April 14, 2021

Ted Schooley
Permit Programs Manager
New Mexico Environment Department Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico, 87505-1816

Re: Application to Renew **Title V Operating Permit P027-R4**
**Harvest Four Corners, LLC – 31-6 Central Delivery Point (CDP)**, A.I. No. 1006

Dear Mr. Schooley,

On behalf of Harvest Four Corners, LLC (Harvest), Cirrus Consulting is pleased to submit this application to renew Title V Operating Permit P027-R4 for the 31-6 Central Delivery Point (CDP).

This application also incorporates the identical engine replacement of compressor engine units 5, 11 and 16 as authorized in construction permit PSD 1031-M9-R10, issued April 15th, 2020.

In accordance with the instructions in the NMAQB Universal Air Quality Permit Application, one hard copy original and one hard copy review copy are included. Two CDs containing the application electronic files are enclosed.

If any additional information is needed with regard to this application, please contact Ms. Jennifer Deal of Harvest at (505) 324-5128.

Sincerely,

Lisa Killion

*Lisa Killion*
Sr. Environmental Scientist

Enclosures – One (1) hard copy 31-6 CDP Title V renewal application original
One (1) hard copy application review copy
Two (2) CDs, each containing the application electronic files

cc: Jennifer Deal, Harvest (electronic copy)
Bobby Myers, Cirrus (electronic copy)

# NEW MEXICO 20.2.70.300.B(2) NMAC APPLICATION TO RENEW TITLE V OPERATING PERMIT P027-R4-M1

## 31-6 CENTRAL DELIVERY POINT (CDP)

**Submitted By:**


*Harvest Four Corners, LLC*

**1755 Arroyo Drive**
**Bloomfield, New Mexico 87413**

**Prepared By:**

*Cirrus Consulting, LLC*
**951 Diestel Road**
**Salt Lake City, Utah 84105**
**(801) 484-4412**

**April 2021**

# Table of Contents

| **Mail Application To:** | | **For Department use only:** |
|---|---|---|
| New Mexico Environment Department<br>Air Quality Bureau<br>Permits Section<br>525 Camino de los Marquez, Suite 1<br>Santa Fe, New Mexico, 87505<br><br>Phone: (505) 476-4300<br>Fax: (505) 476-4375<br>www.env.nm.gov/aqb | | AIRS No.: |

# Universal Air Quality Permit Application

**Use this application for NOI, NSR, or Title V sources.**

Use this application for: the initial application, modifications, technical revisions, and renewals. For technical revisions, complete Sections, 1-A, 1-B, 2-E, 3, 9 and any other sections that are relevant to the requested action; coordination with the Air Quality Bureau permit staff prior to submittal is encouraged to clarify submittal requirements and to determine if more or less than these sections of the application are needed. Use this application for streamline permits as well. See Section 1-I for submittal instructions for other permits.

**This application is submitted as** (check all that apply)**:** ☐ Request for a No Permit Required Determination (no fee)
☐ **Updating** an application currently under NMED review. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed ☒ Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC ☐ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: ☐ Title V (new) ☒ Title V renewal ☐ TV minor mod. ☒ TV significant mod. TV Acid Rain: ☐ New ☐ Renewal
PSD Major Source: ☐ PSD major source (new) ☐ minor modification to a PSD source ☐ a PSD major modification

**Acknowledgements:**

☒ I acknowledge that a pre-application meeting is available to me upon request. ☐ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.

☐ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).

☐ Check No.: in the amount of

☒ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.

☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance program (SBEAP) and qualifies for 50% of the normal application and permit fees. Enclosed is a check for 50% of the normal application fee which will be verified with the Small Business Certification Form for your company.

☐ This facility qualifies to receive assistance from the Small Business Environmental Assistance Program (SBEAP) but does not qualify for 50% of the normal application and permit fees. To see if you qualify for SBEAP assistance and for the small business certification form go to https://www.env.nm.gov/aqb/sbap/small_business_criteria.html ).

**Citation:** Please provide the **low level citation** under which this application is being submitted: **20.2.70.300.B(2) NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

# Section 1 – Facility Information

## Section 1-A: Company Information

| | | AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): **1006** | Updating Permit/NOI #: **P027-R4-M1** |
|---|---|---|---|
| 1 | Facility Name:<br>31-6 Central Delivery Point (CDP) | Plant primary SIC Code (4 digits): 1389 | |
| | | Plant NAIC code (6 digits): 213112 | |
| a | Facility Street Address (If no facility street address, provide directions from a prominent landmark): From Bloomfield, drive north on Hwy 64 to mile marker 102.3 (approximately 37 miles). Turn left on Hwy 527. Drive 7.9 miles and turn right on gravel road. Drive 7.5 miles. Facility is on the right. | | |
| 2 | Plant Operator Company Name: Harvest Four Corners, LLC | Phone/Fax: 505-632-4600 / 505-632-4782 | |

| | | |
|---|---|---|
| a | Plant Operator Address: 1755 Arroyo Drive, Bloomfield, NM 87413 | |
| b | Plant Operator's New Mexico Corporate ID or Tax ID: 76-0451075 | |
| 3 | Plant Owner(s) name(s): Harvest Four Corners, LLC | Phone/Fax: 505-632-4600 / 505-632-4782 |
| a | Plant Owner(s) Mailing Address(s): 1755 Arroyo Drive, Bloomfield NM 87413 | |
| 4 | Bill To (Company): Harvest Four Corners, LLC | Phone/Fax: 505-632-4600 / 505-632-4782 |
| a | Mailing Address: 1755 Arroyo Drive, Bloomfield NM 87413 | E-mail: N/A |
| 5 | ☐ Preparer:<br>☑ Consultant: Lisa Killion, Cirrus Consulting, LLC | Phone/Fax: 505-466-1790 / 505-466-4599 |
| a | Mailing Address: c/o 951 Diestel Road, Salt Lake City, UT 84105 | E-mail: lkillion@cirrusllc.com |
| 6 | Plant Operator Contact: Monica Smith | Phone/Fax: 505-632-4625 / 505-632-4782 |
| a | Address: 1755 Arroyo Drive, Bloomfield NM 87413 | E-mail: msmith@harvestmidstream.com |
| 7 | Air Permit Contact: Monica Smith | Title: Environmental Specialist |
| a | E-mail: msmith@harvestmidstream.com | Phone/Fax: 505-632-4625 / 505-632-4782 |
| b | Mailing Address: 1755 Arroyo Drive, Bloomfield NM 87413 | |
| c | The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau. | |

## Section 1-B: Current Facility Status

| | | |
|---|---|---|
| 1.a | Has this facility already been constructed? [x] Yes ☐ No | 1.b If yes to question 1.a, is it currently operating in New Mexico? [x] Yes ☐ No |
| 2 | If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes [x] No | If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? [x] Yes ☐ No |
| 3 | Is the facility currently shut down? ☐ Yes [x] No | If yes, give month and year of shut down (MM/YY): |
| 4 | Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes [x] No | |
| 5 | If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐Yes ☐No [x] N/A | |
| 6 | Does this facility have a Title V operating permit (20.2.70 NMAC)? [x] Yes ☐ No | If yes, the permit No. is: P-027-R4-M1 |
| 7 | Has this facility been issued a No Permit Required (NPR)? ☐ Yes [x] No | If yes, the NPR No. is: |
| 8 | Has this facility been issued a Notice of Intent (NOI)? ☐ Yes [x] No | If yes, the NOI No. is: |
| 9 | Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? [x] Yes ☐ No | If yes, the permit No. is: 1031-M9-R10 |
| 10 | Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes [x] No | If yes, the register No. is: |

## Section 1-C: Facility Input Capacity & Production Rate

| | | | | |
|---|---|---|---|---|
| 1 | What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required) | | | |
| a | Current | Hourly: 14.9 mmcfh[(a)] | Daily: 358 mmcfd[(a)] | Annually: 130,559 mmcfy[(a)] |
| b | Proposed | Hourly: 14.9 mmcfh[(a)] | Daily: 358 mmcfd[(a)] | Annually: 130,559 mmcfy[(a)] |
| 2 | What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required) | | | |
| a | Current | Hourly: 14.9 mmcfh[(a)] | Daily: 358 mmcfd[(a)] | Annually: 130,559 mmcfy[(a)] |

| | | | | |
|---|---|---|---|---|
| b | Proposed | Hourly: 14.9 mmcfh[(a)] | Daily: 358 mmcfd[(a)] | Annually: 130,559 mmcfy[(a)] |

[(a)] Station capacity is a direct function of available horsepower. The throughput is therefore dependent on atmospheric temperature, gas temperature, atmospheric pressure, gas pressure, relative humidity and gas quality, as well as other factors. The "capacity" expressed in the application is a nominal quantity, neither an absolute maximum nor an average. The actual throughput will vary from the nominal amount.

## Section 1-D: Facility Location Information

| | | | | | |
|---|---|---|---|---|---|
| 1 | Section: 01 | Range: 06W | Township: 30N | County: Rio Arriba | Elevation (ft): 6,430 |
| 2 | UTM Zone: ☐ 12 or ☒ 13 | | | Datum: ☐ NAD 27 ☐ NAD 83 ☒ WGS 84 | |
| a | UTM E (in meters, to nearest 10 meters): 284,190 m | | | UTM N (in meters, to nearest 10 meters): 4,079,420 m | |
| b | **AND** Latitude (deg., min., sec.): 36° 50' 10" | | | Longitude (deg., min., sec.): -107° 25' 12" | |
| 3 | Name and zip code of nearest New Mexico town: Navajo Dam, NM 87419 | | | | |
| 4 | Detailed Driving Instructions from nearest NM town (attach a road map if necessary): See Section 1-A.1.a. | | | | |
| 5 | The facility is ~15.4 (distance) miles east (direction) of Navajo Dam, NM (nearest town). | | | | |
| 6 | Status of land at facility (check one): ☐ Private ☐ Indian/Pueblo ☒ Federal BLM ☐ Federal Forest Service ☐ Other (specify) | | | | |
| 7 | List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: None; none; Rio Arriba County, NM & San Juan County, NM | | | | |
| 8 | **20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: N/A | | | | |
| 9 | Name nearest Class I area: Weminuche Wilderness | | | | |
| 10 | Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 66.04 km | | | | |
| 11 | Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: ~9,083 meters | | | | |
| 12 | Method(s) used to delineate the Restricted Area: Fencing<br>"**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. | | | | |
| 13 | Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC?<br>☐ Yes ☒ No<br>A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites. | | | | |
| 14 | Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes<br>If yes, what is the name and permit number (if known) of the other facility? | | | | |

## Section 1-E: Proposed Operating Schedule (The 1-E.1 & 1-E.2 operating schedules may become conditions in the permit.)

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24 | ($\frac{\text{days}}{\text{week}}$): 7 | ($\frac{\text{weeks}}{\text{year}}$): 52 | ($\frac{\text{hours}}{\text{year}}$): 8,760 | | |
| 2 | Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: N/A | AM PM | End: N/A | AM PM | | |
| 3 | Month and year of anticipated start of construction: N/A | | | | | |
| 4 | Month and year of anticipated construction completion: N/A | | | | | |
| 5 | Month and year of anticipated startup of new or modified facility: N/A | | | | | |
| 6 | Will this facility operate at this site for more than one year? ☒ Yes ☐ No | | | | | |

## Section 1-F: Other Facility Information

| | | | |
|---|---|---|---|
| 1 | Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☒ No If yes, specify: | | |
| a | If yes, NOV date or description of issue: N/A | | NOV Tracking No: N/A |
| b | Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☒ No If Yes, provide the 1c & 1d info below: | | |
| c | Document Title: N/A | Date: N/A | Requirement # (or page # and paragraph #): N/A |
| d | Provide the required text to be inserted in this permit: N/A | | |
| 2 | Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes ☒ No | | |
| 3 | Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☒ No | | |
| 4 | Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☒ Yes ☐ No | | |
| a | If Yes, what type of source? ☒ **Major** (☒ ≥10 tpy of any single HAP **OR** ☒ ≥25 tpy of any combination of HAPS) **OR** ☐ **Minor** (☐ <10 tpy of any single HAP **AND** ☐ <25 tpy of any combination of HAPS) | | |
| 5 | Is any unit exempt under 20.2.72.202.B.3 NMAC? ☒ Yes ☐ No | | |
| a | If yes, include the name of company providing commercial electric power to the facility: Jemez Mountain Electric Cooperative, Inc. Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user. | | |

## Section 1-G: Streamline Application **(This section applies to 20.2.72.300 NMAC Streamline applications only)**

| | |
|---|---|
| 1 | ☐ I have filled out Section 18, "Addendum for Streamline Applications." ☒ N/A (This is not a Streamline application.) |

## Section 1-H: Current Title V Information - Required for all applications from TV Sources

**(Title V-source required information for all applications submitted pursuant to 20.2.72 NMAC (Minor Construction Permits), or 20.2.74/20.2.79 NMAC (Major PSD/NNSR applications), and/or 20.2.70 NMAC (Title V))**

| | | | |
|---|---|---|---|
| 1 | Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Travis Jones | | Phone: 713-289-2630 |
| a | R.O. Title: EH&S Manager | R.O. e-mail: trjones@harvestmidstream.com | |
| b | R. O. Address: 1111 Travis Street, Houston, TX 77002 | | |
| 2 | Alternate Responsible Official (20.2.70.300.D.2 NMAC): TBD | | Phone: TBD |
| a | A. R.O. Title: TBD | A. R.O. e-mail: TBD | |
| b | A. R. O. Address: TBD | | |
| 3 | Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): N/A | | |
| 4 | Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): Hilcorp Energy Company | | |
| a | Address of Parent Company: 1111 Travis Street, Houston, TX 77002 | | |
| 5 | Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): N/A | | |
| 6 | Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: N/A | | |

| | |
|---|---|
| 7 | Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes:<br>Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers:<br><br>Yes. Colorado, ~18.2 km; Navajo Nation Air Quality Control Program, ~34.1 km; Southern Ute Tribe, ~18.2 km; Jicarilla Apache Tribe, ~19.9 km; Ute Mountain Ute Tribe, ~74.1 km. |

# Section 1-I – Submittal Requirements

Each 20.2.73 NMAC (**NOI**), a 20.2.70 NMAC (**Title V**), a 20.2.72 NMAC (**NSR** minor source), or 20.2.74 NMAC (**PSD**) application package shall consist of the following:

### Hard Copy Submittal Requirements:

1) One hard copy **original signed and notarized application package** **printed double sided** **'head-to-toe'** **2-hole punched** as we bind the document on top, not on the side; except Section 2 (landscape tables), which should be head-to-head. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process. For NOI submittals only, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required. Please include a copy of the check on a separate page.

2) If the application is for a minor NSR, PSD, NNSR, or Title V application, include one working hard **copy** for Department use. This copy should be printed in book form, 3-hole punched, and **must be double sided**. Note that this is in addition to the head-to-to 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.

3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, **two** CD copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a single CD submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

### Electronic files sent by (check one):

☒ **CD/DVD attached to paper application**

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

a. If the file transfer service is chosen by the applicant, after receipt of the application, the Bureau will email the applicant with instructions for submitting the electronic files through a secure file transfer service. Submission of the electronic files through the file transfer service needs to be completed within 3 business days after the invitation is received, so the applicant should ensure that the files are ready when sending the hard copy of the application. The applicant will not need a password to complete the transfer. **Do not use the file transfer service for NOIs, any type of GCP, or technical revisions to NSR permits.**

4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.

5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling ***summary report only*** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.

6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
   a. one additional CD copy for US EPA,
   b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
   c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

If the application is submitted electronically through the secure file transfer service, these extra CDs do not need to be submitted.

**Electronic Submittal Requirements** [in addition to the required hard copy(ies)]:

1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

3) It is preferred that this application form be submitted as 4 electronic files (3 MSWord docs: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and 1 Excel file of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.

4) The electronic file names shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the core permit number (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the section # (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the header information throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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# Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72.202 NMAC do not apply.

| Unit Number[1] | Source Description | Make | Model # | Serial # | Manufacturer's Rated Capacity[3] (Specify Units) | Requested Permitted Capacity[3] (Specify Units) | Date of Manufacture[2] / Date of Construction/ Reconstruction[2] | Controlled by Unit # / Emissions vented to Stack # | Source Classification Code (SCC) | For Each Piece of Equipment, Check One | RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4] | Replacing Unit No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Reciprocating I.C. Engine | Waukesha | 7042 GL | C-10999/2A (Pkg. 77051) | 1,478 hp | 1,370 hp | 09/27/1993<br>5/11/2017 | N/A<br>1 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 3 | Reciprocating I.C. Engine | Waukesha | 7042 GL | 296981 (Pkg. 804334) | 1,478 hp | 1,370 hp | 3/2/1976<br>10/1/1992 | 3<br>3 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | 2 |
| 4 | Reciprocating I.C. Engine | Waukesha | 7042 GL | TBD | 1,478 hp | 1,370 hp | TBD<br>TBD | N/A<br>4 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 5 | Reciprocating I.C. Engine | Waukesha | 7042 GL | 400911 (Pkg. 804368) | 1,478 hp | 1,370 hp | 7/28/1998<br>12/30/1993 | 5<br>5 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 6 | Reciprocating I.C. Engine | Waukesha | 7042 GL | TBD | 1,478 hp | 1,370 hp | TBD<br>TBD | 6<br>6 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 7 | Reciprocating I.C. Engine | Waukesha | 7042 GL | 403191 (Pkg. 804389) | 1,478 hp | 1,370 hp | 3/5/1991<br>7/21/2016 | N/A<br>7 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 8 | Reciprocating I.C. Engine | Waukesha | 7042 GL | C-12677/2 (Pkg. x00002) | 1,478 hp | 1,370 hp | 10/21/1998<br>11/10/2004 | N/A<br>8 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 9 | Reciprocating I.C. Engine | Waukesha | 7042 GL | TBD | 1,478 hp | 1,370 hp | TBD<br>TBD | N/A<br>9 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | 8 |
| 10 | Reciprocating I.C. Engine | Waukesha | 7042 GL | C-12572/1 (Pkg. 77583) | 1,478 hp | 1,370 hp | 2/27/1998<br>11/5/1997 | 10<br>10 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | 9 |
| 11 | Reciprocating I.C. Engine | Waukesha | 7042 GL | C-12554/2 (Pkg. 76490) | 1,478 hp | 1,370 hp | 02/03/1998<br>7/19/1995 | 11<br>11 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 12 | Reciprocating I.C. Engine | Waukesha | 7042 GL | C-13154/1 (Pkg. 77582) | 1,478 hp | 1,370 hp | 11/12/1993<br>1/25/1993 | 12<br>12 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 13 | Reciprocating I.C. Engine | Waukesha | 7042 GL | TBD | 1,478 hp | 1,370 hp | TBD<br>TBD | 13<br>13 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 14 | Reciprocating I.C. Engine | Waukesha | 7042 GL | TBD | 1,478 hp | 1,370 hp | TBD<br>TBD | N/A<br>14 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 15 | Reciprocating I.C. Engine | Waukesha | 7042 GL | 401158 (Pkg. 77052) | 1,478 hp | 1,370 hp | 09/22/1980<br>9/22/1980 | 15<br>15 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 16 | Reciprocating I.C. Engine | Waukesha | 7042 GL | 208656 (Pkg. 76798) | 1,478 hp | 1,370 hp | 7/30/1971<br>8/18/2005 | N/A<br>16 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| 33 | Reciprocating I.C. Engine | Waukesha | 7042 GL | C-10607/13 (Pkg. 804367) | 1,478 hp | 1,370 hp | 07/20/1992<br>4/5/2017 | N/A<br>33 | 20200202 | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | 4SLB | N/A |
| SSM | Compressors & Associated Piping | N/A | N/A | N/A | N/A | N/A | N/A<br>N/A | N/A<br>N/A | -- | X Existing (unchanged) ☐ To be Removed<br>☐ New/Additional ☐ Replacement Unit<br>☐ To Be Modified ☐ To be Replaced | N/A | N/A |

| Unit Number[1] | Source Description | Make | Model # | Serial # | Manufacturer's Rated Capacity[3] (Specify Units) | Requested Permitted Capacity[3] (Specify Units) | Date of Manufacture[2] / Date of Construction/ Reconstruction[2] | Controlled by Unit # / Emissions vented to Stack # | Source Classification Code (SCC) | For Each Piece of Equipment, Check One | RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4] | Replacing Unit No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17a | TEG Dehydrator Still Vent | Enertek | J2P12M74 9 TEG | 41997 | 12 mmscfd | 12 mmscfd | 1992<br>1/1/1992 | N/A<br>17a | 31000227 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 17b | TEG Dehydrator Reboiler | Enertek | 429 scfh | N/A | 429 scfh | 429 scfh | 1992<br>1/1/1992 | NA<br>17b | 31000228 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 18a | TEG Dehydrator Still Vent | Enertek | J2P12M74 9 TEG | 41733 | 12 mmscfd | 12 mmscfd | 1992<br>1/1/1992 | N/A<br>18a | 31000227 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 18b | TEG Dehydrator Reboiler | Enertek | 429 scfh | N/A | 429 scfh | 429 scfh | 1992<br>1/1/1992 | N/A<br>18b | 31000228 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 19a | TEG Dehydrator Still Vent | Enertek | J2P12M74 9 TEG | 41688 | 12 mmscfd | 12 mmscfd | 1992<br>1/1/1992 | N/A<br>19a | 31000227 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 19b | TEG Dehydrator Reboiler | Enertek | 429 scfh | N/A | 429 scfh | 429 scfh | 1992<br>1/1/1992 | N/A<br>19b | 31000228 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 20a | TEG Dehydrator Still Vent | Enertek | J2P12M74 9 TEG | 41747 | 12 mmscfd | 12 mmscfd | 1993<br>1/1/1993 | N/A<br>20a | 31000227 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 20b | TEG Dehydrator Reboiler | Enertek | 429 scfh | N/A | 429 scfh | 429 scfh | 1993<br>1/1/1993 | N/A<br>20b | 31000228 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 21a | TEG Dehydrator Still Vent | Enertek | J2P12M74 9 TEG | 42380 | 12 mmscfd | 12 mmscfd | 1993<br>1/1/1993 | N/A<br>21a | 31000227 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 21b | TEG Dehydrator Reboiler | Enertek | 429 scfh | N/A | 429 scfh | 429 scfh | 1993<br>1/1/1993 | N/A<br>21b | 31000228 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 22a | TEG Dehydrator Still Vent | Enertek | J2P12M74 9 TEG | 43250 | 12 mmscfd | 12 mmscfd | 1993<br>1/1/1993 | N/A<br>22a | 31000227 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 22b | TEG Dehydrator Reboiler | Enertek | 429 scfh | N/A | 429 scfh | 429 scfh | 1992<br>1/1/1992 | NA<br>22b | 31000228 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 31a | TEG Dehydrator Still Vent | Enertek | J2P30M74 9TEG | 42857 | 30 mmscfd | 30 mmscfd | 2004<br>12/17/2004 | N/A<br>31a | 31000227 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| 31b | TEG Dehydrator Reboiler | Enertek | 444 scfh | N/A | 444 scfh | 444 scfh | 2004<br>12/17/2004 | NA<br>31b | 31000228 | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| M1 | Malfunction Emissions | N/A | N/A | N/A | N/A | N/A | N/A<br>N/A | N/A<br>N/A | - - | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| | | | | | | | | | - - | Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | N/A | N/A |
| | | | | | | | | | | Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced | | |

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.

[2] Specify dates required to determine regulatory applicability.

[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.

[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

# Table 2-B: Insignificant Activities[1] (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html ), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at http://www.env.nm.gov/aqb/forms/InsignificantListTitleV.pdf . TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

| Unit Number | Source Description | Manufacturer | Model No. / Serial No. | Max Capacity / Capacity Units | List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a) | Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2] | For Each Piece of Equipment, Check Onc |
|---|---|---|---|---|---|---|---|
| T-1 thru T-14 | Lubrication (Lube) Oil Storage Tank (each) | | | 500 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #5 | | |
| T-15 | Lube Oil Storage Tank | | | 4,200 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 4,200 gal | Insignificant Activity List Item #5 | | |
| T-16 | Antifreeze Storage Tank | | | 500 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #5 | | |
| T-17 | Corrosion Inhibitor Storage Tank | | | 500 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #1 | | |
| T-18 thru T-23 | Glycol Storage Tank (each) | | | 100 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 100 gal | Insignificant Activity List Item #5 | | |
| T-24 | Solvent Storage Tank | | | 500 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #5 | | |
| T-25 | Produced Water Storage Tank | | | 12,600 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 12,600 gal | Insignificant Activity List Item #1 | | |
| T-26 | Used Oil Storage Tank | | | 6,930 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 6,930 gal | Insignificant Activity List Item #5 | | |
| T-27 | Wastewater Storage Tank | | | 6,930 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 6,930 gal | Insignificant Activity List Item #5 | | |
| T-28 & T-29 | Lube Oil Storage Tank (each) | | | 500 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #5 | | |
| T-30 | Glycol Storage Tank | | | 100 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 100 gal | Insignificant Activity List Item #5 | | |
| T-34 thru T-40 | Glycol Storage Tank (each) | | | 50 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 50 gal | Insignificant Activity List Item #5 | | |
| T-42 | Wastewater Storage Tank | | | 740 gal | | | X Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 740 gal | Insignificant Activity List Item #5 | | |

| Unit Number | Source Description | Manufacturer | Model No. / Serial No. | Max Capacity / Capacity Units | List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a) | Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2] | For Each Piece of Equipment, Check Onc |
|---|---|---|---|---|---|---|---|
| T-43 | Produced Water Storage Tank | | | 12,600 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 12,600 gal | Insignificant Activity List Item #1 | | |
| T-44 | Produced Water Storage Tank | | | 1,680 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 1,680 gal | Insignificant Activity List Item #1 | | |
| T-45 & T-46 | Used Oil Storage Tank | | | 500 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #5 | | |
| T-47 & T-48 | Glycol Storage Tank (each) | | | 125 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 125 gal | Insignificant Activity List Item #5 | | |
| T-49 | Glycol Storage Tank | | | 2,100 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 2,100 gal | Insignificant Activity List Item #5 | | |
| T-50 | Methanol Storage Tank | | | 500 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #1 | | |
| T-51 & T-52 | Lube Oil Storage Tank (each) | | | 500 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 500 gal | Insignificant Activity List Item #5 | | |
| T-55 & T-56 | Produced Water Storage Tank (each) | | | 12,600 gal | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | 12,600 gal | Insignificant Activity List Item #1 | | |
| F1 | Fugitive Emissions | | | N/A | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | N/A | Insignificant Activity List Item #1 | | |
| L1 | Truck Loading Emissions (Produced water) | | | N/A | | | X **Existing (unchanged)** To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | N/A | Insignificant Activity List Item #1 | | |
| | | | | | | | Existing (unchanged) To be Removed<br>New/Additional Replacement Unit<br>To Be Modified To be Replaced |
| | | | | | | | |

[1] Insignificant activities exempted due to size or production rate are defined in 20.2.70.300.D.6, 20.2.70.7.Q NMAC, and the NMED/AQB List of Insignificant Activities, dated September 15, 2008. Emissions from these insignificant activities do not need to be reported, unless specifically requested.

[2] Specify date(s) required to determine regulatory applicability.

# Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. Only list control equipment for TAPs if the TAP's maximum uncontrolled emissions rate is over its respective threshold as listed in 20.2.72 NMAC, Subpart V, Tables A and B. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

| Control Equipment Unit No. | Control Equipment Description | Date Installed | Controlled Pollutant(s) | Controlling Emissions for Unit Number(s)[1] | Efficiency (% Control by Weight) | Method used to Estimate Efficiency |
|---|---|---|---|---|---|---|
| 3 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 3 | CO 93%; VOC 80% | Mfg. data |
| 5 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 5 | CO 93%; VOC 80% | Mfg. data |
| 6 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 6 | CO 93%; VOC 80% | Mfg. data |
| 10 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 10 | CO 93%; VOC 80% | Mfg. data |
| 11 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 11 | CO 93%; VOC 80% | Mfg. data |
| 12 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 12 | CO 93%; VOC 80% | Mfg. data |
| 13 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 13 | CO 93%; VOC 80% | Mfg. data |
| 15 | Catalytic Converter (oxidation catalyst) | 8/1/2007 | CO, VOC, HAPs | 15 | CO 93%; VOC 80% | Mfg. data |
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[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

# Table 2-D: Maximum Emissions (under normal operating conditions)

**This Table was intentionally left blank because it would be identical to Table 2-E.**

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

| Unit No. | NOx | | CO | | VOC | | SOx | | PM[1] | | PM10[1] | | PM2.5[1] | | $H_2S$ | | Lead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| 1 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 3 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 4 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 5 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 6 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 7 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 8 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 9 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 10 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 11 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 12 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 13 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 14 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 15 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 16 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 33 | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| SSM[2] | - | - | - | - | - | 12.00 | - | - | - | - | - | - | - | - | - | - | - | - |
| 17a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 17b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 18a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 18b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |

| Unit No. | NOx | | CO | | VOC | | SOx | | PM[1] | | PM10[1] | | PM2.5[1] | | $H_2S$ | | Lead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| 19a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 19b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 20a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 20b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 21a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 21b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 22a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 22b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 31a[2] | - | - | - | - | 2.10 | 9.20 | - | - | - | - | - | - | - | - | - | - | - | - |
| 31b | 4.44E-02 | 0.19 | 3.73E-02 | 0.16 | 2.44E-03 | 1.07E-02 | 2.66E-04 | 1.17E-03 | 3.37E-03 | 1.48E-02 | 3.37E-03 | 1.48E-02 | 3.37E-03 | 1.48E-02 | - | - | 2.22E-07 | 9.72E-07 |
| M1[2] | - | - | - | - | Not specified | 10.00 | - | - | - | - | - | - | - | - | - | - | - | - |
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| | | | | | | | | | | | | | | | | | | |
| **Totals** | 43.83 | 191.98 | 128.40 | 561.02 | 63.24 | 298.98 | 0.10 | 0.44 | 1.64 | 7.17 | 1.64 | 7.17 | 1.64 | 7.17 | - | - | 1.5E-06 | 6.6E-06 |

[1]**Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but PM is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[2] The VOC emission rates are carried forward from Operating Permit P027-R4.

# Table 2-E: Requested Allowable Emissions

Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E$^{-4}$).

| Unit No. | NOx | | CO | | VOC | | SOx | | PM[1] | | PM10[1] | | PM2.5[1] | | $H_2S$ | | Lead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| 1[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 3[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 4[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 5[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 6[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 7[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 8[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 9[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 10[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 11[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 12[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 13[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 14[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 15[2] | 2.72 | 11.92 | 0.56 | 2.46 | 0.60 | 2.65 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 16[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| 33[2] | 2.72 | 11.92 | 8.01 | 35.00 | 3.02 | 13.24 | 5.9E-03 | 2.6E-02 | 0.10 | 0.44 | 0.10 | 0.44 | 0.10 | 0.44 | - | - | - | - |
| SSM[2] | - | - | - | - | - | 12.00 | - | - | - | - | - | - | - | - | - | - | - | - |
| 17a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 17b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 18a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 18b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 19a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 19b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 20a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 20b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |

| Unit No. | NOx | | CO | | VOC | | SOx | | PM[1] | | PM10[1] | | PM2.5[1] | | $H_2S$ | | Lead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| 21a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 21b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 22a[2] | - | - | - | - | 2.12 | 9.30 | - | - | - | - | - | - | - | - | - | - | - | - |
| 22b | 4.29E-02 | 0.19 | 3.25E-02 | 0.14 | 4.79E-03 | 2.10E-02 | 8.33E-04 | 3.65E-03 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | 3.26E-03 | 1.43E-02 | - | - | 2.15E-07 | 9.40E-07 |
| 31a[2] | - | - | - | - | 2.10 | 9.20 | - | - | - | - | - | - | - | - | - | - | - | - |
| 31b | 4.44E-02 | 0.19 | 3.73E-02 | 0.16 | 2.44E-03 | 1.07E-02 | 2.66E-04 | 1.17E-03 | 3.37E-03 | 1.48E-02 | 3.37E-03 | 1.48E-02 | 3.37E-03 | 1.48E-02 | - | - | 2.22E-07 | 9.72E-07 |
| M1[2] | - | - | - | - | Not specified | 10.00 | - | - | - | - | - | - | - | - | - | - | - | - |
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| **Totals** | 43.83 | 191.98 | 68.80 | 300.67 | 43.89 | 214.24 | 0.10 | 0.44 | 1.64 | 7.17 | 1.64 | 7.17 | 1.64 | 7.17 | - | - | 1.51E-06 | 6.61E-06 |

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[2] The Requested Allowable Emissions are carried forward from Operating Permit P027-R4; no changes to the existing permitted emission rates are proposed. Any emission calculations presented in section 6 that are lower than the above emission rates demonstrate compliance with the current permit limits.

# Table 2-F: Additional Emissions during Startup, Shutdown, and Routine Maintenance (SSM)

This table is intentionally left blank since all emissions at this facility due to routine or predictable startup, shutdown, or scehduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

All applications for facilities that have emissions during routine our predictable startup, shutdown or scheduled maintenance (SSM)[1], including NOI applications, must include in this table the Maximum Emissions during routine or predictable startup, shutdown and scheduled maintenance (20.2.7 NMAC, 20.2.72.203.A.3 NMAC, 20.2.73.200.D.2 NMAC). In Section 6 and 6a, provide emissions calculations for all SSM emissions reported in this table. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (https://www.env.nm.gov/aqb/permit/aqb_pol.html) for more detailed instructions. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

| Unit No. | NOx | | CO | | VOC | | SOx | | PM[2] | | PM10[2] | | PM2.5[2] | | $H_2S$ | | Lead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| SSM [3] | - | - | - | - | unspecified | 12.0 | - | - | - | - | - | - | - | - | - | - | - | - |
| M1[3] | - | - | - | - | unspecified | 10.0 | - | - | - | - | - | - | - | - | - | - | - | - |
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| **Totals** | - | - | - | - | not specified | 22.00 | - | - | - | - | - | - | - | - | - | - | - | - |

[1] **For instance**, if the short term steady-state Table 2-E emissions are 5 lb/hr and the SSM rate is 12 lb/hr, enter 7 lb/hr in this table. If the annual steady-state Table 2-E emissions are 21.9 TPY, and the number of scheduled SSM events result in annual emissions of 31.9 TPY, enter 10.0 TPY in the table below.

