS FOLLOWS

| Pipeline | Station | Manufacturer | Model | Unit Type | Fuel Type | Rated HP | SAP Equipment Number |
|----------|----------------|----------------|-------------|-----------|-----------|----------|----------------------|
| ANR | Alden | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069221 |
| ANR | Birmingham | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069253 |
| ANR | Birmingham | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069254 |
| ANR | Capac | CATERPILLAR | 3406DI | APU | Diesel | 300 | 10070291 |
| ANR | Custer | WAUKESHA | VGf-36GL | APU | NG | 880 | 10069257 |
| ANR | Enterprise | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069226 |
| ANR | Enterprise | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069227 |
| ANR | Excelsior | CATERPILLAR | G399 | APU | NG | 490 | 10073088 |
| ANR | Gageby Creek | CATERPILLAR | G3412 | APU | NG | 571 | 10069223 |
| ANR | Grand Chenier | WAUKESHA | F3521 GSIU | APU | NG | 695 | 10073229 |
| ANR | Greensburg | INGERSOLL RAND | PVG6 | APU | NG | 275 | 10069228 |
| ANR | Greensburg | INGERSOLL RAND | PVG6 | APU | NG | 275 | 10069229 |
| ANR | Hamilton | INGERSOLL RAND | PVG-8 | APU | NG | 370 | 10073090 |
| ANR | Hamilton | INGERSOLL RAND | PVG-8 | APU | NG | 370 | 10073091 |
| ANR | Havensville | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069224 |
| ANR | Havensville | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069225 |
| ANR | Joliet | | F-1905-GRU | APU | NG | 318 | 10069230 |
| ANR | Kewaskum | Waukesha | 0B400W-GW63 | APU | NG | 593 | 10073104 |
| ANR | Lincoln | CATERPILLAR | G379 | APU | NG | 330 | 10073089 |
| ANR | Lineville | INGERSOLL RAND | PVG-8 | APU | NG | 370 | 10069219 |
| ANR | Lineville | INGERSOLL RAND | PVG-8 | APU | NG | 370 | 10069220 |
| ANR | Maitland | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069248 |
| ANR | Maitland | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069249 |
| ANR | Marshfield | WAUKESHA | VGf36GL | APU | NG | 439 | 10073261 |
| ANR | Meade | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069255 |
| ANR | Meade | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069256 |
| ANR | Mountain | WAUKESHA | UNK | APU | NG | 370 | 10073248 |
| ANR | Muttonville | WAUKESHA | UNK | APU | NG | 402 | 10073092 |
| ANR | New Windsor | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069250 |
| ANR | New Windsor | INGERSOLL RAND | PVG8 | APU | NG | 370 | 10069251 |
| ANR | Rapid River 35 | WAUKESHA | F2895GU | APU | NG | 302 | 10069273 |
| ANR | Reed City | WAUKESHA | L1616GSIU | APU | NG | 475 | 10073078 |
| ANR | Reed City | CATERPILLAR | G379 | APU | NG | 355 | 10073079 |
| ANR | South Chester | WAUKESHA | F289GU | APU | NG | 526 | 10073085 |

| Pipeline | Station | Manufacturer | Model | Unit Type | Fuel Type | Rated HP | SAP Equipment Number |
|----------|---------------------|-----------------|----------------|-----------|-----------|----------|----------------------|
| ANR | Weyauwega | WAUKESHA | 24GL | APU | NG | 497 | 10073246 |
| ANR | Woodstock | CATERPILLAR | G398 | APU | NG | 370 | 10069245 |
| ANR | Woodstock | INGERSOLL RAND | PVG8 | APU | NG | 500 | 10069246 |
| ANR | Woolfolk | INGERSOLL RAND | PVG | APU | NG | 370 | 10069274 |
| ANR | Woolfolk | INGERSOLL RAND | PVG | APU | NG | 370 | 10069275 |
| GLGT | Boyne Falls | KOHLER | GV12-525IPG | APU | NG | 408 | 10070345 |
| GLGT | Brevort | KOHLER | 3306 | APU | NG | 168 | 10070353 |
| GLGT | Cloquet | CATERPILLAR | SR4 | APU | NG | 600 | 10070349 |
| GLGT | Crystal Falls | CATERPILLAR | SP-4 | APU | NG | 962 | 10070355 |
| GLGT | Deer River | WAUKESHA | L36GL | APU | NG | 899 | 10070339 |
| GLGT | Deward | Ford | LR6-4251-6005A | APU | NG | 26.8 | 10070344 |
| GLGT | Iron River | CATERPILLAR | G3512 | APU | NG | 790 | 10070343 |
| GLGT | Naubinway | WAUKESHA | F11976 | APU | NG | 201 | 10070354 |
| GLGT | Otisville | CATERPILLAR | G3512 | APU | NG | 815 | 10070347 |
| GLGT | Rapid River (GL) | KOHLER | 17OR72 | APU | NG | 201 | 10070356 |
| GLGT | Shevlin | CATERPILLAR | G3412 | APU | NG | 563 | 10070338 |
| GLGT | Sault Ste. Marie MS | CUMMINGS | 20GGMA | APU | NG | | 10070350 |
| GLGT | Thief River Falls | WAUKESHA | F1197G | APU | NG | 250 | 10070351 |
| GLGT | Wakefield | WAUKESHA | F1197G | APU | NG | 250 | 10070348 |
| GTN | Athol | CATERPILLAR | G3412 TA | APU | NG | 690 | 10073626 |
| GTN | Bend | CATERPILLAR | G3516-130LE | APU | NG | 1462 | 10073736 |
| GTN | Bonanza | CATERPILLAR | 3412 | APU | NG | 690 | 10073631 |
| GTN | Chemult | CATERPILLAR | G398 | APU | NG | 500 | 10073630 |
| GTN | Eastport | CATERPILLAR | G3412 TA | APU | NG | 690 | 10073624 |
| GTN | Ione | CATERPILLAR | G353 Series D | APU | NG | 275 | 10073629 |
| GTN | Kent | CATERPILLAR | 3516 | APU | NG | 1462 | 10073737 |
| GTN | Madras | WAUKESHA | H-2475 | APU | NG | 335 | 10073738 |
| GTN | Malin MS | CUMMINGS/ONAN | RS45000-42GGFE | APU | NG | | 10073761 |
| GTN | Rosalia | CATERPILLAR | G3516-130LE | APU | NG | 1462 | 10073627 |
| GTN | Sandpoint | CATERPILLAR | G3516-130LE | APU | NG | 1462 | 10073625 |
| GTN | Starbuck | CATERPILLAR | G3412 | APU | NG | 690 | 10073628 |
| GTN | Wallula | CAT ELECTRONICS | G3516-130LE | APU | NG | 1462 | 10073741 |
| NBPL | Arnegard | CATERPILLAR | G398 | APU | NG | 500 | 10071655 |
| NBPL | Clark | WAUKESHA | H24GL | APU | NG | 532 | 10071645 |

| Pipeline | Station | Manufacturer | Model | Unit Type | Fuel Type | Rated HP | SAP Equipment Number |
|------------|------------------------|--------------|-------------|-----------|-----------|----------|----------------------|
| NBPL | Culbertson | WAUKESHA | F18GL | APU | NG | 350 | 10071647 |
| NBPL | Eldridge | WAUKESHA | F18GL | APU | NG | 350 | 10071644 |
| NBPL | Estelline | WAUKESHA | F18GL | APU | NG | 350 | 10071650 |
| NBPL | Garvin | WAUKESHA | F18GL | APU | NG | 350 | 10071646 |
| NBPL | Glasgow | WAUKESHA | F18GL | APU | NG | 350 | 10071643 |
| NBPL | Glen Ullin | CATERPILLAR | G3412SITA | APU | NG | 600 | 10071656 |
| NBPL | Grundy Center | WAUKESHA | F18GL | APU | NG | 350 | 10071653 |
| NBPL | Manning | WAUKESHA | F18GL | APU | NG | 350 | 10071651 |
| NBPL | Saint Anthony | WAUKESHA | F18GL | APU | NG | 350 | 10071649 |
| NBPL | Trimont | CATERPILLAR | G3412SITA | APU | NG | 496 | 10071654 |
| NBPL | Wetonka | CATERPILLAR | G3412SITA | APU | NG | 496 | 10071658 |
| NBPL | Wolf Point | CATERPILLAR | G3412SITA | APU | NG | 496 | 10071659 |
| NBPL | Zeeland | WAUKESHA | L-3711 | APU | NG | 550 | 10071657 |
| NBPL | Channahon Future CS 19 | KOHLER | | APU | NG | | 10071692 |
| NBPL | Future CS 15 | KOHLER | | APU | NG | | 10071685 |
| NBPL | LaMoille | CATERPILLAR | 3306 | APU | Diesel | 329 | 10071648 |
| NBPL | LaMoille (COM) | KOHLER | | APU | NG | | 10071690 |
| NBPL | Lone Tree | CATERPILLAR | 3306 | APU | Diesel | 329 | 10071652 |
| NBPL | Lone Tree (COM) | KOHLER | | APU | NG | | 10071687 |
| NBPL | Aberdeen MS | KOHLER | | APU | NG | | 10071677 |
| NBPL | Monchy MS | KOHLER | | APU | NG | | 10071660 |
| NBPL | Ventura MS | KOHLER | | APU | NG | | 10071682 |
| North Baja | Ehrenberg | CATERPILLAR | G3516-130LE | APU | NG | 1462 | 10073735 |



October 15, 2015

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Bureau Veritas Project No. 11015-000006.00

**Subject: Leak Detection and Repair Plan
12 Small Glycol Dehydration Units
Michigan**

Dear Mr. Punjak:

Bureau Veritas North America, Inc. submits this Leak Detection and Repair (LDAR) Plan for 12 small glycol dehydration units located in Mancelona, Reed City, Eaton Rapids, Lenox, Kalkaska, Johannesburg, and Capac, Michigan. The enclosed Plan identifies methods for identifying and managing leaks and repairs from existing small glycol dehydration units that are subject to LDAR standards and controls. Emissions from the glycol dehydration unit closed vent system are subject to 40 CFR 63, Subpart HHH, National Emissions Standards for Hazardous Air Pollutants (NESHAP) from Natural Gas Transmission and Storage Facilities. LDAR testing described in this Plan is specified in U.S. EPA Reference Method 21. If you have any questions, please contact us.

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Enclosure

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Leak Detection and Repair Plan for Glycol Dehydration Unit's Closed Vent System

Nine Natural Gas Transmission and Storage Facilities

Mancelona, Reed City, Eaton Rapids, Lenox,
Kalkaska, Johannesburg, and Capac, Michigan

State Registration Nos.
B7198, B3721, N3022, B8337,
B7196, B7197, B7390, B7219, and B6481



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Contents

| | |
|--|-----------|
| Acronyms | iv |
| 1.0 Introduction..... | 1 |
| 2.0 Identification of Components..... | 2 |
| 3.0 Definition of Leak | 6 |
| 4.0 Monitoring of Components | 7 |
| 4.1 Auditory, Visual, Olfactory Inspection..... | 7 |
| 4.2 USEPA Method 21 Equipment..... | 7 |
| 4.2.1 Method 21 Equipment Calibration..... | 8 |
| 4.2.2 Method 21 Response Factors..... | 9 |
| 4.2.3 Method 21 Measurements..... | 10 |
| 4.2.4 Quality Assurance/Quality Control..... | 11 |
| 5.0 Repairing Components..... | 12 |
| 5.1.1 Delay of Repair..... | 13 |
| 5.1.2 Leak Tagging..... | 13 |
| 6.0 Recordkeeping..... | 14 |
| Table | |
| 2-1 Typical Sources of Component Leaks..... | 2 |
| 2-2 Monitoring Frequency and Component ID Tag Color System | 5 |
| 4-1 USEPA Method 21 Equipment QA/QC Criteria..... | 9 |
| 5-1 Equipment Component Repair Schedules..... | 12 |
| Figure | |
| 2-1 Examples of valve leaks..... | 2 |
| 2-2 LDAR Equipment Identification Tags | 3 |
| 5-1 Example LDAR Leak Tag..... | 13 |



Appendix

- A Component Locations and Lists
- B Example of LDAR Recordkeeping Form
- C Example of EPA Method 21 Field Calibration Form
- D Example of EPA Method 21 Field Monitoring Form
- E Reference Method 21



Acronyms

| | |
|-----------|--|
| CFR | Code of Federal Regulations |
| FID | Flame ionization detector |
| HAP | Hazardous Air Pollutants |
| LDAR | Leak detection and repair |
| MDEQ | Michigan Department of Environmental Quality |
| Method 21 | USEPA Reference Method 21 for Determination of VOC Leaks from process equipment |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants. The standards for Glycol Units at natural gas transmission and storage facilities are codified in Subpart HHH of 40 CFR 63. |
| P&ID | Piping and Instrumentation Diagram |
| ppm | Parts per million, concentration |
| TOC | Total organic carbon |
| USEPA | United States Environmental Protection Agency |
| VOC | Volatile organic compounds |



1.0 Introduction

TransCanada retained Bureau Veritas North America, Inc. to develop a leak detection and repair (LDAR) plan for eleven existing¹ small glycol dehydration units at eight natural gas transmission and storage facilities in Michigan. The glycol dehydration units are located at TransCanada-owned natural gas transmission and storage facilities that (1) transport or store natural gas prior to entering the pipeline to a local distribution company or a final end user and (2) are major sources of hazardous air emissions subject to:

- 40 CFR 63, Subpart HHH—National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities

The regulation requires the sources to limit emissions of benzene, toluene, ethylbenzene, and xylenes (BTEX). BTEX and other volatile organic compound (VOC) are emitted when natural gas from the underground reservoir is conditioned in a glycol dehydration unit and when water vapor and other gas stream constituents are evaporated from the rich glycol by a re-boiler. When compliance with the unit-specific BTEX emission limit is met using a control device or combination of control devices, such as a condenser or thermal oxidizer, the closed-vent system shall have no detectable emissions.

This LDAR plan outlines procedures to detect VOC leaks from equipment components of the closed-vent system and identify necessary repairs as required by 40 CFR 60, Subpart HHH and each facility's Michigan Department of Environmental Quality (MDEQ) air permit. The program consists of the following elements:

1. Identification of Components
2. Definition of Leak
3. Monitoring of Components
4. Repairing Components
5. Recordkeeping

¹ As defined in • 40 CFR 63, Subpart HHH, “existing” means construction commenced on or before August 23, 2011.

2.0 Identification of Components

The LDAR work practice is designed to identify leaking components and reduce emissions by repairs or replacement. A component that is subject to LDAR requirements must be monitored at specified regular intervals to evaluate whether or not the component is leaking. Any leaking component must be repaired or replaced within a specified timeframe. Table 1-1 lists potential components of a closed vent system that may leak.

Table 2-1
Typical Sources of Component Leaks

| Component | Typical Location of Leak |
|--|--|
| Pump | Seal |
| Valve | Stem or gland area caused by failure of valve packing or O-ring |
| Connector | Gasket failure and improperly torqued bolts on flanges |
| Compressor | Seal |
| Safety Device such as a Pressure Relief Device | Caps, plugs, or flange failure or incorrect block and bleed procedures |

Equipment leaks occur based on the result of the age of the sealing device and or operating conditions, such as temperature, pressure or corrosion of the sealing device from chemical products. The leaks may be manifested as packing leaks, body leaks and flange leaks, as shown in Figure 2-1;

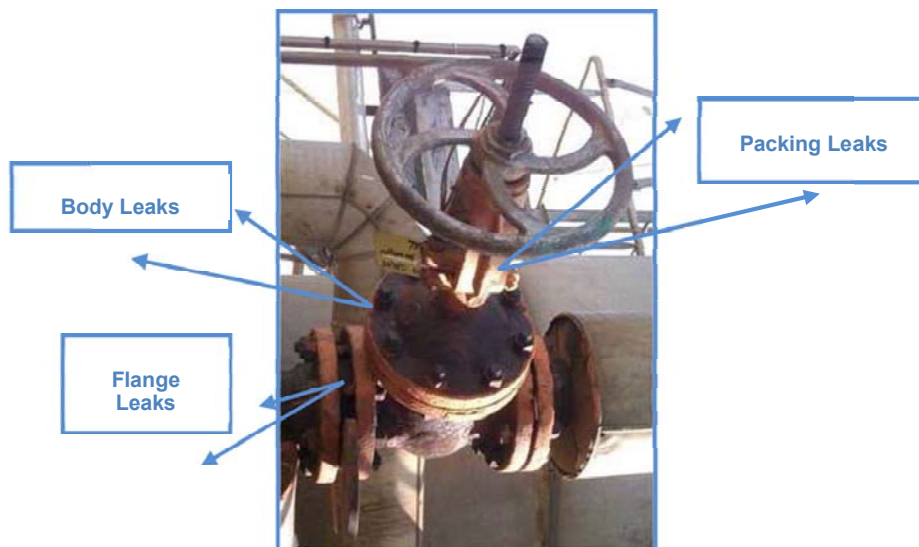


Figure 2-1: Examples of valve leaks

A closed-vent system is defined in 40 CFR 63.1271 as:

A system that is not open to the atmosphere and is composed of piping, ductwork, connections, and if necessary, flow inducing devices that transport gas or vapor from an emission point to one or more control devices. If gas or vapor from regulated equipment is routed to a process (e.g., to a fuel gas system), the conveyance system shall not be considered a closed-vent system and is not subject to closed-vent system standards.

If gas or vapor from regulated equipment is used, reused (i.e., injected into the flame zone of enclosed combustion device), returned back to the process, or sold, then the recovery system used, including piping, connections, and flow inducing devices, is not considered to be a control device or a closed-vent system.

At the TransCanada facilities, the closed-vent system is the section of piping that conveys re-boiler emissions to the condenser and/or thermal oxidizers. It begins at the re-boiler and ends at the final control device. Examples of except “closed-vent system” components include:

- Separator, condensate, and brine recovery tanks
- Piping conveying recovered vapors into the thermal oxidizer flame chamber

A unique identification number (ID) is assigned to each regulated component and tagged with a permanent easily recognizable color-coded tag fastened with wire ties. These tags shall not be removed unless required for component repair or replacement. Example tags are shown in Figure 2-2.



Figure 2-2. LDAR Equipment Identification Tags



Additional or replacement component identification tags and wires can be purchased from:

The Tag Place
P.O. Box 55329
Tulsa, OK 74155
1-888-278-0188

| <u>Item:</u> | <u>Description:</u> |
|---------------|--|
| SS-S14 | Security Seal Stainless 14-inch 250 per package |
| C150SAR-26279 | 1 ½” Red square aluminum tags, stamped, numbered 1/8” holes |
| C150SAY-26279 | 1 ½” Yellow square aluminum tags, stamped, numbered 1/8” holes |
| C150SAB-26279 | 1 ½” Blue square aluminum tags, stamped, numbered 1/8” holes |

Monitoring of components is dependent on their accessibility. Component accessibility is categorized as accessible or difficult to inspect. These classifications affect the monitoring interval and are identified below:

Accessible: Components have no accessibility issue preventing them from being successfully inspected and/or monitored.

Difficult to Inspect: Components that cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface.

The identification numbers allow for consistent identification and monitoring. The tag color identifies the frequency of monitoring, which is dependent on the component accessibility and type.

When a component includes multiple potential leak interfaces, such as a piping tee, identification number(s) may be assigned to the single component or each of the potential leak interfaces, based on the proximity of the interfaces and the repair likely necessary to remedy a VOC leak if it were encountered. Each potential leak interface of an affected component shall be inspected and/or monitored.

During safe-to-inspect times, access to difficult to inspect equipment components may require the use of scaffolding, extended ladders, or articulating boom lifts.

Monitoring frequency is discussed in Table 2-2.

Locations of components shown on process flow diagrams with annotated photographs and component lists are included as Appendix A.



**Table 2-2
Monitoring Frequency and Component ID Tag Color System**

| Component Description | Accessibility | Inspection Type | Frequency | ID Tag Color |
|---|----------------------|---|---------------------------|--------------|
| Joints, seams, or other connections that are permanently or semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted or gasketed ducting flange) | Accessible | EPA Method 21 and audio, visual, and olfactory inspection | Initial | Yellow |
| | | Audio, visual, and olfactory inspection | Annual | Yellow |
| | Difficult to inspect | EPA Method 21 | Initial and every 5-years | Red |
| Components other than those specified above | Accessible | EPA Method 21 and audio, visual, and olfactory inspection | Initial | Blue |
| | | EPA Method 21 and audio, visual, and olfactory inspection | Annual | Blue |
| | Difficult to inspect | EPA Method 21 | Initial and every 5-years | Red |

In accordance with 40 CFR §63.1283, in the event a component or connection is repaired or replaced or the connection is unsealed, the component or connection shall be monitored following EPA Method 21 to demonstrate that it operated with no detectable emissions, unless the component is has been identified with a Red tag designating it difficult to inspect.



3.0 Definition of Leak

The closed-vent system shall be designed and operated with no detectable emissions. “No detectable emission” means no escape of HAP from a device or system to the atmosphere as determined by:

1. Instrument monitoring results that indicate a potential leak interface operates with an organic concentration value of less than 500 parts per million by volume, as methane (the calibration gas).
2. The absence of visible openings or defects in the device or system, such as rips, tears, or gaps.

If an equipment component is identified to operate with detectable emissions, the equipment must be repaired.



4.0 Monitoring of Components

The procedures for conducting LDAR monitoring include (1) auditory, visual, and olfactory, and (2) USEPA Reference Method 21, “Determination of Volatile Organic Compound Leaks.”

4.1 Auditory, Visual, Olfactory Inspection

An auditory, visual, and olfactory inspection utilizes the human sensory system to identify a potential leak interface. The principles of this inspection are:

Auditory – Listen

- Pressure leaks
- Liquid leaks

Visual – Look

- Pump seal drips
- Valve packing (wet or drips)
- Wet spots on nearby surfaces
- Liquid puddles

Olfactory – Smell

- Unusual/strong odors

Should the sensory inspection indicate the potential for an equipment component leak, the magnitude of the leak shall be evaluated by USEPA Method 21, then recorded on the LDAR Recordkeeping Form and marked for repair if necessary.

4.2 USEPA Method 21 Equipment

A quantitative estimate of an equipment component leak shall be performed with a portable VOC instrument following USEPA Method 21 procedures. USEPA Method 21 does not specify the instrument detector type to be used; however, the instrument must meet the following specification and performance criteria:



1. The VOC instrument detector shall respond to the compounds being processed. Detector types that may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.
2. The instrument shall be capable of measuring the leak definition concentration specified in the regulation.
3. The scale of the instrument meter shall be readable to ± 2.5 percent of the specified leak definition concentration.
4. The instrument shall be equipped with an electrically driven pump to ensure that a sample is provided to the detector at a constant flow rate. The nominal sample flowrate, as measured at the sample probe tip, shall be 0.10 to 3.0 liters per minute (0.004 to 0.1 cubic foot per minute) when the probe is fitted with a glass wool plug or filter that may be used to prevent obstruction of air flow into the instrument.
5. The instrument shall be equipped with a probe or probe extension or sampling with a diameter not to exceed 6.4 millimeter (1/4 inch), with a single end opening for admission of sample.
6. The instrument shall be intrinsically safe for operation in explosive atmospheres as defined by National Electrical Code by the National Fire Prevention Association or other applicable regulatory code for operation in any explosive atmospheres that may be encountered in its use. The instrument shall, at a minimum, be intrinsically safe for Class 1, Division 1 conditions, and/or Class 2, Division 1 conditions, as appropriate, as defined by the example code. The instrument shall not be operated with any safety device, such as an exhaust flame arrestor, removed.

4.2.1 Method 21 Equipment Calibration

Prior to testing, the instrument shall be allowed to pre-heat. The instrument is calibrated by introducing the following gas standards alternatively in triplicate:

- Zero gas: air containing less than 10 ppm by volume VOC.
- Calibration gas: a mixture of methane in air at a methane concentration of less than 10,000 ppm by volume. The calibration precision criterion is $\leq 10\%$ of the calibration gas value.

During calibration, the response time of the instrument shall be measured by introducing the zero gas and then the calibration gas. After the calibration gas has been introduced, the time required to attain 90% of the final stable reading is the response time. The response time criterion is ≤ 30 seconds. The applicable Method 21 quality assurance/quality control criteria are summarized in Table 4-1.



At the end of the sampling day a calibration drift assessment of the LDAR monitoring instrument shall be performed. The calibration drift assessment shall be performed using the same calibration gases used prior to testing.

- If the calibration drift assessment indicates a negative calibration drift of more than 10% from the previous calibration, then a re-check of components where a reading of 100 ppmv or greater was recorded shall be performed.
- If the calibration drift assessment indicates a positive calibration drift of more than 10% from the previous calibration, then, at TransCanada’s discretion, select components shall be retested.

An example of the EPA Method 21 Field Calibration form is provided in Appendix C.

**Table 4-1
USEPA Method 21 Equipment QA/QC Criteria**

| QA/QC Specification | Purpose | Procedure | Frequency | Acceptance Criterion |
|----------------------------|--|--|-----------|---------------------------------------|
| Method 21: zero gas | Evaluate the analyzer meter response to VOC free air | Zero-air calibration gas introduced into analyzer | Pre-test | ≤10 ppmv |
| Method 21: calibration gas | Evaluate the analyzer meter response to a methane standard | Methane calibration gas introduced into analyzer | Pre-test | ≤10 % of the calibration gas standard |
| Method 21: response time | Evaluate the analyzer response time | Measure the time the instrument meter reading goes from zero to 90% of calibration gas concentration | Pre-test | ≤30 seconds |

4.2.2 Method 21 Response Factors

Although published response factors for the TVA 1000B are available, the measured VOC concentration shall not be converted to “actual” concentration because the incoming process stream is natural gas and the majority of the VOCs in the closed vent system are likely to be methane. Thus, process system leaks will be measured as methane, the calibration gas. Specific response factors for an instrument calibrated using a methane standard are not applicable.

4.2.3 Method 21 Measurements

Because the glycol dehydration units can be located within covered structures, a background VOC concentration shall be measured. The local ambient VOC concentrations shall be measured by moving the instrument probe randomly and within 3 to 6 feet around a component of the closed vent system. If interferences exist that limit this measurement, the ambient VOC concentration may be measured at a distance as close as 10 inches from the source.

Prior to evaluating a component for VOC leaks, eliminate obstructions that prevent accurate monitoring. Obstructions may be grease or other visible objects on the component interface.

The probe of the instrument shall be positioned at the surface of the component interface to evaluate the absence or presence of a leak. Interfaces from each regulated component must be monitored. Move the probe along the interface periphery while observing the instrument reading, slowly sample the interface where a leakage is indicated until the maximum meter reading is obtained. Leave the probe inlet at this maximum observed meter reading location for approximately two times the instrument response time. Examples of the application of this general technique to specific equipment types are discussed below:

Valves. The most common source of leaks from valves is the seal between the stem and housing. Place the probe at the interface where the stem exits the packing gland and sample the stem circumference. Also, place the probe at the interface of the packing gland take-up flange seat and sample the periphery. In addition, survey valve housings of multipart assembly at the surface of all interfaces where a leak could occur.



Flanges and Other Connections. For welded flanges, place the probe at the outer edge of the flange gasket interface and sample the circumference of the flange. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.



Pumps and Compressors. Conduct a circumferential traverse at the outer surface of the pump or compressor shaft and seal interface. If the source is a rotating shaft, position the probe inlet within 1 cm of the



shaft-seal interface for the survey. If the housing configuration prevents a complete traverse of the shaft periphery, sample all accessible portions. Sample all other joints on the pump or compressor housing where leakage could occur.

Open-ended Lines or Valves with Caps or Closure Devices.

For welded caps and closure devices, place the probe at the outer edge of the closure device and sample the circumference of the cap. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.



Where metal wrap pipe insulation is present around a pipe joint, seam, or other connection and a visual inspection cannot be performed without damaging the insulation, Method 21 monitoring shall be performed at the seams in the metal pipe wrap insulation near the inaccessible joint, seam, or other connection.

The highest VOC concentration measured at the surface of a component interface, adjusted for the local background VOC ambient concentration, shall be recorded and compared to the leak definition concentration of ≤ 500 ppm.

In the event a VOC concentration exceeds the definition of “no detectable emissions” the component shall be tagged for repair. Documentation of the inspection shall be recorded on the LDAR Recordkeeping Form (Appendix B).

When an EPA Method 21 inspection event occurs, measured VOC concentrations shall be recorded. An example of the Field Inspection Form included as Appendix D may be used for this purpose.

4.2.4 Quality Assurance/Quality Control

A QA/QC review of the LDAR data collected on the LDAR Recordkeeping Form shall be used to evaluate the accuracy and completeness of the inspections. TransCanada may review the monitoring data and inspection sheets after an inspection and compare them to the previous data. The data compiled and maintained in the spreadsheets shall be used to demonstrate the LDAR recordkeeping requirements are being followed. Trends in data may be identified when the QA/QC checks are completed.

Should discrepancies be noted in the QA/QC review, they shall be noted or highlighted in the LDAR Recordkeeping Form, thereby alerting the field team before the next monitoring session.

Notations or documentation of a QA/QC issue shall be addressed prior to the next monitoring session.

EPA Reference Method 21 is attached to this Plan as Appendix E.



5.0 Repairing Components

In the event a component leak is detected (i.e., analyzer readings >500 ppm), repairs must be attempted as soon as practicable. Table 5-1 is an overview of the leak repair requirements under Subpart HHH.

**Table 5-1
Equipment Component Repair Schedules**

| Examples of Affected Components | Required Repair Timeline | Allowed “Delay of Repair” Exemptions |
|---|---|--|
| <ul style="list-style-type: none"> • Welded joints • Piping seams • Gasketed duct flanges • Connectors • Open-ended pipe closure devices | <ul style="list-style-type: none"> • First attempt at repair required no later than 5 calendar days after detection. • Final repair required not later than 15 calendar days after detection. | <ul style="list-style-type: none"> • Repair with 15 days is technically infeasible without a process unit shutdown. |

The first attempt at repair may include:

- Tightening bonnet bolts
- Replacing bonnet bolts
- Tightening packing gland nuts
- Injecting lubricant into lubricated packing
- Repairing a leaking valve using the drill-and-tap method that can be implemented without shutting down the process unit.

The drill-and-tap repair method involves attaching a small valve and fitting to the valve packing gland through a small drilled hole. New packing material is pumped into the packing gland. This method may be considered a permanent repair technique, especially for pumpable packing valves. TransCanada may choose to replace leaking components with “leakless” components.

Repairs or equipment replacements that require a new identification number shall be recorded on the Component Locations diagram and/or the LDAR Recordkeeping Form. A new identification number may be required for replaced equipment.

5.1.1 Delay of Repair

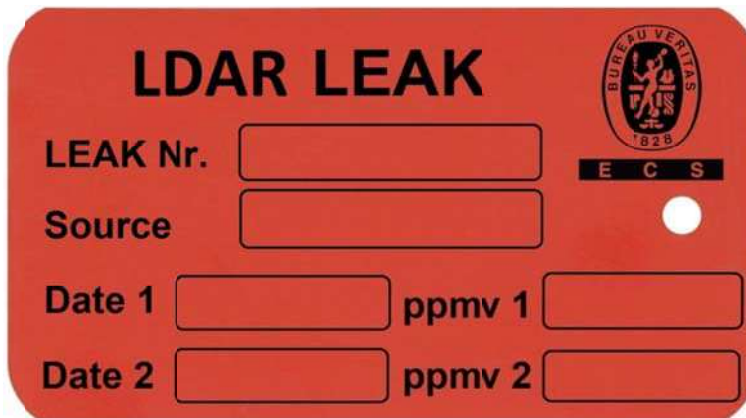
If a component repair is technically not feasible without shutting down the process unit, the component may be placed on a Delay of Repair list with the identification number of the component recorded on the LDAR Recordkeeping Form. The Delay of Repair list shall include a description of the reason the equipment cannot be feasibly repaired and an estimated date of repairing the component.

Since the glycol dehydration units are in near continuous operation during the natural gas reservoir withdrawal season of November 1 through March 31, repair of components may not be feasible until the end of the withdrawal season.

Components may not be placed on the Delay of Repair list indefinitely. They must be repaired or replaced by the end of the next process unit shutdown.

5.1.2 Leak Tagging

The location of the leaking component shall be tagged with a red temporary identification tag. Figure 5-1 presents an example LDAR Leak tag.