[2] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

[3] The VOC emission rate is carried forward from the current permit (P027-R4).

# Table 2-G: Stack Exit and Fugitive Emission Rates for Special Stacks

**X** I have elected to leave this table blank because this facility does not have any stacks/vents that split emissions from a single source or combine emissions from more than one source listed in table 2-A. Additionally, the emission rates of all stacks match the Requested allowable emission rates stated in Table 2-E.

Use this table to list stack emissions (requested allowable) from split and combined stacks. List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) in Table 2-I. List all fugitives that are associated with the normal, routine, and non-emergency operation of the facility. Unit and stack numbering must correspond throughout the application package. Refer to Table 2-E for instructions on use of

| Stack No. | Serving Unit Number(s) from Table 2-A | NOx | | CO | | VOC | | SOx | | PM | | PM10 | | PM2.5 | | $H_2S$ or Lead | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
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| **Totals**: | | | | | | | | | | | | | | | | | |

# Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions. If the facility has multiple operating scenarios, complete a separate Table 2-H for each scenario and, for each, type scenario name here:

| Stack Number | Serving Unit Number(s) from Table 2-A | Orientation (H-Horizontal V=Vertical) | Rain Caps (Yes or No) | Height Above Ground (ft) | Temp. (F) | Flow Rate | | Moisture by Volume (%) | Velocity (ft/sec) | Inside Diameter (ft) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (acfs) | (dscfs) | | | |
| 1 | 1 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 3 | 3 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 4 | 4 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 5 | 5 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 6 | 6 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 7 | 7 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 8 | 8 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 9 | 9 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 10 | 10 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 11 | 11 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 12 | 12 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 13 | 13 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 14 | 14 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 15 | 15 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 16 | 16 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 16 | 16 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 33 | 33 | V | N | 22 | 702 | 127 | | - | 155.3 | 1.02 |
| 17b | 17b | V | N | 20 | 600 | 3.3 | | - | 6.1 | 0.83 |
| 18b | 18b | V | N | 20 | 600 | 3.3 | | - | 6.1 | 0.83 |
| 19b | 19b | V | N | 20 | 600 | 3.3 | | - | 6.1 | 0.83 |
| 20b | 20b | V | N | 20 | 600 | 3.3 | | - | 6.1 | 0.83 |
| 21b | 21b | V | N | 20 | 600 | 3.3 | | - | 6.1 | 0.83 |
| 22b | 22b | V | N | 20 | 600 | 3.3 | | - | 6.1 | 0.83 |
| 31b | 31b | V | N | 25 | 600 | 3.3 | | - | 6.1 | 0.83 |

# Table 2-I: Stack Exit and Fugitive Emission Rates for HAPs and TAPs

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as it listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

| Stack No. | Unit No.(s) | Total HAPs | | Benzene X HAP or □ TAP | | Ethylbenzene X HAP or □ TAP | | Formaldehyde X HAP or □ TAP | | Toluene X HAP or □ TAP | | Xylene X HAP or □ TAP | | Provide Pollutant Name Here □ HAP or □ TAP | | Provide Pollutant Name Here □ HAP or □ TAP | | Provide Pollutant Name Here □ HAP or □ TAP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| 1 | 1 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| 3 | 3 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 4 | 4 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| 5 | 5 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 6 | 6 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 7 | 7 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| 8 | 8 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| 9 | 9 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| 10 | 10 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 11 | 11 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 12 | 12 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 13 | 13 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 14 | 14 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| 15 | 15 | 0.1 | 0.5 | - | - | - | - | 0.1 | 0.4 | - | - | - | - | | | | | | |
| 16 | 16 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| 33 | 33 | 0.5 | 2.3 | - | 0.1 | - | - | 0.5 | 2.2 | - | - | - | - | | | | | | |
| SSM | SSM | - | 0.1 | - | - | - | - | - | - | - | - | - | - | | | | | | |
| 17a | 17a | 0.6 | 2.7 | 0.1 | 0.3 | 0.1 | 0.2 | - | - | 0.2 | 1.0 | 0.3 | 1.2 | | | | | | |
| 17b | 17b | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| 18a | 18a | 0.6 | 2.7 | 0.1 | 0.3 | 0.1 | 0.2 | - | - | 0.2 | 1.0 | 0.3 | 1.2 | | | | | | |
| 18b | 18b | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |

| Stack No. | Unit No.(s) | Total HAPs | | Benzene X HAP or □ TAP | | Ethylbenzene X HAP or □ TAP | | Formaldehyde X HAP or □ TAP | | Toluene X HAP or □ TAP | | Xylene X HAP or □ TAP | | Provide Pollutant Name Here □ HAP or □ TAP | | Provide Pollutant Name Here □ HAP or □ TAP | | Provide Pollutant Name Here □ HAP or □ TAP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr | lb/hr | ton/yr |
| 19a | 19a | 0.6 | 2.7 | 0.1 | 0.3 | 0.1 | 0.2 | - | - | 0.2 | 1.0 | 0.3 | 1.2 | | | | | | |
| 19b | 19b | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| 20a | 20a | 0.6 | 2.7 | 0.1 | 0.3 | 0.1 | 0.2 | - | - | 0.2 | 1.0 | 0.3 | 1.2 | | | | | | |
| 20b | 20b | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| 21a | 21a | 0.6 | 2.7 | 0.1 | 0.3 | 0.1 | 0.2 | - | - | 0.2 | 1.0 | 0.3 | 1.2 | | | | | | |
| 21b | 21b | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| 22a | 22a | 0.6 | 2.7 | 0.1 | 0.3 | 0.1 | 0.2 | - | - | 0.2 | 1.0 | 0.3 | 1.2 | | | | | | |
| 22b | 22b | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| 31a | 31a | 0.6 | 2.7 | 0.1 | 0.3 | 0.0 | 0.2 | - | - | 0.2 | 0.9 | 0.3 | 1.3 | | | | | | |
| 31b | 31b | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| F1 | F1 | - | - | - | - | - | - | - | - | - | - | - | - | | | | | | |
| M1 | M1 | - | 0.2 | - | - | - | - | - | - | - | 0.1 | - | - | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| **Totals:** | | 9.5 | 41.7 | 0.7 | 2.9 | 0.3 | 1.5 | 4.9 | 21.4 | 1.6 | 7.0 | 2.0 | 8.7 | | | | | | |

# Table 2-J: Fuel

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

| Unit No. | Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …) | Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other | Specify Units | | | | |
|---|---|---|---|---|---|---|---|
| | | | Lower Heating Value | Hourly Usage | Annual Usage | % Sulfur | % Ash |
| 1 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 3 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 4 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 5 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 6 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 7 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 8 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 9 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 10 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 11 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 12 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 13 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 14 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 15 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 16 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 33 | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 11.22 mcfh | 98.31 mmcfy | -- | -- |
| 17b | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 429 scfh | 3.76 mmcfy | -- | -- |
| 18b | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 429 scfh | 3.76 mmcfy | -- | -- |
| 19b | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 429 scfh | 3.76 mmcfy | -- | -- |
| 20b | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 429 scfh | 3.76 mmcfy | -- | -- |
| 21b | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 429 scfh | 3.76 mmcfy | -- | -- |
| 22b | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 429 scfh | 3.76 mmcfy | -- | -- |
| 31b | Natural Gas | Raw/Field Natural Gas | 900 Btu/scf | 444 scfh | 3.89 mmcfy | -- | -- |
| | | | | | | | |
| | | | | | | | |

# Table 2-K: Liquid Data for Tanks Listed in Table 2-L

For each tank, list the liquid(s) to be stored in each tank. If it is expected that a tank may store a variety of hydrocarbon liquids, enter "mixed hydrocarbons" in the Composition column for that tank and enter the corresponding data of the most volatile liquid to be stored in the tank. If tank is to be used for storage of different materials, list all the materials in the "All Calculations" attachment, run the newest version of TANKS on each, and use the material with the highest emission rate to determine maximum uncontrolled and requested allowable emissions rate. The permit will specify the most volatile category of liquids that may be stored in each tank. Include appropriate tank-flashing modeling input data. Use additional sheets if necessary. Unit and stack numbering must correspond throughout the application package.

| Tank No. | SCC Code | Material Name | Composition | Liquid Density (lb/gal) | Vapor Molecular Weight (lb/lb*mol) | Average Storage Conditions | | Max Storage Conditions | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Temperature (°F) | True Vapor Pressure (psia) | Temperature (°F) | True Vapor Pressure (psia) |
| T-1 thru T-14 | | Lube Oil | Lube oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-15 | | Lube Oil | Lube oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-16 | | Antifreeze | Water, 50% ethylene glycol | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-17 | | Corrosion Inhibitor | Trimethylbenzene, dodecanethiol, naptha, methyl alcohol | 6.1 | 41.4 | 67.36 | 1.297 | 80.79 | 1.8808 |
| T-18 thru T-23 | | Triethylene glycol | Triethylene glycol | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-24 | | Solvent | Jet kerosene or similar material | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-25 | | Produced Water | Water; <1% hydrocarbon liquids | 8.3 | 20.77 | 67.36 | 0.3488 | 80.79 | 0.5425 |
| T-26 | | Used Oil | Used Lube oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-27 | | Wastewater | Water; <1% residual oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-28 & T-29 | | Lube Oil | Lube oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-30 | | Triethylene glycol | Triethylene glycol | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-34 thru T-40 | | Triethylene glycol | Triethylene glycol | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-42 | | Wastewater | Water; ~1% residual oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-43 | | Produced Water | Water; ~1% hydrocarbon liquids | 8.3 | 20.77 | 67.36 | 0.3488 | 80.79 | 0.5425 |
| T-44 | | Produced Water | Water; ~1% hydrocarbon liquids | 8.3 | 20.77 | 67.36 | 0.3488 | 80.79 | 0.5425 |
| T-45 & T-46 | | Used Oil | Used lube oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-47 & T-48 | | Triethylene glycol | Triethylene glycol | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-49 | | Triethylene glycol | Triethylene glycol | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-50 | | Methanol | Methanol | 6.6 | 32.04 | 58.54 | 1.3769 | 65.66 | 1.7198 |
| T-51 & T-52 | | Lube Oil | Lube oil | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | |
| T-55 & T-56 | | Produced Water | Water; <1% hydrocarbon liquids | 8.3 | 20.77 | 67.36 | 0.3488 | 80.79 | 0.5425 |
| | | | | | | | | | |
| | | | | | | | | | |
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# Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

| Tank No. | Date Installed | Materials Stored | Seal Type (refer to Table 2-LR below) | Roof Type (refer to Table 2-LR below) | Capacity | | Diameter (M) | Vapor Space (M) | Color (from Table VI-C) | | Paint Condition (from Table VI-C) | Annual Throughput (gal/yr) | Turn-overs (per year) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (bbl) | ($M^3$) | | | Roof | Shell | | | |
| T-1 thru T-14 | | Lube Oil | N/A | FX | 12 | 1.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-15 | | Lube Oil | N/A | FX | 100 | 15.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-16 | | Antifreeze | N/A | FX | 12 | 1.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-17 | | Corrosion Inhibitor | N/A | FX | 12 | 1.9 | 1.4 | 0.93 | MG | MG | Good | 2,000 | 4.0 |
| T-18 thru T-23 | | Triethylene glycol | N/A | FX | 2.4 | 0.4 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-24 | | Solvent | N/A | FX | 11.9 | 1.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-25 | | Produced Water | N/A | FX | 300 | 47.7 | 4 | 2.00 | MG | MG | Good | 305,340 | 24.2 |
| T-26 | | Used Oil | N/A | FX | 165 | 26.2 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-27 | | Wastewater | N/A | FX | 165 | 26.2 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-28 & T-29 | | Lube Oil | N/A | FX | 12 | 1.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-30 | | Triethylene glycol | N/A | FX | 2.4 | 0.4 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-34 thru T-40 | | Triethylene glycol | N/A | FX | 1.2 | 0.2 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-42 | | Wastewater | N/A | FX | 18 | 2.8 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-43 | | Produced Water | N/A | FX | 300 | 47.7 | 4 | 2 | MG | MG | Good | With T-25 | With T-25 |
| T-44 | | Produced Water | N/A | FX | 40 | 6.4 | N/A | N/A | MG | MG | Good | With T-25 | With T-25 |
| T-45 & T-46 | | Used Oil | N/A | FX | 12 | 1.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-47 & T-48 | | Triethylene glycol | N/A | FX | 3 | 0.5 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-49 | | Triethylene glycol | N/A | FX | 50 | 7.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-50 | | Methanol | N/A | FX | 12 | 1.9 | 1.4 | 0.93 | WH | WH | Good | 2,000 | 4.0 |
| T-51 & T-52 | | Lube Oil | N/A | FX | 12 | 1.9 | Insignificant source under Title V Insignificant Sources list, Item #5 | | | | | | |
| T-55 & T-56 | | Produced Water | N/A | FX | 300 | 47.7 | 4 | 2 | MG | MG | Good | With T-25 | With T-25 |
| | | | | | | | | | | | | | |
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## Table 2-L2: Liquid Storage Tank Data Codes Reference Table

| Roof Type | Seal Type, Welded Tank Seal Type | | Seal Type, Riveted Tank Seal Type | | Roof, Shell Color | Paint Condition |
|---|---|---|---|---|---|---|
| **FX**: Fixed Roof | **Mechanical Shoe Seal** | **Liquid-mounted resilient seal** | **Vapor-mounted resilient seal** | **Seal Type** | **WH**: White | Good |
| **IF**: Internal Floating Roof | **A**: Primary only | **A**: Primary only | **A**: Primary only | **A**: Mechanical shoe, primary only | **AS**: Aluminum (specular) | Poor |
| **EF**: External Floating Roof | **B**: Shoe-mounted secondary | **B**: Weather shield | **B**: Weather shield | **B**: Shoe-mounted secondary | **AD**: Aluminum (diffuse) | |
| **P**: Pressure | **C**: Rim-mounted secondary | **C**: Rim-mounted secondary | **C**: Rim-mounted secondary | **C**: Rim-mounted secondary | **LG**: Light Gray | |
| | | | | | **MG**: Medium Gray | |
| | | | | | **BL**: Black | |
| | | | | | **OT**: Other (specify) | |

Note: 1.00 bbl = 0.159 $M^3$ = 42.0 gal

## Table 2-M: Materials Processed and Produced (Use additional sheets as necessary.)

| Material Processed | | | | Material Produced | | | |
|---|---|---|---|---|---|---|---|
| **Description** | **Chemical Composition** | **Phase (Gas, Liquid, or Solid)** | **Quantity (specify units)** | **Description** | **Chemical Composition** | **Phase** | **Quantity (specify units)** |
| Low pressure natural gas | C1-C6+ | Gas | Throughput = 358 mmscfd[1] | High pressure natural gas | C1-C6+ | Gas | Throughput = 358 mmscfd[1] |
| Produced water | H2O + trace of HC | Liquid | 305,340 gal/yr | Produced water | H2O + trace of HC | Liquid | 305,340 gal/yr |
| | | | | | | | |
| | | | | | | | |

[1] The material processed and material produced are both a direct function of available horsepower. The material processing and production rates are therefore dependent on atmospheric temperature and pressure, gas temperature and pressure, relative humidity and gas quality, was well as other factors. The values expressed above are a nominal quantities (with a safety factor), neither an absolute maximum, nor an average. Actual values will vary from the nominal amount.

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# Table 2-N: CEM Equipment

Enter Continuous Emissions Measurement (CEM) Data in this table. If CEM data will be used as part of a federally enforceable permit condition, or used to satisfy the requirements of a state or federal regulation, include a copy of the CEM's manufacturer specification sheet in the Information Used to Determine Emissions attachment. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

| Stack No. | Pollutant(s) | Manufacturer | Model No. | Serial No. | Sample Frequency | Averaging Time | Range | Sensitivity | Accuracy |
|---|---|---|---|---|---|---|---|---|---|
| N/A | | | | | | | | | |
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# Table 2-O: Parametric Emissions Measurement Equipment

Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

| Unit No. | Parameter/Pollutant Measured | Location of Measurement | Unit of Measure | Acceptable Range | Frequency of Maintenance | Nature of Maintenance | Method of Recording | Averaging Time |
|---|---|---|---|---|---|---|---|---|
| N/A | | | | | | | | |
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# Table 2-P: Green House Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box:

By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

| Unit No. | | $CO_2$ ton/yr | $N_2O$ ton/yr | $CH_4$ ton/yr | $SF_6$ ton/yr | PFC/HFC ton/yr[2] | | | | | Total GHG Mass Basis ton/yr[4] | Total $CO_2e$ ton/yr[5] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit No.** | **GWPs [1]** | **1** | **298** | **25** | **22,800** | **footnote 3** | | | | | | |
| 1 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.66 |
| 3 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 4 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.66 |
| 5 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.58 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 6 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.58 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 7 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.58 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 8 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.58 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 9 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **CO2e** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 10 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 11 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **CO2e** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 12 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 13 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **CO2e** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |

| Unit No. | | $CO_2$ ton/yr | $N_2O$ ton/yr | $CH_4$ ton/yr | $SF_6$ ton/yr | PFC/HFC ton/yr[2] | | | | | Total GHG Mass Basis ton/yr[4] | Total $CO_2e$ ton/yr[5] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit No.** | **GWPs [1]** | **1** | **298** | **25** | **22,800** | **footnote 3** | | | | | | |
| 14 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 15 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **CO2e** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 16 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **$CO_2e$** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| 33 | **mass GHG** | 6,010.5 | 0.0113 | 0.1133 | | | | | | | 6010.6 | - |
| | **CO2e** | 6,010.5 | 3.4 | 2.8 | | | | | | | - | 6016.7 |
| SSM | **mass GHG** | 59.5 | -- | 306.7 | | | | | | | 366.1 | - |
| | **$CO_2e$** | 59.5 | - | 7,666.6 | | | | | | | - | 7726.1 |
| 17a | **mass GHG** | 43.62 | -- | 1.20 | | | | | | | 44.8 | - |
| | **CO2e** | 43.62 | - | 29.99 | | | | | | | - | 73.6 |
| 17b | **mass GHG** | 219.3 | 4.13E-04 | 4.13E-03 | | | | | | | 219.3 | - |
| | **$CO_2e$** | 219.3 | 0.12 | 0.10 | | | | | | | - | 219.6 |
| 18a | **mass GHG** | 43.62 | -- | 1.20 | | | | | | | 44.8 | - |
| | **CO2e** | 43.62 | - | 29.99 | | | | | | | - | 73.6 |
| 18b | **mass GHG** | 219.3 | 4.13E-04 | 4.13E-03 | | | | | | | 219.3 | - |
| | **CO2e** | 219.3 | 0.12 | 0.10 | | | | | | | - | 219.6 |
| 19a | **mass GHG** | 43.62 | -- | 1.20 | | | | | | | 44.8 | - |
| | **CO2e** | 43.62 | - | 29.99 | | | | | | | - | 73.6 |
| 19b | **mass GHG** | 219.3 | 4.13E-04 | 4.13E-03 | | | | | | | 219.3 | - |
| | **CO2e** | 219.3 | 0.12 | 0.10 | | | | | | | - | 219.6 |
| 20a | **mass GHG** | 43.62 | -- | 1.20 | | | | | | | 44.8 | - |
| | **CO2e** | 43.62 | - | 29.99 | | | | | | | - | 73.6 |
| 20b | **mass GHG** | 219.3 | 4.13E-04 | 4.13E-03 | | | | | | | 219.3 | - |
| | **CO2e** | 219.3 | 0.12 | 0.10 | | | | | | | - | 219.6 |
| 21a | **mass GHG** | 43.62 | -- | 1.20 | | | | | | | 44.8 | - |
| | **CO2e** | 43.62 | - | 29.99 | | | | | | | - | 73.6 |
| 21b | **mass GHG** | 219.3 | 4.13E-04 | 4.13E-03 | | | | | | | 219.3 | - |
| | **CO2e** | 219.3 | 0.12 | 0.10 | | | | | | | - | 219.6 |

| Unit No. | | $CO_2$ ton/yr | $N_2O$ ton/yr | $CH_4$ ton/yr | $SF_6$ ton/yr | PFC/HFC ton/yr[2] | | | | | Total GHG Mass Basis ton/yr[4] | Total $CO_2e$ ton/yr[5] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Unit No.** | **GWPs [1]** | **1** | **298** | **25** | **22,800** | **footnote 3** | | | | | | |
| 22a | **mass GHG** | 43.62 | -- | 1.20 | | | | | | | 44.82 | - |
| | **CO2e** | 43.62 | - | 29.99 | | | | | | | - | 73.6 |
| 22b | **mass GHG** | 219.3 | 4.13E-04 | 4.13E-03 | | | | | | | 219.3 | - |
| | **CO2e** | 219.3 | 0.12 | 0.10 | | | | | | | - | 219.6 |
| 31a | **mass GHG** | 44.3 | -- | 1.11 | | | | | | | 45.39 | - |
| | **CO2e** | 44.3 | - | 27.8 | | | | | | | - | 72.1 |
| 31b | **mass GHG** | 227.0 | 4.28E-04 | 4.28E-03 | | | | | | | 227.02 | - |
| | **CO2e** | 227.0 | 0.13 | 0.11 | | | | | | | - | 227.2 |
| M1 | **mass GHG** | 198.4 | -- | 1,023.5 | | | | | | | 1221.9 | - |
| | **CO2e** | 198.4 | - | 25,586.5 | | | | | | | - | 25785.0 |
| F1 | **mass GHG** | 7.3 | -- | 37.5 | | | | | | | 44.8 | - |
| | **CO2e** | 7.3 | - | 937.8 | | | | | | | - | 945.1 |
| Storage tanks | **mass GHG** | 0.0 | - | 0.0 | | | | | | | 0.0 | - |
| | **CO2e** | 0.0 | - | 0.0 | | | | | | | - | 0.0 |
| L1 | **mass GHG** | 0.0 | - | 0.0 | | | | | | | 0.0 | - |
| | **CO2e** | 0.0 | - | 0.0 | | | | | | | - | 0.0 |
| Recip Comp Venting | **mass GHG** | 185.1 | -- | 956.2 | | | | | | | 1141.3 | - |
| | **CO2e** | 185.1 | - | 23,903.9 | | | | | | | - | 24089.1 |
| Pneum Dev Venting | **mass GHG** | 41.4 | -- | 213.1 | | | | | | | 254.5 | - |
| | **CO2e** | 41.4 | - | 5,327.9 | | | | | | | - | 5369.2 |
| Pneum Pump Venting | **mass GHG** | 0.4 | -- | 2.3 | | | | | | | 2.7 | - |
| | **CO2e** | 0.4 | - | 56.5 | | | | | | | - | 57.0 |
| **Total[6]** | **mass GHG** | 98,508.4 | 0.2 | 2,549.3 | | | | | | | 101,057.91 | - |
| | **$CO_2e$** | 98,508.4 | 54.9 | 63,733.1 | | | | | | | - | 162,296.38 |

[1] **GWP** (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

[2] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[3] For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

[4] Green house gas emissions on a **mass basis** is the ton per year green house gas emission before adjustment with its GWP.

[5] **$CO_2e$** means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

# Section 3

## Application Summary

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The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will affect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

The **Process Summary** shall include a brief description of the facility and its processes.

**Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions:** Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

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Harvest Four Corners, LLC (Harvest) owns and operates the 31-6 Central Delivery Point (CDP), a production field gathering system compressor station that pressurizes and dehydrates natural gas for transport through natural gas pipelines. The facility operates under the authority of Title V Operating Permit P027-R4.

The 31-6 CDP is subject to the requirements of the PSD program under 20.2.74 of the New Mexico Administrative Code (NMAC). A BACT (Best Available Control Technology) analysis for all of the Waukesha 7042GL engines at the facility determined that "Lean Burn" design is BACT (PSD-NSR 1031-M4). As the engines are subject to BACT, an emissions netting analysis under 20.2.74 NMAC is required for any proposed like-kind engine replacements.

In March 2020, Harvest submitted a technical permit revision application to the New Mexico Environment Department Air Quality Bureau (NMAQB) for identical engine replacements on three Waukesha 7042GL compressor engines (units 5, 11 and 16). Units 5 and 11 are equipped with catalytic converters, and unit 16 is uncontrolled. An emission netting analysis was included that demonstrated no net emission increases would result from the identical engine replacement. Following preconstruction review by NMAQB, the application was approved and New Source Review (NSR) Prevention of Significant Deterioration (PSD) permit 1031-M9-R10 was issued on April 15, 2020.

Under Operating Permit P027-R4, a Title V permit renewal application is due to be submitted by June 20, 2021. Under 20.2.70.404.C(3)(b) NMAC, a modification application for the Title V permit is required to be submitted by April 15, 2021 (within 12 months of commencing operation under PSD 1031-M8-R10). Since the Title V renewal application and modification application are due approximately two months

apart, this application is being submitted under both 20.2.70.300.B(2) NMAC and 20.2.70.404.C(3)(b) NMAC.

The approved construction permit modification for the identical engine replacements is incorporated into Table 2-A, *Regulated Equipment* of this application. As noted in the approved NSR PSD permit application, the replacement engines do not trigger any new requirements under either the *Standards of Performance for Stationary Sources,* Title 40 of the Code of Regulations, part 60 (40 CFR 60), subpart JJJJ *Standards of Performance for Spark Ignition Internal Combustion Engines*, or 40 CFR 63 *National Emission Standards for Hazardous Air Pollutants* (NESHAP), subpart ZZZZ for *Stationary Reciprocating Internal Combustion Engines*.

## Facility Overview

The 31-6 CDP is permitted for the following regulated equipment and emissions sources:

- Sixteen Waukesha 7042GL compressor engines, units 1, 3 through 16, and 33. Eight of the engines (units 1, 4, 7, 8, 9, 14, 16, and 33) have uncontrolled emissions, and eight of the engines (units 3, 5, 6, 10, 11, 12, 13, and 15) are equipped with catalytic converters;
- Six 12 mmcfd TEG dehydrators, units 17a/b through 22a/b;
- One 30 mmcfd TEG dehydrator, unit 31a/b;
- Compressor and piping blowdown emissions of volatile organic compounds (VOC) associated with to startups, shutdowns and maintenance (SSM); and
- Malfunction emissions of VOC (unit M1).

Other emission sources include exempt storage tanks and associated truck loading activities, and greenhouse gases from reciprocating compressor venting, pneumatic devices, and pumps. The facility is authorized to operate continuously.

# Section 4

## Process Flow Sheet

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A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.

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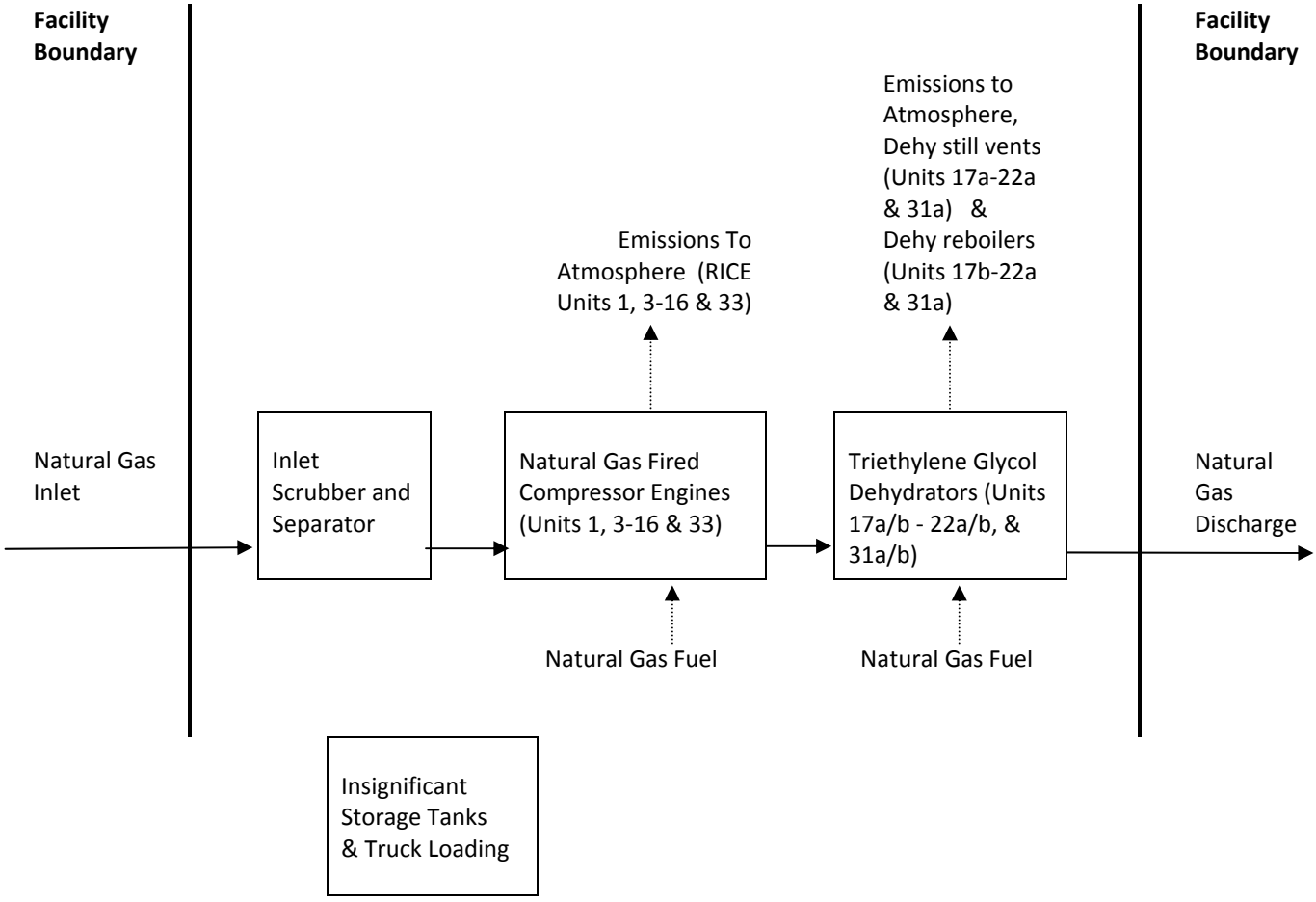

# Section 5

## Plot Plan Drawn To Scale

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A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent throughout this application.

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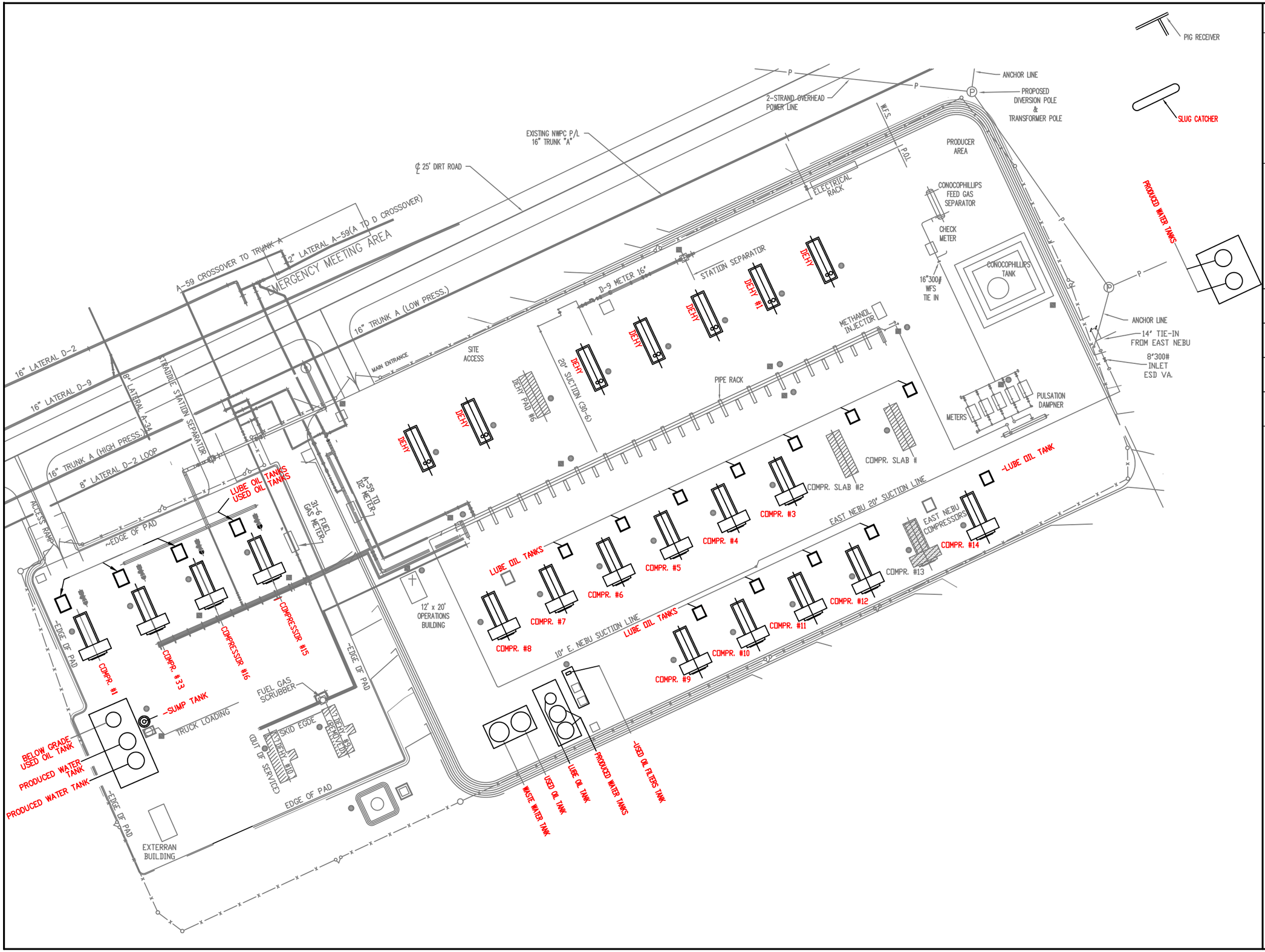
Please see the following page(s).