The image shows a red rectangular tag with rounded corners. At the top left, the text "LDAR LEAK" is printed in large, bold, black letters. To the right of this text is a circular logo for Bureau Veritas, featuring a figure holding a scale and a sword, with the text "BUREAU VERITAS" and "1828" around it. Below the logo is a small black rectangle with the letters "E C S" in white. The tag contains several input fields for data entry: "LEAK Nr." followed by a rectangular box; "Source" followed by a rectangular box; "Date 1" followed by a rectangular box, "ppmv 1" followed by a rectangular box; and "Date 2" followed by a rectangular box, "ppmv 2" followed by a rectangular box. There is a small white circular hole on the right side of the tag, positioned between the "E C S" logo and the "Date 1/ppmv 1" fields.

Figure 5-1. Example LDAR Leak Tag

The LDAR Leak tag shall remain on the component until it has been re-monitored and shown not to be leaking (a measurement of less than 500 ppm.)



6.0 Recordkeeping

Records of affected component identification, inspections, and repairs shall be summarized in the LDAR Recordkeeping Form or designated database. Each inspection event is recorded on the LDAR Recordkeeping form. Information in this plan and these documents ensure:

- A list of identification numbers for regulated components unique to each facility is maintained
- Components categorized as “difficult to monitor” are identified with an explanation for the designation.
- Inspections are documented and summarized with records of inspections that include the following elements:
 - ❖ Instrument identification numbers, operator name or initials, and identification of the inspected components
 - ❖ The date the leak or defect was detected and the date of the first attempt to repair the leak or defect
 - ❖ Maximum instrument reading measured by EPA Method 21 after the leak or defect is successfully repaired or determined to be nonrepairable
 - ❖ “Repair delayed” and the reason for the delay if a leak or defect is not repaired within 15 calendar days after discovery of the leak or defect
 - ❖ The name, initials, or other form of identification of the owner or operator (or designee) whose decision it was that repair could not be performed without shutdown
 - ❖ The expected date of successful repair of the leak or defect if a leak or defect is not repaired within 15 calendar days
 - ❖ Dates of shutdowns that occur while the equipment is unrepaired
 - ❖ The date of successful repair of the leak or defect
 - ❖ For each inspection in which no leaks or defects are detected, a record that the inspection was performed, the date of the inspection, and a statement that no leaks or defects were detected
- Maps, drawings, photographs, and/or piping and instrument diagrams (P&ID) are maintained for the closed-vent system regulated components



Appropriate LDAR Program adherence is best demonstrated through thorough recordkeeping. Internal audits of the LDAR Program equipment logs, monitoring data, and repair or replacement records are recommended to ensure compliance with LDAR regulations.

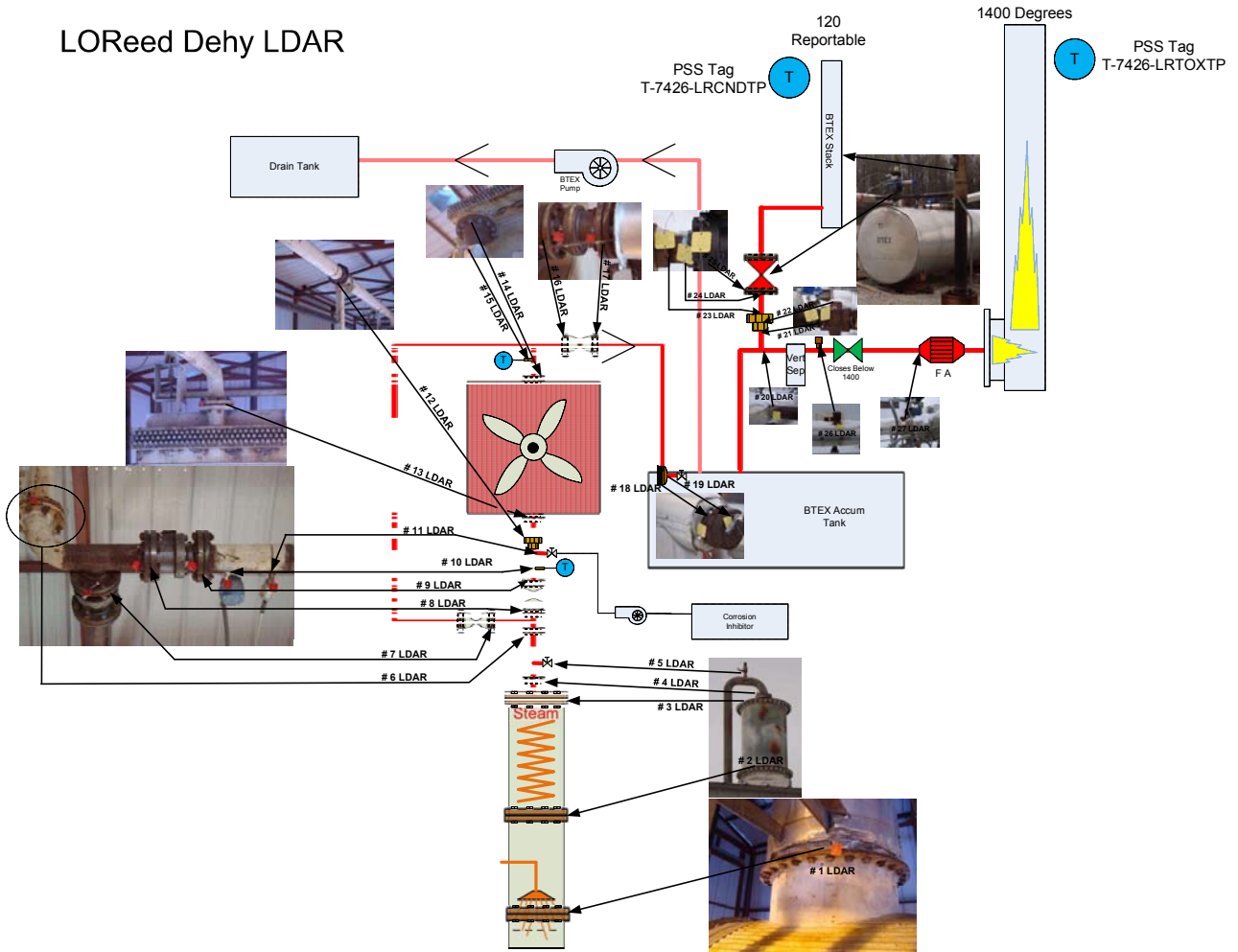
This plan shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or period. The most recent 12 months of records must be retained onsite and be readily accessible. Records older than 1 year may be retained offsite.



Appendix A

Component Locations and Lists

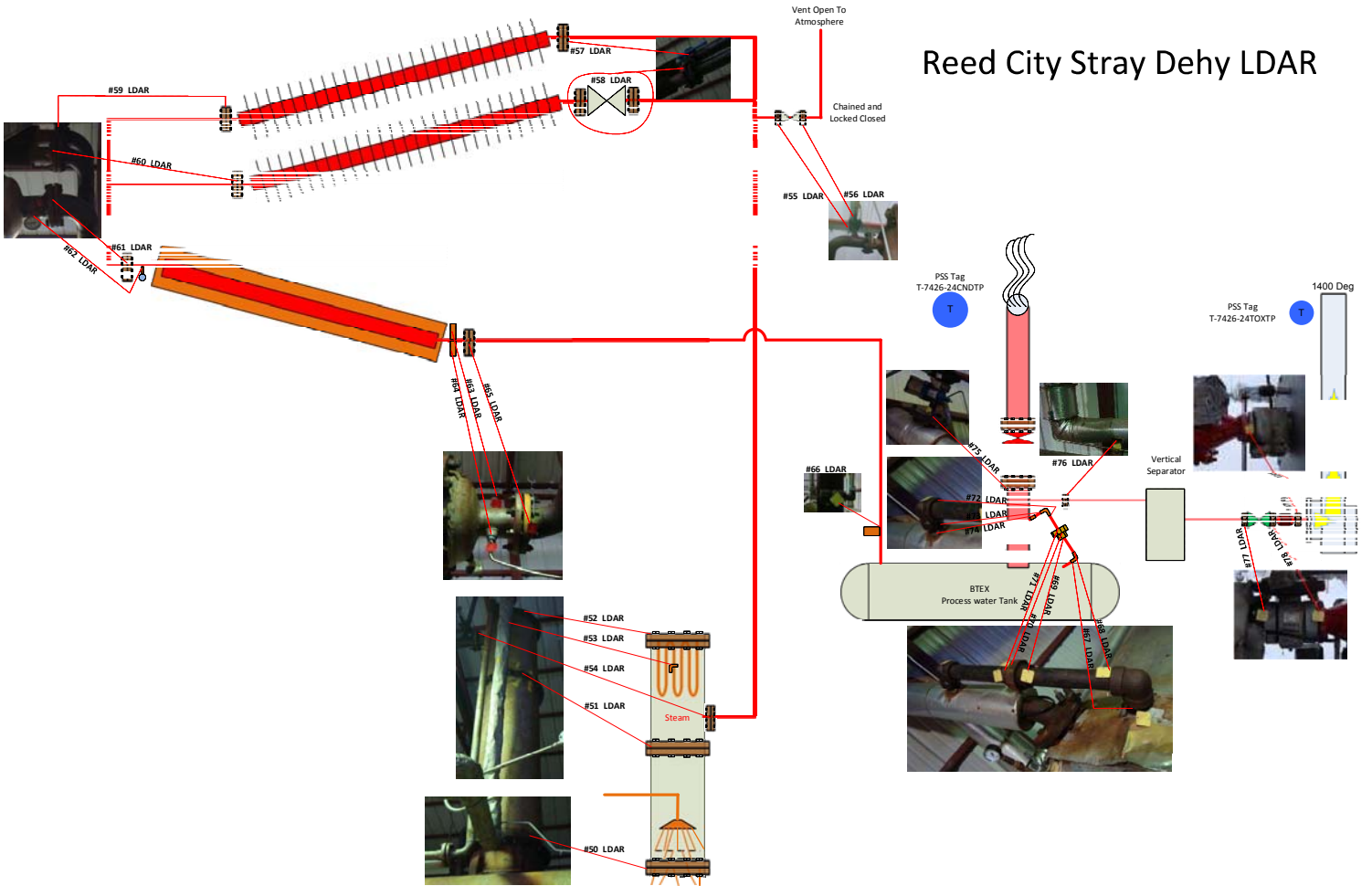
LOReed Dehy LDAR



LDAR inspection points.

| Facility | | Inspection Date | | | |
|-----------------|---|---|-------------------|-------------------|----------------|
| Location LoReed | | 1 year inspection | | 5 year inspection | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time inspected |
| | Background reading = | | | | |
| 1 | Base of still column | Flange | | | |
| 2 | Mid stream of still column | Flange | | | |
| 3 | Top of still column | Flange | | | |
| 4 | Outlet of still column | Flange | | | |
| 5 | Valve at top of still column | Valve | | | |
| 6 | Inlet Tee for bypass line | Flange | | | |
| 7 | Inlet to bypass valve | Flange | | | |
| 8 | Inlet to condenser iso valve | Flange | | | |
| 9 | Outlet to condenser iso valve | Flange | | | |
| 10 | Condenser inlet temperature probe | Thermo well | | | |
| 11 | Valve for corrosion inhibitor | Valve | | | |
| 12 | Condenser inlet union | Union | | | |
| 13 | Condenser inlet flange | Flange | | | |
| 14 | Condenser outlet flange | Flange | | | |
| 15 | Condenser outlet temperature probe | Thermo well | | | |
| 16 | Condenser outlet valve/upstream | Flange/Valve | | | |
| 17 | Condenser outlet valve/downstream | Flange/Valve | | | |
| 18 | Inlet piping cap to Btex tank | Piping | | | |
| 19 | Valve at piping cap to Btex tank | Piping | | | |
| 20 | Tee to vent stack | Piping | | | |
| 21 | Nipple for piping to union input | Piping | | | |
| 22 | Union for piping to vent stack | Union | | | |
| 23 | Nipple for piping to union output | Piping | | | |
| 24 | Nipple to input of isolation vent stack valve | Piping | | | |
| 25 | Vent stack valve | Valve | | | |
| 26 | Tap on line to Thermo oxidizer 1" | Piping /plug | | | |
| 27 | Input to flame arrester | Flange | | | |

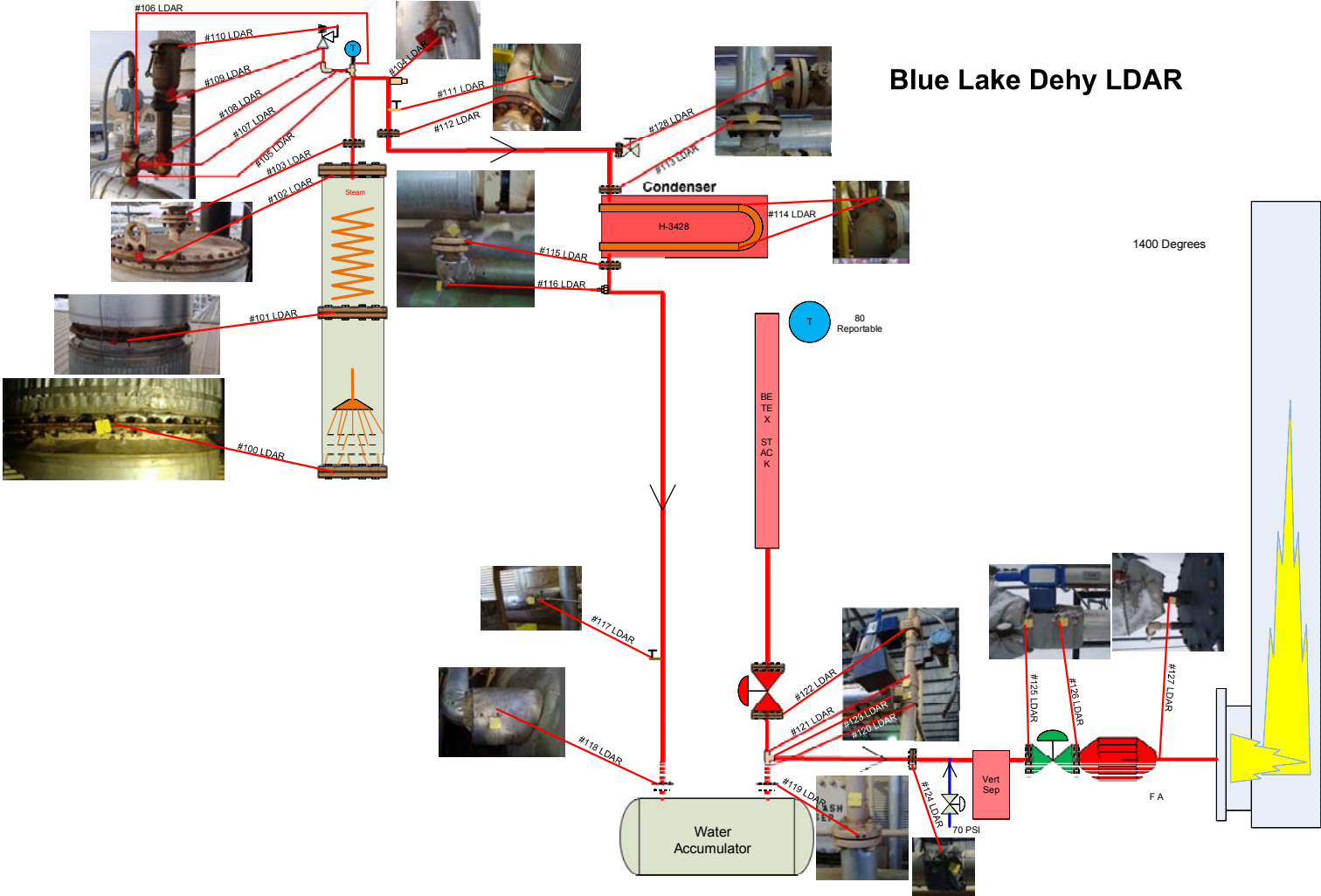
Reed City Stray Dehy LDAR



LDAR inspection points.

| Facility | | | Inspection Date | | |
|------------|---|---|-------------------|-------------------|----------------|
| Location | | Reed City Stray Background levels = | | | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time inspected |
| 50 | Base of still column | Flange | | | |
| 51 | Mid of still column | Flange | | | |
| 52 | Top of still column | Flange | | | |
| 53 | Plug at top of still column | Plug | | | |
| 54 | Outlet of still column | Flange | | | |
| 55 | Tee to vent valve | Pipe | | | |
| 56 | Vent valve | Pipe | | | |
| 57 | Input to top or first section condenser | Flange | | | |
| 58 | Input to iso valve to second section of condenser | Flange | | | |
| 59 | Output of the top or first section condenser | Flange | | | |
| 60 | Output of the second section condenser | Flange | | | |
| 61 | Input to the third section of the condenser | Flange | | | |
| 62 | Temperature port at third section of condenser | Pipe | | | |
| 63 | Plug at output of third condenser | Plug | | | |
| 64 | Tubing at output of third condenser | Tubing | | | |
| 65 | Output of the third section of the condenser | Flange | | | |
| 66 | Tee At line to BTEX tank | Pipe | | | |
| 67 | 2" line to mainline from tank | Pipe | | | |
| 68 | 2" line to mainline from tank | Pipe | | | |
| 69 | 2" line to mainline from tank | Pipe | | | |
| 70 | 2" line to mainline from tank union | Pipe | | | |
| 71 | 2" line to mainline from tank | Pipe | | | |
| 72 | 2" line to mainline from tank | Pipe | | | |
| 73 | 2" line to mainline from tank | Pipe | | | |
| 74 | 2" line to mainline from tank | Pipe | | | |
| 75 | Valve to vent condenser | Valve | | | |
| 76 | Flange in line to Thermo oxidizer | Flange | | | |
| 77 | Flange at Thermo oxidizer isolation valve inlet | Flange | | | |
| 78 | Flange at Thermo oxidizer isolation valve outlet | Flange | | | |
| 79 | Flange at flame arrester outlet | Flange | | | |

Blue Lake Dehy LDAR

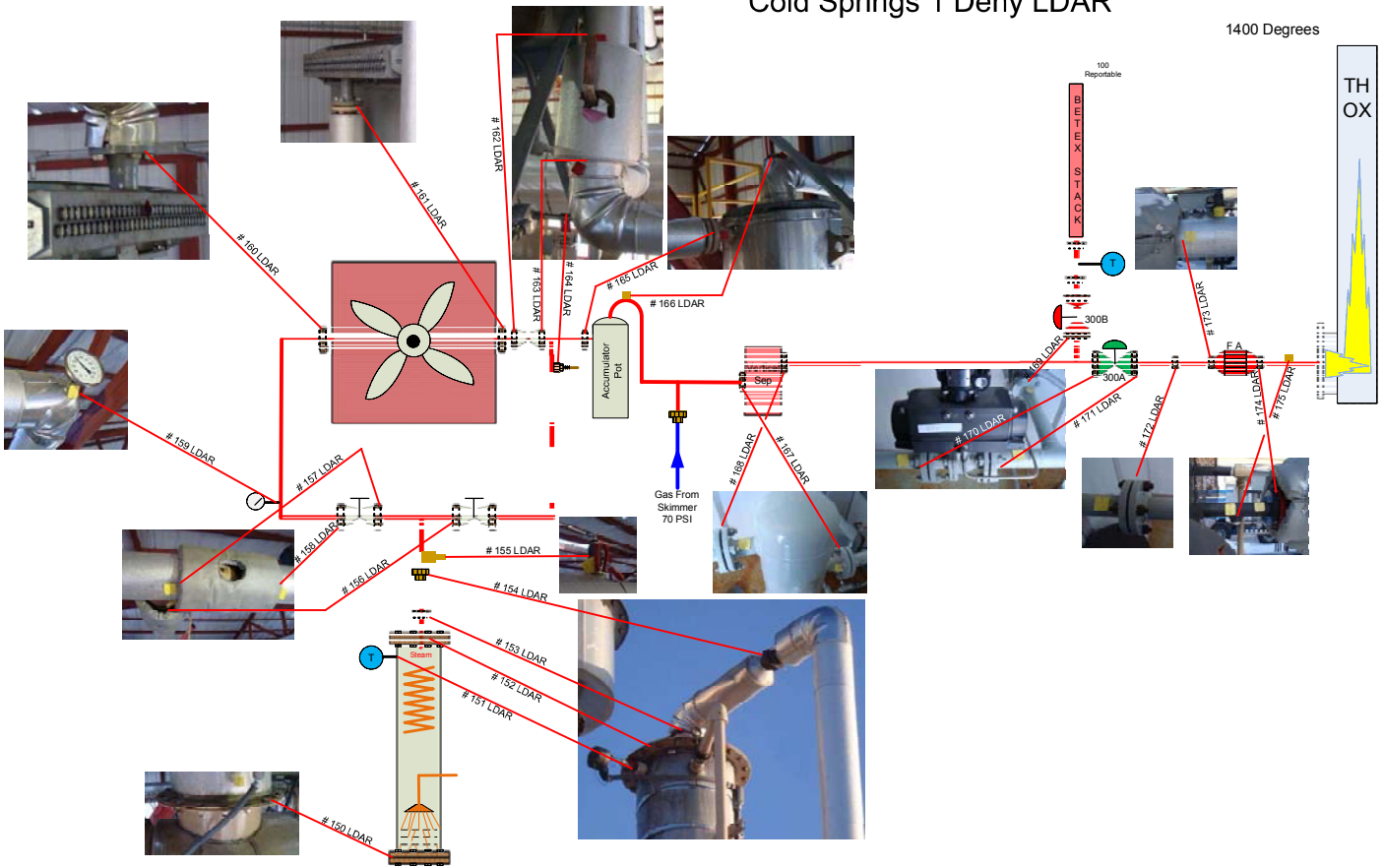


1400 Degrees

LDAR inspection points.

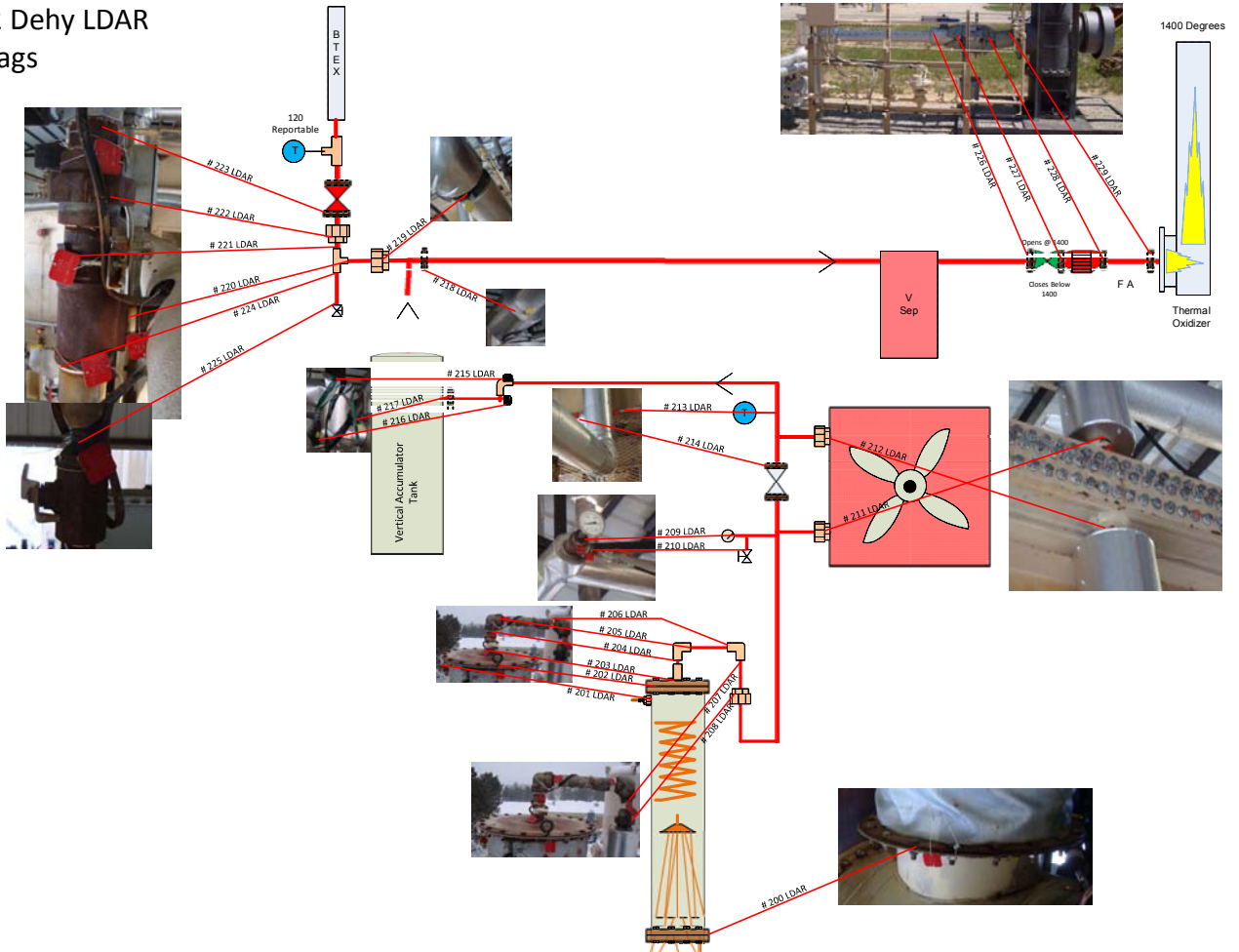
| Facility Location | Blue Lake | | Inspection Date | | |
|-------------------|--|--|-------------------|-------------------|-----------------|
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermowell union, etc. | 1 year inspection | 5 year inspection | Inspection time |
| | | Background levels= | | | |
| 100 | Base of still column | Flange | | | |
| 101 | Mid point of still column | Flange | | | |
| 102 | Top of still column | Flange | | | |
| 103 | Top of still column | Pipe Flange | | | |
| 104 | Tap for temperature controller reflux | Pipe | | | |
| 105 | Pipe to relief valve | Pipe | | | |
| 106 | Thermo well at top of still column | Thermowell | | | |
| 107 | Tee outlet to relief valve | Threaded pipe | | | |
| 108 | Pipe elbow for relief valve at top of still column | Threaded pipe | | | |
| 109 | Pipe at the base of the relief valve top of still | Threaded pipe | | | |
| 110 | Exit of relief valve | Cap | | | |
| 111 | 1" valve on line coming down from still column | Threaded pipe | | | |
| 112 | Flanged connection piping to condenser | Flange | | | |
| 113 | Connection to inlet of condenser | Flange | | | |
| 114 | End flange of condenser tube | Flange | | | |
| 128 | Valve to condenser bypass | Flange | | | |
| 115 | Connection to outlet of condenser | Flange | | | |
| 116 | Temperature probe at outlet of condenser | Thermowell | | | |
| 117 | Input tube for corrosion fluid | Pipe | | | |
| 118 | Inlet of water accumulator vessel | Flange | | | |
| 119 | Outlet of water accumulator vessel | Flange | | | |
| 120 | Base of tee for Btex valve | Threaded pipe | | | |
| 121 | Top of tee for Btex valve | Threaded pipe | | | |
| 122 | Btex valve inlet | Flange | | | |
| 123 | Outlet tee to thermo oxidizer | Threaded pipe | | | |
| 124 | Pipe flange in piping | Flange | | | |
| 125 | Input to thermo oxidizer isolation valve | Flange | | | |
| 126 | Output of isolation valve to thermo oxidizer | Flange | | | |
| 127 | Output from flame arrester | Flange | | | |
| | | | | | |

Cold Springs 1 Dehy LDAR



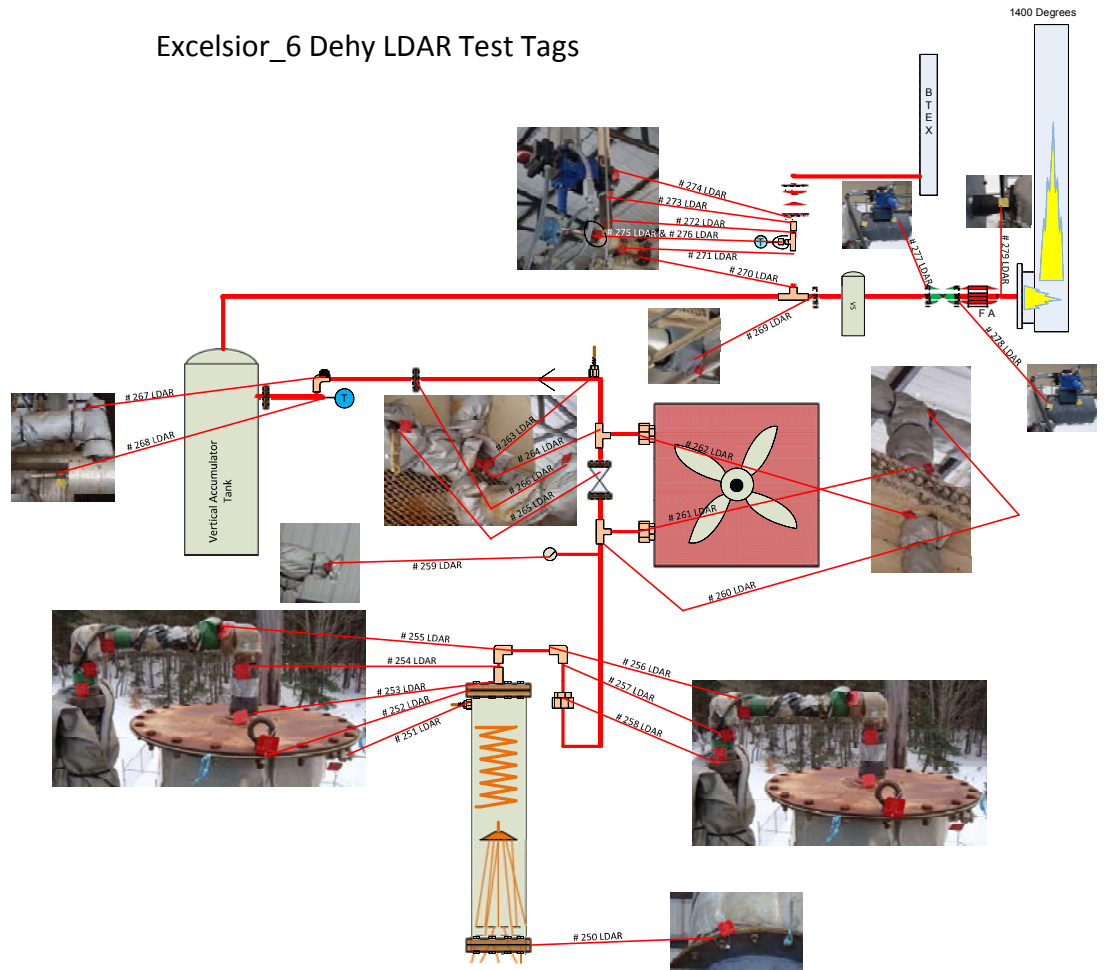
| LDAR inspection points. | | | | | | |
|-------------------------|--|--|---------------------|-------------------|-------------------|----------------|
| Facility | Cold Springs 1 | | | Date Inspected | | |
| Location | | | | 1 year inspection | 5 year inspection | Time inspected |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermowell union, etc. | Background levels = | | | |
| 150 | Base of still column | Flange | | | | |
| 151 | Thermowell on still column | Thermowell | | | | |
| 152 | Top of still column | Flange | | | | |
| 153 | Piping out of the top of the still column | Flange | | | | |
| 154 | Union connection at top of still column | Union | | | | |
| 155 | 1" pipe and valve | Pipe | | | | |
| 156 | Inlet to condenser bypass valve | Flange | | | | |
| 157 | Inlet to condenser inlet valve | Flange | | | | |
| 158 | Outlet of condenser inlet valve | Flange | | | | |
| 159 | Temperature gauge | Thermowell | | | | |
| 160 | Inlet flange to condenser | Flange | | | | |
| 161 | Outlet flange from condenser | Flange | | | | |
| 162 | Inlet to condenser outlet valve | Flange | | | | |
| 163 | Outlet to condenser outlet valve | Flange | | | | |
| 164 | Temperature probe | Thermowell | | | | |
| 165 | Inlet to accumulator pot | Flange | | | | |
| 166 | Plug at the top of the elbow of the vertical sep | Plug | | | | |
| 167 | Inlet to Vertical Sep | Flange | | | | |
| 168 | Outlet from Vertical Sep | Flange | | | | |
| 169 | Inlet to Btex valve | Flange | | | | |
| 170 | Inlet to thermo oxidizer inlet valve | Flange | | | | |
| 171 | Outlet to thermo oxidizer inlet valve | Flange | | | | |
| 172 | Pipe Flange | Flange | | | | |
| 173 | Inlet to flame arrester | Flange | | | | |
| 174 | Outlet of flame arrester | Flange | | | | |
| 175 | Plug before inlet to thermo oxidizer | Plug | | | | |
| | | | | | | |