**FACILITY LAYOUT**
WILLIAMS FOUR CORNERS LLC
31-6 CDP FACILITY
SW¼ SW¼, SECTION 1, T30N, R6W
RIO ARRIBA COUNTY, NEW MEXICO
N36.83592, W107.42020

Animas Environmental Services, LLC

| | |
|---|---|
| **DRAWN BY:** C. Lameman | **DATE DRAWN:** November 21, 2013 |
| **REVISIONS BY:** C. Lameman | **DATE REVISED:** November 21, 2013 |
| **CHECKED BY:** K. Christiansen | **DATE CHECKED:** November 21, 2013 |
| **APPROVED BY:** E. McNally | **DATE APPROVED:** November 21, 2013 |

NOTE: SITE DIAGRAM OBTAINED FROM WILLIAMS.

Edited Oct. 22, 2015, Cirrus Consulting.

N

SCALE
65 39 0 65
13
(1 INCH = 65 FEET)

# Section 6

## All Calculations

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**Show all calculations** used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

**Tank Flashing Calculations**: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

**SSM Calculations**: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

**Glycol Dehydrator Calculations**: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

**Road Calculations:** Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

**Significant Figures:**

**A.** All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.

**B.** At least 5 significant figures shall be retained in all intermediate calculations.

**C.** In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

**(1)** If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;

**(2)** If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**

**(3)** If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.

**(4)** The final result of the calculation shall be expressed in the units of the standard.

**Control Devices:** In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device

regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

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## *Reciprocating Engines*

Nitrogen oxides ($NO_X$), and uncontrolled emissions of carbon monoxide (CO) and volatile organic compound (VOC) from the units 1, 3 through 16, and 33 reciprocating internal combustion engines (RICE) are calculated from engine manufacturer's data and the site-rated horsepower (hp) rating of the engine. (Uncontrolled CO emissions are rounded downward as reported in Tables 2-D and 2-E of the application, for consistency with the current permits.) CO and VOC emissions from the RICE equipped with emission controls (units 3, 5, 6, 1, 11, 12, 13, and 15) include catalyst manufacturer's control efficiencies applied to the emissions. $NO_X$ emissions are not controlled by catalytic converters on 4-stroke, lean burn engines. Emissions of sulfur dioxide ($SO_2$) and particulate emissions are calculated using AP-42, Table 3.2-2 emission factors and the maximum fuel use. Uncontrolled emissions of hazardous air pollutants (HAPs) from the RICE are calculated with GRI-HAPCalc 3.0. The emission control catalyst control efficiency for VOC is applied to the HAPs for the controlled engines.

The Potential To Emit (PTE) emission calculations assume the RICE operate at full site capacity for 8,760 hours per year.

Each of the engines starts up with no load and a rich fuel mixture. As a result, emissions are minimized. Because an engine takes only minutes to reach the operating temperature of the engine and effective temperature of the catalytic converter, emissions during startup are not expected to exceed the steady-state allowable emission rate limits. There are no Environmental Protection Agency (EPA)-approved test methods available to measure emissions during startup.

Similarly, emissions during shut down do not exceed the steady-state allowable limits because fuel and air flow cease within seconds of shutdown. Emissions due to scheduled maintenance are negligible, as the engine is not in operation during maintenance.

The criteria pollutant emission calculations and GRI-HAPCalc 3.0 calculation output file are provided in this section.

Harvest is not seeking any changes to the currently permitted emission limits associated with the engines. The requested allowable emissions in Table 2-E are carried forward from the existing permit.

Emission calculations for the uncontrolled and controlled RICE are provided in this section.

## *Startup, Shutdown & Routine Maintenance (SSM) Emissions*

Emissions associated with startups, shutdowns and routine maintenance from the compressors and piping (SSM) are vented to the atmosphere. SSM emissions from a compressor occur when high pressure gas is used to purge air from the compressor and associated piping prior to a startup. This gas is then vented to atmosphere. Also, after shutdowns, high pressure gas in the compressor(s) and associated piping is released to atmosphere as a safety precaution.

One common reason for compressor startup or shutdown is a change in the amount of compression required from the station due to fluctuations in the pipeline. To prolong the life of equipment and reduce engine emissions the compressors are shutdown when not needed. It is "routine or predictable" that the compressors at the station will come on-line and drop off-line many times during the course of operation. It is also standard industry practice.

The compressor is also shut down for maintenance of the engine, compressor or other equipment at the station. This maintenance is scheduled based on time in service and/or monitoring of equipment (visual and automated) in accordance with company and standard industry practice. This maintenance is also "routine or predictable".

The VOC and HAP emissions from blowdown of the compressors and piping associated with the facility are calculated from the composition of a blended extended natural gas sample analysis derived from two facility sample locations conducted at the facility on July 10, 2020, the quantity of gas vented during each event, and the estimated number of annual events. The sample gas used in the emission calculations is blended according to a ratio that reflects the gas proportions handled at the facility during the sample year. The ratios may vary over time. The quantity of gas vented during each blowdown event is determined by Harvest engineering. The annual number of blowdown events for the compressors are estimated from historical data. A safety factor is included in the emission calculation because experience indicates that the VOC and HAP composition of the natural gas in the pipeline varies over time; and because the annual number of blowdowns may also vary. The use of the safety factor is intended to ensure an adequate emissions limit that also includes any emissions from other non-blowdown miscellaneous startup, shutdown and maintenance activities.

The SSM emissions identified in this application are routine or predictable startup, shutdown and/or scheduled maintenance, and do not include malfunctions or upsets. The emission calculations using the most current available extended gas analysis for the facility demonstrate that the emissions of VOC are below the current permitted emission SSM limits, and the facility is compliance with its emission limits. *Harvest does not seek any changes to the currently permitted SSM emissions, and the requested allowable emissions in Table 2-E are carried forward from the existing permit.*

The SSM emission calculations are provided in this section.

### *Triethylene Glycol (TEG) Dehydrator Still Vent and Reboiler*

A triethylene glycol (TEG) dehydration units can be considered to consist of two emission units, a dehydrator still vent, and a dehydrator reboiler that is a small heater combustion source that provides heat to regenerate the rich TEG back to lean TEG. Therefore, the TEG dehydrator unit identification numbers have been divided into 'a' and 'b' sub-units to differentiate the dehydrator still vents (units 17a, 18a, 19a, 20a, 21a, 22a and 31a) from the dehydrator reboilers (units 17b, 18b, 19b, 20b, 21b, 22b and 31b). The TEG dehydrators are authorized to operate continuously.

The PTE of VOC and HAP from the dehydrator still vents are calculated with GRI-GLYCalc 4.0 using the blended extended gas analysis discussed earlier, the maximum daily dehydrator gas throughput, and the maximum allowed glycol pump rate. The emission calculations assume operation at full capacity for 8,760 hours per year. The results of the GLYCalc analysis indicate that the calculated emissions are well below the current permitted levels for VOC, and that the dehydrators are in compliance with the emission limits. *Harvest does not seek any changes to the currently permitted emissions to the units 17a, 18a, 19a, 20a, 21a, 22a and 31a dehydrator still vent emissions, and the requested allowable emissions shown in Table 2-E are carried forward from the existing permit.*

Emissions of $NO_X$, CO, VOC and $SO_2$ from the unit 17b, 18b, 19b, 20b, 21b, and 22b dehydrator reboilers are calculated from Enertek and Infab manufacturer emission factors. For the Unit 31b reboiler, $NO_X$ and CO emissions are calculated from AP-42, Table 1.4-1 emission factors, and the Unit 31b VOC and SO2 emissions are calculated from AP-42, Table 1.4-2 emission factors. Particulate and lead emissions for all of the reboilers are calculated using AP-42 emission factors from Table 1.4-2. HAP emissions are calculated using GRI-HAPCalc 3.0 and the reboiler heat rate capacities.

During startup, the dehydrator reboiler is brought up to temperature before allowing glycol into the absorber. This prevents excess VOC and HAP from collecting in the glycol stream, and there are no excess startup emissions above those expected during steady-state operation. During shutdown, the reboiler is shut down in conjunction with the gas flow and glycol circulation. Again, this prevents excess VOC and HAP from collecting in the glycol stream, and there are no excess shutdown emissions above those expected during steady-state operation. Emissions due to scheduled maintenance are negligible; either the unit will not be in operation during maintenance, or maintenance is limited to tasks for which there are no excess emissions.

The GLYCalc input and output files, reboiler spreadsheet calculations, and HAPCalc output files are provided in this section.

### *Fugitive Emissions (Insignificant)*

Fugitive emissions of VOC and HAP from equipment leaks (unit F1) are calculated using emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the

Environmental Protection Agency (EPA), equipment counts from Harvest, and the gas stream composition obtained from the extended gas analysis. The HAP components of the natural gas are derived from the species molar percentages in the natural gas. The calculated fugitive emissions of VOC are well below 1 ton per year, and the HAP emissions are below the Clean Air Act (CAA) section 112(g) HAP de minimus values. Therefore, the fugitive emissions are insignificant under the Title V Insignificant Activities List, Item 1.

Due to the nature of the source, it is estimated that SSM emissions from valves, connectors, seals, etc. are accounted for in the calculations.

The emission calculations are provided.

### *Storage Tanks (Insignificant)*

All of the storage tanks at the 31-6 CDP are considered insignificant sources under NMAQB's *Operating Permit Program List of Insignificant Activities* (March 24, 2005). For storage tanks with insignificance based on VOC emissions less than 1 ton per year (Insignificant Activity List Item #1), emission calculations of are provided.

Consistent with previous permit applications, it is assumed that emissions from the largest storage tank of a given category (i.e., the largest produced water tank) results in the worst case emissions for any tank in that category. Therefore, a determination of insignificance for the largest storage tank also indicates insignificant emissions from smaller tanks with the same stored contents.

- TANKS 4.09d emission calculations software is used to calculate the PTE for the produced water storage tanks (units T-25, T-43 and T-44, T-55 and T-56). The calculations assume that the produced water is comprised of 99 percent (99%) water and one percent (1%) hydrocarbon liquid. The hydrocarbon liquid fraction (including VOC and HAP) is based on the GRI HAPCalc default speciation profile for natural gasoline. The aggregated VOC emissions from these tanks are well below 1 ton per year, and the HAP emissions are below the Clean Air Act (CAA) section 112(g) HAP de minimus values. Therefore, the produced water storage tanks are insignificant sources under the Title V Insignificant Activities List, Item 1.

- The wastewater storage tanks (units T-27 and T-42) are assumed to contain one percent (1%) Residual Oil #6 and 99 percent (99%) water. The vapor pressure of the hydrocarbon liquid component of the stored contents is well under 10 mm Hg (≈ 0.2 psia), and therefore the wastewater storage tanks are insignificant under the Insignificant Activities List, Item No. 5.

- Residual Oil #6 is used to approximate the stored contents of the lubrication oil tanks (units T-1 thru T-14, T-15, T-28 and T-29, T-51 and T-52) and the used oil tanks (units T-26, T-45 and T-

46). The liquids have vapor pressures less than 10 mm Hg (≈ 0.2 psia); therefore, they are insignificant under the Insignificant Activities List, Item No. 5.

- The antifreeze storage tank (unit T-16) is assumed to contain an inhibited ethylene glycol coolant containing 50 percent ethylene glycol and 50 percent water. The vapor pressure of ethylene glycol is less than 10 mm Hg (≈ 0.2 psia); therefore, the unit T-16 antifreeze tank is an insignificant source under Item No. 5 of the Insignificant Activities List.

- The corrosion inhibitor tank (unit T-17) includes a mixture of trimethylbenzene, dodecanethiol, naptha, and methyl alcohol. The VOC emissions from the unit T-17 corrosion inhibitor tank are well below 1 ton per year, and HAP emissions are below the CAA 112(g) HAP de minimus values. Therefore, the tank is an insignificant source under the Insignificant Activities List, Item 1.

- The triethylene glycol (TEG) storage tanks (units T-18 thru T-23, T-30, T-34 thru T-40, and T-47 thru T-49) contain TEG. The vapor pressure of TEG is less than 10 mm Hg (≈ 0.2 psia); therefore, the TEG storage tanks are insignificant under Item No. 5 of the Insignificant Activities List.

- Jet kerosene profile is used to characterize solvent (unit T-24). The liquid has a vapor pressure less than 10 mm Hg (≈ 0.2 psia); therefore, the unit T-24 solvent tank is insignificant under the Insignificant Activities List, Item No. 5.

- The methanol storage tank (unit T-50) VOC emissions are well below 1 ton per year and the methanol HAP emissions are below the CAA 112(g) HAP de minimus values. Therefore, the unit T-50 methanol tank is an insignificant source under the Insignificant Activities List, Item 1.

There are no flash emissions associated with any of the storage tanks.

Due to the nature of the operations, startup and shutdown emissions from the storage tanks are assumed to be accounted for in the storage tank emission estimates. Emissions due to maintenance will be negligible as the units will not be in operation.

The TANKS 4.0.9d emission calculations for the produced water and methanol storage tanks are provided in this section.

### *Truck Loading Emissions (Insignificant)*

Emissions of VOC and HAP from produced water truck loading activities (unit L1) are estimated using emission factors from AP-42 Section 5.2, *Truck Loading* and the estimated maximum annual facility throughput, equivalent to sum of the throughputs for the individual produced water tanks. The emission calculations assume submerged loading during transfer operations.

The HAP constituent percentages for the produced water truck loading are based on the speciated HAP vapor mass fractions from the TANKS output file. The calculated emissions of VOC and HAPs from the produced water loading activities are well below 1 tpy; therefore, the unit L1 truck loading activities are insignificant under Item No. 1 of the Title V Insignificant Activities List.

The emission calculations are provided in this section.

### *Malfunctions*

Malfunction (unit M1) emissions are set at 10 tons of VOC per year. Based on the gas release rate associated with the set emission rate, HAP emissions are estimated using the natural gas extended analysis described above.

The HAP calculations are provided in this section.

# Engine Exhaust Emissions Calculations

Unit Number: 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, & 33
Description: Waukesha L7042GL

Note: The data on this worksheet applies to each individual emissions unit identified above.

**Horsepower Calculations**

| | | | |
|---|---|---|---|
| 6,410 | ft above MSL | Elevation | |
| 1,478 | hp | Nameplate hp | Mfg. data |
| 1,371 | hp | NMAQB Site-rated hp | NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 4,000 ft) |
| 1,333 | hp | Mfg. Site-rated hp | Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% for every 1,500 ft) |

**Engine Specifications**

| | | | |
|---|---|---|---|
| 1200 | rpm | Engine rpm | Mfg. data |
| 7040 | cu in | Engine displacement | Mfg. data |
| 128.54 | psi | BMEP | Mfg. data (+[(792,000 x NMAQB Site-rated hp) / (rpm * in^3)]) |

**Fuel Consumption**

| | | | |
|---|---|---|---|
| 7366 | Btu/hp-hr | Brake specific fuel consumption | Mfg. data |
| 10.10 | MMBtu/hr | Hourly fuel consumption | Btu/hp-hr x NMAQB site-rated hp / 1,000,000 |
| 11,223 | scf/hr | Hourly fuel consumption | MMBtu/hr x 1,000,000 / Btu/scf |
| 8,760 | hr/yr | Annual operating time | Williams Four Corners LLC |
| 88,479 | MMBtu/yr | Annual fuel consumption | MMBtu/hr x hr/yr |
| 98.31 | MMscf/yr | Annual fuel consumption | scf/hr x hr/yr / 1,000,000 |
| 900 | Btu/scf | Field gas heating value | Nominal heat content |

**Steady-State Emission Rates**

| Pollutants | Emission Factors, g/hp-hr | Uncontrolled Emission Rates, **(Units 1, 4, 7, 8, 9, 14, 16, & 33)** pph | tpy | Control Efficiencies, % | Controlled Emission Rates, **(Units 3, 5, 6, 10-13, & 15)** pph | tpy |
|---|---|---|---|---|---|---|
| NOX | 0.90 | 2.72 | 11.92 | 0 | 2.72 | 11.92 |
| CO | 2.65 | 8.01 | 35.09 | 93 | 0.56 | 2.46 |
| VOC | 1.00 | 3.02 | 13.24 | 80 | 0.60 | 2.65 |

Emission factors taken from Waukesha Bulletin 7005 0102
Uncontrolled Emission Rates (pph) = g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Control efficiencies taken based on catalyst manufacturer data sheet.
Controlled Emission Rates (pph) = Uncontrolled Emission Rates (pph) x (1 - (% / 100))
Controlled Emission Rates (tpy) = Uncontrolled Emission Rates (tpy) x (1 - (% / 100))

| Pollutants | Emission Factors, lb/MMBtu | Uncontrolled Emission Rates, pph | tpy |
|---|---|---|---|
| SO2 | 5.88E-04 | 5.94E-03 | 2.60E-02 |
| TSP | 9.99E-03 | 1.01E-01 | 4.42E-01 |
| PM10 | 9.99E-03 | 1.01E-01 | 4.42E-01 |
| PM2.5 | 9.99E-03 | 1.01E-01 | 4.42E-01 |

Emission factors taken from AP-42, Table 3.2-2
Particulate factors include both filterable and condensible emissions
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

**Exhaust Parameters**

| | | | |
|---|---|---|---|
| 702 | °F | Stack exit temperature | Mfg. data |
| 7628 | acfm | Stack flowrate | Mfg. data |
| 1.02 | ft | Stack exit diameter | Williams Four Corners LLC |
| 0.82 | ft^2 | Stack exit area | 3.1416 x ((ft / 2) ^2) |
| 155.32 | fps | Stack exit velocity | acfm / ft^2 / 60 sec/min |
| 22.0 | ft | Stack height | Williams Four Corners LLC |

# GRI-HAPCalc ® 3.01
# Engines Report

| | | |
|---|---|---|
| **Facility ID:** | **31-6 CDP** | **Notes:** |
| **Operation Type:** | **COMPRESSOR STATION** | |
| **Facility Name:** | **31-6 CENTRAL DELIVERY POINT** | |
| **User Name:** | **Cirrus** | |
| **Units of Measure:** | **U.S. STANDARD** | |

***Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0". Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".***

**Engine Unit**

Unit Name: 7042GL

| | | |
|---|---|---|
| Hours of Operation: | 8,760 | Yearly |
| Rate Power: | 1,371 | hp |
| Fuel Type: | FIELD GAS | |
| Engine Type: | 4-Stroke, Lean Burn | |
| Emission Factor Set: | EPA > FIELD > LITERATURE | |
| Additional EF Set: | -NONE- | |

## Calculated Emissions (ton/yr)

| Chemical Name | Emissions | Emission Factor | Emission Factor Set |
|---|---|---|---|
| **HAPs** | | | |
| Formaldehyde | 2.2261 | 0.16830000 g/bhp-hr | GRI Literature |
| Benzene | 0.0688 | 0.00520000 g/bhp-hr | GRI Literature |
| Toluene | 0.0278 | 0.00210000 g/bhp-hr | GRI Literature |
| Xylenes(m,p,o) | 0.0185 | 0.00140000 g/bhp-hr | GRI Literature |
| **Total** | 2.3412 | | |

# Compressor Blowdown Emissions Calculations

Unit Number: SSM
Description: Compressor & Piping Associated With Station

**Throughput**

| | | | |
|---|---|---|---|
| 1600 | events/yr | Blowdowns per year per unit | Williams Four Corners LLC |
| 9,865 | scf/event | Gas loss per blowdown | Williams Four Corners LLC |
| 15,784,000 | scf/yr | Annual gas loss | # of units x events/yr/unit x scf/event |

**Emission Rates**

| Pollutants | Emission Factors, lb/scf | Uncontrolled, Emission Rates, tpy * |
|---|---|---|
| VOC | 3.797E-04 | 3.00 |
| 2,2,4-Trimethylpentane | 0.000E+00 | 0.00E+00 |
| Benzene | 1.013E-06 | 8.00E-03 |
| Ethylbenzene | 2.296E-07 | 1.81E-03 |
| n-Hexane | 2.795E-06 | 2.21E-02 |
| Toluene | 1.992E-06 | 1.57E-02 |
| Xylene | 1.148E-06 | 9.06E-03 |

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton
* The calculated emissions demonstrate compliance with the current permit limits and are not requested permit limits.

**Gas Composition**

| Components | Mole Percents, % | Molecular Weights, lb/lb-mole | Emission Factors, lb/scf |
|---|---|---|---|
| Carbon dioxide | 6.4949 | 44.01 | 7.534E-03 |
| Hydrogen sulfide | 0.0000 | 34.07 | 0.000E+00 |
| Nitrogen | 0.0994 | 28.01 | 7.341E-05 |
| Methane | 91.9113 | 16.04 | 3.886E-02 |
| Ethane | 1.2077 | 30.07 | 9.572E-04 |
| Propane | 0.2042 | 44.09 | 2.373E-04 |
| Isobutane | 0.0315 | 58.12 | 4.826E-05 |
| n-Butane | 0.0260 | 58.12 | 3.984E-05 |
| Isopentane | 0.0094 | 72.15 | 1.794E-05 |
| n-Pentane | 0.0043 | 72.15 | 8.112E-06 |
| Cyclopentane | 0.0002 | 70.14 | 4.550E-07 |
| n-Hexane | 0.0012 | 86.17 | 2.795E-06 |
| Cyclohexane | 0.0006 | 84.16 | 1.274E-06 |
| Other hexanes | 0.0032 | 86.18 | 7.267E-06 |
| Heptanes | 0.0014 | 100.20 | 3.683E-06 |
| Methylcyclohexane | 0.0014 | 98.19 | 3.609E-06 |
| 2,2,4-Trimethylpentane | 0.0000 | 100.21 | 0.000E+00 |
| Benzene | 0.0005 | 78.11 | 1.013E-06 |
| Toluene | 0.0008 | 92.14 | 1.992E-06 |
| Ethylbenzene | 0.0001 | 106.17 | 2.296E-07 |
| Xylenes | 0.0004 | 106.17 | 1.148E-06 |
| C8+ Heavies | 0.0016 | 110.00 | 4.757E-06 |
| Total | 100.0002 | | |
| Total VOC | | | 3.797E-04 |

Blended gas stream composition obtained from the 31-6 Straddle Suction & 31-6 Suction gas analyses sampled July 10, 2020.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 31-6 EU17-22 12mm PTE Gas 2020-07-10
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 31-6\TITLE V\2021-04 Apr Title V mod & renewal\Analysis & Info\GLYCalc\31-6 EU17-22 12mm PTE Gas 2020-07-10.ddf
Date: April 07, 2021

DESCRIPTION:

Description: 31-6 EUs 17-22 (slots1-6) 12mmcd dehys PTE
July 10, 2020 gas blend,
2020 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 104.60 deg. F
Pressure: 314.30 psig
Wet Gas Water Content: Saturated

| Component | Conc. (vol %) |
|---|---|
| Carbon Dioxide | 6.4949 |
| Nitrogen | 0.0994 |
| Methane | 91.9113 |
| Ethane | 1.2077 |
| Propane | 0.2042 |
| Isobutane | 0.0315 |
| n-Butane | 0.0260 |
| Isopentane | 0.0094 |
| n-Pentane | 0.0043 |
| Cyclopentane | 0.0002 |
| n-Hexane | 0.0012 |
| Cyclohexane | 0.0006 |
| Other Hexanes | 0.0032 |
| Heptanes | 0.0014 |
| Methylcyclohexane | 0.0014 |
| Benzene | 0.0005 |
| Toluene | 0.0008 |
| Ethylbenzene | 0.0001 |
| Xylenes | 0.0004 |
| C8+ Heavies | 0.0016 |

DRY GAS:

Flow Rate: 12.0 MMSCF/day
Water Content: 6.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.5 gpm

PUMP:

---

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.130 acfm gas/gpm glycol

FLASH TANK:

---

Flash Control: Recycle/recompression
Temperature: 96.2 deg. F
Pressure: 31.2 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 EU17-22 12mm PTE Gas 2020-07-10
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 31-6\TITLE V\2021-04 Apr Title V mod & renewal\Analysis & Info\GLYCalc\31-6 EU17-22 12mm PTE Gas 2020-07-10.ddf
Date: April 07, 2021

DESCRIPTION:

Description: 31-6 EUs 17-22 (slots1-6) 12mmcd dehys PTE
July 10, 2020 gas blend,
2020 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

| Component | lbs/hr | lbs/day | tons/yr |
|---|---|---|---|
| Methane | 0.2739 | 6.574 | 1.1997 |
| Ethane | 0.0300 | 0.719 | 0.1312 |
| Propane | 0.0225 | 0.540 | 0.0986 |
| Isobutane | 0.0085 | 0.204 | 0.0372 |
| n-Butane | 0.0106 | 0.254 | 0.0464 |
| Isopentane | 0.0059 | 0.141 | 0.0258 |
| n-Pentane | 0.0038 | 0.092 | 0.0168 |
| Cyclopentane | 0.0011 | 0.027 | 0.0049 |
| n-Hexane | 0.0031 | 0.073 | 0.0134 |
| Cyclohexane | 0.0090 | 0.216 | 0.0394 |
| Other Hexanes | 0.0054 | 0.130 | 0.0237 |
| Heptanes | 0.0111 | 0.266 | 0.0485 |
| Methylcyclohexane | 0.0329 | 0.789 | 0.1439 |
| Benzene | 0.0724 | 1.739 | 0.3173 |
| Toluene | 0.2186 | 5.246 | 0.9573 |
| Ethylbenzene | 0.0501 | 1.203 | 0.2195 |
| Xylenes | 0.2744 | 6.585 | 1.2017 |
| C8+ Heavies | 0.2380 | 5.712 | 1.0424 |
| Total Emissions | 1.2712 | 30.508 | 5.5678 |
| Total Hydrocarbon Emissions | 1.2712 | 30.508 | 5.5678 |
| Total VOC Emissions | 0.9673 | 23.215 | 4.2368 |
| Total HAP Emissions | 0.6186 | 14.845 | 2.7093 |
| Total BTEX Emissions | 0.6155 | 14.772 | 2.6959 |

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

| Component | lbs/hr | lbs/day | tons/yr |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Methane | 24.4076 | 585.782 | 106.9051 |
| Ethane | 0.7092 | 17.020 | 3.1061 |
| Propane | 0.2091 | 5.019 | 0.9159 |
| Isobutane | 0.0485 | 1.165 | 0.2126 |
| n-Butane | 0.0444 | 1.067 | 0.1947 |
| Isopentane | 0.0206 | 0.495 | 0.0903 |
| n-Pentane | 0.0104 | 0.249 | 0.0454 |
| Cyclopentane | 0.0008 | 0.020 | 0.0036 |
| n-Hexane | 0.0042 | 0.102 | 0.0186 |
| Cyclohexane | 0.0033 | 0.080 | 0.0146 |
| Other Hexanes | 0.0103 | 0.247 | 0.0450 |
| Heptanes | 0.0070 | 0.168 | 0.0306 |
| Methylcyclohexane | 0.0088 | 0.211 | 0.0385 |
| Benzene | 0.0029 | 0.068 | 0.0125 |
| Toluene | 0.0051 | 0.123 | 0.0225 |
| Ethylbenzene | 0.0006 | 0.015 | 0.0028 |
| Xylenes | 0.0023 | 0.054 | 0.0099 |
| C8+ Heavies | 0.0152 | 0.364 | 0.0665 |
| Total Emissions | 25.5103 | 612.248 | 111.7352 |
| Total Hydrocarbon Emissions | 25.5103 | 612.248 | 111.7352 |
| Total VOC Emissions | 0.3936 | 9.446 | 1.7239 |
| Total HAP Emissions | 0.0151 | 0.363 | 0.0663 |
| Total BTEX Emissions | 0.0109 | 0.261 | 0.0477 |

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

| Component | lbs/hr | lbs/day | tons/yr |
|---|---|---|---|
| Methane | 0.2739 | 6.574 | 1.1997 |
| Ethane | 0.0300 | 0.719 | 0.1312 |
| Propane | 0.0225 | 0.540 | 0.0986 |
| Isobutane | 0.0085 | 0.204 | 0.0372 |
| n-Butane | 0.0106 | 0.254 | 0.0464 |
| Isopentane | 0.0059 | 0.141 | 0.0258 |
| n-Pentane | 0.0038 | 0.092 | 0.0168 |
| Cyclopentane | 0.0011 | 0.027 | 0.0049 |
| n-Hexane | 0.0031 | 0.073 | 0.0134 |
| Cyclohexane | 0.0090 | 0.216 | 0.0394 |
| Other Hexanes | 0.0054 | 0.130 | 0.0237 |
| Heptanes | 0.0111 | 0.266 | 0.0485 |
| Methylcyclohexane | 0.0329 | 0.789 | 0.1439 |
| Benzene | 0.0724 | 1.739 | 0.3173 |
| Toluene | 0.2186 | 5.246 | 0.9573 |
| Ethylbenzene | 0.0501 | 1.203 | 0.2195 |
| Xylenes | 0.2744 | 6.585 | 1.2017 |
| C8+ Heavies | 0.2380 | 5.712 | 1.0424 |
| Total Emissions | 1.2712 | 30.508 | 5.5678 |
| Total Hydrocarbon Emissions | 1.2712 | 30.508 | 5.5678 |
| Total VOC Emissions | 0.9673 | 23.215 | 4.2368 |
| Total HAP Emissions | 0.6186 | 14.845 | 2.7093 |
| Total BTEX Emissions | 0.6155 | 14.772 | 2.6959 |

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

| Component | Uncontrolled tons/yr | Controlled tons/yr | % Reduction |
|---|---|---|---|
| Methane | 108.1049 | 1.1997 | 98.89 |
| Ethane | 3.2374 | 0.1312 | 95.95 |
| Propane | 1.0145 | 0.0986 | 90.28 |
| Isobutane | 0.2498 | 0.0372 | 85.11 |
| n-Butane | 0.2410 | 0.0464 | 80.77 |
| Isopentane | 0.1161 | 0.0258 | 77.78 |
| n-Pentane | 0.0622 | 0.0168 | 73.02 |
| Cyclopentane | 0.0084 | 0.0049 | 42.50 |
| n-Hexane | 0.0320 | 0.0134 | 58.13 |
| Cyclohexane | 0.0540 | 0.0394 | 26.96 |
| Other Hexanes | 0.0687 | 0.0237 | 65.53 |
| Heptanes | 0.0790 | 0.0485 | 38.70 |
| Methylcyclohexane | 0.1824 | 0.1439 | 21.09 |
| Benzene | 0.3298 | 0.3173 | 3.79 |
| Toluene | 0.9798 | 0.9573 | 2.30 |
| Ethylbenzene | 0.2223 | 0.2195 | 1.25 |
| Xylenes | 1.2116 | 1.2017 | 0.82 |
| C8+ Heavies | 1.1088 | 1.0424 | 5.99 |
| Total Emissions | 117.3029 | 5.5678 | 95.25 |
| Total Hydrocarbon Emissions | 117.3029 | 5.5678 | 95.25 |
| Total VOC Emissions | 5.9607 | 4.2368 | 28.92 |
| Total HAP Emissions | 2.7756 | 2.7093 | 2.39 |
| Total BTEX Emissions | 2.7436 | 2.6959 | 1.74 |

EQUIPMENT REPORTS:

ABSORBER

| | | |
|---|---|---|
| Calculated Absorber Stages: | 2.61 | |
| Specified Dry Gas Dew Point: | 6.00 | lbs. H2O/MMSCF |
| Temperature: | 104.6 | deg. F |
| Pressure: | 314.3 | psig |
| Dry Gas Flow Rate: | 12.0000 | MMSCF/day |
| Glycol Losses with Dry Gas: | 0.0792 | lb/hr |
| Wet Gas Water Content: | Saturated | |
| Calculated Wet Gas Water Content: | 171.03 | lbs. H2O/MMSCF |
| Calculated Lean Glycol Recirc. Ratio: | 2.54 | gal/lb H2O |

| Component | Remaining in Dry Gas | Absorbed in Glycol |
|---|---|---|
| Water | 3.50% | 96.50% |
| Carbon Dioxide | 99.85% | 0.15% |
| Nitrogen | 99.99% | 0.01% |
| Methane | 99.99% | 0.01% |
| Ethane | 99.96% | 0.04% |
| Propane | 99.92% | 0.08% |
| Isobutane | 99.88% | 0.12% |
| n-Butane | 99.84% | 0.16% |
| Isopentane | 99.82% | 0.18% |
| n-Pentane | 99.77% | 0.23% |
| Cyclopentane | 99.07% | 0.93% |

| | | |
|---|---|---|
| n-Hexane | 99.58% | 0.42% |
| Cyclohexane | 98.26% | 1.74% |
| Other Hexanes | 99.68% | 0.32% |
| Heptanes | 99.14% | 0.86% |
| Methylcyclohexane | 97.82% | 2.18% |
| Benzene | 85.49% | 14.51% |
| Toluene | 77.09% | 22.91% |
| Ethylbenzene | 63.84% | 36.16% |
| Xylenes | 50.68% | 49.32% |
| C8+ Heavies | 93.07% | 6.93% |

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 96.2 deg. F
Flash Pressure: 31.2 psig

| Component | Left in Glycol | Removed in Flash Gas |
|---|---|---|
| Water | 99.93% | 0.07% |
| Carbon Dioxide | 14.85% | 85.15% |
| Nitrogen | 1.04% | 98.96% |
| Methane | 1.11% | 98.89% |
| Ethane | 4.05% | 95.95% |
| Propane | 9.72% | 90.28% |
| Isobutane | 14.89% | 85.11% |
| n-Butane | 19.23% | 80.77% |
| Isopentane | 22.45% | 77.55% |
| n-Pentane | 27.22% | 72.78% |
| Cyclopentane | 57.69% | 42.31% |
| n-Hexane | 42.10% | 57.90% |
| Cyclohexane | 73.85% | 26.15% |
| Other Hexanes | 34.95% | 65.05% |
| Heptanes | 61.48% | 38.52% |
| Methylcyclohexane | 79.71% | 20.29% |
| Benzene | 96.40% | 3.60% |
| Toluene | 97.88% | 2.12% |
| Ethylbenzene | 98.88% | 1.12% |
| Xylenes | 99.29% | 0.71% |
| C8+ Heavies | 94.72% | 5.28% |

REGENERATOR

No Stripping Gas used in regenerator.