Cold Springs 12 Dehy LDAR Test Tags



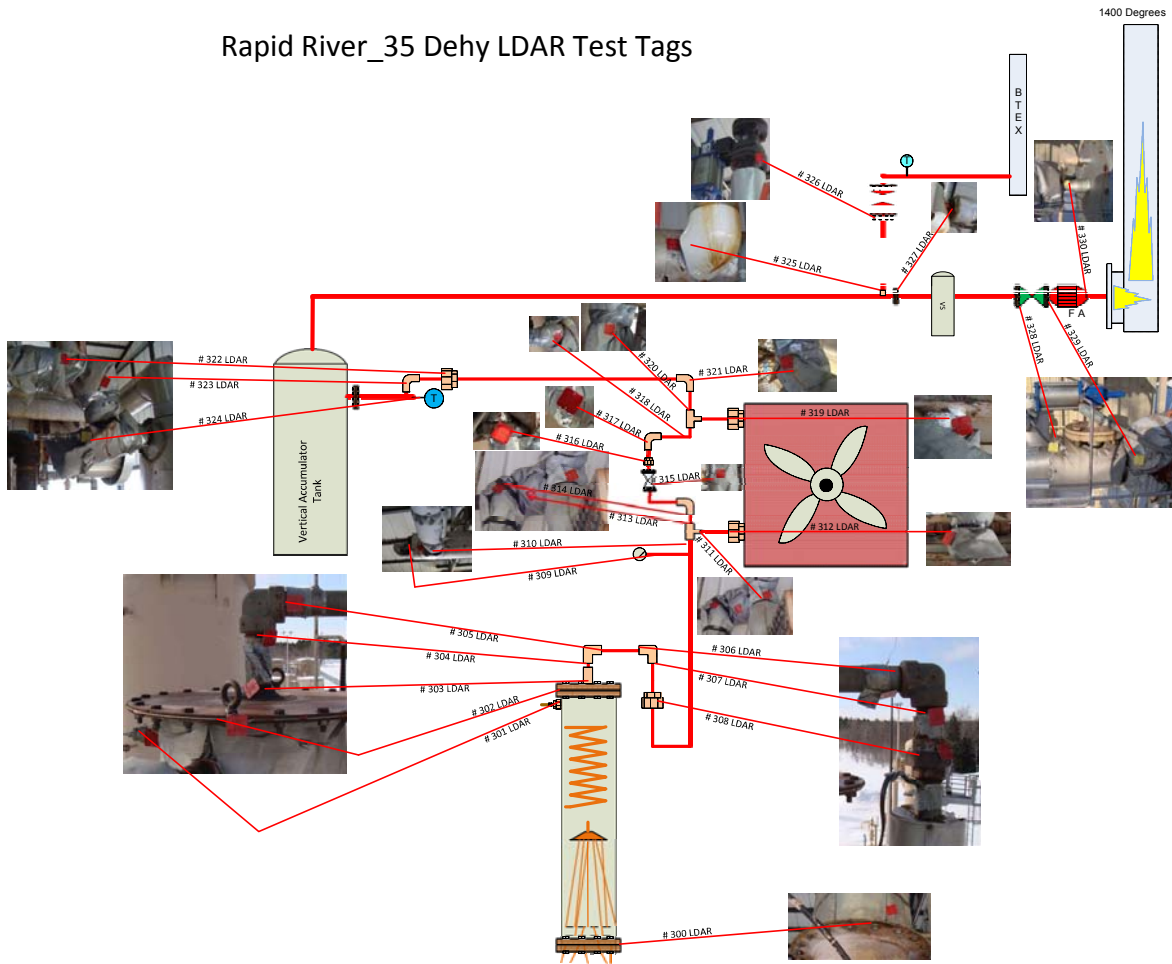
| LDAR inspection points. | | | | | | |
|-------------------------|---|---|---------------------|-------------------|----------------|--|
| Facility | Cold Springs 12 | | | Date Inspected | | |
| Location | | | | | | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time Inspected | |
| | | | Background levels = | | | |
| 200 | Base of the still column | Flange | | | | |
| 201 | Tubing to reflux valve | Flange | | | | |
| 202 | Top of the still column | Flange | | | | |
| 203 | Piping at the top of still column | Flange | | | | |
| 204 | Coupling at top of still column | Coupling | | | | |
| 205 | Piping at the top of still column | Elbow pipe | | | | |
| 206 | Piping at the top of still column | Elbow pipe | | | | |
| 207 | Piping at the top of still column | Elbow pipe | | | | |
| 208 | Union | Union | | | | |
| 209 | Temperature probe | Piping Tee | | | | |
| 210 | Input for corrosion inhibitor line | Piping Tee | | | | |
| 211 | Inlet to condenser union | Union | | | | |
| 212 | Outlet from condenser coupling to Tee | Coupling | | | | |
| 213 | Condenser outlet temperature | Thermo well | | | | |
| 214 | Outlet of bypass valve to Tee | Flange | | | | |
| 215 | Bull plug to elbow into Accumulator | Plug | | | | |
| 216 | Bull Inlet to elbow to accumulator tank | Plug | | | | |
| 217 | Outlet to thermo oxidizer from accumulator tank | Flange | | | | |
| 218 | Outlet to thermo oxidizer from accumulator tank | Flange | | | | |
| 219 | Union for piping to Btex valve | Union | | | | |
| 220 | Inlet to the tee to Btex valve | Piping | | | | |
| 221 | Outlet of the tee to the Btex valve | Piping | | | | |
| 222 | Inlet to the union for the Btex valve | Piping | | | | |
| 223 | Inlet to the Btex valve | Piping | | | | |
| 224 | Drain line from Btex valve | Piping | | | | |
| 225 | Drain line from Btex valve | Piping | | | | |
| 226 | Inlet to thermo oxidizer iso valve | Flange | | | | |
| 227 | Outlet from thermo oxidizer iso valve | Flange | | | | |
| 228 | Outlet of flame arrester | Flange | | | | |
| 229 | Input to thermo oxidizer | Flange | | | | |

Excelsior_6 Dehy LDAR Test Tags



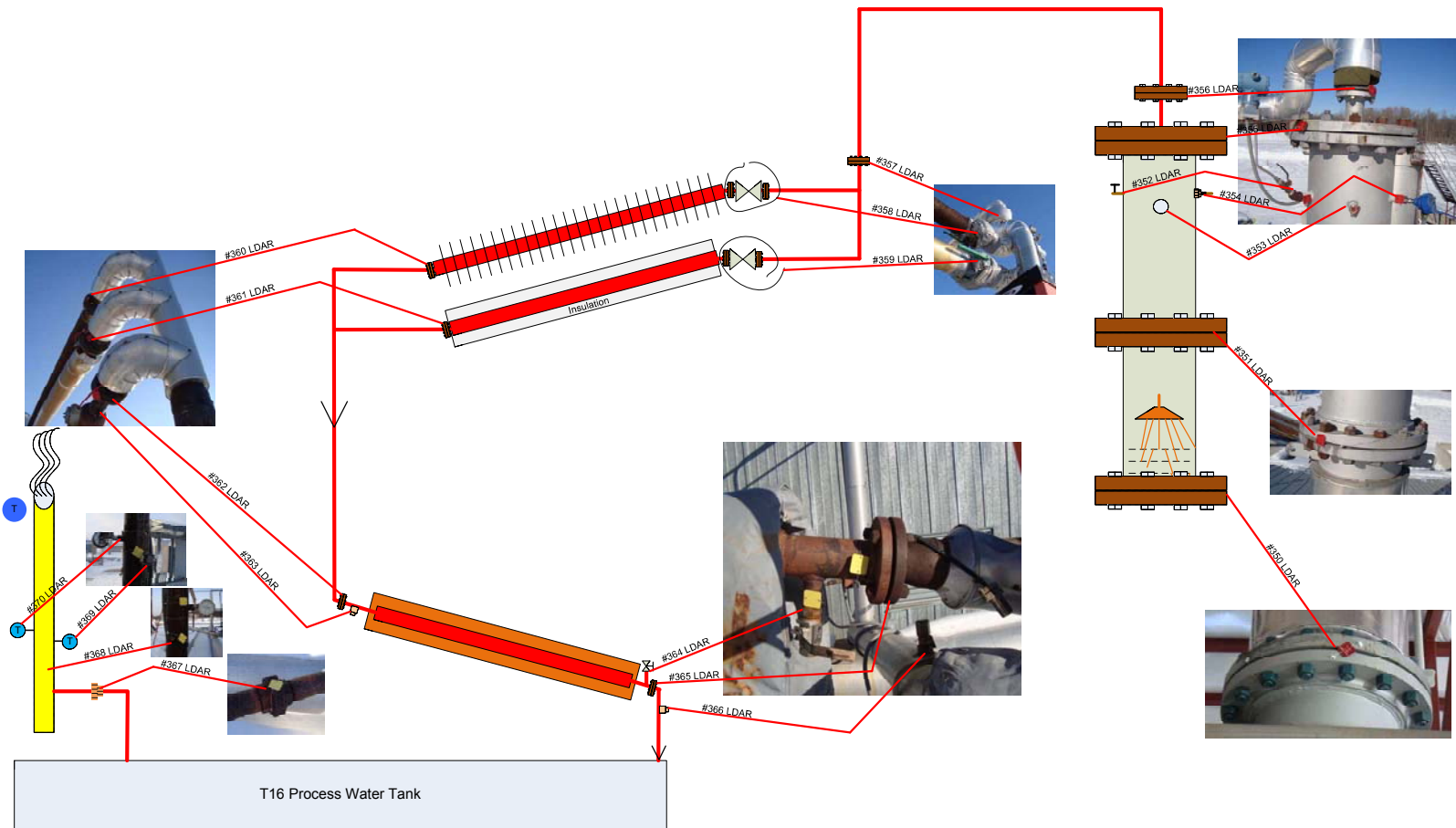
| LDAR inspection points. | | | | | | |
|-------------------------|---|---|---------------------|-------------------|----------------|----------------|
| Facility | Excelsior | | | | | Date Inspected |
| Location | | | | | | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time Inspected | |
| | | | Background levels = | | | |
| 250 | Base of the still column | Flange | | | | |
| 251 | Tubing to reflux valve | Flange | | | | |
| 252 | Top of the still column | Flange | | | | |
| 253 | Piping at the top of still column | Flange | | | | |
| 254 | Coupling at top of still column | Coupling | | | | |
| 255 | Piping at the top of still column | Elbow pipe | | | | |
| 256 | Piping at the top of still column | Elbow pipe | | | | |
| 257 | Piping at the top of still column | Elbow pipe | | | | |
| 258 | Union | Union | | | | |
| 259 | Temperature probe | Piping Tee | | | | |
| 260 | Tee for bypass line and input to condenser | Piping Tee | | | | |
| 261 | Inlet to condenser union | Union | | | | |
| 262 | Outlet from condenser coupling to Tee | Coupling | | | | |
| 263 | Condenser outlet temperature | Thermo well | | | | |
| 264 | Outlet of bypass valve to Tee | Flange | | | | |
| 265 | Bypass valve flange | Flange | | | | |
| 266 | Isolation valve from outlet of condenser | Flange | | | | |
| 267 | Bull Inlet to elbow to accumulator tank | Plug | | | | |
| 268 | Thermowell at accumulator tank | Thermo well | | | | |
| 269 | Tee to thermo oxidizer | Flange | | | | |
| 270 | Tee for piping to Btex valve | Tee | | | | |
| 271 | Coupling to the tee to Btex valve | Piping | | | | |
| 272 | Outlet of the tee to the Btex valve | Piping | | | | |
| 273 | Inlet to the for the Btex valve | Piping | | | | |
| 274 | Btex valve split flange | Piping | | | | |
| 275 | Outlet from tee to reducer | Piping | | | | |
| 276 | Reducer to themowell | Thermo well | | | | |
| 277 | Inlet to thermo oxidizer iso valve | Flange | | | | |
| 278 | Outlet from thermo oxidizer iso valve | Flange | | | | |
| 279 | Outlet of flame arrester to thermo oxidizer | Flange | | | | |

Rapid River_35 Dehy LDAR Test Tags



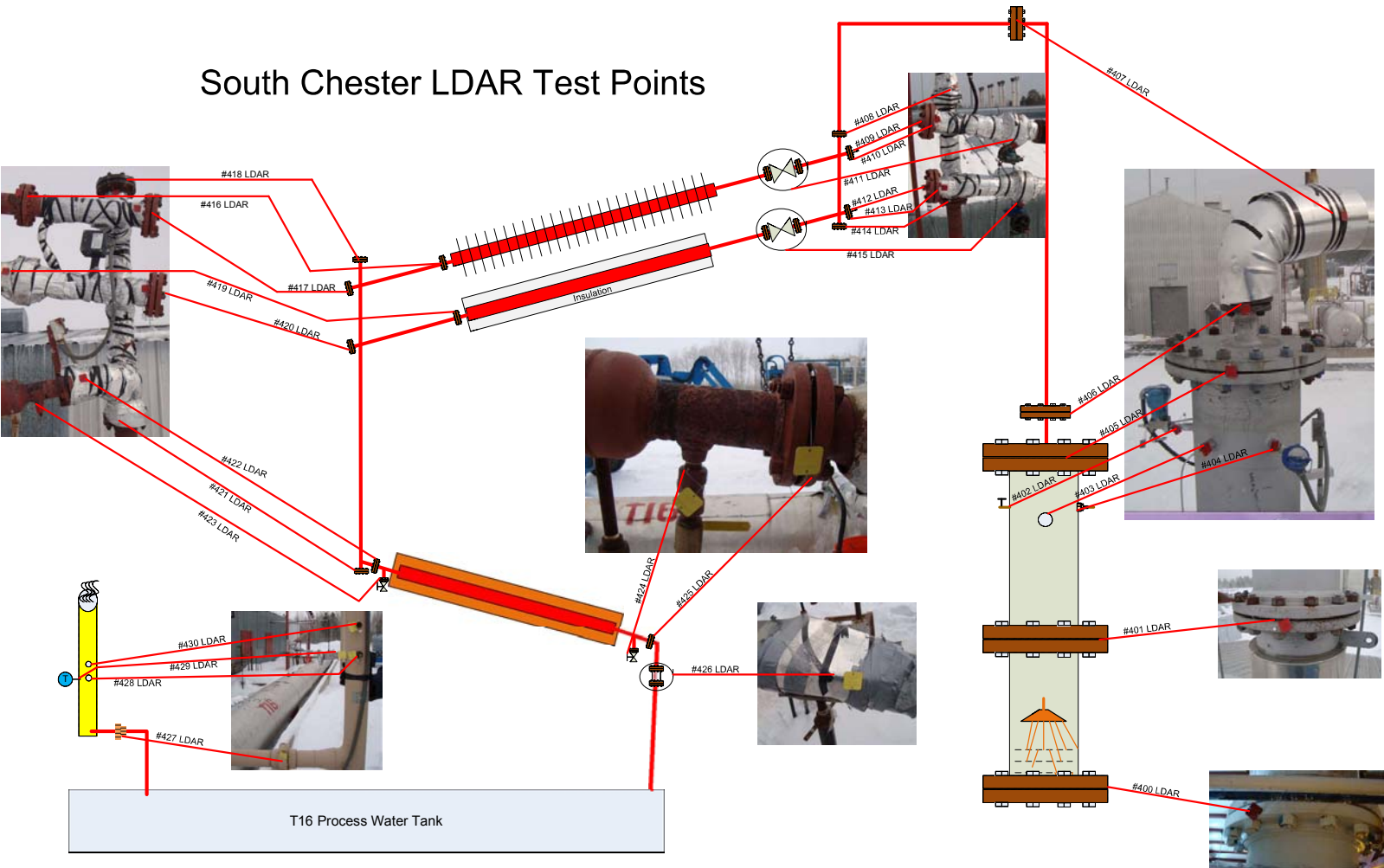
| LDAR inspection points. | | | | | | |
|-------------------------|--|---|-------------------|-------------------|----------------|--|
| Facility | Rapid River | | | Date Inspected | | |
| Location | | | | | | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time Inspected | |
| | | | Background levels | | | |
| 300 | Base of the still column | Flange | | | | |
| 301 | Tubing to reflux valve | Flange | | | | |
| 302 | Top of the still column | Flange | | | | |
| 303 | Piping at the top of still column | Flange | | | | |
| 304 | Coupling at top of still column | Coupling | | | | |
| 305 | Piping at the top of still column | Elbow pipe | | | | |
| 306 | Piping at the top of still column | Elbow pipe | | | | |
| 307 | Piping at the top of still column | Elbow pipe | | | | |
| 308 | Union | Union | | | | |
| 309 | Temperature Probe | Thermo well | | | | |
| 310 | Tee for bypass condenser line to bypass line | Piping Tee | | | | |
| 311 | Tee for bypass condenser to condenser | Piping Tee | | | | |
| 312 | Inlet to condenser | Coupling | | | | |
| 313 | Bypass 90 elbow nipple | Elbow pipe | | | | |
| 314 | Bypass 90 elbow nipple | Elbow pipe | | | | |
| 315 | Bypass Valve | Flange | | | | |
| 316 | Union below bypass valve | Union | | | | |
| 317 | Bypass 90 elbow nipple | Elbow pipe | | | | |
| 318 | Bypass 90 elbow nipple | Elbow pipe | | | | |
| 319 | Outlet from condenser coupling to tee | Piping | | | | |
| 320 | Outlet of condenser bypass tee | Tee | | | | |
| 321 | Piping elbow outlet to tank | Piping | | | | |
| 322 | Hammer Union | Union | | | | |
| 323 | 90 Elbow | Elbow pipe | | | | |
| 324 | Tee Thermo well | Thermo well | | | | |
| 325 | Tee to Btex isolation valve | Piping | | | | |
| 326 | Flange to Btex valve | Flange | | | | |
| 327 | Tee Flange to Thermo oxidizer | Flange | | | | |
| 328 | Inlet to thermo oxidizer valve | Flange | | | | |
| 329 | Outlet of thermo oxidizer valve | Flange | | | | |
| 330 | Outlet of flame arrester | Flange | | | | |