| Component | Remaining in Glycol | Distilled Overhead |
|---|---|---|
| Water | 26.29% | 73.71% |
| Carbon Dioxide | 0.00% | 100.00% |
| Nitrogen | 0.00% | 100.00% |
| Methane | 0.00% | 100.00% |
| Ethane | 0.00% | 100.00% |
| Propane | 0.00% | 100.00% |
| Isobutane | 0.00% | 100.00% |
| n-Butane | 0.00% | 100.00% |

| | | |
|---|---|---|
| Isopentane | 1.35% | 98.65% |
| n-Pentane | 1.22% | 98.78% |
| Cyclopentane | 0.77% | 99.23% |
| n-Hexane | 0.93% | 99.07% |
| Cyclohexane | 4.07% | 95.93% |
| Other Hexanes | 2.09% | 97.91% |
| Heptanes | 0.72% | 99.28% |
| Methylcyclohexane | 4.77% | 95.23% |
| Benzene | 5.15% | 94.85% |
| Toluene | 8.04% | 91.96% |
| Ethylbenzene | 10.50% | 89.50% |
| Xylenes | 12.99% | 87.01% |
| C8+ Heavies | 12.51% | 87.49% |

STREAM REPORTS:

WET GAS STREAM

Temperature: 104.60 deg. F
Pressure: 329.00 psia
Flow Rate: 5.02e+005 scfh

| Component | Conc. (vol%) | Loading (lb/hr) |
|---|---|---|
| Water | 3.60e-001 | 8.58e+001 |
| Carbon Dioxide | 6.47e+000 | 3.77e+003 |
| Nitrogen | 9.90e-002 | 3.67e+001 |
| Methane | 9.16e+001 | 1.94e+004 |
| Ethane | 1.20e+000 | 4.79e+002 |
| Propane | 2.03e-001 | 1.19e+002 |
| Isobutane | 3.14e-002 | 2.41e+001 |
| n-Butane | 2.59e-002 | 1.99e+001 |
| Isopentane | 9.37e-003 | 8.94e+000 |
| n-Pentane | 4.28e-003 | 4.09e+000 |
| Cyclopentane | 1.99e-004 | 1.85e-001 |
| n-Hexane | 1.20e-003 | 1.36e+000 |
| Cyclohexane | 5.98e-004 | 6.66e-001 |
| Other Hexanes | 3.19e-003 | 3.63e+000 |
| Heptanes | 1.39e-003 | 1.85e+000 |
| Methylcyclohexane | 1.39e-003 | 1.81e+000 |
| Benzene | 4.98e-004 | 5.15e-001 |
| Toluene | 7.97e-004 | 9.72e-001 |
| Ethylbenzene | 9.96e-005 | 1.40e-001 |
| Xylenes | 3.99e-004 | 5.60e-001 |
| C8+ Heavies | 1.59e-003 | 3.59e+000 |
| Total Components | 100.00 | 2.40e+004 |

DRY GAS STREAM

Temperature: 104.60 deg. F
Pressure: 329.00 psia
Flow Rate: 5.00e+005 scfh

| Component | Conc. (vol%) | Loading (lb/hr) |
|---|---|---|
| Water | 1.26e-002 | 3.00e+000 |
| Carbon Dioxide | 6.49e+000 | 3.76e+003 |
| Nitrogen | 9.94e-002 | 3.67e+001 |
| Methane | 9.19e+001 | 1.94e+004 |
| Ethane | 1.21e+000 | 4.78e+002 |
| Propane | 2.04e-001 | 1.19e+002 |
| Isobutane | 3.15e-002 | 2.41e+001 |
| n-Butane | 2.60e-002 | 1.99e+001 |
| Isopentane | 9.38e-003 | 8.92e+000 |
| n-Pentane | 4.29e-003 | 4.08e+000 |
| Cyclopentane | 1.98e-004 | 1.83e-001 |
| n-Hexane | 1.20e-003 | 1.36e+000 |
| Cyclohexane | 5.90e-004 | 6.54e-001 |
| Other Hexanes | 3.19e-003 | 3.62e+000 |
| Heptanes | 1.39e-003 | 1.83e+000 |
| Methylcyclohexane | 1.37e-003 | 1.77e+000 |
| Benzene | 4.27e-004 | 4.40e-001 |
| Toluene | 6.17e-004 | 7.49e-001 |
| Ethylbenzene | 6.38e-005 | 8.93e-002 |
| Xylenes | 2.03e-004 | 2.84e-001 |
| C8+ Heavies | 1.49e-003 | 3.34e+000 |
| Total Components | 100.00 | 2.39e+004 |

LEAN GLYCOL STREAM

Temperature: 104.60 deg. F
Flow Rate: 3.50e+000 gpm

| Component | Conc. (wt%) | Loading (lb/hr) |
|---|---|---|
| TEG | 9.85e+001 | 1.94e+003 |
| Water | 1.50e+000 | 2.96e+001 |
| Carbon Dioxide | 2.82e-011 | 5.56e-010 |
| Nitrogen | 1.91e-014 | 3.77e-013 |
| Methane | 3.41e-018 | 6.71e-017 |
| Ethane | 4.32e-009 | 8.51e-008 |
| Propane | 1.92e-010 | 3.79e-009 |
| Isobutane | 4.39e-011 | 8.66e-010 |
| n-Butane | 4.00e-011 | 7.88e-010 |
| Isopentane | 4.10e-006 | 8.07e-005 |
| n-Pentane | 2.41e-006 | 4.74e-005 |
| Cyclopentane | 4.36e-007 | 8.60e-006 |
| n-Hexane | 1.46e-006 | 2.87e-005 |
| Cyclohexane | 1.94e-005 | 3.82e-004 |
| Other Hexanes | 5.87e-006 | 1.16e-004 |
| Heptanes | 4.05e-006 | 7.98e-005 |
| Methylcyclohexane | 8.36e-005 | 1.65e-003 |
| Benzene | 2.00e-004 | 3.93e-003 |
| Toluene | 9.69e-004 | 1.91e-002 |
| Ethylbenzene | 2.98e-004 | 5.88e-003 |
| Xylenes | 2.08e-003 | 4.10e-002 |
| C8+ Heavies | 1.73e-003 | 3.40e-002 |
| Total Components | 100.00 | 1.97e+003 |

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 104.60 deg. F
Pressure: 329.00 psia
Flow Rate: 3.74e+000 gpm
NOTE: Stream has more than one phase.

| Component | Conc. (wt%) | Loading (lb/hr) |
|---|---|---|
| TEG | 9.28e+001 | 1.94e+003 |
| Water | 5.39e+000 | 1.12e+002 |
| Carbon Dioxide | 4.77e-001 | 9.96e+000 |
| Nitrogen | 2.23e-003 | 4.66e-002 |
| Methane | 1.18e+000 | 2.47e+001 |
| Ethane | 3.54e-002 | 7.39e-001 |
| Propane | 1.11e-002 | 2.32e-001 |
| Isobutane | 2.73e-003 | 5.70e-002 |
| n-Butane | 2.64e-003 | 5.50e-002 |
| Isopentane | 1.27e-003 | 2.66e-002 |
| n-Pentane | 6.83e-004 | 1.43e-002 |
| Cyclopentane | 9.27e-005 | 1.94e-003 |
| n-Hexane | 3.52e-004 | 7.34e-003 |
| Cyclohexane | 6.09e-004 | 1.27e-002 |
| Other Hexanes | 7.57e-004 | 1.58e-002 |
| Heptanes | 8.68e-004 | 1.81e-002 |
| Methylcyclohexane | 2.07e-003 | 4.33e-002 |
| Benzene | 3.79e-003 | 7.92e-002 |
| Toluene | 1.16e-002 | 2.43e-001 |
| Ethylbenzene | 2.71e-003 | 5.66e-002 |
| Xylenes | 1.52e-002 | 3.18e-001 |
| C8+ Heavies | 1.38e-002 | 2.87e-001 |
| Total Components | 100.00 | 2.09e+003 |

FLASH TANK OFF GAS STREAM

Temperature: 96.20 deg. F
Pressure: 45.90 psia
Flow Rate: 6.64e+002 scfh

| Component | Conc. (vol%) | Loading (lb/hr) |
|---|---|---|
| Water | 2.36e-001 | 7.43e-002 |
| Carbon Dioxide | 1.10e+001 | 8.48e+000 |
| Nitrogen | 9.40e-002 | 4.61e-002 |
| Methane | 8.69e+001 | 2.44e+001 |
| Ethane | 1.35e+000 | 7.09e-001 |
| Propane | 2.71e-001 | 2.09e-001 |
| Isobutane | 4.77e-002 | 4.85e-002 |
| n-Butane | 4.37e-002 | 4.44e-002 |
| Isopentane | 1.63e-002 | 2.06e-002 |
| n-Pentane | 8.21e-003 | 1.04e-002 |
| Cyclopentane | 6.67e-004 | 8.19e-004 |
| n-Hexane | 2.82e-003 | 4.25e-003 |
| Cyclohexane | 2.25e-003 | 3.32e-003 |
| Other Hexanes | 6.82e-003 | 1.03e-002 |
| Heptanes | 3.98e-003 | 6.98e-003 |

| | | |
|---|---|---|
| Methylcyclohexane | 5.11e-003 | 8.78e-003 |
| Benzene | 2.09e-003 | 2.85e-003 |
| Toluene | 3.19e-003 | 5.14e-003 |
| Ethylbenzene | 3.41e-004 | 6.34e-004 |
| Xylenes | 1.22e-003 | 2.26e-003 |
| C8+ Heavies | 5.09e-003 | 1.52e-002 |
| Total Components | 100.00 | 3.41e+001 |

FLASH TANK GLYCOL STREAM

Temperature: 96.20 deg. F
Flow Rate: 3.66e+000 gpm

| Component | Conc. (wt%) | Loading (lb/hr) |
|---|---|---|
| TEG | 9.44e+001 | 1.94e+003 |
| Water | 5.47e+000 | 1.12e+002 |
| Carbon Dioxide | 7.20e-002 | 1.48e+000 |
| Nitrogen | 2.35e-005 | 4.83e-004 |
| Methane | 1.33e-002 | 2.74e-001 |
| Ethane | 1.46e-003 | 3.00e-002 |
| Propane | 1.10e-003 | 2.25e-002 |
| Isobutane | 4.13e-004 | 8.49e-003 |
| n-Butane | 5.15e-004 | 1.06e-002 |
| Isopentane | 2.91e-004 | 5.97e-003 |
| n-Pentane | 1.89e-004 | 3.88e-003 |
| Cyclopentane | 5.44e-005 | 1.12e-003 |
| n-Hexane | 1.50e-004 | 3.09e-003 |
| Cyclohexane | 4.57e-004 | 9.39e-003 |
| Other Hexanes | 2.69e-004 | 5.53e-003 |
| Heptanes | 5.43e-004 | 1.11e-002 |
| Methylcyclohexane | 1.68e-003 | 3.45e-002 |
| Benzene | 3.72e-003 | 7.64e-002 |
| Toluene | 1.16e-002 | 2.38e-001 |
| Ethylbenzene | 2.73e-003 | 5.60e-002 |
| Xylenes | 1.54e-002 | 3.15e-001 |
| C8+ Heavies | 1.32e-002 | 2.72e-001 |
| Total Components | 100.00 | 2.05e+003 |

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.77e+003 scfh

| Component | Conc. (vol%) | Loading (lb/hr) |
|---|---|---|

| | | |
|---|---|---|
| Water | 9.87e+001 | 8.29e+001 |
| Carbon Dioxide | 7.21e-001 | 1.48e+000 |
| Nitrogen | 3.70e-004 | 4.83e-004 |
| Methane | 3.66e-001 | 2.74e-001 |
| Ethane | 2.14e-002 | 3.00e-002 |
| Propane | 1.10e-002 | 2.25e-002 |
| Isobutane | 3.13e-003 | 8.49e-003 |
| n-Butane | 3.91e-003 | 1.06e-002 |
| Isopentane | 1.75e-003 | 5.89e-003 |
| n-Pentane | 1.14e-003 | 3.83e-003 |
| Cyclopentane | 3.39e-004 | 1.11e-003 |
| n-Hexane | 7.62e-004 | 3.06e-003 |
| Cyclohexane | 2.29e-003 | 9.00e-003 |
| Other Hexanes | 1.35e-003 | 5.41e-003 |
| Heptanes | 2.37e-003 | 1.11e-002 |
| Methylcyclohexane | 7.18e-003 | 3.29e-002 |
| Benzene | 1.99e-002 | 7.24e-002 |
| Toluene | 5.09e-002 | 2.19e-001 |
| Ethylbenzene | 1.01e-002 | 5.01e-002 |
| Xylenes | 5.54e-002 | 2.74e-001 |
| C8+ Heavies | 3.00e-002 | 2.38e-001 |
| Total Components | 100.00 | 8.56e+001 |

# Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 17b, 18b, 19b, 20b, 21b, 22b
Description: Dehydrator Reboiler (12 mmscfd)

Note: The data on this worksheet applies to each individual emissions unit identified above.

**Fuel Consumption**

| | | | |
|---|---|---|---|
| 0.386 | MMBtu/hr | Capacity | scf/hr x Btu/scf / 1,000,000 |
| 429 | scf/hr | Hourly fuel consumption | Mfg. data (Enertek) |
| 8,760 | hr/yr | Annual operating time | Williams Four Corners LLC |
| 3,382 | MMBtu/yr | Annual fuel consumption | MMBtu/hr x hr/yr |
| 3.76 | MMscf/yr | Annual fuel consumption | scf/hr x hr/yr / 1,000,000 |
| 900 | Btu/scf | Field gas heating value | Nominal heat content |

**Steady-State Emission Rates**

| Pollutants | Emission Factors, lb/day | Uncontrolled Emission Rates, pph | tpy |
|---|---|---|---|
| NOX | 1.03 | 4.29E-02 | 0.188 |
| CO | 0.78 | 3.25E-02 | 0.142 |
| VOC | 0.12 | 4.79E-03 | 2.10E-02 |
| SO2 | 0.02 | 8.33E-04 | 3.65E-03 |

NOX emission factor taken from August 1994 Enertek Letter
CO, TOC and SO2 emission factors taken from July 1998 InFab Letter
VOC lb/day = 50% of TOC emissions, consistent with AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/day / 24 hr/day
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

| Pollutants | Emission Factors, lb/MMscf | Uncontrolled Emission Rates, pph | tpy |
|---|---|---|---|
| TSP | 7.60 | 3.26E-03 | 1.43E-02 |
| PM10 | 7.60 | 3.26E-03 | 1.43E-02 |
| PM2.5 | 7.60 | 3.26E-03 | 1.43E-02 |
| Lead | 5.00E-04 | 2.15E-07 | 9.40E-07 |

Emission factors taken from AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

**Exhaust Parameters**

| | | | |
|---|---|---|---|
| 600 | °F | Exhaust temperature | Mfg. data (Enertek & InFab) |
| 200 | cfm | Stack flowrate | fps x ft^2 x 60 sec/min |
| 0.83 | ft | Stack diameter | Mfg. data (InFab) |
| 6.1 | fps | Stack velocity | Mfg. data (Enertek & InFab) |
| 20 | ft | Stack height | Mfg. data (InFab) |

# GRI-HAPCalc ® 3.01
# External Combustion Devices Report

| | | |
|---|---|---|
| **Facility ID:** | **31-6 CDP** | **Notes:** |
| **Operation Type:** | **COMPRESSOR STATION** | |
| **Facility Name:** | **31-6 CENTRAL DELIVERY POINT** | |
| **User Name:** | **Cirrus** | |
| **Units of Measure:** | **U.S. STANDARD** | |

***Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0". Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".***

## External Combustion Devices

Unit Name: 429 SCFH

| | | |
|---|---|---|
| Hours of Operation: | 8,760 | Yearly |
| Heat Input: | ********* | MMBtu/hr |
| Fuel Type: | NATURAL GAS | |
| Device Type: | BURNER | |
| Emission Factor Set: | EPA > FIELD > LITERATURE | |
| Additional EF Set: | -NONE- | |

## Calculated Emissions (ton/yr)

| Chemical Name | Emissions | Emission Factor | | Emission Factor Set |
|---|---|---|---|---|
| **HAPs** | | | | |
| 7,12-Dimethylbenz(a)anthracene | 0.0000 | 0.0000000157 | lb/MMBtu | EPA |
| Formaldehyde | 0.0001 | 0.0000735294 | lb/MMBtu | EPA |
| Methanol | 0.0007 | 0.0004333330 | lb/MMBtu | GRI Field |
| Acetaldehyde | 0.0005 | 0.0002909000 | lb/MMBtu | GRI Field |
| 1,3-Butadiene | 0.0000 | 0.0000001830 | lb/MMBtu | GRI Field |
| Benzene | 0.0000 | 0.0000020588 | lb/MMBtu | EPA |
| Toluene | 0.0000 | 0.0000033333 | lb/MMBtu | EPA |
| Ethylbenzene | 0.0000 | 0.0000000720 | lb/MMBtu | GRI Field |
| Xylenes(m,p,o) | 0.0000 | 0.0000010610 | lb/MMBtu | GRI Field |
| 2,2,4-Trimethylpentane | 0.0001 | 0.0000323000 | lb/MMBtu | GRI Field |
| n-Hexane | 0.0030 | 0.0017647059 | lb/MMBtu | EPA |
| Phenol | 0.0000 | 0.0000000950 | lb/MMBtu | GRI Field |
| Naphthalene | 0.0000 | 0.0000005980 | lb/MMBtu | EPA |
| 2-Methylnaphthalene | 0.0000 | 0.0000000235 | lb/MMBtu | EPA |
| Biphenyl | 0.0000 | 0.0000011500 | lb/MMBtu | GRI Field |
| Phenanthrene | 0.0000 | 0.0000000167 | lb/MMBtu | EPA |
| Pyrene | 0.0000 | 0.0000000049 | lb/MMBtu | EPA |
| Lead | 0.0000 | 0.0000004902 | lb/MMBtu | EPA |
| **Total** | 0.0044 | | | |
| **Criteria Pollutants** | | | | |
| VOC | 0.0092 | 0.0053921569 | lb/MMBtu | EPA |
| PM | 0.0127 | 0.0074509804 | lb/MMBtu | EPA |
| PM, Condensible | 0.0095 | 0.0055882353 | lb/MMBtu | EPA |
| PM, Filterable | 0.0032 | 0.0018627451 | lb/MMBtu | EPA |
| CO | 0.1407 | 0.0823529410 | lb/MMBtu | EPA |

| | | | | |
|---|---|---|---|---|
| NMHC | 0.0146 | 0.0085294118 | lb/MMBtu | EPA |
| NOx | 0.1675 | 0.0980392157 | lb/MMBtu | EPA |
| SO2 | 0.0010 | 0.0005880000 | lb/MMBtu | EPA |

## Other Pollutants

| | | | | |
|---|---|---|---|---|
| Dichlorobenzene | 0.0000 | 0.0000011765 | lb/MMBtu | EPA |
| Methane | 0.0039 | 0.0022549020 | lb/MMBtu | EPA |
| Acetylene | 0.0091 | 0.0053314000 | lb/MMBtu | GRI Field |
| Ethylene | 0.0009 | 0.0005264000 | lb/MMBtu | GRI Field |
| Ethane | 0.0052 | 0.0030392157 | lb/MMBtu | EPA |
| Propylene | 0.0016 | 0.0009333330 | lb/MMBtu | GRI Field |
| Propane | 0.0027 | 0.0015686275 | lb/MMBtu | EPA |
| Butane | 0.0035 | 0.0020588235 | lb/MMBtu | EPA |
| Cyclopentane | 0.0001 | 0.0000405000 | lb/MMBtu | GRI Field |
| Pentane | 0.0044 | 0.0025490196 | lb/MMBtu | EPA |
| n-Pentane | 0.0034 | 0.0020000000 | lb/MMBtu | GRI Field |
| Cyclohexane | 0.0001 | 0.0000451000 | lb/MMBtu | GRI Field |
| Methylcyclohexane | 0.0003 | 0.0001691000 | lb/MMBtu | GRI Field |
| n-Octane | 0.0001 | 0.0000506000 | lb/MMBtu | GRI Field |
| n-Nonane | 0.0000 | 0.0000050000 | lb/MMBtu | GRI Field |
| CO2 | 200.9647 | 117.6470588235 | lb/MMBtu | EPA |

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 31-6 EU 31 30mm PTE Gas 2020-07-10
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 31-6\TITLE V\2021-04 Apr Title V mod & renewal\Analysis & Info\GLYCalc\31-6 EU 31 30mm PTE Gas 2020-07-10.ddf
Date: April 07, 2021

DESCRIPTION:

Description: 31-6 EU 31 (slot 7) 30mmcd dehy PTE
July 10, 2020 gas blend,
2020 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 104.60 deg. F
Pressure: 314.30 psig
Wet Gas Water Content: Saturated

| Component | Conc. (vol %) |
|---|---|
| Carbon Dioxide | 6.4949 |
| Nitrogen | 0.0994 |
| Methane | 91.9113 |
| Ethane | 1.2077 |
| Propane | 0.2042 |
| Isobutane | 0.0315 |
| n-Butane | 0.0260 |
| Isopentane | 0.0094 |
| n-Pentane | 0.0043 |
| Cyclopentane | 0.0002 |
| n-Hexane | 0.0012 |
| Cyclohexane | 0.0006 |
| Other Hexanes | 0.0032 |
| Heptanes | 0.0014 |
| Methylcyclohexane | 0.0014 |
| Benzene | 0.0005 |
| Toluene | 0.0008 |
| Ethylbenzene | 0.0001 |
| Xylenes | 0.0004 |
| C8+ Heavies | 0.0016 |

DRY GAS:

Flow Rate: 30.0 MMSCF/day
Water Content: 6.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.5 gpm

PUMP:

---

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.130 acfm gas/gpm glycol

FLASH TANK:

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Flash Control: Recycle/recompression
Temperature: 96.2 deg. F
Pressure: 31.2 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 EU 31 30mm PTE Gas 2020-07-10
File Name: C:\Users\user\Documents\Cirrus\Permit applications\New Mexico\Harvest Four Corners\0 0 31-6\TITLE V\2021-04 Apr Title V mod & renewal\Analysis & Info\GLYCalc\31-6 EU 31 30mm PTE Gas 2020-07-10.ddf
Date: April 07, 2021

DESCRIPTION:

Description: 31-6 EU 31 (slot 7) 30mmcd dehy PTE
July 10, 2020 gas blend,
2020 Avg DPT parameters

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

| Component | lbs/hr | lbs/day | tons/yr |
|---|---|---|---|
| Methane | 0.2539 | 6.093 | 1.1120 |
| Ethane | 0.0241 | 0.578 | 0.1055 |
| Propane | 0.0210 | 0.503 | 0.0918 |
| Isobutane | 0.0075 | 0.180 | 0.0328 |
| n-Butane | 0.0093 | 0.224 | 0.0408 |
| Isopentane | 0.0050 | 0.120 | 0.0219 |
| n-Pentane | 0.0032 | 0.078 | 0.0142 |
| Cyclopentane | 0.0008 | 0.020 | 0.0037 |
| n-Hexane | 0.0025 | 0.060 | 0.0109 |
| Cyclohexane | 0.0070 | 0.168 | 0.0306 |
| Other Hexanes | 0.0044 | 0.105 | 0.0191 |
| Heptanes | 0.0087 | 0.209 | 0.0382 |
| Methylcyclohexane | 0.0257 | 0.617 | 0.1126 |
| Benzene | 0.0680 | 1.631 | 0.2976 |
| Toluene | 0.2034 | 4.881 | 0.8908 |
| Ethylbenzene | 0.0478 | 1.147 | 0.2093 |
| Xylenes | 0.2888 | 6.932 | 1.2650 |
| C8+ Heavies | 0.1891 | 4.538 | 0.8282 |
| Total Emissions | 1.1701 | 28.083 | 5.1251 |
| Total Hydrocarbon Emissions | 1.1701 | 28.083 | 5.1251 |
| Total VOC Emissions | 0.8921 | 21.411 | 3.9076 |
| Total HAP Emissions | 0.6104 | 14.650 | 2.6737 |
| Total BTEX Emissions | 0.6079 | 14.591 | 2.6628 |

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

| Component | lbs/hr | lbs/day | tons/yr |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Methane | 25.7358 | 617.660 | 112.7229 |
| Ethane | 0.7317 | 17.561 | 3.2050 |
| Propane | 0.2165 | 5.197 | 0.9484 |
| Isobutane | 0.0498 | 1.196 | 0.2182 |
| n-Butane | 0.0455 | 1.093 | 0.1995 |
| Isopentane | 0.0211 | 0.506 | 0.0924 |
| n-Pentane | 0.0106 | 0.255 | 0.0465 |
| Cyclopentane | 0.0009 | 0.021 | 0.0038 |
| n-Hexane | 0.0044 | 0.106 | 0.0193 |
| Cyclohexane | 0.0037 | 0.090 | 0.0164 |
| Other Hexanes | 0.0106 | 0.253 | 0.0463 |
| Heptanes | 0.0075 | 0.180 | 0.0329 |
| Methylcyclohexane | 0.0101 | 0.243 | 0.0444 |
| Benzene | 0.0032 | 0.077 | 0.0141 |
| Toluene | 0.0061 | 0.146 | 0.0266 |
| Ethylbenzene | 0.0008 | 0.019 | 0.0035 |
| Xylenes | 0.0030 | 0.072 | 0.0132 |
| C8+ Heavies | 0.0197 | 0.473 | 0.0864 |
| Total Emissions | 26.8812 | 645.149 | 117.7397 |
| Total Hydrocarbon Emissions | 26.8812 | 645.149 | 117.7397 |
| Total VOC Emissions | 0.4137 | 9.928 | 1.8119 |
| Total HAP Emissions | 0.0175 | 0.420 | 0.0767 |
| Total BTEX Emissions | 0.0131 | 0.314 | 0.0574 |

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

| Component | lbs/hr | lbs/day | tons/yr |
|---|---|---|---|
| Methane | 0.2539 | 6.093 | 1.1120 |
| Ethane | 0.0241 | 0.578 | 0.1055 |
| Propane | 0.0210 | 0.503 | 0.0918 |
| Isobutane | 0.0075 | 0.180 | 0.0328 |
| n-Butane | 0.0093 | 0.224 | 0.0408 |
| Isopentane | 0.0050 | 0.120 | 0.0219 |
| n-Pentane | 0.0032 | 0.078 | 0.0142 |
| Cyclopentane | 0.0008 | 0.020 | 0.0037 |
| n-Hexane | 0.0025 | 0.060 | 0.0109 |
| Cyclohexane | 0.0070 | 0.168 | 0.0306 |
| Other Hexanes | 0.0044 | 0.105 | 0.0191 |
| Heptanes | 0.0087 | 0.209 | 0.0382 |
| Methylcyclohexane | 0.0257 | 0.617 | 0.1126 |
| Benzene | 0.0680 | 1.631 | 0.2976 |
| Toluene | 0.2034 | 4.881 | 0.8908 |
| Ethylbenzene | 0.0478 | 1.147 | 0.2093 |
| Xylenes | 0.2888 | 6.932 | 1.2650 |
| C8+ Heavies | 0.1891 | 4.538 | 0.8282 |
| Total Emissions | 1.1701 | 28.083 | 5.1251 |
| Total Hydrocarbon Emissions | 1.1701 | 28.083 | 5.1251 |
| Total VOC Emissions | 0.8921 | 21.411 | 3.9076 |
| Total HAP Emissions | 0.6104 | 14.650 | 2.6737 |
| Total BTEX Emissions | 0.6079 | 14.591 | 2.6628 |

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

| Component | Uncontrolled tons/yr | Controlled tons/yr | % Reduction |
|---|---|---|---|
| Methane | 113.8349 | 1.1120 | 99.02 |
| Ethane | 3.3104 | 0.1055 | 96.81 |
| Propane | 1.0403 | 0.0918 | 91.17 |
| Isobutane | 0.2511 | 0.0328 | 86.93 |
| n-Butane | 0.2403 | 0.0408 | 83.01 |
| Isopentane | 0.1142 | 0.0219 | 80.84 |
| n-Pentane | 0.0607 | 0.0142 | 76.60 |
| Cyclopentane | 0.0075 | 0.0037 | 50.82 |
| n-Hexane | 0.0302 | 0.0109 | 63.85 |
| Cyclohexane | 0.0470 | 0.0306 | 34.83 |
| Other Hexanes | 0.0654 | 0.0191 | 70.77 |
| Heptanes | 0.0711 | 0.0382 | 46.32 |
| Methylcyclohexane | 0.1570 | 0.1126 | 28.30 |
| Benzene | 0.3117 | 0.2976 | 4.52 |
| Toluene | 0.9174 | 0.8908 | 2.90 |
| Ethylbenzene | 0.2128 | 0.2093 | 1.65 |
| Xylenes | 1.2782 | 1.2650 | 1.03 |
| C8+ Heavies | 0.9145 | 0.8282 | 9.44 |
| Total Emissions | 122.8648 | 5.1251 | 95.83 |
| Total Hydrocarbon Emissions | 122.8648 | 5.1251 | 95.83 |
| Total VOC Emissions | 5.7194 | 3.9076 | 31.68 |
| Total HAP Emissions | 2.7504 | 2.6737 | 2.79 |
| Total BTEX Emissions | 2.7202 | 2.6628 | 2.11 |

EQUIPMENT REPORTS:

ABSORBER

| | | |
|---|---|---|
| Calculated Absorber Stages: | 4.14 | |
| Specified Dry Gas Dew Point: | 6.00 | lbs. H2O/MMSCF |
| Temperature: | 104.6 | deg. F |
| Pressure: | 314.3 | psig |
| Dry Gas Flow Rate: | 30.0000 | MMSCF/day |
| Glycol Losses with Dry Gas: | 0.1981 | lb/hr |
| Wet Gas Water Content: | Saturated | |
| Calculated Wet Gas Water Content: | 171.03 | lbs. H2O/MMSCF |
| Calculated Lean Glycol Recirc. Ratio: | 1.02 | gal/lb H2O |

| Component | Remaining in Dry Gas | Absorbed in Glycol |
|---|---|---|
| Water | 3.50% | 96.50% |
| Carbon Dioxide | 99.94% | 0.06% |
| Nitrogen | 100.00% | 0.00% |
| Methane | 100.00% | 0.00% |
| Ethane | 99.99% | 0.01% |
| Propane | 99.97% | 0.03% |
| Isobutane | 99.95% | 0.05% |
| n-Butane | 99.94% | 0.06% |
| Isopentane | 99.93% | 0.07% |
| n-Pentane | 99.91% | 0.09% |
| Cyclopentane | 99.68% | 0.32% |
| n-Hexane | 99.85% | 0.15% |

| | | |
|---|---|---|
| Cyclohexane | 99.40% | 0.60% |
| Other Hexanes | 99.89% | 0.11% |
| Heptanes | 99.70% | 0.30% |
| Methylcyclohexane | 99.26% | 0.74% |
| Benzene | 94.52% | 5.48% |
| Toluene | 91.42% | 8.58% |
| Ethylbenzene | 86.16% | 13.84% |
| Xylenes | 79.18% | 20.82% |
| C8+ Heavies | 97.72% | 2.28% |

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 96.2 deg. F
Flash Pressure: 31.2 psig

| Component | Left in Glycol | Removed in Flash Gas |
|---|---|---|
| Water | 99.93% | 0.07% |
| Carbon Dioxide | 13.74% | 86.26% |
| Nitrogen | 0.85% | 99.15% |
| Methane | 0.98% | 99.02% |
| Ethane | 3.19% | 96.81% |
| Propane | 8.83% | 91.17% |
| Isobutane | 13.07% | 86.93% |
| n-Butane | 16.99% | 83.01% |
| Isopentane | 19.39% | 80.61% |
| n-Pentane | 23.64% | 76.36% |
| Cyclopentane | 49.41% | 50.59% |
| n-Hexane | 36.39% | 63.61% |
| Cyclohexane | 66.20% | 33.80% |
| Other Hexanes | 29.73% | 70.27% |
| Heptanes | 53.88% | 46.12% |
| Methylcyclohexane | 72.76% | 27.24% |
| Benzene | 95.70% | 4.30% |
| Toluene | 97.33% | 2.67% |
| Ethylbenzene | 98.52% | 1.48% |
| Xylenes | 99.10% | 0.90% |
| C8+ Heavies | 91.67% | 8.33% |

REGENERATOR

No Stripping Gas used in regenerator.

| Component | Remaining in Glycol | Distilled Overhead |
|---|---|---|
| Water | 12.49% | 87.51% |
| Carbon Dioxide | 0.00% | 100.00% |
| Nitrogen | 0.00% | 100.00% |
| Methane | 0.00% | 100.00% |
| Ethane | 0.00% | 100.00% |
| Propane | 0.00% | 100.00% |
| Isobutane | 0.00% | 100.00% |
| n-Butane | 0.00% | 100.00% |
| Isopentane | 1.48% | 98.52% |

| | | |
|---|---|---|
| n-Pentane | 1.34% | 98.66% |
| Cyclopentane | 0.88% | 99.12% |
| n-Hexane | 1.04% | 98.96% |
| Cyclohexane | 4.47% | 95.53% |
| Other Hexanes | 2.35% | 97.65% |
| Heptanes | 0.80% | 99.20% |
| Methylcyclohexane | 5.17% | 94.83% |
| Benzene | 5.18% | 94.82% |
| Toluene | 8.08% | 91.92% |
| Ethylbenzene | 10.54% | 89.46% |
| Xylenes | 13.03% | 86.97% |
| C8+ Heavies | 12.86% | 87.14% |

STREAM REPORTS:

WET GAS STREAM

Temperature: 104.60 deg. F
Pressure: 329.00 psia
Flow Rate: 1.25e+006 scfh

| Component | Conc. (vol%) | Loading (lb/hr) |
|---|---|---|
| Water | 3.60e-001 | 2.15e+002 |
| Carbon Dioxide | 6.47e+000 | 9.42e+003 |
| Nitrogen | 9.90e-002 | 9.17e+001 |
| Methane | 9.16e+001 | 4.86e+004 |
| Ethane | 1.20e+000 | 1.20e+003 |
| Propane | 2.03e-001 | 2.97e+002 |
| Isobutane | 3.14e-002 | 6.03e+001 |
| n-Butane | 2.59e-002 | 4.98e+001 |
| Isopentane | 9.37e-003 | 2.23e+001 |
| n-Pentane | 4.28e-003 | 1.02e+001 |
| Cyclopentane | 1.99e-004 | 4.62e-001 |
| n-Hexane | 1.20e-003 | 3.41e+000 |
| Cyclohexane | 5.98e-004 | 1.66e+000 |
| Other Hexanes | 3.19e-003 | 9.09e+000 |
| Heptanes | 1.39e-003 | 4.62e+000 |
| Methylcyclohexane | 1.39e-003 | 4.53e+000 |
| Benzene | 4.98e-004 | 1.29e+000 |
| Toluene | 7.97e-004 | 2.43e+000 |
| Ethylbenzene | 9.96e-005 | 3.50e-001 |
| Xylenes | 3.99e-004 | 1.40e+000 |
| C8+ Heavies | 1.59e-003 | 8.98e+000 |
| Total Components | 100.00 | 6.00e+004 |