Central Charlton LDAR Test Points



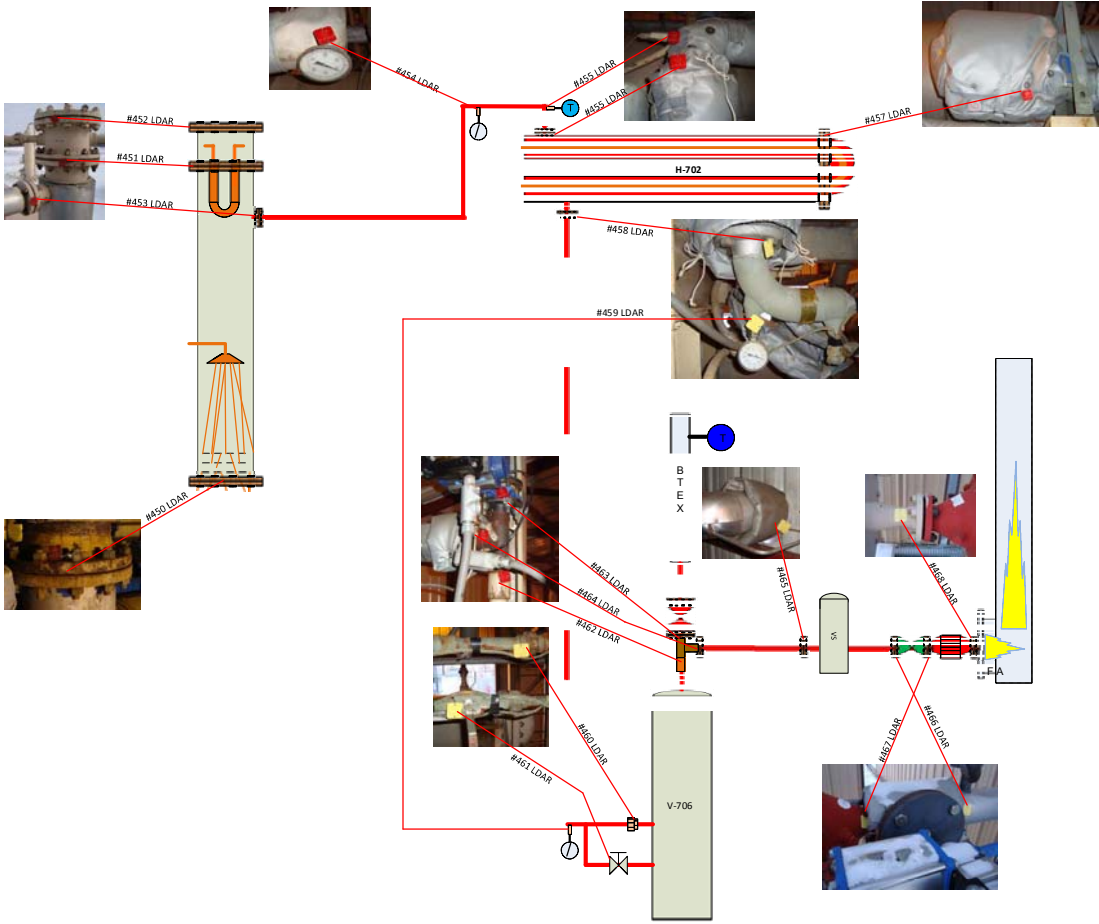
| LDAR inspection points. | | | | | | |
|-------------------------|--|---|---------------------|-------------------|----------------|--|
| Facility | Central Charlton | | Background Levels = | Date inspected | | |
| Location | | | | | | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time inspected | |
| 350 | Base of still column | Flange | | | | |
| 351 | Mid stream of still column | Flange | | | | |
| 352 | Pressure port | Pipe fitting | | | | |
| 353 | Spare port | Pipe fitting | | | | |
| 354 | Thermowell for temperature probe | Thermowell | | | | |
| 355 | Top Flange of still column (large) | Flange | | | | |
| 356 | Top Flange out of still column | Flange | | | | |
| 357 | Top Flange into condenser | Flange | | | | |
| 358 | Input Butterfly valve for finned condenser tube | Flange | | | | |
| 359 | Input Butterfly valve for insulated condenser tube | Flange | | | | |
| 360 | Output of finned condenser | Flange | | | | |
| 361 | Output of insulated condenser | Flange | | | | |
| 362 | Input to Glycol cooled condenser | Flange | | | | |
| 363 | Test port before Glycol cooled condenser | Pipe | | | | |
| 364 | Output from Glycol cooled condenser | Flange | | | | |
| 365 | Test port after Glycol cooled condenser valve | Pipe | | | | |
| 366 | Test port after condenser (plug) | Plug | | | | |
| 367 | Union out of tank to stack | Union | | | | |
| 368 | Spare port | Pipe fitting | | | | |
| 369 | Temperature gauge 1 | Pipe fitting | | | | |
| 370 | Temperature gauge 2 | Pipe fitting | | | | |

South Chester LDAR Test Points



| LDAR inspection points. | | | | | |
|-------------------------|---------------------------------------|---|-------------------|-------------------|----------------|
| Facility Location | South Chester | Background Levels = | Date inspected | | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time inspected |
| 400 | Base of still column | Flange | | | |
| 401 | Mid stream of still column | Flange | | | |
| 402 | Pressure port | Pipe fitting | | | |
| 403 | Spare port | Pipe fitting | | | |
| 404 | Thermowell for temperature probe | Thermowell | | | |
| 405 | Top Flange of still column (large) | Flange | | | |
| 406 | Top Flange out of still column | Flange | | | |
| 407 | Pipe to condenser | Union | | | |
| 408 | Insulated flange into condenser | Flange | | | |
| 409 | Top condenser end cap | Flange | | | |
| 410 | Bull plug on end cap | Pipe fitting | | | |
| 411 | Top condenser valve finned | Flange | | | |
| 412 | End cap inlet condenser lower | Flange | | | |
| 413 | Bull plug on end cap lower condenser | Pipe fitting | | | |
| 414 | Support flange bottom | Flange | | | |
| 415 | Insulated tube condenser valve | Flange | | | |
| 416 | Outlet of finned condenser | Flange | | | |
| 417 | Outlet condenser end cap | Flange | | | |
| 418 | Top support flange | Flange | | | |
| 419 | Insulated condenser outlet flange | Flange | | | |
| 420 | Insulated condenser outlet end cap | Flange | | | |
| 421 | Bottom support flange | Flange | | | |
| 422 | Tube in tube inlet flange | Flange | | | |
| 423 | Tube in tube sample port | Pipe fitting | | | |
| 424 | Sample port down stream | Pipe fitting | | | |
| 425 | Outlet flange of tube condenser | Flange | | | |
| 426 | Coupling/union from condenser to tank | Union | | | |
| 427 | Union by stack condenser | Union | | | |
| 428 | Temp probe condensate stack | Pipe fitting | | | |
| 429 | Sample port in stack | Pipe fitting | | | |
| 430 | Plug port in stack | Pipe fitting | | | |

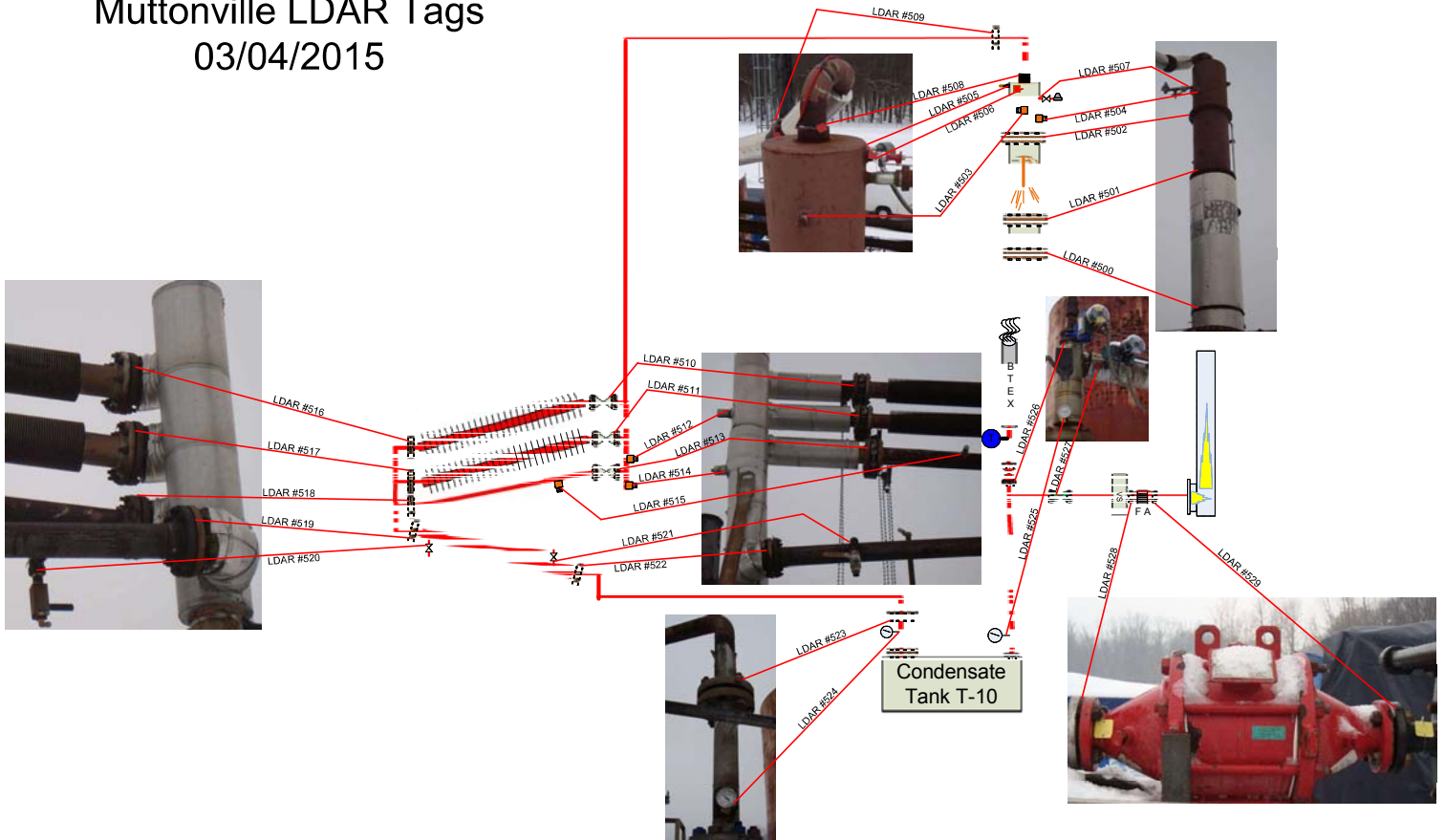
Eaton Rapids LDAR



| LDAR inspection points. | | | | | | | |
|-------------------------|---|--|--|--|-------------------|-------------------|----------------|
| Facility | Eaton Rapids Background values = | | | | | Inspection Date | |
| Location | | | | Type of devices- Valve, Flange, Plug, Thermowell union, etc. | 1 year inspection | 5 year inspection | Inspected Time |
| Tag Number | Description of location | | | | | | |
| 450 | Base of still column stack | | | Flange | | | |
| 451 | Mid way to the top of the still column stack | | | Flange | | | |
| 452 | Top cap of still column stack | | | Flange | | | |
| 453 | Exit line out of still column to condenser | | | Flange | | | |
| 454 | Temperature monitoring gauge | | | Thermowell | | | |
| 455 | Temp probe for reflux | | | Pipe fitting | | | |
| 456 | Input to condenser | | | Flange | | | |
| 457 | Condenser midway point Cap | | | Flange | | | |
| 458 | Exit from condenser | | | Flange | | | |
| 459 | Temp probe out of condenser | | | Pipe fitting | | | |
| 460 | Entry point to V-706 | | | Union | | | |
| 461 | 1" valve to V-706 lower inlet | | | Flange/Gasket | | | |
| 462 | Exit out of V-706 | | | Coupling | | | |
| 463 | Btex vent valve inlet | | | Flange | | | |
| 464 | Tee to Thermo oxidizer | | | Flange | | | |
| 465 | Pipe flange to thermo oxidizer wall | | | Flange | | | |
| 466 | Inlet to valve to Thermo oxidizer | | | Flange | | | |
| 467 | Outlet from valve to Thermo oxidizer | | | Flange | | | |
| 468 | Inlet Flange from arrester to Thermo oxidizer | | | Flange | | | |

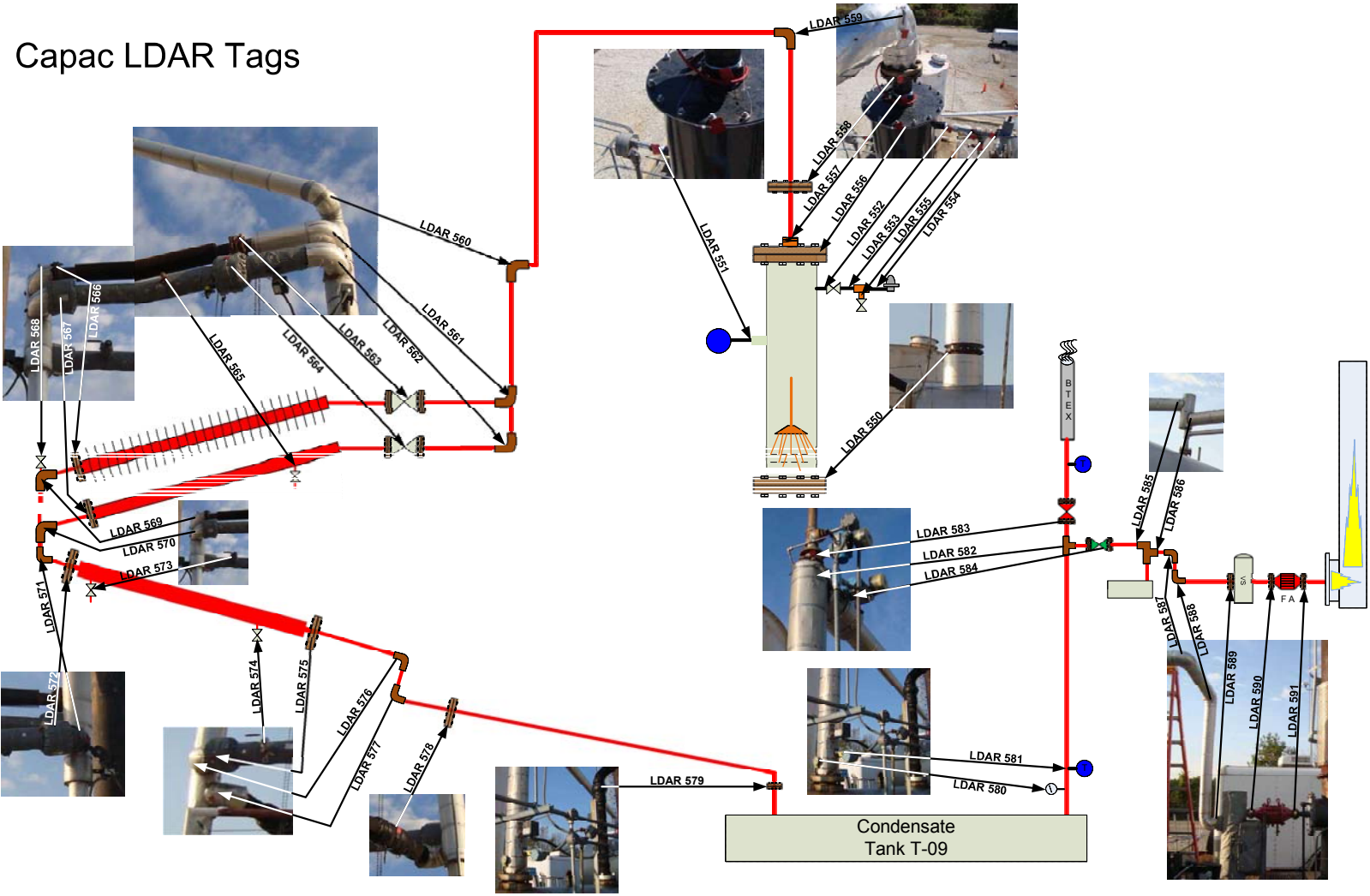
Muttonville LDAR Tags

03/04/2015



| LDAR inspection points. | | | | | |
|-------------------------|---|--|--------------------|-------------------|----------------|
| Facility Location | Muttonville | | | Date Inspected | |
| Tag Number | Description of location | Type of devices- Valve, Flange, Plug, Thermowell union, etc. | 1 year inspection | 5 year inspection | Time inspected |
| | | | Background level = | | |
| 500 | Base of still column | Flange | | | |
| 501 | Next upstream flange | Flange | | | |
| 502 | Mid stream up on still column | Flange | | | |
| 503 | 1" Plug on Northeast side of still column | Pipe Plug | | | |
| 504 | 1" Plug on West side of still column | Pipe Plug | | | |
| 505 | RTD for still column temperature | Pipe fitting | | | |
| 506 | Temperature probe for reflux controller | Pipe fitting | | | |
| 507 | 1" valve to regulator | Pipe fitting | | | |
| 508 | Top of still column | Threaded pipe fitting | | | |
| 509 | Pipe to condenser first flange | Flange | | | |
| 510 | Condenser top finned tube inlet valve | Flange | | | |
| 511 | Condenser center finned tube inlet valve | Flange | | | |
| 512 | Condenser inspection port top | Pipe Plug | | | |
| 513 | Condenser bottom pipe tube inlet valve | Flange | | | |
| 514 | Condenser inspection port bottom | Pipe Plug | | | |
| 515 | Condenser bottom pipe tube 1" plug | Pipe plug | | | |
| 516 | Condenser top finned tube exit flange | Flange | | | |
| 517 | Condenser center finned tube exit flange | Flange | | | |
| 518 | Condenser bottom pipe tube exit flange | Flange | | | |
| 519 | Bottom pipe inlet flange | Flange | | | |
| 520 | Bottom pipe inlet 1" drain line valve | Pipe fitting | | | |
| 521 | Bottom pipe exit 1" drain line valve | Pipe fitting | | | |
| 522 | Bottom pipe exit flange | Flange | | | |
| 523 | Exit piping to condensate tank first flange | Flange | | | |
| 524 | Inlet temperature gauge fitting above tank | Pipe fitting | | | |
| 525 | Outlet temperature gauge fitting above tank | Pipe fitting | | | |
| 526 | Btex valve | Flange | | | |
| 527 | Thermo Oxidizer inlet valve | Flange | | | |
| 528 | Inlet to flame arrester | Flange | | | |
| 529 | Outlet of flame arrester to thermo oxidizer | Flange | | | |

Capac LDAR Tags



| LDAR inspection points. | | | | | |
|-------------------------|--|--|-------------------|-------------------|----------------|
| Facility Location | Capac | Background Levels = | Date inspected | | |
| Tag Number | Description of location | Type of devices - Valve, Flange, Plug, Thermo well union, etc. | 1 year inspection | 5 year inspection | Time inspected |
| 550 | Base of still column | Flange | | | |
| 551 | Thermowell on still column | Thermowell | | | |
| 552 | Piping at relief valve nipple #1 | Nipple 1 | | | |
| 553 | Piping at relief valve nipple #2 | Nipple 2 | | | |
| 554 | Piping at relief valve nipple #3 | Nipple 3 | | | |
| 555 | Piping at relief valve nipple #4 | Nipple 4 | | | |
| 556 | Top of still column big flange | Flange | | | |
| 557 | Top of still column screw threaded pipe outlet | Pipe | | | |
| 558 | Top of still column 6" flange | Flange | | | |
| 559 | Top of still column elbow | Pipe | | | |
| 560 | Lower elbow piping from still column outlet | Pipe | | | |
| 561 | Elbow inlet to fin condenser | Pipe | | | |
| 562 | Elbow inlet to top covered condenser | Pipe | | | |
| 563 | Inlet valve to fin condenser | Valve | | | |
| 564 | Inlet valve to covered top condenser | Valve | | | |
| 565 | Top covered condenser plug | Plug | | | |
| 566 | Outlet flange of fin condenser | Flange | | | |
| 567 | Outlet flange of covered condenser | Flange | | | |
| 568 | Valve at outlet of top covered condenser | Valve | | | |
| 569 | Outlet elbow of fin condenser | Pipe | | | |
| 570 | Outlet elbow of top covered condenser | Pipe | | | |
| 571 | Inlet elbow to bottom covered condenser | Pipe | | | |
| 572 | Inlet flange to bottom covered condenser | Flange | | | |
| 573 | Inlet bottom covered condenser valve | Plug | | | |
| 574 | Outlet bottom covered condenser valve | Plug | | | |
| 575 | Bottom covered condenser outlet flange | Flange | | | |
| 576 | Bottom covered condenser outlet elbow | Pipe | | | |
| 577 | Inlet line to tank elbow | Pipe | | | |
| 578 | Inlet line to tank flange #1 | Flange | | | |
| 579 | Inlet line to tank flange #2 | Flange | | | |
| 580 | Outlet line of tank temperature gauge | Pipe | | | |
| 581 | Outlet line of tank temperature thermowell | Thermowell | | | |
| 582 | Tank outlet tee | Flange | | | |
| 583 | Valve to Btex vent | Valve | | | |
| 584 | Valve to Thermoxidizer | Valve | | | |
| 585 | Tee inlet to drop leg on top of tank | Pipe | | | |
| 586 | Tee outlet to drop leg on top of tank | Pipe | | | |
| 587 | Elbow #1 from drop leg to thermoxidizer | Pipe | | | |
| 588 | Elbow #2 from drop leg to thermoxidizer | Pipe | | | |
| 589 | Inlet to thermoxidizer separator | Flange | | | |
| 590 | Inlet to flame arrester | Flange | | | |
| 591 | Outlet from flame arrester | Flange | | | |



Appendix B

Example of LDAR Recordkeeping Form



Leak Detection and Repair (LDAR) Recordkeeping Form

40 CFR 63, Subpart HHH, "National Emissions Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities"

Section 1: Site Information

| | | | | | | | | |
|---|-----------------|--|--------------------------|--------------|--------------------------|----------|--------------------------|--------|
| Facility name | | | | | | | | |
| Permit ID | | | | County | | | | |
| Date of Inspection | Inspection Type | | <input type="checkbox"/> | Initial AIMM | <input type="checkbox"/> | Periodic | <input type="checkbox"/> | Annual |
| Method used for inspection (i.e. Method 21, IR Camera, AVO, etc.) | | | | | | | | |
| Name of person completing inspection | | | | | | | | |

Section 2: Summary of Leaking Components

| Table 1: Summary of Leaking Components | | | Sensory Inspection |
|--|------------|------------|---|
| Component Type | # of Leaks | ID Numbers | Auditory (A), Visual (V), Olfactory (O) |
| Valves | | | |
| Connectors | | | |
| Flanges | | | |
| Pump Seals | | | |
| Pressure Relief Devices (PRD) | | | |
| TOTAL | | | |

Section 3: Leaking Components Details

| Table 2: Monitoring and Repair of Leaking Components ¹ | | | | | | | | |
|---|----------------|------------------------|--------------------------------------|--|-------------------------|---------------------------|---------------------------|-------------------------------|
| Component Id | Component Type | Monitoring Method Used | Date of 1st Repair Attempt (≤5-days) | Date(s) of Additional Repair Attempts (≤15-days) | Date(s) of Remonitoring | Result(s) of Remonitoring | Date of Successful Repair | Repair Delayed? (See Table 3) |
| | | | | | | | | <input type="checkbox"/> |
| | | | | | | | | <input type="checkbox"/> |
| | | | | | | | | <input type="checkbox"/> |
| | | | | | | | | <input type="checkbox"/> |
| | | | | | | | | <input type="checkbox"/> |

¹ If more components need to be reported, add additional leaking components to Table 2 Addendum form on page 3 of this document.

Section 4: Delay of Repair List

| Table 3: List of Components Added to Delay of Repair List | | |
|---|---|-----------------------------|
| Component ID | Reason for Delay (detailed description) | Date Delay No Longer Exists |
| | | |
| | | |
| | | |
| | | |



Appendix C

Example of EPA Method 21 Field Calibration Form



EPA Method 21 Calibration Sheet

| Reference: EPA Method 21 | | Tech: | | Date: | |
|--|----------------------|----------------|-----------------------------|--|--|
| Model: | | | | | |
| Instrument Number: | | | | | |
| Sampling Site: | | | | | |
| Calibration Standard | Concentration (ppmv) | Reading (ppmv) | Time Start (Min:Sec) | Time End (Min:Sec) | Response Time (Criterion ≤30 seconds) |
| Zero Gas 1: | | | | | |
| Calibration Gas 1 | | | | | |
| | | | | | |
| Zero Gas 2: | | | | | |
| Calibration Gas 2 | | | | | |
| | | | | | |
| Zero Gas 3: | | | | | |
| Calibration Gas 3 | | | | | |
| | | | | | |
| Average of Zero Gas Readings (Add Zero Gas readings and divide by 3) | | | | | |
| Average of Calibration Gas Readings (Add Calibration Gas Readings and divide by 3) | | | | | |
| Calibration Drift Assessment (End of Day) Compare to Initial Calibration Data Above | | | | | |
| Calibration Standard | Concentration (ppmv) | Reading (ppmv) | Pre- to Post-Difference (%) | Criterion | |
| Zero Gas | | | | If greater than negative 10% from previous calibration, recheck components where reading was more than 100 ppmv If greater than positive 10% from previous calibration, operator may choose to select components to retest. | |
| Calibration Gas | | | | | |

Note: After calibration gas is introduced, the time required to attain 90% of the final stable reading is the Response Time.



Appendix D

Example of EPA Method 21 Field Monitoring Form



Appendix E

Reference Method 21

While we have taken steps to ensure the accuracy of this Internet version of the document, it is not the official version. Please refer to the official version in the FR publication, which appears on the Government Printing Office's eCFR website:

(http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title40/40cfr60_main_02.tpl)

Method 21 - Determination of Volatile Organic Compound Leaks

1.0 Scope and Application

1.1 Analytes.

| Analyte | CAS No. |
|----------------------------------|-------------------------|
| Volatile Organic Compounds (VOC) | No CAS number assigned. |

1.2 Scope. This method is applicable for the determination of VOC leaks from process equipment. These sources include, but are not limited to, valves, flanges and other connections, pumps and compressors, pressure relief devices, process drains, open-ended valves, pump and compressor seal system degassing vents, accumulator vessel vents, agitator seals, and access door seals.

1.3 Data Quality Objectives. Adherence to the requirements of this method will enhance the quality of the data obtained from air pollutant sampling methods.

2.0 Summary of Method

2.1 A portable instrument is used to detect VOC leaks from individual sources. The instrument detector type is not specified, but it must meet the specifications and performance criteria contained in Section 6.0. A leak definition concentration based on a reference compound is specified in each applicable regulation. This method is intended to locate and classify leaks only, and is not to be used as a direct measure of mass emission rate from individual sources.

3.0 Definitions

3.1 *Calibration gas* means the VOC compound used to adjust the instrument meter reading to a known value. The calibration gas is usually the reference compound at a known concentration approximately equal to the leak definition concentration.

3.2 *Calibration precision* means the degree of agreement between measurements of the same known value, expressed as the relative percentage of the average difference between the meter readings and the known concentration to the known concentration.

3.3 *Leak definition concentration* means the local VOC concentration at the surface of a leak source that indicates that a VOC emission (leak) is present. The leak definition is an instrument meter reading based on a reference compound.

3.4 *No detectable emission* means a local VOC concentration at the surface of a leak source, adjusted for local VOC ambient concentration, that is less than 2.5 percent of the specified leak definition concentration. That indicates that a VOC emission (leak) is not present.

3.5 *Reference compound* means the VOC species selected as the instrument calibration basis for specification of the leak definition concentration. (For example, if a leak definition concentration is 10,000 ppm as methane, then any source emission that results in a local concentration that yields a meter reading of 10,000 on an instrument meter calibrated with methane would be classified as a leak. In this example, the leak definition concentration is 10,000 ppm and the reference compound is methane.)

3.6 *Response factor* means the ratio of the known concentration of a VOC compound to the observed meter reading when measured using an instrument calibrated with the reference compound specified in the applicable regulation.

3.7 *Response time* means the time interval from a step change in VOC concentration at the input of the sampling system to the time at which 90 percent of the corresponding final value is reached as displayed on the instrument readout meter.

4.0 Interferences[Reserved]

5.0 Safety

5.1 *Disclaimer*. This method may involve hazardous materials, operations, and equipment. This test method may not address all of the safety problems associated with its use. It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to performing this test method.

5.2 *Hazardous Pollutants*. Several of the compounds, leaks of which may be determined by this method, may be irritating or corrosive to tissues (*e.g.*, heptane) or may be toxic (*e.g.*, benzene, methyl alcohol). Nearly all are fire hazards. Compounds in emissions should be determined through familiarity with the source. Appropriate precautions can be found in reference documents, such as reference No. 4 in Section 16.0.

6.0 Equipment and Supplies

A VOC monitoring instrument meeting the following specifications is required:

6.1 The VOC instrument detector shall respond to the compounds being processed. Detector types that may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.

6.2 The instrument shall be capable of measuring the leak definition concentration specified in the regulation.

6.3 The scale of the instrument meter shall be readable to ± 2.5 percent of the specified leak definition concentration.

6.4 The instrument shall be equipped with an electrically driven pump to ensure that a sample is provided to the detector at a constant flow rate. The nominal sample flow rate, as measured at the sample probe tip, shall be 0.10 to 3.0 l/min (0.004 to 0.1 ft³/min) when the probe is fitted with a glass wool plug or filter that may be used to prevent plugging of the instrument.

6.5 The instrument shall be equipped with a probe or probe extension or sampling not to exceed 6.4 mm (1/4in) in outside diameter, with a single end opening for admission of sample.