DRY GAS STREAM

Temperature: 104.60 deg. F
Pressure: 329.00 psia
Flow Rate: 1.25e+006 scfh

| Component | Conc. | Loading |
|---|---|---|

| | (vol%) | (lb/hr) |
|---|---|---|
| Water | 1.26e-002 | 7.50e+000 |
| Carbon Dioxide | 6.49e+000 | 9.41e+003 |
| Nitrogen | 9.94e-002 | 9.17e+001 |
| Methane | 9.19e+001 | 4.86e+004 |
| Ethane | 1.21e+000 | 1.20e+003 |
| Propane | 2.04e-001 | 2.97e+002 |
| Isobutane | 3.15e-002 | 6.03e+001 |
| n-Butane | 2.60e-002 | 4.98e+001 |
| Isopentane | 9.39e-003 | 2.23e+001 |
| n-Pentane | 4.30e-003 | 1.02e+001 |
| Cyclopentane | 1.99e-004 | 4.61e-001 |
| n-Hexane | 1.20e-003 | 3.40e+000 |
| Cyclohexane | 5.96e-004 | 1.65e+000 |
| Other Hexanes | 3.20e-003 | 9.08e+000 |
| Heptanes | 1.40e-003 | 4.61e+000 |
| Methylcyclohexane | 1.39e-003 | 4.50e+000 |
| Benzene | 4.73e-004 | 1.22e+000 |
| Toluene | 7.31e-004 | 2.22e+000 |
| Ethylbenzene | 8.62e-005 | 3.01e-001 |
| Xylenes | 3.17e-004 | 1.11e+000 |
| C8+ Heavies | 1.56e-003 | 8.77e+000 |
| Total Components | 100.00 | 5.98e+004 |

LEAN GLYCOL STREAM

Temperature: 104.60 deg. F
Flow Rate: 3.50e+000 gpm

| Component | Conc. (wt%) | Loading (lb/hr) |
|---|---|---|
| TEG | 9.85e+001 | 1.94e+003 |
| Water | 1.50e+000 | 2.96e+001 |
| Carbon Dioxide | 2.76e-011 | 5.43e-010 |
| Nitrogen | 1.69e-014 | 3.34e-013 |
| Methane | 3.14e-018 | 6.18e-017 |
| Ethane | 3.85e-009 | 7.59e-008 |
| Propane | 1.86e-010 | 3.66e-009 |
| Isobutane | 4.16e-011 | 8.20e-010 |
| n-Butane | 3.79e-011 | 7.47e-010 |
| Isopentane | 3.82e-006 | 7.52e-005 |
| n-Pentane | 2.24e-006 | 4.41e-005 |
| Cyclopentane | 3.79e-007 | 7.46e-006 |
| n-Hexane | 1.32e-006 | 2.61e-005 |
| Cyclohexane | 1.66e-005 | 3.27e-004 |
| Other Hexanes | 5.33e-006 | 1.05e-004 |
| Heptanes | 3.55e-006 | 7.00e-005 |
| Methylcyclohexane | 7.10e-005 | 1.40e-003 |
| Benzene | 1.88e-004 | 3.71e-003 |
| Toluene | 9.07e-004 | 1.79e-002 |
| Ethylbenzene | 2.86e-004 | 5.63e-003 |
| Xylenes | 2.20e-003 | 4.33e-002 |
| C8+ Heavies | 1.42e-003 | 2.79e-002 |
| Total Components | 100.00 | 1.97e+003 |

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 104.60 deg. F
Pressure: 329.00 psia
Flow Rate: 3.98e+000 gpm
NOTE: Stream has more than one phase.

| Component | Conc. (wt%) | Loading (lb/hr) |
|---|---|---|
| TEG | 8.76e+001 | 1.93e+003 |
| Water | 1.07e+001 | 2.37e+002 |
| Carbon Dioxide | 4.58e-001 | 1.01e+001 |
| Nitrogen | 2.22e-003 | 4.90e-002 |
| Methane | 1.18e+000 | 2.60e+001 |
| Ethane | 3.42e-002 | 7.56e-001 |
| Propane | 1.07e-002 | 2.38e-001 |
| Isobutane | 2.59e-003 | 5.73e-002 |
| n-Butane | 2.48e-003 | 5.49e-002 |
| Isopentane | 1.18e-003 | 2.62e-002 |
| n-Pentane | 6.29e-004 | 1.39e-002 |
| Cyclopentane | 7.80e-005 | 1.72e-003 |
| n-Hexane | 3.13e-004 | 6.91e-003 |
| Cyclohexane | 5.01e-004 | 1.11e-002 |
| Other Hexanes | 6.80e-004 | 1.50e-002 |
| Heptanes | 7.38e-004 | 1.63e-002 |
| Methylcyclohexane | 1.69e-003 | 3.72e-002 |
| Benzene | 3.39e-003 | 7.49e-002 |
| Toluene | 1.03e-002 | 2.27e-001 |
| Ethylbenzene | 2.45e-003 | 5.42e-002 |
| Xylenes | 1.52e-002 | 3.35e-001 |
| C8+ Heavies | 1.07e-002 | 2.37e-001 |
| Total Components | 100.00 | 2.21e+003 |

FLASH TANK OFF GAS STREAM

Temperature: 96.20 deg. F
Pressure: 45.90 psia
Flow Rate: 7.00e+002 scfh

| Component | Conc. (vol%) | Loading (lb/hr) |
|---|---|---|
| Water | 4.87e-001 | 1.62e-001 |
| Carbon Dioxide | 1.07e+001 | 8.72e+000 |
| Nitrogen | 9.39e-002 | 4.85e-002 |
| Methane | 8.69e+001 | 2.57e+001 |
| Ethane | 1.32e+000 | 7.32e-001 |
| Propane | 2.66e-001 | 2.17e-001 |
| Isobutane | 4.65e-002 | 4.98e-002 |
| n-Butane | 4.25e-002 | 4.55e-002 |
| Isopentane | 1.58e-002 | 2.11e-002 |
| n-Pentane | 7.98e-003 | 1.06e-002 |
| Cyclopentane | 6.73e-004 | 8.72e-004 |
| n-Hexane | 2.77e-003 | 4.40e-003 |
| Cyclohexane | 2.41e-003 | 3.74e-003 |
| Other Hexanes | 6.64e-003 | 1.06e-002 |
| Heptanes | 4.06e-003 | 7.52e-003 |
| Methylcyclohexane | 5.60e-003 | 1.01e-002 |

| | | |
|---|---|---|
| Benzene | 2.23e-003 | 3.22e-003 |
| Toluene | 3.57e-003 | 6.07e-003 |
| Ethylbenzene | 4.09e-004 | 8.02e-004 |
| Xylenes | 1.54e-003 | 3.01e-003 |
| C8+ Heavies | 6.27e-003 | 1.97e-002 |
| Total Components | 100.00 | 3.58e+001 |

FLASH TANK GLYCOL STREAM

Temperature: 96.20 deg. F
Flow Rate: 3.90e+000 gpm

| Component | Conc. (wt%) | Loading (lb/hr) | (ppm) |
|---|---|---|---|
| TEG | 8.90e+001 | 1.93e+003 | 889937. |
| Water | 1.09e+001 | 2.37e+002 | 108839. |
| Carbon Dioxide | 6.39e-002 | 1.39e+000 | 639. |
| Nitrogen | 1.92e-005 | 4.17e-004 | 0. |
| Methane | 1.17e-002 | 2.54e-001 | 117. |
| Ethane | 1.11e-003 | 2.41e-002 | 11. |
| Propane | 9.65e-004 | 2.10e-002 | 10. |
| Isobutane | 3.45e-004 | 7.49e-003 | 3. |
| n-Butane | 4.29e-004 | 9.32e-003 | 4. |
| Isopentane | 2.33e-004 | 5.07e-003 | 2. |
| n-Pentane | 1.51e-004 | 3.29e-003 | 2. |
| Cyclopentane | 3.92e-005 | 8.51e-004 | 0. |
| n-Hexane | 1.16e-004 | 2.52e-003 | 1. |
| Cyclohexane | 3.37e-004 | 7.32e-003 | 3. |
| Other Hexanes | 2.06e-004 | 4.47e-003 | 2. |
| Heptanes | 4.04e-004 | 8.78e-003 | 4. |
| Methylcyclohexane | 1.25e-003 | 2.71e-002 | 12. |
| Benzene | 3.30e-003 | 7.17e-002 | 33. |
| Toluene | 1.02e-002 | 2.21e-001 | 102. |
| Ethylbenzene | 2.46e-003 | 5.34e-002 | 25. |
| Xylenes | 1.53e-002 | 3.32e-001 | 153. |
| C8+ Heavies | 9.98e-003 | 2.17e-001 | 100. |
| Total Components | 100.00 | 2.17e+003 | 1000001. |

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 4.38e+003 scfh

| Component | Conc. (vol%) | Loading (lb/hr) |
|---|---|---|
| Water | 9.95e+001 | 2.07e+002 |

| | | |
|---|---|---|
| Carbon Dioxide | 2.73e-001 | 1.39e+000 |
| Nitrogen | 1.29e-004 | 4.17e-004 |
| Methane | 1.37e-001 | 2.54e-001 |
| Ethane | 6.93e-003 | 2.41e-002 |
| Propane | 4.12e-003 | 2.10e-002 |
| Isobutane | 1.12e-003 | 7.49e-003 |
| n-Butane | 1.39e-003 | 9.32e-003 |
| Isopentane | 6.00e-004 | 5.00e-003 |
| n-Pentane | 3.89e-004 | 3.24e-003 |
| Cyclopentane | 1.04e-004 | 8.44e-004 |
| n-Hexane | 2.50e-004 | 2.49e-003 |
| Cyclohexane | 7.19e-004 | 6.99e-003 |
| Other Hexanes | 4.38e-004 | 4.36e-003 |
| Heptanes | 7.52e-004 | 8.71e-003 |
| Methylcyclohexane | 2.27e-003 | 2.57e-002 |
| Benzene | 7.53e-003 | 6.80e-002 |
| Toluene | 1.91e-002 | 2.03e-001 |
| Ethylbenzene | 3.90e-003 | 4.78e-002 |
| Xylenes | 2.35e-002 | 2.89e-001 |
| C8+ Heavies | 9.61e-003 | 1.89e-001 |
| Total Components | 100.00 | 2.10e+002 |

# Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 31b
Description: Dehydrator Reboiler (30 mmscfd)

Note: The data on this worksheet applies to each individual emissions unit identified above.

**Fuel Consumption**

| | | | |
|---|---|---|---|
| 0.400 | MMBtu/hr | Hourly heat rate | scf/hr x Btu/scf / 1,000,000 |
| 444 | scf/hr | Hourly fuel consumption | Est. burner fuel use |
| 8,760 | hr/yr | Annual operating time | Williams Four Corners LLC |
| 3,500 | MMBtu/yr | Annual fuel consumption | MMBtu/hr x hr/yr |
| 3.89 | MMscf/yr | Annual fuel consumption | scf/hr x hr/yr / 1,000,000 |
| 900 | Btu/scf | Field gas heating value | Nominal heat content |

**Steady-State Emission Rates**

| Pollutants | Emission Factors, lb/MMscf | Uncontrolled Emission Rates, pph | tpy |
|---|---|---|---|
| $NO_X$ | 100 | 0.044 | 0.194 |
| CO | 84 | 0.037 | 0.163 |
| VOC | 5.5 | 2.4E-03 | 1.1E-02 |
| $SO_2$ | 0.6 | 2.7E-04 | 1.2E-03 |

NOx and CO emission factors from AP-42, Table 1.4-1
VOC and SO2 emission factors from AP-42, Table 1.4-2
Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

| Pollutants | Emission Factors, lb/MMscf | Uncontrolled Emission Rates, pph | tpy |
|---|---|---|---|
| TSP | 7.60 | 3.37E-03 | 1.48E-02 |
| $PM_{10}$ | 7.60 | 3.37E-03 | 1.48E-02 |
| $PM_{2.5}$ | 7.60 | 3.37E-03 | 1.48E-02 |
| Lead | 5.00E-04 | 2.22E-07 | 9.72E-07 |

Emission factors taken from AP-42, Table 1.4-2
Emission Rates (pph) = lb/MMscf x (scf/hr / 1,000,000)
Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

**Exhaust Parameters**

| | | | |
|---|---|---|---|
| 600 | °F | Exhaust temperature | Mfg. data (Enertek & InFab) |
| 200 | cfm | Stack flowrate | Stack velocity x stack area |
| 0.83 | ft | Stack diameter | Mfg. data (InFab) |
| 6.1 | fps | Stack velocity | Mfg. data (Enertek & InFab) |
| 25 | ft | Stack height | Mfg. data (InFab) |

# GRI-HAPCalc ® 3.01
# External Combustion Devices Report

| | | |
|---|---|---|
| **Facility ID:** | **31-6 CDP** | **Notes:** |
| **Operation Type:** | **COMPRESSOR STATION** | |
| **Facility Name:** | **31-6 CENTRAL DELIVERY POINT** | |
| **User Name:** | **Cirrus** | |
| **Units of Measure:** | **U.S. STANDARD** | |

***Note: Emissions less than 5.00E-09 tons (or tonnes) per year are considered insignificant and are treated as zero. These emissions are indicated on the report with a "0". Emissions between 5.00E-09 and 5.00E-05 tons (or tonnes) per year are represented on the report with "0.0000".***

## External Combustion Devices

Unit Name: 444 SCFH

| | | |
|---|---|---|
| Hours of Operation: | 8,760 | Yearly |
| Heat Input: | 0.40 | MMBtu/hr |
| Fuel Type: | NATURAL GAS | |
| Device Type: | BURNER | |
| Emission Factor Set: | EPA > FIELD > LITERATURE | |
| Additional EF Set: | -NONE- | |

## Calculated Emissions (ton/yr)

| Chemical Name | Emissions | Emission Factor | Emission Factor Set |
|---|---|---|---|
| **HAPs** | | | |
| 7,12-Dimethylbenz(a)anthracene | 0.0000 | 0.0000000157 lb/MMBtu | EPA |
| Formaldehyde | 0.0001 | 0.0000735294 lb/MMBtu | EPA |
| Methanol | 0.0008 | 0.0004333330 lb/MMBtu | GRI Field |
| Acetaldehyde | 0.0005 | 0.0002909000 lb/MMBtu | GRI Field |
| 1,3-Butadiene | 0.0000 | 0.0000001830 lb/MMBtu | GRI Field |
| Benzene | 0.0000 | 0.0000020588 lb/MMBtu | EPA |
| Toluene | 0.0000 | 0.0000033333 lb/MMBtu | EPA |
| Ethylbenzene | 0.0000 | 0.0000000720 lb/MMBtu | GRI Field |
| Xylenes(m,p,o) | 0.0000 | 0.0000010610 lb/MMBtu | GRI Field |
| 2,2,4-Trimethylpentane | 0.0001 | 0.0000323000 lb/MMBtu | GRI Field |
| n-Hexane | 0.0031 | 0.0017647059 lb/MMBtu | EPA |
| Phenol | 0.0000 | 0.0000000950 lb/MMBtu | GRI Field |
| Naphthalene | 0.0000 | 0.0000005980 lb/MMBtu | EPA |
| 2-Methylnaphthalene | 0.0000 | 0.0000000235 lb/MMBtu | EPA |
| Biphenyl | 0.0000 | 0.0000011500 lb/MMBtu | GRI Field |
| Phenanthrene | 0.0000 | 0.0000000167 lb/MMBtu | EPA |
| Fluoranthene | 0.0000 | 0.0000000029 lb/MMBtu | EPA |
| Pyrene | 0.0000 | 0.0000000049 lb/MMBtu | EPA |
| Lead | 0.0000 | 0.0000004902 lb/MMBtu | EPA |
| **Total** | 0.0046 | | |
| **Criteria Pollutants** | | | |
| VOC | 0.0094 | 0.0053921569 lb/MMBtu | EPA |
| PM | 0.0131 | 0.0074509804 lb/MMBtu | EPA |
| PM, Condensible | 0.0098 | 0.0055882353 lb/MMBtu | EPA |
| PM, Filterable | 0.0033 | 0.0018627451 lb/MMBtu | EPA |

| | | | | |
|---|---|---|---|---|
| CO | 0.1443 | 0.0823529410 | lb/MMBtu | EPA |
| NMHC | 0.0149 | 0.0085294118 | lb/MMBtu | EPA |
| NOx | 0.1718 | 0.0980392157 | lb/MMBtu | EPA |
| SO2 | 0.0010 | 0.0005880000 | lb/MMBtu | EPA |

## Other Pollutants

| | | | | |
|---|---|---|---|---|
| Dichlorobenzene | 0.0000 | 0.0000011765 | lb/MMBtu | EPA |
| Methane | 0.0040 | 0.0022549020 | lb/MMBtu | EPA |
| Acetylene | 0.0093 | 0.0053314000 | lb/MMBtu | GRI Field |
| Ethylene | 0.0009 | 0.0005264000 | lb/MMBtu | GRI Field |
| Ethane | 0.0053 | 0.0030392157 | lb/MMBtu | EPA |
| Propylene | 0.0016 | 0.0009333330 | lb/MMBtu | GRI Field |
| Propane | 0.0027 | 0.0015686275 | lb/MMBtu | EPA |
| Butane | 0.0036 | 0.0020588235 | lb/MMBtu | EPA |
| Cyclopentane | 0.0001 | 0.0000405000 | lb/MMBtu | GRI Field |
| Pentane | 0.0045 | 0.0025490196 | lb/MMBtu | EPA |
| n-Pentane | 0.0035 | 0.0020000000 | lb/MMBtu | GRI Field |
| Cyclohexane | 0.0001 | 0.0000451000 | lb/MMBtu | GRI Field |
| Methylcyclohexane | 0.0003 | 0.0001691000 | lb/MMBtu | GRI Field |
| n-Octane | 0.0001 | 0.0000506000 | lb/MMBtu | GRI Field |
| n-Nonane | 0.0000 | 0.0000050000 | lb/MMBtu | GRI Field |
| CO2 | 206.1176 | 117.6470588235 | lb/MMBtu | EPA |

# Malfunction Emissions Data and Calculations

Unit Number: M1
Description: Malfunctions

**Emission Rates**

| Pollutants | Weight Percents, % | Uncontrolled Emission Rates, tpy |
|---|---|---|
| VOC | | 10.00 |
| 2,2,4-Trimethylpentane | 0.000E+00 | 0.00E+00 |
| Benzene | 2.669E-01 | 2.67E-02 |
| Ethylbenzene | 6.047E-02 | 6.05E-03 |
| n-Hexane | 7.361E-01 | 7.36E-02 |
| Toluene | 5.247E-01 | 5.25E-02 |
| Xylene | 3.023E-01 | 3.02E-02 |

Weight percents calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = VOC Emission Rate (tpy) x (% / 100)

**Gas Composition**

| Components | Mole Percents, % | Molecular Weights, lb/lb-mole | Component Weights, lb/lb-mole | Weight Percent, % |
|---|---|---|---|---|
| Carbon dioxide | 6.4949 | 44.01 | | |
| Hydrogen sulfide | 0.0000 | 34.07 | | |
| Nitrogen | 0.0994 | 28.01 | | |
| Methane | 91.9113 | 16.04 | | |
| Ethane | 1.2077 | 30.07 | | |
| Propane | 0.2042 | 44.09 | 0.0900 | 6.250E+01 |
| Isobutane | 0.0315 | 58.12 | 0.0183 | 1.271E+01 |
| n-Butane | 0.0260 | 58.12 | 0.0151 | 1.049E+01 |
| Isopentane | 0.0094 | 72.15 | 0.0068 | 4.725E+00 |
| n-Pentane | 0.0043 | 72.15 | 0.0031 | 2.137E+00 |
| Cyclopentane | 0.0002 | 70.14 | 0.0002 | 1.198E-01 |
| n-Hexane | 0.0012 | 86.17 | 0.0011 | 7.361E-01 |
| Cyclohexane | 0.0006 | 84.16 | 0.0005 | 3.355E-01 |
| Other hexanes | 0.0032 | 86.18 | 0.0028 | 1.914E+00 |
| Heptanes | 0.0014 | 100.20 | 0.0014 | 9.701E-01 |
| Methylcyclohexane | 0.0014 | 98.19 | 0.0014 | 9.506E-01 |
| 2,2,4-Trimethylpentane | 0.0000 | 100.21 | 0.0000 | 0.000E+00 |
| Benzene | 0.0005 | 78.11 | 0.0004 | 2.669E-01 |
| Toluene | 0.0008 | 92.14 | 0.0008 | 5.247E-01 |
| Ethylbenzene | 0.0001 | 106.17 | 0.0001 | 6.047E-02 |
| Xylenes | 0.0004 | 106.17 | 0.0004 | 3.023E-01 |
| C8+ Heavies | 0.0016 | 110.00 | 0.0018 | 1.253E+00 |
| Total | 100.0002 | | | |
| Total VOC | | | 0.1440 | |

Blended gas stream composition obtained from the 31-6 Straddle Suction & 31-6 Suction gas analyses sampled July 10, 2020.
Component Weights (lb/lb-mole) = (% / 100) x Molecular Weights (lb/lb-mole)
Weight Percents (%) = 100 x Component Weights (lb/lb-mole) / Total VOC Weight (lb/lb-mole)

# Storage Tank Emissions Summary

Unit Number: T17, T25, T43, T44, T50, T55 & T56
Description: Storage Tank Emissions (*Insignificant Source Demonstration* )

| | Source | Uncontrolled Working/Breathing Losses (lb/yr) | (ton/yr) | Uncontrolled Flash Losses (ton/yr) | Total Uncontrolled Emissions (ton/yr) |
|---|---|---|---|---|---|
| Tank T25 | Produced Water (12,600 gal) | | | | |
| VOC | | 17.68 | 8.84E-03 | N/A | 0.00884 |
| Benzene | | 0.02 | 1.00E-05 | N/A | 0.00001 |
| n-Hexane | | 2.40 | 1.20E-03 | N/A | 0.00120 |
| Toluene | | 0.01 | 5.00E-06 | N/A | 0.00001 |
| Tank T43 | Produced Water (12,600 gal) | | | | |
| VOC | | 17.68 | 8.84E-03 | N/A | 0.00884 |
| Benzene | | 0.02 | 1.00E-05 | N/A | 0.00001 |
| n-Hexane | | 2.40 | 1.20E-03 | N/A | 0.00120 |
| Toluene | | 0.01 | 5.00E-06 | N/A | 0.00001 |
| Tank T44 | Produced Water (1,680 gal) | | | | |
| VOC | | 17.68 | 8.84E-03 | N/A | 0.00884 |
| Benzene | | 0.02 | 1.00E-05 | N/A | 0.00001 |
| n-Hexane | | 2.40 | 1.20E-03 | N/A | 0.00120 |
| Toluene | | 0.01 | 5.00E-06 | N/A | 0.00001 |
| Tank T55 | Produced Water (12,600 gal) | | | | |
| VOC | | 17.68 | 8.84E-03 | N/A | 0.00884 |
| Benzene | | 0.02 | 1.00E-05 | N/A | 0.00001 |
| n-Hexane | | 2.40 | 1.20E-03 | N/A | 0.00120 |
| Toluene | | 0.01 | 5.00E-06 | N/A | 0.00001 |
| Tank T56 | Produced Water (12,600 gal) | | | | |
| VOC | | 17.68 | 8.84E-03 | N/A | 0.00884 |
| Benzene | | 0.02 | 1.00E-05 | N/A | 0.00001 |
| n-Hexane | | 2.40 | 1.20E-03 | N/A | 0.00120 |
| Toluene | | 0.01 | 5.00E-06 | N/A | 0.00001 |
| ***PRODUCED WATER TANK EMISSION TOTALS*** | | | | | |
| **VOC** | | 88.40 | 4.42E-02 | N/A | 0.04420 |
| **Benzene** | | 0.10 | 5.00E-05 | N/A | 0.00005 |
| **n-Hexane** | | 12.00 | 6.00E-03 | N/A | 0.00600 |
| **Toluene** | | 0.05 | 2.50E-05 | N/A | 0.00003 |
| Tank T17 | **Corrosion Inhibitor (500 gal)** | | | | |
| VOC | | 28.86 | 1.44E-02 | N/A | 1.44E-02 |
| Methanol | | 18.12 | 9.06E-03 | N/A | 9.06E-03 |
| Xylenes | | 0.19 | 9.50E-05 | N/A | 9.50E-05 |
| Tank T50 | **Methanol (500 gal)** | | | | |
| VOC | | 14.44 | 7.22E-03 | N/A | 7.22E-03 |
| Methanol | | 14.44 | 7.22E-03 | N/A | 7.22E-03 |

Working/breathing losses are calculated using TANKS 4.0.

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Tank Indentification and Physical Characteristics

**Identification**

| | |
|---|---|
| User Identification: | 31-6 T-25 Produced Water (300 bbl) 305340 gal thru |
| City: | Rio Arriba Co, T30N, R06W, Sec01 |
| State: | NM |
| Company: | Williams Four Corners |
| Type of Tank: | Vertical Fixed Roof Tank |
| Description: | 300 bbl (12600 gal) Produced Water tank 305,340 gal throughput |

**Tank Dimensions**

| | | |
|---|---|---|
| Shell Height (ft): | | 13.00 |
| Diameter (ft): | | 13.00 |
| Liquid Height (ft) : | | 12.00 |
| Avg. Liquid Height (ft): | | 6.50 |
| Volume (gallons): | | 12,600.00 |
| Turnovers: | | 24.23 |
| Net Throughput(gal/yr): | | 305,340.00 |
| Is Tank Heated (y/n): | N | |

**Paint Characteristics**

| | |
|---|---|
| Shell Color/Shade: | Gray/Medium |
| Shell Condition | Good |
| Roof Color/Shade: | Gray/Medium |
| Roof Condition: | Good |

**Roof Characteristics**

| | | |
|---|---|---|
| Type: | Cone | |
| Height (ft) | | 0.00 |
| Slope (ft/ft) (Cone Roof) | | 0.06 |

**Breather Vent Settings**

| | |
|---|---|
| Vacuum Settings (psig): | -0.03 |
| Pressure Settings (psig) | 0.03 |

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Liquid Contents of Storage Tank

## 31-6 T-25 Produced Water (300 bbl) 305340 gal thru - Vertical Fixed Roof Tank
## Rio Arriba Co, T30N, R06W, Sec01, NM

| Mixture/Component | Month | Daily Liquid Surf. Temperature (deg F) Avg. | Min. | Max. | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) Avg. | Min. | Max. | Vapor Mol. Weight. | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Produced Water | All | 67.36 | 53.93 | 80.79 | 59.23 | 0.3488 | 0.2187 | 0.5425 | 20.7692 | | | 18.15 | |
| Benzene | | | | | | 1.4274 | 0.9846 | 2.0237 | 78.1100 | 0.0001 | 0.0002 | 78.11 | Option 2: A=6.905, B=1211.033, C=220.79 |
| Butane | | | | | | 29.9323 | 23.3587 | 37.8099 | 58.1300 | 0.0008 | 0.0572 | 58.13 | Option 1: VP60 = 26.098 VP70 = 31.306 |
| Ethylbenzene | | | | | | 0.1396 | 0.0876 | 0.2162 | 106.1700 | 0.0000 | 0.0000 | 106.17 | Option 2: A=6.975, B=1424.255, C=213.21 |
| Hexane (-n) | | | | | | 2.3100 | 1.6303 | 3.2059 | 86.1700 | 0.0042 | 0.0244 | 86.17 | Option 2: A=6.876, B=1171.17, C=224.41 |
| Pentane (-n) | | | | | | 8.0308 | 5.9649 | 10.6537 | 72.1500 | 0.0049 | 0.0977 | 72.15 | Option 3: A=27691, B=7.558 |
| Toluene | | | | | | 0.4136 | 0.2726 | 0.6120 | 92.1300 | 0.0001 | 0.0001 | 92.13 | Option 2: A=6.954, B=1344.8, C=219.48 |
| Water | | | | | | 0.3305 | 0.2049 | 0.5188 | 18.0200 | 0.9900 | 0.8203 | 18.02 | Option 2: A=8.07131, B=1730.63, C=233.426 |
| Xylene (-m) | | | | | | 0.1165 | 0.0728 | 0.1813 | 106.1700 | 0.0000 | 0.0000 | 106.17 | Option 2: A=7.009, B=1462.266, C=215.11 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Detail Calculations (AP-42)

## 31-6 T-25 Produced Water (300 bbl) 305340 gal thru - Vertical Fixed Roof Tank
## Rio Arriba Co, T30N, R06W, Sec01, NM

Annual Emission Calcaulations

| | |
|---|---|
| Standing Losses (lb): | 45.5776 |
| Vapor Space Volume (cu ft): | 880.7340 |
| Vapor Density (lb/cu ft): | 0.0013 |
| Vapor Space Expansion Factor: | 0.1243 |
| Vented Vapor Saturation Factor: | 0.8907 |
| Tank Vapor Space Volume: | |
| Vapor Space Volume (cu ft): | 880.7340 |
| Tank Diameter (ft): | 13.0000 |
| Vapor Space Outage (ft): | 6.6354 |
| Tank Shell Height (ft): | 13.0000 |
| Average Liquid Height (ft): | 6.5000 |
| Roof Outage (ft): | 0.1354 |
| Roof Outage (Cone Roof) | |
| Roof Outage (ft): | 0.1354 |
| Roof Height (ft): | 0.0000 |
| Roof Slope (ft/ft): | 0.0625 |
| Shell Radius (ft): | 6.5000 |
| Vapor Density | |
| Vapor Density (lb/cu ft): | 0.0013 |
| Vapor Molecular Weight (lb/lb-mole): | 20.7692 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.3488 |
| Daily Avg. Liquid Surface Temp. (deg. R): | 527.0322 |
| Daily Average Ambient Temp. (deg. F): | 56.1542 |
| Ideal Gas Constant R (psia cuft / (lb-mol-deg R)): | 10.731 |
| Liquid Bulk Temperature (deg. R): | 518.9042 |
| Tank Paint Solar Absorptance (Shell): | 0.6800 |
| Tank Paint Solar Absorptance (Roof): | 0.6800 |
| Daily Total Solar Insulation Factor (Btu/sqft day): | 1,765.3167 |
| Vapor Space Expansion Factor | |
| Vapor Space Expansion Factor: | 0.1243 |
| Daily Vapor Temperature Range (deg. R): | 53.7176 |
| Daily Vapor Pressure Range (psia): | 0.3238 |
| Breather Vent Press. Setting Range(psia): | 0.0600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 0.3488 |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 0.2187 |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 0.5425 |
| Daily Avg. Liquid Surface Temp. (deg R): | 527.0322 |
| Daily Min. Liquid Surface Temp. (deg R): | 513.6028 |
| Daily Max. Liquid Surface Temp. (deg R): | 540.4617 |
| Daily Ambient Temp. Range (deg. R): | 27.9250 |
| Vented Vapor Saturation Factor | |
| Vented Vapor Saturation Factor: | 0.8907 |
| Vapor Pressure at Daily Average Liquid: Surface Temperature (psia): | 0.3488 |
| Vapor Space Outage (ft): | 6.6354 |
| Working Losses (lb): | 52.6595 |
| Vapor Molecular Weight (lb/lb-mole): | 20.7692 |
| Vapor Pressure at Daily Average Liquid | |

| | |
|---|---|
| Surface Temperature (psia): | 0.3488 |
| Annual Net Throughput (gal/yr.): | 305,340.0000 |
| Annual Turnovers: | 24.2333 |
| Turnover Factor: | 1.0000 |
| Maximum Liquid Volume (gal): | 12,600.0000 |
| Maximum Liquid Height (ft): | 12.0000 |
| Tank Diameter (ft): | 13.0000 |
| Working Loss Product Factor: | 1.0000 |

| | |
|---|---|
| Total Losses (lb): | 98.2371 |

# TANKS 4.0.9d
## Emissions Report - Detail Format
## Individual Tank Emission Totals

### Emissions Report for: Annual

**31-6 T-25 Produced Water (300 bbl) 305340 gal thru - Vertical Fixed Roof Tank**
**Rio Arriba Co, T30N, R06W, Sec01, NM**

| | Losses(lbs) | | |
|---|---|---|---|
| Components | Working Loss | Breathing Loss | Total Emissions |
| Produced Water | 52.66 | 45.58 | 98.24 |
| Benzene | 0.01 | 0.01 | 0.02 |
| Butane | 3.01 | 2.61 | 5.62 |
| Ethylbenzene | 0.00 | 0.00 | 0.00 |
| Hexane (-n) | 1.29 | 1.11 | 2.40 |
| Pentane (-n) | 5.15 | 4.45 | 9.60 |
| Toluene | 0.00 | 0.00 | 0.01 |
| Xylene (-m) | 0.00 | 0.00 | 0.00 |
| Water | 43.20 | 37.39 | 80.58 |

98.24 lb/yr total VOC + water
- 80.56 lb/yr water
= 17.68 lb/yr VOC

# TANKS 4.0.9d
## Emissions Report - Detail Format
## Tank Indentification and Physical Characteristics

**Identification**

| | |
|---|---|
| User Identification: | 31-6 T-50 Methanol (500 gal) |
| City: | Rio Arriba Co., T30N, R06W, Sec01 |
| State: | NM |
| Company: | Williams Four Corners |
| Type of Tank: | Vertical Fixed Roof Tank |
| Description: | 500 gal methanol tank 2,000 gal throughput |

**Tank Dimensions**

| | |
|---|---|
| Shell Height (ft): | 5.00 |
| Diameter (ft): | 4.50 |
| Liquid Height (ft) : | 4.00 |
| Avg. Liquid Height (ft): | 2.00 |
| Volume (gallons): | 500.00 |
| Turnovers: | 4.00 |
| Net Throughput(gal/yr): | 2,000.00 |
| Is Tank Heated (y/n): | N |

**Paint Characteristics**

| | |
|---|---|
| Shell Color/Shade: | White/White |
| Shell Condition | Good |
| Roof Color/Shade: | White/White |
| Roof Condition: | Good |

**Roof Characteristics**

| | |
|---|---|
| Type: | Cone |
| Height (ft) | 0.00 |
| Slope (ft/ft) (Cone Roof) | 0.06 |

**Breather Vent Settings**

| | |
|---|---|
| Vacuum Settings (psig): | -0.03 |
| Pressure Settings (psig) | 0.03 |

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Liquid Contents of Storage Tank

**31-6 T-50 Methanol (500 gal) - Vertical Fixed Roof Tank**
**Rio Arriba Co., T30N, R06W, Sec01, NM**

| Mixture/Component | Month | Daily Liquid Surf. Temperature (deg F) Avg. | Min. | Max. | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) Avg. | Min. | Max. | Vapor Mol. Weight. | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl alcohol | All | 58.54 | 51.41 | 65.66 | 56.17 | 1.3769 | 1.0943 | 1.7198 | 32.0400 | | | 32.04 | Option 2: A=7.897, B=1474.08, C=229.13 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Detail Calculations (AP-42)

## 31-6 T-50 Methanol (500 gal) - Vertical Fixed Roof Tank
## Rio Arriba Co., T30N, R06W, Sec01, NM

Annual Emission Calcaulations

| | |
|---|---|
| Standing Losses (lb): | 12.3406 |
| Vapor Space Volume (cu ft): | 48.4585 |
| Vapor Density (lb/cu ft): | 0.0079 |
| Vapor Space Expansion Factor: | 0.1075 |
| Vented Vapor Saturation Factor: | 0.8181 |
| Tank Vapor Space Volume: | |
| Vapor Space Volume (cu ft): | 48.4585 |
| Tank Diameter (ft): | 4.5000 |
| Vapor Space Outage (ft): | 3.0469 |
| Tank Shell Height (ft): | 5.0000 |
| Average Liquid Height (ft): | 2.0000 |
| Roof Outage (ft): | 0.0469 |
| Roof Outage (Cone Roof) | |
| Roof Outage (ft): | 0.0469 |
| Roof Height (ft): | 0.0000 |
| Roof Slope (ft/ft): | 0.0625 |
| Shell Radius (ft): | 2.2500 |
| Vapor Density | |
| Vapor Density (lb/cu ft): | 0.0079 |
| Vapor Molecular Weight (lb/lb-mole): | 32.0400 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 1.3769 |
| Daily Avg. Liquid Surface Temp. (deg. R): | 518.2062 |
| Daily Average Ambient Temp. (deg. F): | 56.1542 |
| Ideal Gas Constant R (psia cuft / (lb-mol-deg R)): | 10.731 |
| Liquid Bulk Temperature (deg. R): | 515.8442 |
| Tank Paint Solar Absorptance (Shell): | 0.1700 |
| Tank Paint Solar Absorptance (Roof): | 0.1700 |
| Daily Total Solar Insulation Factor (Btu/sqft day): | 1,765.3167 |
| Vapor Space Expansion Factor | |
| Vapor Space Expansion Factor: | 0.1075 |
| Daily Vapor Temperature Range (deg. R): | 28.5089 |
| Daily Vapor Pressure Range (psia): | 0.6255 |
| Breather Vent Press. Setting Range(psia): | 0.0600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 1.3769 |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 1.0943 |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 1.7198 |
| Daily Avg. Liquid Surface Temp. (deg R): | 518.2062 |
| Daily Min. Liquid Surface Temp. (deg R): | 511.0790 |
| Daily Max. Liquid Surface Temp. (deg R): | 525.3334 |
| Daily Ambient Temp. Range (deg. R): | 27.9250 |
| Vented Vapor Saturation Factor | |
| Vented Vapor Saturation Factor: | 0.8181 |
| Vapor Pressure at Daily Average Liquid: Surface Temperature (psia): | 1.3769 |
| Vapor Space Outage (ft): | 3.0469 |
| Working Losses (lb): | 2.1008 |
| Vapor Molecular Weight (lb/lb-mole): | 32.0400 |
| Vapor Pressure at Daily Average Liquid | |

| | |
|---|---|
| Surface Temperature (psia): | 1.3769 |
| Annual Net Throughput (gal/yr.): | 2,000.0000 |
| Annual Turnovers: | 4.0000 |
| Turnover Factor: | 1.0000 |
| Maximum Liquid Volume (gal): | 500.0000 |
| Maximum Liquid Height (ft): | 4.0000 |
| Tank Diameter (ft): | 4.5000 |
| Working Loss Product Factor: | 1.0000 |

| | |
|---|---|
| Total Losses (lb): | 14.4414 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Individual Tank Emission Totals

## Emissions Report for: Annual

**31-6 T-50 Methanol (500 gal) - Vertical Fixed Roof Tank**
**Rio Arriba Co., T30N, R06W, Sec01, NM**

| | Losses(lbs) | | |
|---|---|---|---|
| Components | Working Loss | Breathing Loss | Total Emissions |
| Methyl alcohol | 2.10 | 12.34 | 14.44 |

# TANKS 4.0.9d
## Emissions Report - Detail Format
## Tank Indentification and Physical Characteristics

**Identification**

| | |
|---|---|
| User Identification: | 31-6 T-17 Corrosion Inhibitor (500 gal) |
| City: | Rio Arriba Co., T30N, R06W, Sec01 |
| State: | NM |
| Company: | Williams Four Corners |
| Type of Tank: | Vertical Fixed Roof Tank |
| Description: | 500 gal corrosion inhibitor tank 2,000 gal throughput |

**Tank Dimensions**

| | |
|---|---|
| Shell Height (ft): | 5.00 |
| Diameter (ft): | 4.50 |
| Liquid Height (ft) : | 4.00 |
| Avg. Liquid Height (ft): | 2.00 |
| Volume (gallons): | 500.00 |
| Turnovers: | 4.00 |
| Net Throughput(gal/yr): | 2,000.00 |
| Is Tank Heated (y/n): | N |

**Paint Characteristics**

| | |
|---|---|
| Shell Color/Shade: | Gray/Medium |
| Shell Condition | Good |
| Roof Color/Shade: | Gray/Medium |
| Roof Condition: | Good |

**Roof Characteristics**

| | |
|---|---|
| Type: | Cone |
| Height (ft) | 0.00 |
| Slope (ft/ft) (Cone Roof) | 0.06 |

**Breather Vent Settings**

| | |
|---|---|
| Vacuum Settings (psig): | -0.03 |
| Pressure Settings (psig) | 0.03 |

Meterological Data used in Emissions Calculations: Albuquerque, New Mexico (Avg Atmospheric Pressure = 12.15 psia)

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Liquid Contents of Storage Tank

## 31-6 T-17 Corrosion Inhibitor (500 gal) - Vertical Fixed Roof Tank
## Rio Arriba Co., T30N, R06W, Sec01, NM

| Mixture/Component | Month | Daily Liquid Surf. Temperature (deg F) Avg. | Min. | Max. | Liquid Bulk Temp (deg F) | Vapor Pressure (psia) Avg. | Min. | Max. | Vapor Mol. Weight. | Liquid Mass Fract. | Vapor Mass Fract. | Mol. Weight | Basis for Vapor Pressure Calculations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Corrosion Inhibitor | All | 67.36 | 53.93 | 80.79 | 59.23 | 1.2967 | 0.8686 | 1.8803 | 41.3754 | | | 68.87 | |
| 1,2,3-Trimethylbenzene | | | | | | 0.0198 | 0.0114 | 0.0332 | 120.2000 | 0.0450 | 0.0011 | 120.20 | Option 2: A=7.04082, B=1593.958, C=207.078 |
| 1,2,4-Trimethylbenzene | | | | | | 0.0273 | 0.0160 | 0.0451 | 120.1900 | 0.2700 | 0.0095 | 120.19 | Option 2: A=7.04383, B=1573.267, C=208.56 |
| 1,3,5-Trimethylbenzene | | | | | | 0.0292 | 0.0171 | 0.0483 | 120.1900 | 0.0900 | 0.0034 | 120.19 | Option 2: A=7.07436, B=1573.622, C=208.564 |
| 1-Dodecanethiol | | | | | | 0.0000 | 0.0000 | 0.0001 | 202.4000 | 0.0100 | 0.0000 | 202.40 | Option 2: A=7.0244, B=1817.8, C=164.1 |
| Jet naphtha (JP-4) | | | | | | 1.5209 | 1.1180 | 1.9396 | 80.0000 | 0.2700 | 0.3514 | 120.00 | Option 1: VP60 = 1.3 VP70 = 1.6 |
| Methyl alcohol | | | | | | 1.8115 | 1.1881 | 2.6951 | 32.0400 | 0.2700 | 0.6279 | 32.04 | Option 2: A=7.897, B=1474.08, C=229.13 |
| Xylene (-m) | | | | | | 0.1165 | 0.0728 | 0.1813 | 106.1700 | 0.0450 | 0.0067 | 106.17 | Option 2: A=7.009, B=1462.266, C=215.11 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Detail Calculations (AP-42)

## 31-6 T-17 Corrosion Inhibitor (500 gal) - Vertical Fixed Roof Tank
## Rio Arriba Co., T30N, R06W, Sec01, NM

Annual Emission Calcaulations

| | |
|---|---|
| Standing Losses (lb): | 26.3064 |
| Vapor Space Volume (cu ft): | 48.4585 |
| Vapor Density (lb/cu ft): | 0.0095 |
| Vapor Space Expansion Factor: | 0.1896 |
| Vented Vapor Saturation Factor: | 0.8269 |
| Tank Vapor Space Volume: | |
| Vapor Space Volume (cu ft): | 48.4585 |
| Tank Diameter (ft): | 4.5000 |
| Vapor Space Outage (ft): | 3.0469 |
| Tank Shell Height (ft): | 5.0000 |
| Average Liquid Height (ft): | 2.0000 |
| Roof Outage (ft): | 0.0469 |
| Roof Outage (Cone Roof) | |
| Roof Outage (ft): | 0.0469 |
| Roof Height (ft): | 0.0000 |
| Roof Slope (ft/ft): | 0.0625 |
| Shell Radius (ft): | 2.2500 |
| Vapor Density | |
| Vapor Density (lb/cu ft): | 0.0095 |
| Vapor Molecular Weight (lb/lb-mole): | 41.3754 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 1.2967 |
| Daily Avg. Liquid Surface Temp. (deg. R): | 527.0322 |
| Daily Average Ambient Temp. (deg. F): | 56.1542 |
| Ideal Gas Constant R (psia cuft / (lb-mol-deg R)): | 10.731 |
| Liquid Bulk Temperature (deg. R): | 518.9042 |
| Tank Paint Solar Absorptance (Shell): | 0.6800 |
| Tank Paint Solar Absorptance (Roof): | 0.6800 |
| Daily Total Solar Insulation Factor (Btu/sqft day): | 1,765.3167 |
| Vapor Space Expansion Factor | |
| Vapor Space Expansion Factor: | 0.1896 |
| Daily Vapor Temperature Range (deg. R): | 53.7176 |
| Daily Vapor Pressure Range (psia): | 1.0118 |
| Breather Vent Press. Setting Range(psia): | 0.0600 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 1.2967 |
| Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia): | 0.8686 |
| Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia): | 1.8803 |
| Daily Avg. Liquid Surface Temp. (deg R): | 527.0322 |
| Daily Min. Liquid Surface Temp. (deg R): | 513.6028 |
| Daily Max. Liquid Surface Temp. (deg R): | 540.4617 |
| Daily Ambient Temp. Range (deg. R): | 27.9250 |
| Vented Vapor Saturation Factor | |
| Vented Vapor Saturation Factor: | 0.8269 |
| Vapor Pressure at Daily Average Liquid: Surface Temperature (psia): | 1.2967 |
| Vapor Space Outage (ft): | 3.0469 |

| | |
|---|---|
| Working Losses (lb): | 2.5548 |
| Vapor Molecular Weight (lb/lb-mole): | 41.3754 |
| Vapor Pressure at Daily Average Liquid Surface Temperature (psia): | 1.2967 |
| Annual Net Throughput (gal/yr.): | 2,000.0000 |
| Annual Turnovers: | 4.0000 |
| Turnover Factor: | 1.0000 |
| Maximum Liquid Volume (gal): | 500.0000 |
| Maximum Liquid Height (ft): | 4.0000 |
| Tank Diameter (ft): | 4.5000 |
| Working Loss Product Factor: | 1.0000 |
| Total Losses (lb): | 28.8612 |

# TANKS 4.0.9d
# Emissions Report - Detail Format
# Individual Tank Emission Totals

## Emissions Report for: Annual

**31-6 T-17 Corrosion Inhibitor (500 gal) - Vertical Fixed Roof Tank**
**Rio Arriba Co., T30N, R06W, Sec01, NM**

| | Losses(lbs) | | |
|---|---|---|---|
| Components | Working Loss | Breathing Loss | Total Emissions |
| Corrosion Inhibitor | 2.55 | 26.31 | 28.86 |
| 1,2,3-Trimethylbenzene | 0.00 | 0.03 | 0.03 |
| 1,2,4-Trimethylbenzene | 0.02 | 0.25 | 0.27 |
| 1,3,5-Trimethylbenzene | 0.01 | 0.09 | 0.10 |
| 1-Dodecanethiol | 0.00 | 0.00 | 0.00 |
| Jet naphtha (JP-4) | 0.90 | 9.24 | 10.14 |
| Methyl alcohol | 1.60 | 16.52 | 18.12 |
| Xylene (-m) | 0.02 | 0.18 | 0.19 |

# Truck Loading Emissions Calculations

Unit Number: L1
Description: Truck Loading - Produced Water *(Insignificant source demonstration)*

**Emission Factor**

| | | | |
|---|---|---|---|
| 0.6 | | Saturation factor, S | AP-42, Table 5.2-1 (submerged loading & dedicated service) |
| 0.5425 | psia | True vapor pressure of liquid, P | TANKS 4.0 output file |
| 20.7692 | lb/lb-mole | Molecular weight of vapors, M | TANKS 4.0 output file |
| 80.79 | °F | Temperature of liquid | TANKS 4.0 output file |
| 540.46 | °R | Temperature of liquid, T | °F + 459.67 |
| 0.16 | lb/$10^3$ gal | Emission factor, L | AP-42, Section 5.2, Equation 1 |

$$L = 12.46 \frac{SPM}{T}$$

**Production Rate**

| | | | |
|---|---|---|---|
| 8.40 | 10^3 gal/hr | Maximum hourly production rate | Williams Four Corners LLC |
| 1,526.70 | 10^3 gal/yr | Maximum annual production rate (Safety factor of x2 applied to annual production rate of largest tank) | Williams Four Corners LLC |

**Steady-State Emission Rates**

| Pollutant | Uncontrolled Emission Rates, pph | tpy |
|---|---|---|
| VOC | 1.31 | 1.19E-01 |

Uncontrolled Emission Rate (pph) = lb/10^3 gal x 10^3 gal/hr
Uncontrolled Emission Rate (tpy) = lb/10^3 gal x 10^3 gal/yr / 2,000 lb/ton

| Pollutants | Vapor Mass Fraction | Emission Rates, pph | tpy |
|---|---|---|---|
| Benzene | 0.0002 | 2.62E-04 | 2.38E-05 |
| Ethylbenzene | 0.0000 | 0.00E+00 | 0.00E+00 |
| n-Hexane | 0.0244 | 3.19E-02 | 2.90E-03 |
| Toluene | 0.0001 | 1.31E-04 | 1.19E-05 |
| m-Xylene | 0.0000 | 0.00E+00 | 0.00E+00 |

Percent of VOC calculated from the TANKS 4.0 results
Percent of VOC (%) = 100 x Pollutant Emission Rate (lb/yr) / Total VOC Emission Rate (lb/yr)
Emission Rates (pph) = VOC Emission Rate (pph) x (% / 100)
Emission Rates (tpy) = VOC Emission Rate (tpy) x (% / 100)

# Equipment Leaks Emissions Calculations

Unit Number: F1
Description: Valves, Connectors, Seals & Open-Ended Lines *(Insignificant source demonstration)*

**Steady-State Emission Rates**

| Equipment | Number of Components, # of sources | Emission Factors, kg/hr/source | Emission Factors, lb/hr/source | Uncontrolled TOC Emission Rates, pph | tpy |
|---|---|---|---|---|---|
| Valves | 1323 | 0.0045 | 0.0099 | 13.10 | 57.37 |
| Connectors | 1467 | 0.0002 | 0.0004 | 0.65 | 2.83 |
| Pump Seals | 14 | 0.0024 | 0.0053 | 0.07 | 0.32 |
| Compressor Seals | 88 | 0.0088 | 0.0194 | 1.70 | 7.46 |
| Pressure Relief Valves | 124 | 0.0088 | 0.0194 | 2.40 | 10.51 |
| Open-Ended Lines | 361 | 0.0020 | 0.0044 | 1.59 | 6.96 |
| Total | | | | 19.51 | 85.45 |

Number of components based on the numbers of compressors and dehydrators at the station (see next page)
Emission factors taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates"
Emission factors (lb/hr/source) = Emission factors (kg/hr/source) x 2.2 lb/kg
Uncontrolled TOC Emission Rates (pph) = lb/hr/source x # of sources
Uncontrolled TOC Emission Rates (tpy) = Uncontrolled TOC Emission Rates (pph) x 8,760 hr/yr / 2,000 lb/ton

| Components | Mole Percents, % | Molecular Weights, lb/lb-mole | Component Weights, lb/lb-mole | Weight Percent of TOC, % | Uncontrolled Emission Rates, pph | tpy |
|---|---|---|---|---|---|---|
| Carbon dioxide | 6.4949 | 44.010 | | | | |
| Hydrogen sulfide | 0.0000 | 34.070 | | | | |
| Nitrogen | 0.0994 | 28.013 | | | | |
| Methane | 91.9113 | 16.043 | 1474.532 | 96.674 | | |
| Ethane | 1.2077 | 30.070 | 36.315 | 2.381 | | |
| Propane | 0.2042 | 44.097 | 9.004 | 0.590 | 1.15E-01 | 5.04E-01 |
| Isobutane | 0.0315 | 58.123 | 1.831 | 0.120 | 2.34E-02 | 1.03E-01 |
| n-Butane | 0.0260 | 58.123 | 1.512 | 0.099 | 1.93E-02 | 8.47E-02 |
| Isopentane | 0.0094 | 72.150 | 0.681 | 0.045 | 8.71E-03 | 3.81E-02 |
| n-Pentane | 0.0043 | 72.150 | 0.308 | 0.020 | 3.94E-03 | 1.72E-02 |
| Cyclopentane | 0.0002 | 70.134 | 0.017 | 0.001 | 2.21E-04 | 9.67E-04 |
| n-Hexane | 0.0012 | 86.177 | 0.106 | 0.007 | 1.36E-03 | 5.94E-03 |
| Cyclohexane | 0.0006 | 84.161 | 0.048 | 0.003 | 6.18E-04 | 2.71E-03 |
| Other hexanes | 0.0032 | 86.177 | 0.276 | 0.018 | 3.53E-03 | 1.54E-02 |
| Heptanes | 0.0014 | 100.204 | 0.140 | 0.009 | 1.79E-03 | 7.83E-03 |
| Methylcyclohexane | 0.0014 | 98.188 | 0.137 | 0.009 | 1.75E-03 | 7.67E-03 |
| 2,2,4-Trimethylpentane | 0.0000 | 114.231 | 0.000 | 0.000 | 0.00E+00 | 0.00E+00 |
| Benzene | 0.0005 | 78.114 | 0.038 | 0.003 | 4.92E-04 | 2.15E-03 |
| Toluene | 0.0008 | 92.141 | 0.076 | 0.005 | 9.67E-04 | 4.23E-03 |
| Ethylbenzene | 0.0001 | 106.167 | 0.009 | 0.001 | 1.11E-04 | 4.88E-04 |
| Xylenes | 0.0004 | 106.167 | 0.044 | 0.003 | 5.57E-04 | 2.44E-03 |
| C8+ Heavies | 0.0016 | 114.231 | 0.187 | 0.012 | 2.40E-03 | 1.05E-02 |
| Total | 100.0002 | | 1525.260 | | | |
| Total VOC | | | | 0.945 | **0.184** | **0.807** |

Blended gas stream composition obtained from the 31-6 Straddle Suction & 31-6 Suction gas analyses sampled July 10, 2020.
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Weight Percent of TOC (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Uncontrolled Emission Rates (pph) = Total Uncontrolled TOC Emission Rate (pph) x (% / 100)
Uncontrolled Emission Rates (tpy) = Total Uncontrolled TOC Emission Rate (tpy) x (% / 100)

# Equipment Leaks Emissions Calculations

Unit Number: F1
Description: Valves, Connectors, Seals & Lines

Number of Compression Units at the Facility: 16
Number of Dehydrators at the Facility: 7

| Process Equipment Description | Equipment Count | | | | | | Instrument Count | | |
|---|---|---|---|---|---|---|---|---|---|
| | Valves | Connectors | Pump Seals | Compressor Seals | Pressure Relief Valves | Open-end | Flow | Level | Pressure |
| Station inlet, meter run to pulsation dampener | 17 | 14 | 0 | 0 | 1 | 13 | 3 | 0 | 3 |
| Pulsation dampener | 12 | 8 | 0 | 0 | 0 | 2 | 0 | 4 | 1 |
| Compressor suction header | 7 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 1 |
| Suction header feed to instrument gas header | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Compressor discharge header and bypass to station discharge | 6 | 5 | 0 | 0 | 0 | 3 | 0 | 1 | 1 |
| Compressor discharge header and suction header bypass lines | 4 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 1 |
| Fuel gas header | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 |
| Instrument gas header | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 |
| Station discharge header | 9 | 5 | 0 | 0 | 1 | 6 | 0 | 0 | 2 |
| Fuel gas recovery header | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 |
| Fuel gas feed and filter loop | 15 | 9 | 0 | 0 | 0 | 1 | 0 | 4 | 1 |
| Instrument gas feed and filter loop | 9 | 11 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| Produced water storage tank | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| ESD panel | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Starting gas header | 6 | 2 | 0 | 0 | 1 | 3 | 0 | 0 | 0 |
| Hot gas header | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Volume bottle lop | 12 | 4 | 0 | 24 | 1 | 2 | 0 | 0 | 1 |
| Components from Compressors | 704 | 944 | 0 | 64 | 96 | 176 | 0 | 64 | 144 |
| Components from dehydrators | 42 | 70 | 14 | 0 | 21 | 42 | 0 | 21 | 28 |
| Total | 867 | 1087 | 14 | 88 | 124 | 266 | 3 | 95 | 184 |
| Adjusted Total | 1323 | 1467 | 14 | 88 | 124 | 361 | | | |

The following additions are included in the Adjusted Total:

1 valve is added for each open end line
2 connectors are added for each flow meter
2 valves, 2 connectors and 1 open end line are added for each level gauge
1 connector is added for each pressure gauge

The component count is based on an evaluation of the Sim Mesa Compressor Station (two stage compression)

# Section 6.a

## Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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**Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC)** applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide ($CO_2$), nitrous oxide ($N_2O$), methane ($CH_4$), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride ($SF_6$).

### Calculating GHG Emissions:

**1.** Calculate the ton per year (tpy) GHG mass emissions and GHG $CO_2e$ emissions from your facility.
**2.** GHG mass emissions are the sum of the total annual tons of greenhouse gases without adjusting with the global warming potentials (GWPs). GHG $CO_2e$ emissions are the sum of the mass emissions of each individual GHG multiplied by its GWP found in Table A-1 in 40 CFR 98 Mandatory Greenhouse Gas Reporting.
**3.** Emissions from routine or predictable start up, shut down, and maintenance must be included.
**4.** Report GHG mass and GHG $CO_2e$ emissions in Table 2-P of this application. Emissions are reported in **short** tons per year and represent each emission unit's Potential to Emit (PTE).
**5.** All Title V major sources, PSD major sources, and all power plants, whether major or not, must calculate and report GHG mass and CO2e emissions for each unit in Table 2-P.
**6.** For minor source facilities that are not power plants, are not Title V, and are not PSD there are three options for reporting GHGs in Table 2-P: 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHGs as a second separate unit; 3) or check the following By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

**Sources for Calculating GHG Emissions:**

- Manufacturer's Data
- AP-42 Compilation of Air Pollutant Emission Factors at http://www.epa.gov/ttn/chief/ap42/index.html
- EPA's Internet emission factor database WebFIRE at http://cfpub.epa.gov/webfire/
- 40 CFR 98 Mandatory Green House Gas Reporting except that tons should be reported in short tons rather than in metric tons for the purpose of PSD applicability.
- API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry. August 2009 or most recent version.
- Sources listed on EPA's NSR Resources for Estimating GHG Emissions at http://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases:

**Global Warming Potentials (GWP):**
Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of $CO_2$ over a specified time period.

**"Greenhouse gas"** for the purpose of air permit regulations is defined as the aggregate group of the following six gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. **(20.2.70.7 NMAC, 20.2.74.7 NMAC).** You may also find GHGs defined in 40 CFR 86.1818-12(a).

**Metric to Short Ton Conversion:**
Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.
1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

## *Greenhouse Gas (GHG) Emissions*

Greenhouse gas (GHG) emissions are provided. Carbon dioxide ($CO_2$), methane ($CH_4$) emissions, nitrous oxide ($N_2O$) (combustion sources only), and total GHG are reported in tons per year (tpy). Carbon dioxide equivalent ($CO_2e$) emissions (including $CO_2$, $N_2O$ and $CH_4$) are reported in metric tonnes per year. The $CO_2e$ is calculated by summing the estimated $CO_2$ emissions with the $CH_4$ emissions (adjusted for the Global Warming Potential (GWP) of the $CH_4$) and the $N_2O$ emissions (adjusted for the GWP of the $N_2O$). The GWPs are from Title 40, Part 98 (40 CFR 98), *Mandatory Greenhouse Gas Reporting*, Table A-1.

The portion of 40 CFR 98, Table A-1 that includes the GWPs for $CH_4$ and $N_2O$ is included in Section 7. 40 CFR 98, Subpart A (including Table A-1) is available for download in its entirety through the U.S. Government Publications Office (GPO) website at http://ecfr.gpoaccess.gov/ under the "Code of Federal Regulations" link.

**Combustion Equipment GHG.** GHG emissions, including carbon dioxide ($CO_2$), methane ($CH_4$), and nitrous oxide ($N_2O$) exhaust emissions from the combustion equipment (including the natural gas fired reciprocating internal combustion engines and the TEG dehydrator reboilers) are calculated from emission factors from 40 CFR 98, Part C, Tables C-1 & C-2, and the equipment higher heating value (HHV) design heat rate.

Emission factors and methodologies from 40 CFR 98, Table C-1 and C-2 are included in Section 7. 40 CFR 98, Subpart C (including Tables C-1 and C-2) is available for download in its entirety through the U.S. Government Publications Office (GPO) website at http://ecfr.gpoaccess.gov/ under the "Code of Federal Regulations" link.

**Non-Combustion Equipment GHG (General).** The non-combustion GHG emissions from the facility are based on 40 CFR 98, Subpart W, *Petroleum and Natural Gas Systems*, or an appropriate method published in the American Petroleum Institute's 2009 *Compendium of Greenhouse Gas Emission Estimates Methodologies for the Oil and Gas Industry* (API Compendium). The emission calculation methods is noted in the calculations spreadsheets.

40 CFR 98, Subpart W is published and available for download in its entirety through the U.S. Government Publications Office (GPO) website at http://ecfr.gpoaccess.gov/ under the "Code of Federal Regulations" link. The API Compendium in its entirety is available at http://www.api.org/environment-health-and-safety/climate-change/whats-new/compendium-ghg-methodologies-oil-and-gas-industry . Excerpts of the cited 40 CFR 98 and API Compendium materials are provided in Section 7.

**Dehydrator Still Vent GHG.** Emissions of GHG from the dehydrator still vents are calculated in accordance with the methods of 40 CFR 98, subpart W, *Petroleum and Natural Gas Systems*, §98.233(e), including GRI-GLYCalc 4.0 emissions estimation software, the natural gas stream composition, and dehydrator operating parameters corresponding to the PTE emission calculations.

**SSM Compressor Blowdown GHG.** Compressor blowdown emissions (SSM), including emissions from SSM and compressor venting and associated piping, are calculated from the estimated total annual gas losses (scf/yr) and the molar fraction of $CO_2$ and $CH_4$ in the natural gas extended analysis. The SSM emissions are estimated from the annual blowdown volume of gas. The emission calculations are provided in this section. The extended gas analysis used in the emission estimates is in section 7.

**Malfunction Emissions GHG.** GHG emissions from the malfunction VOC emissions (unit M1) are calculated based on the estimated total volume of annual gas (scf/yr) associated with the specified tpy of VOC emissions and the molar fractions of $CO_2$ and $CH_4$ in the natural gas extended analysis.

**Reciprocating Compressor Venting Emissions.** Annual GHG emissions from reciprocating compressor vented emissions, including compressor blowdown valve leaks, rod packing leaks and isolation valve leaks, are estimated from the number of compressors; the estimated compressor operating times; the $CO_2$ and $CH_4$ molar composition of the gas stream; and the density of the GHG gases according to 40 CFR 98, Subpart W, equation W-36.

Isolation valve leakage occurs when the compressors are not in operation, i.e., when the compressors operate zero hours. The GHG emissions from isolation valve leakage are greater than the combined blowdown valve leakage and rod packing emissions that occur when compressor(s) are in operation. Therefore, the PTE is calculated assuming 0 hours per year of compressor operation (corresponding with isolation valve leakage occurring 8,760 hours per year).

**Equipment Leaks Emissions.** GHG emissions from facility-wide equipment leaks (unit F1) are based on the estimated total annual gas losses (scf/yr) associated with the estimated number of components, the corresponding emission factors from the EPA's 1995 *Protocol for Equipment Leak Emission Estimates*, and the molar fraction of $CO_2$ and $CH_4$ contained in the natural gas extended analysis.

**Natural Gas Driven Pneumatic Device Venting Emissions and Natural Gas Driven Pneumatic Pump Venting Emissions.** Gas-driven pneumatic device and pneumatic pump emissions are calculated from the facility gas stream composition for $CO_2$ and $CH_4$, the estimated number of devices, and the appropriate emission factors from 40 CFR 98, Subpart W, Table W-1A (Western U.S. - Gas Service).

**Storage Tank and Truck Loading GHG.** GHG emissions from the working and breathing losses from the produced water, waste water, lube oil and waste lube oil storage tanks are considered to be zero, based on the stored contents are either non-flashing liquids or post-flashed liquid. The other stored liquids (antifreeze, methanol) do not contain appreciable amounts of GHG. Similarly, any transferred liquid (truck loading) does not contain appreciable amounts of any gases, including GHG.