6.6 The instrument shall be intrinsically safe for operation in explosive atmospheres as defined by the National Electrical Code by the National Fire Prevention Association or other applicable regulatory code for operation in any explosive atmospheres that may be encountered in its use. The instrument shall, at a minimum, be intrinsically safe for Class 1, Division 1 conditions, and/or Class 2, Division 1 conditions, as appropriate, as defined by the example code. The instrument shall not be operated with any safety device, such as an exhaust flame arrestor, removed.

7.0 Reagents and Standards

7.1 Two gas mixtures are required for instrument calibration and performance evaluation:

7.1.1 Zero Gas. Air, less than 10 parts per million by volume (ppmv) VOC.

7.1.2 Calibration Gas. For each organic species that is to be measured during individual source surveys, obtain or prepare a known standard in air at a concentration approximately equal to the applicable leak definition specified in the regulation.

7.2 Cylinder Gases. If cylinder calibration gas mixtures are used, they must be analyzed and certified by the manufacturer to be within 2 percent accuracy, and a shelf life must be specified. Cylinder standards must be either reanalyzed or replaced at the end of the specified shelf life.

7.3 Prepared Gases. Calibration gases may be prepared by the user according to any accepted gaseous preparation procedure that will yield a mixture accurate to within 2 percent. Prepared standards must be replaced each day of use unless it is demonstrated that degradation does not occur during storage.

7.4 Mixtures with non-Reference Compound Gases. Calibrations may be performed using a compound other than the reference compound. In this case, a conversion factor must be determined for the alternative compound such that the resulting meter readings during source surveys can be converted to reference compound results.

8.0 Sample Collection, Preservation, Storage, and Transport

8.1 Instrument Performance Evaluation. Assemble and start up the instrument according to the manufacturer's instructions for recommended warm-up period and preliminary adjustments.

8.1.1 Response Factor. A response factor must be determined for each compound that is to be measured, either by testing or from reference sources. The response factor tests are required before placing the analyzer into service, but do not have to be repeated at subsequent intervals.

8.1.1.1 Calibrate the instrument with the reference compound as specified in the applicable regulation. Introduce the calibration gas mixture to the analyzer and record the observed meter reading. Introduce zero gas until a stable reading is obtained. Make a total of three measurements by alternating between the calibration gas and zero gas. Calculate the response factor for each repetition and the average response factor.

8.1.1.2 The instrument response factors for each of the individual VOC to be measured shall be less than 10 unless otherwise specified in the applicable regulation. When no instrument is available that meets this specification when calibrated with the reference VOC specified in the applicable regulation, the available instrument may be calibrated with one of the VOC to be measured, or any other VOC, so long as the instrument then has a response factor of less than 10 for each of the individual VOC to be measured.

8.1.1.3 Alternatively, if response factors have been published for the compounds of interest for the instrument or detector type, the response factor determination is not required, and existing results may be referenced. Examples of published response factors for flame ionization and catalytic oxidation detectors are included in References 1–3 of Section 17.0.

8.1.2 Calibration Precision. The calibration precision test must be completed prior to placing the analyzer into service and at subsequent 3-month intervals or at the next use, whichever is later.

8.1.2.1 Make a total of three measurements by alternately using zero gas and the specified calibration gas. Record the meter readings. Calculate the average algebraic difference between the meter readings and the known value. Divide this average difference by the known calibration value and multiply by 100 to express the resulting calibration precision as a percentage.

8.1.2.2 The calibration precision shall be equal to or less than 10 percent of the calibration gas value.

8.1.3 Response Time. The response time test is required before placing the instrument into service. If a modification to the sample pumping system or flow configuration is made that would change the response time, a new test is required before further use.

8.1.3.1 Introduce zero gas into the instrument sample probe. When the meter reading has stabilized, switch quickly to the specified calibration gas. After switching, measure the time required to attain 90 percent of the final stable reading. Perform this test sequence three times and record the results. Calculate the average response time.

8.1.3.2 The instrument response time shall be equal to or less than 30 seconds. The instrument pump, dilution probe (if any), sample probe, and probe filter that will be used during testing shall all be in place during the response time determination.

8.2 Instrument Calibration. Calibrate the VOC monitoring instrument according to Section 10.0.

8.3 Individual Source Surveys.

8.3.1 Type I—Leak Definition Based on Concentration. Place the probe inlet at the surface of the component interface where leakage could occur. Move the probe along the interface periphery while observing the instrument readout. If an increased meter reading is observed, slowly sample the interface where leakage is indicated until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately two times the instrument response time. If the maximum observed meter reading is greater than the leak definition in the applicable regulation, record and report the results as specified in the regulation reporting requirements. Examples of the application of this general technique to specific equipment types are:

8.3.1.1 Valves. The most common source of leaks from valves is the seal between the stem and housing. Place the probe at the interface where the stem exits the packing gland and sample the stem circumference. Also, place the probe at the interface of the packing gland take-up flange seat and sample

the periphery. In addition, survey valve housings of multipart assembly at the surface of all interfaces where a leak could occur.

8.3.1.2 Flanges and Other Connections. For welded flanges, place the probe at the outer edge of the flange-gasket interface and sample the circumference of the flange. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.

8.3.1.3 Pumps and Compressors. Conduct a circumferential traverse at the outer surface of the pump or compressor shaft and seal interface. If the source is a rotating shaft, position the probe inlet within 1 cm of the shaft-seal interface for the survey. If the housing configuration prevents a complete traverse of the shaft periphery, sample all accessible portions. Sample all other joints on the pump or compressor housing where leakage could occur.

8.3.1.4 Pressure Relief Devices. The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere.

8.3.1.5 Process Drains. For open drains, place the probe inlet at approximately the center of the area open to the atmosphere. For covered drains, place the probe at the surface of the cover interface and conduct a peripheral traverse.

8.3.1.6 Open-ended Lines or Valves. Place the probe inlet at approximately the center of the opening to the atmosphere.

8.3.1.7 Seal System Degassing Vents and Accumulator Vents. Place the probe inlet at approximately the center of the opening to the atmosphere.

8.3.1.8 Access door seals. Place the probe inlet at the surface of the door seal interface and conduct a peripheral traverse.

8.3.2 Type II—"No Detectable Emission". Determine the local ambient VOC concentration around the source by moving the probe randomly upwind and downwind at a distance of one to two meters from the source. If an interference exists with this determination due to a nearby emission or leak, the local ambient concentration may be determined at distances closer to the source, but in no case shall the distance be less than 25 centimeters. Then move the probe inlet to the surface of the source and determine the concentration as outlined in Section 8.3.1. The difference between these concentrations determines whether there are no detectable emissions. Record and report the results as specified by the regulation. For those cases where the regulation requires a specific device installation, or that specified vents be ducted or piped to a control device, the existence of these conditions shall be visually confirmed. When the regulation also requires that no detectable emissions exist, visual observations and sampling surveys are required. Examples of this technique are:

8.3.2.1 Pump or Compressor Seals. If applicable, determine the type of shaft seal. Perform a survey of the local area ambient VOC concentration and determine if detectable emissions exist as described in Section 8.3.2.

8.3.2.2 Seal System Degassing Vents, Accumulator Vessel Vents, Pressure Relief Devices. If applicable, observe whether or not the applicable ducting or piping exists. Also, determine if any sources exist in the ducting or piping where emissions could occur upstream of the control device. If the required ducting or piping exists and there are no sources where the emissions could be vented to the atmosphere upstream of

the control device, then it is presumed that no detectable emissions are present. If there are sources in the ducting or piping where emissions could be vented or sources where leaks could occur, the sampling surveys described in Section 8.3.2 shall be used to determine if detectable emissions exist.

8.3.3 Alternative Screening Procedure.

8.3.3.1 A screening procedure based on the formation of bubbles in a soap solution that is sprayed on a potential leak source may be used for those sources that do not have continuously moving parts, that do not have surface temperatures greater than the boiling point or less than the freezing point of the soap solution, that do not have open areas to the atmosphere that the soap solution cannot bridge, or that do not exhibit evidence of liquid leakage. Sources that have these conditions present must be surveyed using the instrument technique of Section 8.3.1 or 8.3.2.

8.3.3.2 Spray a soap solution over all potential leak sources. The soap solution may be a commercially available leak detection solution or may be prepared using concentrated detergent and water. A pressure sprayer or squeeze bottle may be used to dispense the solution. Observe the potential leak sites to determine if any bubbles are formed. If no bubbles are observed, the source is presumed to have no detectable emissions or leaks as applicable. If any bubbles are observed, the instrument techniques of Section 8.3.1 or 8.3.2 shall be used to determine if a leak exists, or if the source has detectable emissions, as applicable.

9.0 Quality Control

| Section | Quality control measure | Effect |
|---------|--|--|
| 8.1.2 | Instrument calibration precision check | Ensure precision and accuracy, respectively, of instrument response to standard. |
| 10.0 | Instrument calibration | |

10.0 Calibration and Standardization

10.1 Calibrate the VOC monitoring instrument as follows. After the appropriate warm-up period and zero internal calibration procedure, introduce the calibration gas into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value.

Note: If the meter readout cannot be adjusted to the proper value, a malfunction of the analyzer is indicated and corrective actions are necessary before use.

11.0 Analytical Procedures[Reserved]

12.0 Data Analyses and Calculations[Reserved]

13.0 Method Performance[Reserved]

14.0 Pollution Prevention[Reserved]

15.0 Waste Management[Reserved]

16.0 References

1. Dubose, D.A., and G.E. Harris. Response Factors of VOC Analyzers at a Meter Reading of 10,000 ppmv for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2-81051. September 1981.
2. Brown, G.E., *et al.* Response Factors of VOC Analyzers Calibrated with Methane for Selected Organic Compounds. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2-81-022. May 1981.
3. DuBose, D.A. *et al.* Response of Portable VOC Analyzers to Chemical Mixtures. U.S. Environmental Protection Agency, Research Triangle Park, NC. Publication No. EPA 600/2-81-110. September 1981.
4. Handbook of Hazardous Materials: Fire, Safety, Health. Alliance of American Insurers. Schaumburg, IL. 1983.

17.0 Tables, Diagrams, Flowcharts, and Validation Data[Reserved]



Responsive partner.
Exceptional outcomes.

**ANR Pipeline Company
Reed City Compressor Station B3721**

Significant Activities

| Emission Point ID | Source | Manufacturer | Model/Type | Rating | Heat Input (MMBTU/hr) |
|-------------------|---------------------------------------|----------------|------------|----------|-----------------------|
| EURC002 | White-Superior 8GT825, Engine #1 | White Superior | 8GT825 | 1,000 hp | 7.600 |
| EURC003 | White-Superior 8GT825, Engine #2 | White Superior | 8GT825 | 1,000 hp | 7.600 |
| EURC004 | White-Superior 8GT825, Engine #3 | White Superior | 8GT825 | 1,000 hp | 7.600 |
| EURC005 | White-Superior 8GT825, Engine #4 | White Superior | 8GT825 | 1,000 hp | 7.600 |
| EURC006 | Ingersoll-Rand KVS, Engine #5 | Ingersoll Rand | KVS | 2,000 hp | 14.800 |
| EURC007 | Ingersoll-Rand KVS, Engine #6 | Ingersoll Rand | KVS | 2,000 hp | 14.800 |
| EURC008 | Clark TCVD 16M, Engine #7 | Clark | TCVD | 8,600 hp | 58.910 |
| EURC011 | White-Superior 8G825, Engine #11 | White Superior | 8G825 | 660 hp | 5.016 |
| EURC012 | White-Superior 8G825, Engine #12 | White Superior | 8G825 | 660 hp | 5.016 |
| EURC015 | Loreed Glycol Dehydration System | | | | |
| EURC016 | Gas withdrawal heater, 25.5 MMBTU/hr | | | | 25.5 MMBtu/hr |
| EURC017 | Gas withdrawal heater, 25.54 MMBTU/hr | | | | 25.54 MMBtu/hr |
| EURC019 | Caterpillar G379 Generator, 355 hp | Caterpillar | G379 | 355 hp | 0.9 |
| EURC020 | Waukesha L1616GSIU Generator, 475 hp | Waukesha | L1616GSIU | 475 hp | 1.2 |
| EURC024 | Stray Glycol Dehydration System | | | | |
| EURC027 | Natural Gas Fired Boiler | Cleaver Brooks | CFC-3300 | -- | 2.970 |
| EURC028 | Natural Gas Fired Boiler | Cleaver Brooks | CFC-3300 | -- | 2.970 |

Insignificant Activities

| Emission Point ID | Source Description | Rating/Capacity | Rule 201 Permit Exemption Rule | Rule 212(4) RO Permit Exemption Rule | Basis for Permit Exemption |
|--|---|-----------------|--------------------------------|--------------------------------------|---|
| EURC025 | 0.125 MMBTU/hr maintenance hot water heater less than 120 gallons | 0.125 MMBtu/hr | R 336.1282(2)(b)(i) | R 336.1212(4)(b) | Only used to supply water for car washing and to unfreeze pipes in the yard. Meets definition of hot water heater under Boiler MACT, and therefore not subject. |
| EURC029 | Four 10,000 gallon oil storage tanks: T-116 (Engine Oil), T-117 (Lube Oil), T-119 (Lube Oil), T-130 (Used Oil) | 10,000 gallon | R 336.1284(2)(c) | R 336.1212(3)(e) | Container Contents: Each tank is used to store lubricating, hydraulic, thermal oils or indirect heat transfer fluids. |
| EURC034 | 1,760 gallon maintenance oil storage tank: T-118 | 1,760 gallon | | | |
| EURC043, Seven <500 gallon oil storage tanks | 185 gallon Used Oil tank: T-121 | 185 gallon | | | |
| | One 500 gallon Maintenance Oil tank: T-122 | 500 gallon | | | |
| | One 487 gallon Maintenance Oil tank: T-123 | 487 gallon | | | |
| | One 94 gallon Lube Oil tank: T-124 | 94 gallon | | | |
| | One 300 gallon Used Oil tank: T-131 | 300 gallon | | | |
| | One 129 gallon Lube Oil tank: T-169 | 129 gallon | | | |
| EURC026 | 1,200 gallon condensate storage tank | 1,200 gallon | R 336.1284(2)(e) | R 336.1212(4)(d) | < 40,000 gallons Each tank is used to store sweet condensate and has a capacity of less than 40,000 gallons. |
| EURC059 | 2,000 gallon condensate storage tank | 2,000 gallon | | | |
| EURC031 | 2,400 gallon condensate storage tank: T-136 | 2,400 gallon | | | |
| EURC032 | Two 8,460 gallon hydrocarbon (condensate) storage tanks: T-134, T-135 | 8,460 gallon | | | |
| EURC033 | 1,200 gallon hydrocarbon (condensate) storage tank: T-175 | 1,200 gallon | | | |
| EURC044 | Four 8,820 gallon hydrocarbon (condensate) storage tanks at the Reed City Stray across the road from Reed City Compressor Station: T-159, T-160, T-161, T-162 | 8,820 gallon | | | |
| EURC030 | 7,500 gallon methanol storage tank: T-168 | 7,500 gallon | R 336.1284(i) | R 336.1212(4)(c) | |
| EURC035 | 8,460 gallon glycol storage tank: T-110 | 8,460 gallon | | | |
| EURC036 | 500 gallon diesel storage tank: T-106 | 500 gallon | | | |
| EURC037 | 500 gallon gasoline fuel storage tank: T-107 | 500 gallon | | | |
| EURC038 | 15,000 gallon waste water storage tank: T-170 | 15,000 gallon | | | |
| EURC039 | 4,500 gallon Ambitrol storage tank: T-102 | 4,500 gallon | | | |
| EURC040 | 365 gallon Ambitrol storage tank: T-104 | 365 gallon | | | |
| EURC041 | 13,000 gallon Ambitrol storage tank T-101 | 13,000 gallon | | | |
| EURC042 | 7,500 gallon glycol storage tank: T-113 | 7,500 gallon | | | |
| EURC045 | 12,800 gallon glycol storage tank at the Reed City Stray across the road from Reed City Compressor Station: T-163 | 12,800 gallon | | | |
| EURC063 | Flare | | R 336.1285(f) | R 336.1212(2)(b) | Air Pollution Control equipment for an existing process that itself does not actually generate a significant amount of criteria air contaminants. |