# Green House Gas Emissions Data and Calculations

| Sources | Facility Total Emissions | | | | |
|---|---|---|---|---|---|
| | CO2, tpy | N2O, tpy | CH4, tpy | GHG, tpy | CO2e, tpy |
| Engine & Turbine Exhaust Emissions | 96,167.25 | 1.81E-01 | 1.81E+00 | 96,169.24 | 96266.57 |
| SSM Emissions | 59.46 | -- | 306.66 | 366.12 | 7726.06 |
| Reciprocating Compressor Venting Emissions | 185.11 | -- | 956.16 | 1,141.26 | 24089.05 |
| Dehydrator Emissions | 306.03 | -- | 8.31 | 314.34 | 513.79 |
| Reboiler Exhaust Emissions | 1,543.06 | 2.91E-03 | 2.91E-02 | 1,543.09 | 1544.66 |
| Equipment Leak Emissions | 7.26 | -- | 37.51 | 44.78 | 945.09 |
| Natural Gas Pneumatic Device Venting Emissions | 41.36 | -- | 213.11 | 254.47 | 5369.22 |
| Natural Gas Driven Pneumatic Pump Venting Emissions | 0.44 | -- | 2.26 | 2.70 | 56.98 |
| Malfunction Emissions | 198.44 | -- | 1023.46 | 1221.90 | 25784.98 |
| Storage Tank Emissions | 0.00 | -- | 0.00 | 0.00 | 0.00 |
| Total | 98,508.40 | 1.84E-01 | 2,549.32 | 101,057.91 | 162,296.38 |

## Engine & Turbine Exhaust Emissions

| Unit Numbers | Description | Emission Factors | | | Emission Rates | | |
|---|---|---|---|---|---|---|---|
| | | CO2, kg/MMBtu | N2O, kg/MMBtu | CH4, kg/MMBtu | CO2, tpy | N2O, tpy | CH4, tpy |
| 1 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 3 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 4 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 5 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 6 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 7 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 8 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 9 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 10 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 11 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 12 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 13 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 14 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 15 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 16 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| 33 | 7042GL engine | 53.06 | 1.00E-04 | 1.00E-03 | 6,010.45 | 1.13E-02 | 1.13E-01 |
| | Total | | | | 96,167.25 | 1.81E-01 | 1.81 |

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2
Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

| Unit Numbers | Description | Fuel Types | Operating Times, hr/yr | LHV Design Heat Rates, MMBtu/hr | HHV | |
|---|---|---|---|---|---|---|
| | | | | | Design Heat Rates, MMBtu/hr | Fuel Usages, MMBtu/yr |
| 1 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 3 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 4 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 5 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 6 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 7 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 8 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 9 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 10 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 11 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 12 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 13 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 14 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |
| 15 | 7042GL engine | Nat. Gas | 8,760 | 10.58 | 11.76 | 102,979 |

The fuel types and operating times are provided by Williams
The LHV design heat rates are taken from manufacturers data
HHV Design Heat Rates (MMBtu/hr) = LHV Design Heat Rates (MMBtu/hr) / 0.9 LHV/HHV
HHV Fuel Usages (MMBtu/yr) = HHV Design Heat Rates (MMBtu/hr) x hr/yr

# Green House Gas Emissions Data and Calculations

## SSM Emissions

| Unit Numbers | Description | Total Gas Losses, scf/yr | CO2 Emission Factors, lb/scf | CH4 Emission Factors, lb/scf | Emission Rates | | |
|---|---|---|---|---|---|---|---|
| | | | | | CO2, tpy | N2O, tpy | CH4, tpy |
| SSM | SSM | 15,784,000 | 0.0075 | 0.0389 | 59.46 | -- | 306.66 |

The annual blowdown volumes are calculated from data provided by Williams
The CO2 and CH4 emission factors are calculated from the facility extended gas analysis
Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

## Reciprocating Compressor Venting Emissions

| Unit Numbers | Description | Emission Rates | | |
|---|---|---|---|---|
| | | CO2, tpy | N2O, tpy | CH4, tpy |
| NA | Blowdown Valve Leakage | 17.68 | -- | 91.34 |
| NA | Rod Packing Emissions | 167.42 | -- | 864.82 |
| NA | Isolation Valve Leakage | 0.00 | -- | 0.00 |
| | Total | 185.11 | -- | 956.16 |

Operating or standby mode - includes blowdown valve leakage through blowdown vent stack
Operating mode - includes rod packing emissions
Non-operating depressurized mode - includes isolation valve leakage through open blowdown vents (without blind flanges)
Rod packing gas emissions assume 4 cylinders per compressor
A combination of equations W-26 & W-36 (Subpart W) is used to calculate reciprocating compressor emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rates (tpy) = # x scf/hr x hr/yr x (CO2 Mole Percent (%) / 100) x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rates (tpy) = # x scf/hr x hr/yr x (CH4 Mole Percent (%) / 100) x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

| Unit Numbers | Description | Number of Compressors # | Gas Emissions, scf/hr | Operating Times, hr/yr | CO2 Mole Percents, % | CH4 Mole Percents, % | CO2 Density, kg/scf | CH4 Density, kg/scf |
|---|---|---|---|---|---|---|---|---|
| NA | Blowdown Valve Leakage | 16 | 33.5 | 8,760 | 6.49 | 91.91 | 0.0526 | 0.0192 |
| NA | Rod Packing Emissions | 16 | 317.2 | 8,760 | 6.49 | 91.91 | 0.0526 | 0.0192 |
| NA | Blowdown Valve Leakage (St | 16 | 10.5 | 0 | 6.49 | 91.91 | 0.0526 | 0.0192 |

The number of compressors are provided by Williams
Blowdown valve leakage (33.5 scf/hr) and rod packing emissions occur in operating mode
Blowdown valve leakage (10.5 scf/hr) occurs in standby pressurized mode
Emission factors are the three year rolling average (2012-2014) of all measurements in the Williams Field Services, LLC compressor fleet located at natural gas processing plants
The operating times (the average operating times for all station compressors combined) are provided by Williams
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The CO2 & CH4 densities (kg/scf) are taken from Subpart W, Paragraph 98.233(v)

# Green House Gas Emissions Data and Calculations

## Dehydrator Emissions

| Unit Numbers | Description | Emission Rates | | |
|---|---|---|---|---|
| | | CO2, tpy | N2O, tpy | CH4, tpy |
| 17a | Dehydrator (12 mmscfd) | 43.62 | -- | 1.20 |
| 18a | Dehydrator (12 mmscfd) | 43.62 | -- | 1.20 |
| 19a | Dehydrator (12 mmscfd) | 43.62 | -- | 1.20 |
| 20a | Dehydrator (12 mmscfd) | 43.62 | -- | 1.20 |
| 21a | Dehydrator (12 mmscfd) | 43.62 | -- | 1.20 |
| 22a | Dehydrator (12 mmscfd) | 43.62 | -- | 1.20 |
| 31a | Dehydrator (30 mmscfd) | 44.28 | -- | 1.11 |
| | Total | 306.03 | -- | 8.31 |

The emission rates are taken from the GRI-GLYCalc output file

## Reboiler Exhaust Emissions

| Unit Numbers | Description | Emission Factors | | | Emission Rates | | |
|---|---|---|---|---|---|---|---|
| | | CO2, kg/MMBtu | N2O, kg/MMBtu | CH4, kg/MMBtu | CO2, tpy | N2O, tpy | CH4, tpy |
| 17b | Reboiler (429 scfh) | 53.06 | 1.00E-04 | 1.00E-03 | 219.34 | 4.13E-04 | 4.13E-03 |
| 18b | Reboiler (429 scfh) | 53.06 | 1.00E-04 | 1.00E-03 | 219.34 | 4.13E-04 | 4.13E-03 |
| 19b | Reboiler (429 scfh) | 53.06 | 1.00E-04 | 1.00E-03 | 219.34 | 4.13E-04 | 4.13E-03 |
| 20b | Reboiler (429 scfh) | 53.06 | 1.00E-04 | 1.00E-03 | 219.34 | 4.13E-04 | 4.13E-03 |
| 21b | Reboiler (429 scfh) | 53.06 | 1.00E-04 | 1.00E-03 | 219.34 | 4.13E-04 | 4.13E-03 |
| 22b | Reboiler (429 scfh) | 53.06 | 1.00E-04 | 1.00E-03 | 219.34 | 4.13E-04 | 4.13E-03 |
| 31b | Reboiler (444 scfh) | 53.06 | 1.00E-04 | 1.00E-03 | 227.01 | 4.28E-04 | 4.28E-03 |
| | Total | | | | 1,543.06 | 2.91E-03 | 2.91E-02 |

The emissions factors are taken from 40 CFR 98, Subpart C, Tables C-1 & C-2

Emission Rates (tpy) = kg/MMBtu x 2.2 lb/kg x MMBtu/yr / 2,000 lb/ton

| Unit Numbers | Description | Fuel Types | Operating Times hr/yr | LHV | | | HHV | |
|---|---|---|---|---|---|---|---|---|
| | | | | Fuel Usages, scf/hr | Fuel Heat Contents, Btu/scf | Fuel Usages, MMBtu/hr | Fuel Usages, MMBtu/hr | Fuel Usages, MMBtu/yr |
| 17b | Reboiler (429 scfh) | Nat. Gas | 8,760 | 429 | 900 | 0.39 | 0.43 | 3,758 |
| 18b | Reboiler (429 scfh) | Nat. Gas | 8,760 | 429 | 900 | 0.39 | 0.43 | 3,758 |
| 19b | Reboiler (429 scfh) | Nat. Gas | 8,760 | 429 | 900 | 0.39 | 0.43 | 3,758 |
| 20b | Reboiler (429 scfh) | Nat. Gas | 8,760 | 429 | 900 | 0.39 | 0.43 | 3,758 |
| 21b | Reboiler (429 scfh) | Nat. Gas | 8,760 | 429 | 900 | 0.39 | 0.43 | 3,758 |
| 22b | Reboiler (429 scfh) | Nat. Gas | 8,760 | 429 | 900 | 0.39 | 0.43 | 3,758 |
| 31b | Reboiler (444 scfh) | Nat. Gas | 8,760 | 444 | 900 | 0.40 | 0.44 | 3,889 |

The fuel types and operating times are provided by Williams

The LHV fuel usages (scf/hr) are taken from manufacturer's data

The LHV fuel heat contents are estimated based on the value typically used by manufacturers

LHV Fuel Usages (MMBtu/hr) = LHV Fuel Usages (scf/hr) x Btu/scf / 1,000,000 Btu/MMBtu

HHV Fuel Usages (MMBtu/hr) = LHV Fuel Usages (MMBtu/hr) / 0.9 LHV/HHV

HHV Fuel Usages (MMBtu/yr) = HHV Fuel Usages (MMBtu/hr) x hr/yr

# Green House Gas Emissions Data and Calculations

## Equipment Leaks Emissions

| Unit Numbers | Description | Emission Rates | | |
|---|---|---|---|---|
| | | CO2, tpy | N2O, tpy | CH4, tpy |
| NA | Valves | 5.3 | -- | 27.3 |
| NA | Connectors | 0.8 | -- | 4.2 |
| NA | Open-Ended Lines | 0.4 | -- | 1.9 |
| NA | Pressure Relief Valves | 0.8 | -- | 4.1 |
| | Total | 7.3 | -- | 37.5 |

A combination of equations W-31 & W-36 (Subpart W) is used to calculate uncombusted CO2 & CH4 emissions
As the NMED requires CO2 & CH4 emissions rather than CO2e emissions, it is not necessary to include the global warming potential from equation W-36
CO2 Emission Rate (tpy) = # x scf/hr/component x (CO2 Content (mole %) / 100) x hr/yr x CO2 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne
CH4 Emission Rate (tpy) = # x scf/hr/component x (CH4 Content (mole %) / 100) x hr/yr x CH4 Density (kg/scf) x (2,204.6 lb/tonne / 2,000 lb/ton) / 1,000 kg/tonne

| Unit Numbers | Description | Number of Components, # | Emission Factors, scf/hr /component | CO2 Contents, mole % | CH4 Contents, mole % | Operating Times, hr/yr | CO2 Density, kg/scf | CH4 Density, kg/scf |
|---|---|---|---|---|---|---|---|---|
| NA | Valves | 1323 | 0.121 | 6.49 | 91.91 | 8,760 | 0.0526 | 0.0192 |
| NA | Connectors | 1467 | 0.017 | 6.49 | 91.91 | 8,760 | 0.0526 | 0.0192 |
| NA | Open-Ended Lines | 361 | 0.031 | 6.49 | 91.91 | 8,760 | 0.0526 | 0.0192 |
| NA | Pressure Relief Valves | 124 | 0.193 | 6.49 | 91.91 | 8,760 | 0.0526 | 0.0192 |

The number of sources are calculated based on the number of compressors and dehydrators at the station (see criteria pollutant and HAP equipment leaks calculations)
The emission factors are taken from Subpart W, Table W-1A (Western U.S. - Gas Service)
The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The operating times are provided by Williams (default is the entire year)
The CO2 & CH4 densities are taken from Subpart W, Paragraph 98.233(v)

## Natural Gas Pneumatic Device Venting Emissions

| Unit Numbers | Description | Number of Devices, # | Emission Factors, scf/hr/device | Operating Times, hr/yr | Emission Rates | | |
|---|---|---|---|---|---|---|---|
| | | | | | CO2, tpy | N2O, tpy | CH4, tpy |
| NA | Continuous High Bleed Pneumatic Devices | 2 | 37.3 | 8,760 | 2.46 | -- | 12.69 |
| NA | Intermittent Bleed Pneumatic Devices | 87 | 13.5 | 8,760 | 38.76 | -- | 199.72 |
| NA | Continuous Low Bleed Pneumatic Devices | 3 | 1.39 | 8,760 | 0.14 | -- | 0.71 |
| | Total | | | | 41.36 | -- | 213.11 |

The number of devices are provided by Williams
The emission factors are taken from Subpart W, Table W-1A (Western U.S. - Gas Service)
The operating times are provided by Williams
Equation W-1 (Subpart W) is used to calculate CO2 & CH4 emissions
As the NMED requires CO2 & CH4 emissions in addition to CO2e emissions, it is necessary to divide by the global warming potentials
CO2 Emission Rates (tpy) = # x scf/hr/device x (CO2 Content (mole %) / 100) x CO2 Conversion Factors (tonne CO2e/scf) x hr/yr x (2,204.6 lb/tonne / 2,000 lb/ton) / CO2 Global Warming Potentials (tonne CO2e/tonne CO2)
CH4 Emission Rates (tpy) = # x scf/hr/device x (CH4 Contents (mole %) / 100) x CH4 Conversion Factors (tonne CO2e/scf) x hr/yr x (2,204.6 lb/tonne / 2,000 lb/ton) / CH4 Global Warming Potentials (tonne CO2e/tonne CH4)

| Unit Numbers | Description | CO2 Contents, mole % | CH4 Contents, mole % | CO2 Conversion Factors, tonne CO2e /scf | CH4 Conversion Factors, tonne CO2e /scf | CO2 Global Warming Potentials, tonne CO2e /tonne CO2 | CH4 Global Warming Potentials, tonne CO2e /tonne CH4 |
|---|---|---|---|---|---|---|---|
| NA | Continuous High Bleed Pneumatic Devices | 6.49 | 91.91 | 5.262E-05 | 4.790E-04 | 1 | 25 |
| NA | Continuous Low Bleed Pneumatic Devices | 6.49 | 91.91 | 5.262E-05 | 4.790E-04 | 1 | 25 |
| NA | Intermittent Bleed Pneumatic Devices | 6.49 | 91.91 | 5.262E-05 | 4.790E-04 | 1 | 25 |

The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The conversion factors are taken from Subpart W, Paragraph 98.233(a)
The global warming potentials are taken from 40 CFR Part 98, Table A-1

# Green House Gas Emissions Data and Calculations

## Natural Gas Driven Pneumatic Pump Venting Emissions

**Emission Rates**

| Unit Number | Description | Number of Pumps, # | Emission Factor, scf/hr/pump | Operating Time, hr/yr | Emission Rates | | |
|---|---|---|---|---|---|---|---|
| | | | | | CO2, tpy | N2O, tpy | CH4, tpy |
| NA | Pneumatic Pump Venting | 1 | 13.3 | 8,760 | 0.44 | -- | 2.26 |

The number of pumps are provided by Williams
The emission factor is taken from Subpart W, Table W-1A (Western U.S. - Gas Service)
The operating time is provided by Williams (default is the entire year)
Equation W-2 (Subpart W) is used to calculate CO2 & CH4 emissions
As the NMED requires CO2 & CH4 emissions in addition to CO2e emissions, it is necessary to divide by the global warming potentials
CO2 Emission Rate (tpy) = # x scf/hr/pump x (CO2 Content (mole %) / 100) x CO2 Conversion Factor (tonne CO2e/scf) x hr/yr
x (2,204.6 lb/tonne / 2,000 lb/ton) / CO2 Global Warming Potentials (tonne CO2e/tonne CO2)
CH4 Emission Rate (tpy) = # x scf/hr/pump x (CH4 Content (mole %) / 100) x CH4 Conversion Factor (tonne CO2e/scf) x hr/yr
x (2,204.6 lb/tonne / 2,000 lb/ton) / CH4 Global Warming Potentials (tonne CO2e/tonne CH4)

| Unit Number | Description | CO2 Content, mole % | CH4 Content, mole % | CO2 Conversion Factor, tonne CO2e /scf | CH4 Conversion Factor, tonne CO2e /scf | CO2 Global Warming Potential, tonne CO2e /tonne CO2 | CH4 Global Warming Potential, tonne CO2e /tonne CH4 |
|---|---|---|---|---|---|---|---|
| NA | Pneumatic Pump Venting | 6.49 | 91.91 | 5.262E-05 | 4.790E-04 | 1 | 25 |

The facility CO2 and CH4 contents are taken from the facility extended gas analysis
The conversion factors are taken from Subpart W, Paragraph 98.233(a)
The operating time is provided by Williams (the default is the entire year)
The global warming potentials are taken from 40 CFR Part 98, Table A-1

## Malfunction Emissions

| Unit Number | Description | Permitted VOC, tpy | Emission Rates | | |
|---|---|---|---|---|---|
| | | | CO2, tpy | N2O, tpy | CH4, tpy |
| M1 | Malfunctions | 10.00 | 198.44 | -- | 1,023.46 |

The VOC emission rate is estimated (see calculations workbook)
CO2 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CO2 Weight % of Total (%) / 100)
CH4 Emission Rate (tpy) = VOC Emission Rate (tpy) x (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
x (CH4 Weight % of Total (%) / 100)

| Unit Number | Description | Total Component Weight, lb/lb-mole | VOC Component Weight, lb/lb-mole | CO2 Weight % of Total, % | CH4 Weight % of Total, % |
|---|---|---|---|---|---|
| M1 | Malfunctions | 18.14 | 0.14 | 15.76 | 81.29 |

The total & VOC component weights and CO2 & CH4 weight % of totals are calculated from the facility extended gas analysis

## Storage Tank Emissions

| Unit Number | Description | Emission Rates | | |
|---|---|---|---|---|
| | | CO2, tpy | N2O, tpy | CH4, tpy |
| | Storage Tanks (all) | 0.00 | -- | 0.00 |
| | Total | 0.00 | -- | 0.00 |

# Green House Gas Emissions Data and Calculations

## Gas Stream Composition

| Components | Mole Percents, % | Molecular Weights, lb/lb-mole | Component Weights, lb/lb-mole | Weight Percent of Total, % | Emission Factors, lb/scf |
|---|---|---|---|---|---|
| Carbon Dioxide | 6.4949 | 44.01 | 2.86 | 15.7609 | 0.0075 |
| Hydrogen Sulfide | 0.0000 | 34.07 | 0.00 | 0.0000 | 0.0000 |
| Nitrogen | 0.0994 | 28.01 | 0.03 | 0.1536 | 0.0001 |
| Methane | 91.9113 | 16.04 | 14.74 | 81.2889 | 0.0389 |
| Ethane | 1.2077 | 30.07 | 0.36 | 2.0024 | 0.0010 |
| Propane | 0.2042 | 44.09 | 0.09 | 0.4964 | 0.0002 |
| IsoButane | 0.0315 | 58.12 | 0.02 | 0.1010 | 0.0000 |
| Normal Butane | 0.0260 | 58.12 | 0.02 | 0.0833 | 0.0000 |
| IsoPentane | 0.0094 | 72.15 | 0.01 | 0.0375 | 0.0000 |
| Normal Pentane | 0.0043 | 72.15 | 0.00 | 0.0170 | 0.0000 |
| Cyclopentane | 0.0002 | 70.14 | 0.00 | 0.0010 | 0.0000 |
| n-Hexane | 0.0012 | 86.17 | 0.00 | 0.0058 | 0.0000 |
| Cyclohexane | 0.0006 | 84.16 | 0.00 | 0.0027 | 0.0000 |
| Other Hexanes | 0.0032 | 86.18 | 0.00 | 0.0152 | 0.0000 |
| Heptanes | 0.0014 | 100.20 | 0.00 | 0.0077 | 0.0000 |
| Methylcyclohexane | 0.0014 | 98.19 | 0.00 | 0.0076 | 0.0000 |
| 2,2,4-Trimethylpentane | 0.0000 | 100.21 | 0.00 | 0.0000 | 0.0000 |
| Benzene | 0.0005 | 78.11 | 0.00 | 0.0021 | 0.0000 |
| Toluene | 0.0008 | 92.14 | 0.00 | 0.0042 | 0.0000 |
| Ethylbenzene | 0.0001 | 106.17 | 0.00 | 0.0005 | 0.0000 |
| Xylenes | 0.0004 | 106.17 | 0.00 | 0.0024 | 0.0000 |
| C8+ heavies | 0.0016 | 110.00 | 0.00 | 0.0100 | 0.0000 |
| Total | 100.0002 | | 18.14 | 100.0000 | 0.0478 |
| VOC | | | 0.14 | -- | 0.0004 |

Blended gas stream composition obtained from the 31-6 Straddle Suction & 31-6 Suction gas analyses sampled July 10, 2020.
Component Weights (lb/lb-mole) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole)
Weight Percent of Total (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.4 scf/lb-mole

# Section 7

## Information Used To Determine Emissions

---

**Information Used to Determine Emissions shall include the following**:

- [x] If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
- [ ] If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
- [x] If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
- [ ] If an older version of AP-42 is used, include a complete copy of the section.
- [x] If an EPA document or other material is referenced, include a complete copy.
- [x] Fuel specifications sheet.
- [x] If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

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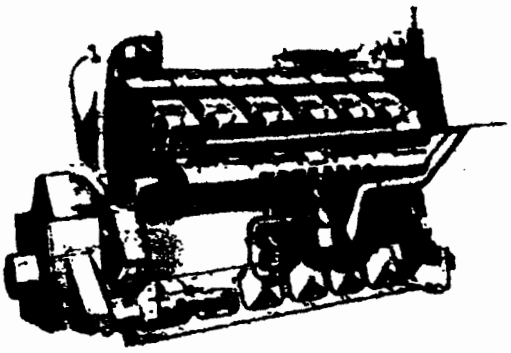
Please see the following pages.

# Waukesha

# 7042GL

**VHP LEAN COMBUSTION GAS ENGINE**
**1108 - 1702 BHP**



***Model 7042GL***
***Turbocharged and Intercooled,***
***Twelve Cylinder, Lean Combustion,***
***Four-Cycle Gas Engine***

## SPECIFICATIONS

| | |
|---|---|
| Cylinders | V 12 |
| Piston Displacement | 7040 in.$^3$ (115 L) |
| Bore & Stroke | 9.375" x 8.5" (238 x 216 mm) |
| Compression Ratio | 10.5:1 |
| Jacket Water System Capacity | 107 gal. (405 L) |
| Lube Oil Capacity | 73 gal. (276 L) |
| Starting System | 125 – 150 psi air/gas; 24/32V electric |
| Dry Weight | 21,000 lb. (9525 kg) |
| Full Load Exhaust Emissions | |
| $NO_x$ | 1.50 g/bhp-hr * |
| CO | 2.65 g/bhp-hr * |
| HC (non-methane) | 1.00 g/bhp-hr * |

## STANDARD EQUIPMENT

**AIR CLEANER** – Two, dry type with rain shield and service indicator.

**BARRING DEVICE** – Manual.

**BEARINGS** – Heavy duty, replaceable, precision type.

**BREATHER** – Ejector type, extractor breather system.

**CONNECTING RODS** – Drop forged steel, rifle drilled.

**CONTROL SYSTEM** – Pneumatic. Includes pilot operated valves for air start and prelube. Engine mounted control panel with two push button valves. Pilot operated air start valves omitted when starter is not furnished by Waukesha. Includes engine On/Off push button. One mounted on either side of the engine.

**CRANKCASE** – Integral crankcase and cylinder frame. Main bearing caps drilled and tapped for temperature sensors. Does not include sensors.

**CRANKSHAFT** – Counterweighted, forged steel, seven main bearings, hardened journals and dynamically balanced.

**CYLINDER HEADS** – Twelve interchangeable, valve-in-head type. Two stellite-faced intake and two stellite-faced exhaust valves per cylinder. Stellite-faced intake and exhaust valve seat inserts. Roller valve lifters and hydraulic push rods. Includes prechamber and related fuel control valves.

**ENGINE ROTATION** – Counterclockwise when facing flywheel.

**ENGINE MONITORING DEVICES** – Engine thermocouples, K-type, are wired to a common junction box for jacket water temperature, lube oil temperature, intake manifold temperature, individual cylinder exhaust temperatures and a common pre turbine temperatures, one on each bank. Lube oil pressure and intake manifold pressure sensing lines are terminated in a common bulk head.

**EXHAUST OUTLET** – Single vertical at rear. Flexible stainless steel connection with 8" (203 mm) pipe flange.

**FLYWHEEL** – Approx. $WR^2$ = 155000 lb-in$^2$, with ring gear (208 teeth), machined to accept two drive adapters: 31.88" (810 mm) pilot bore, 30.25" (768 mm) bolt circle, (12) 0.75"-10 tapped holes; or 28.88" (734 mm) pilot bore, 27.25" (692 mm) bolt circle, (12) 0.625"-11 tapped holes and (12) 0.75"-10 tapped holes.

**FLYWHEEL HOUSING** – No. 00 SAE.

**FUEL SYSTEM** – Dual natural gas, 4" (102 mm) duplex updraft carburetors. Two Fisher Model 99, 2" (51 mm) gas regulators, 30 – 50 psi (241 – 345 kPa) gas inlet pressure required. Prechamber fuel system and control logic.

**GOVERNOR** – Woodward UG-8 LD hydraulic lever type, with friction type speed control. Mounted on right hand side.

**IGNITION** – Waukesha Custom Engine Control® Ignition Module. Electronic digital ignition system. 24 VDC power required.

**INTERCOOLER** – Air-to-water.

**LEVELING BOLTS**

**LIFTING EYES**

**LUBRICATION** – Full pressure. Gear type pump. Full flow filter, 36 gallon (136 litres) capacity, not mounted. Includes flexible connections. Includes lube oil strainer, mounted on engine. Air/gas motor driven prelube pump. Requires final piping.

**MANIFOLDS** – Exhaust, (2) water cooled.

**OIL COOLER** – With thermostatic temperature controller and pressure regulating valve. Not mounted.

**OIL PAN** – Base type. 73 gallon (276 litres) capacity including filter.

**PAINT** – Oilfield Orange Primer.

**PISTONS** – Aluminum with floating pin. Oil cooled.

**SHIPPING SKID** – Steel for domestic truck or rail.

**TURBOCHARGERS** – Two, dry type. Wastegate controlled.

**VIBRATION DAMPER** – Two, viscous type. Guard included with remote mounted radiator or no radiator.

**WATER CIRCULATING SYSTEM, AUXILIARY CIRCUIT** – For oil cooler and intercooler. Pump is belt driven from crankshaft pulley. Includes thermostatic valve.

**WATER CIRCULATING SYSTEM, ENGINE JACKET** – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4" (102 mm) inlets and (1) 5" (127 mm) outlet.

**WAUKESHA CUSTOM ENGINE CONTROL®, DETONATION SENSING MODULE (DSM)** – Includes individual cylinder sensors, Detonation Sensing Module, filter and cables. Device is compatible with Waukesha CEC Ignition Module only. Sensors are mounted and wired to engine junction box. Detonation Sensing Module and filter are shipped loose. One 11 ft. cable provided for connection between engine junction box and filter. One each 15 ft. cable provided for connection between filter and DSM and Ignition Module and DSM. One 20 ft. cable provided for power and ground for filter. All cables are shipped loose. Packager is responsible for power supply and ground to the DSM. 24V DC power is required.

## BRAKE HORSEPOWER RATINGS

130° F (54° C) Intercooler Water Temperature

| | 700 RPM | 800 RPM | 900 RPM | 1000 RPM | 1100 RPM | 1200 RPM |
|---|---|---|---|---|---|---|
| High Speed Turbocharger[1] | 576 | 886 | 1108 | 1232 | 1355 | 1478 |
| Low Speed Turbocharger[2] | 622 | 985 | 1108 | 1232 | – | – |

85° F (29° C) Intercooler Water Temperature

| | 700 RPM | 800 RPM | 900 RPM | 1000 RPM | 1100 RPM | 1200 RPM |
|---|---|---|---|---|---|---|
| High Speed Turbocharger[1] | 804 | 929 | 1160 | 1289 | 1418 | 1547 |
| Low Speed Turbocharger[2] | 622 | 1031 | 1160 | 1289 | – | – |

[1] High speed turbocharger match – 1001–1200 RPM
[2] Low speed turbocharger match – 700 –1000 RPM

**Rating Standard:** All models: Ratings are based on ISO 3046/1–1995 with mechanical efficiency of 90% and $T_{cm}$ (clause 10.1) as specified above limited to ± 10° F (5° C). Ratings are also valid for SAE J1349, BS5514, DIN6271 and AP17B–11C standard atmospheric conditions.

**ISO Standard Power/Continuous Power Rating:** The highest load and speed which can be applied 24 hours a day, seven days a week, 365 days per year except for normal maintenance. It is permissible to operate the engine at up to 10% overload, or maximum load indicated by the intermittent rating, whichever is lower, for two hours in each 24 hour period.

All natural gas engine ratings are based on a fuel of 900 Btu/ft³ (35.3 MJ/nm³) SLHV value, 119 octane (per ASTM D–2700 test method).

For conditions or fuels other than standard, consult the Waukesha Engine Division Application Engineering Department.

## 7042GL PERFORMANCE

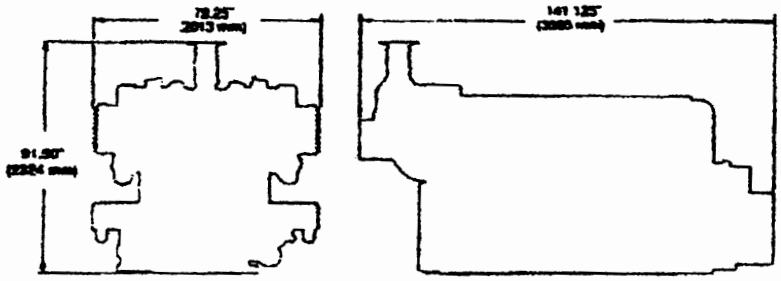
130° F (54° C) Intercooler Water Temperature

| | Performance | RPM | |
|---|---|---|---|
| Power | Bhp | 1200 / 1478 | 1000 / 1232 |
| Low NOx Settings | BSFC (Btu/bhp–hr) | 7155 | 6815 |
| | $NO_x$ (grams/bhp–hr) | 0.80 | 0.90 |
| | CO (grams/bhp–hr) | 2.75 | 2.65 |
| | NMHC (grams/bhp–hr) | 1.0 | 1.0 |
| Low Fuel Consumption Settings | BSFC (Btu/bhp–hr) | 6910 | 6615 |
| | $NO_x$ (grams/bhp–hr) | 1.50 | 1.60 |
| | CO (grams/bhp–hr) | 3.00 | 2.75 |
| | NMHC (grams/bhp–hr) | 0.70 | 1.00 |

85° F (29° C) Intercooler Water Temperature

| | Performance | RPM | |
|---|---|---|---|
| Power | Bhp | 1200 / 1547 | 1000 / 1289 |
| Low NOx Settings | BSFC (Btu/bhp–hr) | 7180 | 6840 |
| | $NO_x$ (grams/bhp–hr) | 0.70 | 0.70 |
| | CO (grams/bhp–hr) | 2.65 | 2.55 |
| | NMHC (grams/bhp–hr) | 1.1 | 1.1 |
| Low Fuel Consumption Settings | BSFC (Btu/bhp–hr) | 6835 | 6640 |
| | $NO_x$ (grams/bhp–hr) | 1.30 | 1.40 |
| | CO (grams/bhp–hr) | 2.90 | 2.85 |
| | NMHC (grams/bhp–hr) | 0.89 | 1.10 |

*NOTES: 1) Performance ratings are based on ISO 3046/1–1995 with mechanical efficiency of 90% and Tcra limited to ± 10° F.*
*2) Fuel consumptions based on ISO 3046/1–1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft3 saturated low heat value.*
*3) Data based on standard conditions of 77° F (25° C) ambient temperature, 29.53 inches Hg. (100 kPa) barometric pressure, 30% relative humidity (1 kPa /0.3 inches Hg. water vapor pressure).*
*4) Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Waukesha Engine Division Application Engineering Department.*




## WAUKESHA SALES OFFICES WORLDWIDE

| Calgary, AB | Glen Burnie, MD | Houston, TX | Roseville, CA | Singapore | Latin America | Middle East | The Netherlands | US Canada Region |
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Consult your local Waukesha Distributor for system application assistance. The manufacturer reserves the right to change or modify without notice, the design or equipment specifications as herein set forth without incurring any obligation either with respect to equipment previously sold or in the process of construction except where otherwise specifically guaranteed by the manufacturer.

Waukesha

WAUKESHA ENGINE DIVISION
DRESSER INDUSTRIES, INC.
WAUKESHA, WISCONSIN 53188-4999

Bulletin 7005A

DCL International Inc.

*Mailing address:* P.O. Box 90, Concord, Ontario, Canada, L4K 1B2
*Toll free:* 1-800-872-1968 *Phone:* 905-660-6450 *Fax:* 905-660-6435 *E-mail:* info@dcl-inc.com

# RE: EMISSIONS GUARANTEE

We hereby guarantee that our QUICK-LID™ Model 2-DC66-12 catalytic converter described below:

| | |
|---|---|
| Catalyst model | 2-DC66-12 |
| Catalyst coating | Oxidation |
| No. of catalyst substrates | 2 |

and sized for the following engine:

| | |
|---|---|
| Engine model | Waukesha 7042GL |
| Power | 1478 bhp |
| Fuel | Natural Gas (Fuel Analysis Provided by Customer) |
| Exhaust Temperature | Min. 709 deg F |
| Exhaust Flow Rate | Max. 15,890 #/hr |

will perform as follows:

| Emissions | Reduction |
|---|---|
| Oxides of Nitrogen (NOx) | 0% |
| Carbon Monoxide (CO) | 93% |
| Volatile Organic Compounds (VOC's) | 80% |

for a period of 1 year or 8000 hours, whichever comes first, subject to all terms and conditions contained in our warranty documents being respected and met.

Best regards,

Paul Cook
DCL International, Inc.

REF: 6-1001

## HEAT REJECTION AND OPERATING DATA
## MODEL L7042GL
## 130° F INTERCOOLER WATER TEMPERATURE
## 180° F JACKET WATER TEMPERATURE

| | BMEP (PSI) | ENGINE SPEED — RPM | | | | |
|---|---|---|---|---|---|---|
| | | LOW SPEED TURBOCHARGER | | | HIGH SPEED TURBOCHARGER | |
| | | 700 | 900 | 1000 | 1000 | 1200 |
| HORSEPOWER (BHP) | 152 | — | — | 1355 | 1355 | 1626 |
| | 138 | — | 1108 | 1232 | 1232 | 1478 |
| | 125 | — | 1000 | 1111 | 1111 | 1333 |
| | 100 | 622 | 800 | 889 | 889 | 1067 |
| | 75 | 467 | 600 | 667 | 667 | 800 |
| | 50 | 311 | 400 | 444 | 444 | 533 |
| BRAKE SPEC FUEL CONSUMPTION (BTU/BHP-HR) | 152 | — | — | 7061 | 6891 | 7168 |
| | 138 | — | 6889 | 7151 | 6984 | 7274 |
| | 125 | — | 6991 | 7259 | 7095 | 7401 |
| | 100 | 7051 | 7252 | 7535 | 7379 | 7726 |
| | 75 | 7492 | 7687 | 7995 | 7852 | 8267 |
| | 50 | 8374 | 8558 | 8914 | 8798 | 9349 |
| FUEL CONSUMPTION (BTU/HR X 1000) | 152 | — | — | 9565 | 9335 | 11650 |
| | 138 | — | 7635 | 8805 | 8600 | 10750 |
| | 125 | — | 6990 | 8065 | 7885 | 9870 |
| | 100 | 4385 | 5800 | 6700 | 6560 | 8240 |
| | 75 | 3495 | 4610 | 5330 | 5235 | 6615 |
| | 50 | 2605 | 3425 | 3960 | 3910 | 4985 |
| HEAT TO JACKET WATER (BTU/HR X 1000) | 152 | — | — | 2510 | 2400 | 3010 |
| | 138 | — | 1995 | 2335 | 2235 | 2815 |
| | 125 | — | 1850 | 2165 | 2070 | 2630 |
| | 100 | 1202 | 1585 | 1850 | 1775 | 2280 |
| | 75 | 1015 | 1323 | 1535 | 1475 | 1930 |
| | 50 | 829 | 1059 | 1219 | 1177 | 1585 |
| HEAT TO LUBE OIL (BTU/HR X 1000) | 152 | — | — | 372 | 358 | 449 |
| | 138 | — | 277 | 353 | 340 | 430 |
| | 125 | — | 263 | 334 | 323 | 412 |
| | 100 | 177 | 238 | 29 | 291 | 379 |
| | 75 | 155 | 213 | 264 | 258 | 346 |
| | 50 | 133 | 188 | 229 | 226 | 313 |
| HEAT TO INTERCOOLER (BTU/HR X 1000) | 152 | — | — | 532 | 452 | 616 |
| | 138 | — | 355 | 447 | 368 | 543 |
| | 125 | — | 291 | 370 | 295 | 472 |
| | 100 | 85 | 187 | 244 | 180 | 340 |
| | 75 | 25.5 | 98.5 | 139 | 91.5 | 207 |
| | 50 | 2 | 26.5 | 56.5 | 29.5 | 73 |
| HEAT TO RADIATION (BTU/HR X 1000) | 152 | — | — | 303 | 308 | 332 |
| | 138 | — | 294 | 302 | 305 | 328 |
| | 125 | — | 294 | 301 | 304 | 323 |
| | 100 | 282 | 292 | 300 | 304 | 314 |
| | 75 | 281 | 292 | 303 | 309 | 311 |
| | 50 | 280 | 292 | 317 | 318 | 320 |

## HEAT REJECTION AND OPERATING DATA
## MODEL L7042GL
## 130° F INTERCOOLER WATER TEMPERATURE
## 180° F JACKET WATER TEMPERATURE

| | BMEP (PSI) | ENGINE SPEED — RPM | | | | |
|---|---|---|---|---|---|---|
| | | LOW SPEED TURBOCHARGER | | | HIGH SPEED TURBOCHARGER | |
| | | 700 | 900 | 1000 | 1000 | 1200 |
| TOTAL ENERGY IN EXHAUST (BTU/HR X 1000) | 152 | — | — | 2595 | 2580 | 3370 |
| | 138 | — | 2060 | 2390 | 2380 | 3085 |
| | 125 | — | 1890 | 2190 | 2180 | 2805 |
| | 100 | 1179 | 1575 | 1830 | 1830 | 2310 |
| | 75 | 942 | 1272 | 1494 | 1498 | 1865 |
| | 50 | 722 | 985 | 1188 | 1198 | 1485 |
| EXHAUST TEMP AFTER TURBINE (± 50° F) | 152 | — | — | 673 | 683 | 719 |
| | 138 | — | 661 | 669 | 679 | 709 |
| | 125 | — | 659 | 666 | 676 | 699 |
| | 100 | 645 | 656 | 664 | 675 | 684 |
| | 75 | 638 | 655 | 671 | 683 | 679 |
| | 50 | 620 | 653 | 690 | 704 | 691 |
| INDUCTION AIR FLOW (SCFM) | 152 | — | — | 3120 | 3045 | 3800 |
| | 138 | — | 2485 | 2865 | 2800 | 3500 |
| | 125 | — | 2275 | 2620 | 2565 | 3210 |
| | 100 | 1430 | 1885 | 2180 | 2135 | 2685 |
| | 75 | 1140 | 1500 | 1740 | 1705 | 2155 |
| | 50 | 845 | 1110 | 1285 | 1270 | 1620 |
| EXHAUST GAS FLOW (LBS/HR) | 152 | — | — | 14165 | 13825 | 17200 |
| | 138 | — | 11290 | 13020 | 12715 | 15890 |
| | 125 | — | 10330 | 11920 | 11645 | 14580 |
| | 100 | 6485 | 8585 | 9910 | 9710 | 12195 |
| | 75 | 5170 | 6830 | 7890 | 7750 | 9795 |
| | 50 | 3855 | 5050 | 5840 | 5765 | 7350 |

***NOTES:***

1. All data are based on ISO standard conditions of 29.54 inches Hg. barometric pressure, 77∞F ambient and induction air temperature, 30% relative humidity (0.3 inches of water vapor pressure), 180∞F engine jacket water outlet temperature, and standard 10∞BTDC ignition timing.
2. Data are average values at the standard conditions and will vary for individual engines and with operating and ambient conditions and with changes to ignition timing or air/fuel ratio. An adequate reserve should be used for cooling system or heat recovery calculations. See also Cooling System Guidelines S-6699-7, latest verison.
3. ISO Standard (continuous) power ratings conform to ISO 3046/1, latest version, with a mechanical efficiency of 90% and auxiliary water temperature, Tcra, of 130∞F limited to ± 10∞F.
4. Fuel rating standard; dry natural gas, 900 Btu/scf saturated lower heating value (SLHV), with a minimum 90 WKI™. Refer to S-7884-7, latest version, for the full fuel specification.
5. For heat rejection changes due to engine jacket water outlet temperature higher than standard (Note 1), refer to S-7613-3, latest version.
6. Total Exhaust Energy includes both recoverable and non-recoverable heat. For a procedure to calculate recoverable heat refer to S-8117-2, latest version.
7. Exhaust oxygen concentration set to 9.8% at rated speed and load at standard timing to provide 1.5 g/bhp-hr NOx, or less. This level is to be measured at the port located in the exhaust manifold, upstream of the turbocharger, for GL engines.
8. Reference curve C-968-19.
9. Exhaust flow at nominal 29.54 inches Hg. barometric pressure:

$$\text{Flow rate: ACFM} = \frac{(\text{Exh. Flow, lb/hr}) \times (\text{Exh. Temp. }^{\circ}\text{F} + 460^{\circ})}{2275}$$

## — METRIC —
## HEAT REJECTION AND OPERATING DATA — MODEL L7042GL
## 54° C INTERCOOLER WATER TEMPERATURE — 82° C JACKET WATER TEMPERATURE

| | BMEP (bar) | ENGINE SPEED — RPM | | | | |
|---|---|---|---|---|---|---|
| | | LOW SPEED TURBOCHARGER | | | HIGH SPEED TURBOCHARGER | |
| | | 700 | 900 | 1000 | 1000 | 1200 |
| HORSEPOWER (kW) | 10.51 | — | — | 1010 | 1010 | 1212 |
| | 9.54 | — | 827 | 918 | 918 | 1102 |
| | 8.62 | — | 746 | 829 | 829 | 994 |
| | 6.9 | 464 | 597 | 663 | 663 | 795 |
| | 5.17 | 348 | 447 | 497 | 497 | 597 |
| | 3.45 | 232 | 298 | 331 | 331 | 398 |
| BRAKE SPEC FUEL CONSUMPTION (kJ/kWh) | 10.51 | — | — | 9990 | 9750 | 10142 |
| | 9.54 | — | 9747 | 10118 | 9882 | 10292 |
| | 8.62 | — | 9891 | 10270 | 10039 | 10472 |
| | 6.9 | 9976 | 10261 | 10661 | 10440 | 10931 |
| | 5.17 | 10600 | 10877 | 11311 | 11110 | 11697 |
| | 3.45 | 11848 | 12108 | 12612 | 12448 | 13228 |
| FUEL CONSUMPTION (kW) | 10.51 | — | — | 2803 | 2736 | 3415 |
| | 9.54 | — | 2238 | 2581 | 2521 | 3151 |
| | 8.62 | — | 2049 | 2364 | 2310 | 2892 |
| | 6.9 | 1286 | 1700 | 1963 | 1922 | 2415 |
| | 5.17 | 1025 | 1352 | 1562 | 1534 | 1938 |
| | 3.45 | 764 | 1003 | 1161 | 1146 | 1461 |
| HEAT TO JACKET WATER (kW) | 10.51 | — | — | 735 | 703 | 882 |
| | 9.54 | — | 585 | 684 | 655 | 825 |
| | 8.62 | — | 543 | 634 | 607 | 770 |
| | 6.9 | 352 | 465 | 542 | 520 | 668 |
| | 5.17 | 298 | 388 | 449 | 432 | 566 |
| | 3.45 | 243 | 310 | 357 | 345 | 464 |
| HEAT TO LUBE OIL (kW) | 10.51 | — | — | 109 | 105 | 132 |
| | 9.54 | — | 81 | 103 | 100 | 126 |
| | 8.62 | — | 77 | 98 | 95 | 121 |
| | 6.9 | 52 | 70 | 88 | 85 | 111 |
| | 5.17 | 45 | 63 | 77 | 76 | 101 |
| | 3.45 | 39 | 55 | 67 | 66 | 92 |
| HEAT TO INTERCOOLER (kW) | 10.51 | — | — | 156 | 132 | 180 |
| | 9.54 | — | 104 | 131 | 108 | 159 |
| | 8.62 | — | 85 | 108 | 86 | 138 |
| | 6.9 | 25 | 55 | 71 | 53 | 100 |
| | 5.17 | 7 | 29 | 41 | 27 | 61 |
| | 3.45 | 1 | 8 | 16 | 9 | 21 |
| HEAT TO RADIATION (kW) | 10.51 | — | — | 89 | 90 | 97 |
| | 9.54 | — | 86 | 89 | 89 | 96 |
| | 8.62 | — | 86 | 88 | 89 | 95 |
| | 6.9 | 83 | 86 | 88 | 89 | 92 |
| | 5.17 | 82 | 86 | 89 | 90 | 91 |
| | 3.45 | 82 | 85 | 93 | 93 | 94 |

## — METRIC —
## HEAT REJECTION AND OPERATING DATA — MODEL L7042GL
## 54° C INTERCOOLER WATER TEMPERATURE — 82° C JACKET WATER TEMPERATURE

| | BMEP (bar) | ENGINE SPEED — RPM | | | | |
|---|---|---|---|---|---|---|
| | | LOW SPEED TURBOCHARGER | | | HIGH SPEED TURBOCHARGER | |
| | | 700 | 900 | 1000 | 1000 | 1200 |
| TOTAL ENERGY IN EXHAUST (kW) | 10.51 | — | — | 761 | 756 | 988 |
| | 9.54 | — | 603 | 700 | 697 | 904 |
| | 8.62 | — | 554 | 642 | 640 | 822 |
| | 6.9 | 346 | 462 | 536 | 536 | 677 |
| | 5.17 | 276 | 373 | 438 | 439 | 547 |
| | 3.45 | 211 | 289 | 348 | 351 | 435 |
| EXHAUST TEMP AFTER TURBINE (± 30° C) | 10.51 | — | — | 356 | 362 | 381 |
| | 9.54 | — | 349 | 354 | 360 | 376 |
| | 8.62 | — | 348 | 352 | 358 | 371 |
| | 6.9 | 341 | 347 | 351 | 357 | 362 |
| | 5.17 | 337 | 346 | 355 | 362 | 359 |
| | 3.45 | 327 | 345 | 365 | 373 | 366 |
| INDUCTION AIR FLOW ($nm^3/h$) | 10.51 | — | — | 4793 | 4678 | 5839 |
| | 9.54 | — | 3818 | 4403 | 4301 | 5375 |
| | 8.62 | — | 3494 | 4031 | 3940 | 4932 |
| | 6.9 | 2195 | 2904 | 3352 | 3283 | 4125 |
| | 5.17 | 1749 | 2310 | 2670 | 2622 | 3313 |
| | 3.45 | 1306 | 1707 | 1975 | 1949 | 2486 |
| EXHAUST GAS FLOW (kg/h) | 10.51 | — | — | 6427 | 6273 | 7830 |
| | 9.54 | — | 5120 | 5905 | 5768 | 7209 |
| | 8.62 | — | 4686 | 5406 | 5284 | 6614 |
| | 6.9 | 2943 | 3894 | 4496 | 4403 | 5532 |
| | 5.17 | 2345 | 3098 | 3580 | 3516 | 4442 |
| | 3.45 | 1751 | 2289 | 2649 | 2615 | 3334 |

***NOTES:***

1. All data are based on ISO standard conditions of 100 kPa barometric pressure, 25∞C ambient and induction air temperature, 30% relative humidity, (1 kPa water vapor pressure), 82∞C engine jacket water outlet temperature, and standard 10∞BTDC ignition timing.
2. Data are average values at the standard conditions and will vary for individual engines and with operating and ambient conditions and with changes to ignition timing or air/fuel ratio. An adequate reserve should be used for cooling system or heat recovery calculations. See also Cooling System Guidelines S-6699-7, latest version.
3. ISO Standard (continuous) power ratings conform to ISO 3046/1, latest version, with a mechanical efficiency of 90% and auxiliary water temperature, Tcra, of 54∞C limited to ± 5.5∞C.
1. Fuel standard: dry natural gas, 35.38 $MJ/m^3$ [25, V (0; 101.325)] saturated lower heating value (SLHV), with a minimum Waukesha Knock Index of 91. Refer to S-7884-7, latest version, for the full fuel specification.
5. For heat rejection changes due to engine jacket water outlet temperature higher than standard (Note 1), refer to S-7613-3, latest version.
6. Total Exhaust Energy includes both recoverable and non-recoverable heat. For a procedure to calculate recoverable heat refer to S-8117-2, latest version.
7. Exhaust oxygen concentration set to 9.8% at rated speed and load at standard timing to provide 1.5 g/bhp-hr NOx, or less. This level is to be measured at the port located in the exhaust manifold, upstream of the turbocharger, for GL engines.
8. Reference curve C-968-19.
9. Exhaust flow at nominal 100 kPa barometric pressure:

$$\text{Flow rate: } m^3/hr = \frac{(\text{Exh. Flow, kg/hr}) \times (\text{Exh. Temp. } ^\circ C + 273^\circ)}{336.66}$$



DRESSER Waukesha

| — METRIC — HEAT REJECTION AND OPERATING DATA — MODEL L7042GL 54° C INTERCOOLER WATER TEMPERATURE 82° C JACKET WATER TEMPERATURE | EN: 120301 DATE: 1/03 | Ref. S 6124-63 |
|---|---|---|

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES[a]
(SCC 2-02-002-54)

| Pollutant | Emission Factor (lb/MMBtu)[b] (fuel input) | Emission Factor Rating |
|---|---|---|
| Criteria Pollutants and Greenhouse Gases | | |
| $NO_x$[c] 90 - 105% Load | 4.08 E+00 | B |
| $NO_x$[c] <90% Load | 8.47 E-01 | B |
| CO[c] 90 - 105% Load | 3.17 E-01 | C |
| CO[c] <90% Load | 5.57 E-01 | B |
| $CO_2$[d] | 1.10 E+02 | A |
| $SO_2$[e] | 5.88 E-04 | A |
| TOC[f] | 1.47 E+00 | A |
| Methane[g] | 1.25 E+00 | C |
| VOC[h] | 1.18 E-01 | C |
| PM10 (filterable)[i] | 7.71 E-05 | D |
| PM2.5 (filterable)[i] | 7.71 E-05 | D |
| PM Condensable[j] | 9.91 E-03 | D |
| Trace Organic Compounds | | |
| 1,1,2,2-Tetrachloroethane[k] | <4.00 E-05 | E |
| 1,1,2-Trichloroethane[k] | <3.18 E-05 | E |
| 1,1-Dichloroethane | <2.36 E-05 | E |
| 1,2,3-Trimethylbenzene | 2.30 E-05 | D |
| 1,2,4-Trimethylbenzene | 1.43 E-05 | C |
| 1,2-Dichloroethane | <2.36 E-05 | E |
| 1,2-Dichloropropane | <2.69 E-05 | E |
| 1,3,5-Trimethylbenzene | 3.38 E-05 | D |
| 1,3-Butadiene[k] | 2.67E-04 | D |
| 1,3-Dichloropropene[k] | <2.64 E-05 | E |
| 2-Methylnaphthalene[k] | 3.32 E-05 | C |
| 2,2,4-Trimethylpentane[k] | 2.50 E-04 | C |
| Acenaphthene[k] | 1.25 E-06 | C |

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES (Continued)

| Pollutant | Emission Factor (lb/MMBtu)[b] (fuel input) | Emission Factor Rating |
|---|---|---|
| Acenaphthylene[k] | 5.53 E-06 | C |
| Acetaldehyde[k,l] | 8.36 E-03 | A |
| Acrolein[k,l] | 5.14 E-03 | A |
| Benzene[k] | 4.40 E-04 | A |
| Benzo(b)fluoranthene[k] | 1.66 E-07 | D |
| Benzo(e)pyrene[k] | 4.15 E-07 | D |
| Benzo(g,h,i)perylene[k] | 4.14 E-07 | D |
| Biphenyl[k] | 2.12 E-04 | D |
| Butane | 5.41 E-04 | D |
| Butyr/Isobutyraldehyde | 1.01 E-04 | C |
| Carbon Tetrachloride[k] | <3.67 E-05 | E |
| Chlorobenzene[k] | <3.04 E-05 | E |
| Chloroethane | 1.87 E-06 | D |
| Chloroform[k] | <2.85 E-05 | E |
| Chrysene[k] | 6.93 E-07 | C |
| Cyclopentane | 2.27 E-04 | C |
| Ethane | 1.05 E-01 | C |
| Ethylbenzene[k] | 3.97 E-05 | B |
| Ethylene Dibromide[k] | <4.43 E-05 | E |
| Fluoranthene[k] | 1.11 E-06 | C |
| Fluorene[k] | 5.67 E-06 | C |
| Formaldehyde[k,l] | 5.28 E-02 | A |
| Methanol[k] | 2.50 E-03 | B |
| Methylcyclohexane | 1.23 E-03 | C |
| Methylene Chloride[k] | 2.00 E-05 | C |
| n-Hexane[k] | 1.11 E-03 | C |
| n-Nonane | 1.10 E-04 | C |

Table 3.2-2. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE LEAN-BURN ENGINES
(Continued)

| Pollutant | Emission Factor (lb/MMBtu)[b] (fuel input) | Emission Factor Rating |
|---|---|---|
| n-Octane | 3.51 E-04 | C |
| n-Pentane | 2.60 E-03 | C |
| Naphthalene[k] | 7.44 E-05 | C |
| PAH[k] | 2.69 E-05 | D |
| Phenanthrene[k] | 1.04 E-05 | D |
| Phenol[k] | 2.40 E-05 | D |
| Propane | 4.19 E-02 | C |
| Pyrene[k] | 1.36 E-06 | C |
| Styrene[k] | <2.36 E-05 | E |
| Tetrachloroethane[k] | 2.48 E-06 | D |
| Toluene[k] | 4.08 E-04 | B |
| Vinyl Chloride[k] | 1.49 E-05 | C |
| Xylene[k] | 1.84 E-04 | B |

[a] Reference 7. Factors represent uncontrolled levels. For $NO_x$, CO, and PM10, "uncontrolled" means no combustion or add-on controls; however, the factor may include turbocharged units. For all other pollutants, "uncontrolled" means no oxidation control; the data set may include units with control techniques used for NOx control, such as PCC and SCR for lean burn engines, and PSC for rich burn engines. Factors are based on large population of engines. Factors are for engines at all loads, except as indicated. SCC = Source Classification Code. TOC = Total Organic Compounds. PM-10 = Particulate Matter ≤ 10 microns ($\mu$m) aerodynamic diameter. A "<" sign in front of a factor means that the corresponding emission factor is based on one-half of the method detection limit.

[b] Emission factors were calculated in units of (lb/MMBtu) based on procedures in EPA Method 19. To convert from (lb/MMBtu) to (lb/$10^6$ scf), multiply by the heat content of the fuel. If the heat content is not available, use 1020 Btu/scf. To convert from (lb/MMBtu) to (lb/hp-hr) use the following equation:

$$\text{lb/hp-hr} = (\text{lb/MMBtu})\ (\text{heat input, MMBtu/hr})\ (\text{1/operating HP, 1/hp})$$

[c] Emission tests with unreported load conditions were not included in the data set.

[d] Based on 99.5% conversion of the fuel carbon to $CO_2$. $CO_2$ [lb/MMBtu] = (3.67)(%CON)(C)(D)(1/h), where %CON = percent conversion of fuel carbon to $CO_2$, C = carbon content of fuel by weight (0.75), D = density of fuel, 4.1 E+04 lb/$10^6$ scf, and

h = heating value of natural gas (assume 1020 Btu/scf at 60°F).

[e] Based on 100% conversion of fuel sulfur to $SO_2$. Assumes sulfur content in natural gas of 2,000 gr/$10^6$scf.

[f] Emission factor for TOC is based on measured emission levels from 22 source tests.

[g] Emission factor for methane is determined by subtracting the VOC and ethane emission factors from the TOC emission factor. Measured emission factor for methane compares well with the calculated emission factor, 1.31 lb/MMBtu vs. 1.25 lb/MMBtu, respectively.

[h] VOC emission factor is based on the sum of the emission factors for all speciated organic compounds less ethane and methane.

[i] Considered $\leq$ 1 $\mu$m in aerodynamic diameter. Therefore, for filterable PM emissions, PM10(filterable) = PM2.5(filterable).

[j] PM Condensable = PM Condensable Inorganic + PM-Condensable Organic

[k] Hazardous Air Pollutant as defined by Section 112(b) of the Clean Air Act.

[l] For lean burn engines, aldehyde emissions quantification using CARB 430 may reflect interference with the sampling compounds due to the nitrogen concentration in the stack. The presented emission factor is based on FTIR measurements. Emissions data based on CARB 430 are available in the background report.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

| Pollutant | Emission Factor ($lb/10^6$ scf) | Emission Factor Rating |
|---|---|---|
| $CO_2$[b] | 120,000 | A |
| Lead | 0.0005 | D |
| $N_2O$ (Uncontrolled) | 2.2 | E |
| $N_2O$ (Controlled-low-$NO_X$ burner) | 0.64 | E |
| PM (Total)[c] | 7.6 | D |
| PM (Condensable)[c] | 5.7 | D |
| PM (Filterable)[c] | 1.9 | B |
| $SO_2$[d] | 0.6 | A |
| TOC | 11 | B |
| Methane | 2.3 | B |
| VOC | 5.5 | C |

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ $m^3$, multiply by 16. To convert from $lb/10^6$ scf to 1b/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to $CO_2$. $CO_2[lb/10^6 \text{ scf}] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to $CO_2$, C = carbon content of fuel by weight (0.76), and D = density of fuel, $4.2 \times 10^4$ $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate $PM_{10}$, $PM_{2.5}$ or $PM_1$ emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to $SO_2$. Assumes sulfur content is natural gas of 2,000 grains/$10^6$ scf. The $SO_2$ emission factor in this table can be converted to other natural gas sulfur contents by multiplying the $SO_2$ emission factor by the ratio of the site-specific sulfur content (grains/$10^6$ scf) to 2,000 grains/$10^6$ scf.

# 31-6 Combined Inlet Stream Gas Composition

| | 31-6 SUCTION | | 31-6 STRADDLE SUCTION | | Mixed Inlet | | |
|---|---|---|---|---|---|---|---|
| Meter # / Sample Date | 0217-01 | 7/10/2020 | 62205 | 7/10/2020 | | | |
| Component | mol% | % gas assumed | mol% | % gas assumed | mol% | MW (lb/lb-mole) | Emission Factor (lb/scf) |
| Carbon Dioxide | 17.9260 | 18.0% | 3.9918 | 82.0% | 6.4949 | 44.01 | 7.53E-03 |
| Hydrogen Sulfide | 0.0000 | | 0.0000 | | 0.0000 | 34.07 | 0.00E+00 |
| Nitrogen | 0.0261 | | 0.1155 | | 0.0994 | 28.01 | 7.34E-05 |
| Methane | 81.5317 | | 94.1841 | | 91.9113 | 16.04 | 3.89E-02 |
| Ethane | 0.4577 | | 1.3719 | | 1.2077 | 30.07 | 9.57E-04 |
| Propane | 0.0585 | | 0.2361 | | 0.2042 | 44.09 | 2.37E-04 |
| Isobutane | 0.0000 | | 0.0384 | | 0.0315 | 58.12 | 4.83E-05 |
| n-Butane | 0.0000 | | 0.0317 | | 0.0260 | 58.12 | 3.98E-05 |
| Isopentane | 0.0000 | | 0.0115 | | 0.0094 | 72.15 | 1.79E-05 |
| n-Pentane | 0.0000 | | 0.0052 | | 0.0043 | 72.15 | 8.11E-06 |
| Cyclopentane | 0.0000 | | 0.0003 | | 0.0002 | 70.14 | 4.55E-07 |
| n-Hexane, C6 | 0.0000 | | 0.0015 | | 0.0012 | 86.17 | 2.79E-06 |
| Cyclohexane | 0.0000 | | 0.0007 | | 0.0006 | 84.16 | 1.27E-06 |
| Other Hexanes | 0.0000 | | 0.0039 | | 0.0032 | 86.18 | 7.27E-06 |
| Heptanes | 0.0000 | | 0.0017 | | 0.0014 | 100.20 | 3.68E-06 |
| Methylcyclohexane | 0.0000 | | 0.0017 | | 0.0014 | 98.19 | 3.61E-06 |
| 2,2,4 Trimethylpentane | 0.0000 | | 0.0000 | | 0.0000 | 100.21 | 0.00E+00 |
| Benzene, C6 | 0.0000 | | 0.0006 | | 0.0005 | 78.11 | 1.01E-06 |
| Toluene, C7 | 0.0000 | | 0.0010 | | 0.0008 | 92.14 | 1.99E-06 |
| Ethylbenzene, C8 | 0.0000 | | 0.0001 | | 0.0001 | 106.17 | 2.30E-07 |
| Xylenes, C8 | 0.0000 | | 0.0005 | | 0.0004 | 106.17 | 1.15E-06 |
| C8+ Heavies | 0.0000 | | 0.0020 | | 0.0016 | 110.00 | 4.76E-06 |
| **Total** | 100.0000 | | 100.0002 | | 100.0002 | TOC lb/scf: | 4.78E-02 |
| **Total VOC** | | | | | | VOC lb/scf: | 3.80E-04 |

The blended gas stream composition is based on the 31-6 Straddle Suction & 31-6 Suction gas analyses sampled on July 10, 2020.

The individual gas percentages are from actual 2020 31-6 CDP gas throughputs. The percentages vary over time according to field conditions.

Mixed Inlet mol % =

[(mol % (31-6 CDP) x 2020 12-month flow (31-6 CDP)) + (mol % (31-6 Straddle Suction) x 2020 12-month flow (31-6 Straddle Suction))]

/ (2020 12-month flow (31-6 CDP) + 2020 12-month flow (31-6 Straddle Suction))

Emission Factor (lb/scf) = (MW (lb/lb-mol) x (Mixed Inlet mol % of gas constituent /100)) / (379.4 scf/mol)

2030 Afton Place
Farmington, NM 87401
(505) 325-6622

Analysis No: HM200064
Cust No: 33700-10100

## Well/Lease Information

| | | | |
|---|---|---|---|
| Customer Name: | HARVEST MIDSTREAM | Source: | METER RUN |
| Well Name: | 31-6 SUCTION | Well Flowing: | Y |
| County/State: | | Pressure: | 98 PSIG |
| Location: | | Flow Temp: | 105 DEG. F |
| Lease/PA/CA: | | Ambient Temp: | 90 DEG. F |
| Formation: | | Flow Rate: | 32 MCF/D |
| Cust. Stn. No.: | | Sample Method: | Purge & Fill |
| | | Sample Date: | 07/10/2020 |
| | | Sample Time: | 2.00 PM |
| | | Sampled By: | D. VALENCIA |
| Heat Trace: | N | Sampled by (CO): | HARVEST |
| Remarks: | Calculated Molecular Weight = 21.1401 | | |

## Analysis

| Component: | Mole%: | Unormalized %: | **GPM: | *BTU: | *SP Gravity: |
|---|---|---|---|---|---|
| Nitrogen | 0.0261 | 0.0263 | 0.0030 | 0.00 | 0.0003 |
| CO2 | 17.9260 | 18.0630 | 3.0660 | 0.00 | 0.2724 |
| Methane | 81.5317 | 82.1547 | 13.8530 | 823.47 | 0.4516 |
| Ethane | 0.4577 | 0.4612 | 0.1230 | 8.10 | 0.0048 |
| Propane | 0.0585 | 0.0589 | 0.0160 | 1.47 | 0.0009 |
| Iso-Butane | 0.0000 | 0.0000 | 0.0000 | 0.00 | 0.0000 |
| N-Butane | 0.0000 | 0.0000 | 0.0000 | 0.00 | 0.0000 |
| Neopentane 2,2 dmc3 | 0.0000 | 0.0000 | 0.0000 | 0.00 | 0.0000 |
| I-Pentane | 0.0000 | 0.0000 | 0.0000 | 0.00 | 0.0000 |
| N-Pentane | 0.0000 | 0.0000 | 0.0000 | 0.00 | 0.0000 |
| Neohexane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 2-3-Dimethylbutane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Cyclopentane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 2-Methylpentane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 3-Methylpentane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| C6 | 0.0000 | 0.0000 | 0.0000 | 0.00 | 0.0000 |
| Methylcyclopentane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Benzene | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Cyclohexane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 2-Methylhexane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 3-Methylhexane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 2-2-4-Trimethylpentane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| i-heptanes | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Heptane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| Methylcyclohexane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Toluene | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 2-Methylheptane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| 4-Methylheptane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| i-Octanes | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Octane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Ethylbenzene | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| m, p Xylene | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| o Xylene (& 2,2,4 tmc7) | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| i-C9 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| C9 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| i-C10 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| C10 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| i-C11 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| C11 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| C12P | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Total | 100.00 | 100.764 | 17.061 | 833.04 | 0.7299 |

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

| | | | |
|---|---|---|---|
| COMPRESSIBLITY FACTOR (1/Z): | 1.0025 | CYLINDER #: | 18 |
| BTU/CU.FT IDEAL: | 835.0 | CYLINDER PRESSURE: | 100 PSIG |
| BTU/CU.FT (DRY) CORRECTED FOR (1/Z): | 837.1 | ANALYSIS DATE: | 07/13/2020 |
| BTU/CU.FT (WET) CORRECTED FOR (1/Z): | 822.5 | ANALYIS TIME: | 12:14:04 AM |
| DRY BTU @ 15.025: | 853.9 | ANALYSIS RUN BY: | PATRICIA KING |
| REAL SPECIFIC GRAVITY: | 0.7314 | | |

**GPM, BTU, and SPG calculations as shown above are based on current GPA constants.**
**GPA Standard: GPA 2286-14**
**GC: SRI Instruments 8610** **Last Cal/Verify: 07/14/2020**
**GC Method: C12+BTEX Gas**

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

**Lease:** 31-6 SUCTION METER RUN 07/14/2020

**Stn. No.:** 33700-10100

**Mtr. No.:**

| | | |
|---|---|---|
| Smpl Date: | 07/10/2020 | 12/26/2018 |
| Test Date: | 07/13/2020 | 12/28/2018 |
| Run No: | HM200064 | HM180021 |
| Nitrogen: | 0.0261 | 0.2159 |
| CO2: | 17.9260 | 13.9884 |
| Methane: | 81.5317 | 84.4428 |
| Ethane: | 0.4577 | 0.6331 |
| Propane: | 0.0585 | 0.1085 |
| I-Butane: | 0.0000 | 0.0102 |
| N-Butane: | 0.0000 | 0.0150 |
| 2,2 dmc3: | 0.0000 | 0.5773 |
| I-Pentane: | 0.0000 | 0.0032 |
| N-Pentane: | 0.0000 | 0.0023 |
| Neohexane: | 0.0000 | 0.0000 |
| 2-3- | 0.0000 | 0.0000 |
| Cyclopentane: | 0.0000 | 0.0000 |
| 2-Methylpentane: | 0.0000 | 0.0001 |
| 3-Methylpentane: | 0.0000 | 0.0000 |
| C6: | 0.0000 | 0.0003 |
| Methylcyclopentane: | 0.0000 | 0.0002 |
| Benzene: | 0.0000 | 0.0001 |
| Cyclohexane: | 0.0000 | 0.0001 |
| 2-Methylhexane: | 0.0000 | 0.0000 |
| 3-Methylhexane: | 0.0000 | 0.0000 |
| 2-2-4- | 0.0000 | 0.0000 |
| i-heptanes: | 0.0000 | 0.0000 |
| Heptane: | 0.0000 | 0.0002 |
| Methylcyclohexane: | 0.0000 | 0.0004 |
| Toluene: | 0.0000 | 0.0003 |
| 2-Methylheptane: | 0.0000 | 0.0001 |
| 4-Methylheptane: | 0.0000 | 0.0001 |
| i-Octanes: | 0.0000 | 0.0002 |
| Octane: | 0.0000 | 0.0002 |
| Ethylbenzene: | 0.0000 | 0.0000 |
| m, p Xylene: | 0.0000 | 0.0002 |
| o Xylene (& 2,2,4 | 0.0000 | 0.0000 |
| i-C9: | 0.0000 | 0.0002 |
| C9: | 0.0000 | 0.0001 |
| i-C10: | 0.0000 | 0.0001 |
| C10: | 0.0000 | 0.0001 |
| i-C11: | 0.0000 | 0.0000 |
| C11: | 0.0000 | 0.0000 |
| C12P: | 0.0000 | 0.0000 |
| BTU: | 837.1 | 895.3 |
| GPM: | 17.0610 | 16.9770 |
| SPG: | 0.7314 | 0.7072 |

100#

2030 Afton Place, Farmington, NM 87401 - (505) 325-6622

GAS ANALYSIS SERVICE

C6+ ☐ C9+ ☐ C12+ BTEX ☐ Helium ☐

N2 Flowback ☐ Sulfurs ☐ Ext. Liquid ☐

Other ~~Extended Analysis~~ Date 7/10/2020

Sampled By:(Co.) Harvest Midstream Time 1400 ☐AM ☐PM

Sampled by:(Person) Donny Valencia Well Flowing: ☑ Yes ☐ No

Company: Harvest Midstream Heat Trace: ☐ Yes ☑ ~~No~~

Well Name: 31-6 CDP inlet Suction Flow Pressure (PSIG): 98#

Lease#: Flow Temp (°F): 105°

County: Rio Arriba Formation: Unknown (CDP) Ambient Temp (°F): 90°

State: NM Location: Flow Rate (MCF/D): 32mcf

Source: ☑ Meter Run ☐ Tubing ☐ Casing ☐ Bradenhead ☐ Other

Sample Type: ☑ Spot ☐ Composite Sample Method: ☑ Purge & Fill ☐ Other

Meter Number: 02017-01 Cylinder Number: 18

Contact: D. Valencia

Remarks: Extended Analysis

33700 - 10100 HM 200064

2030 Afton Place
Farmington, NM 87401
(505) 325-6622

Analysis No: HM200063
Cust No: 33700-10095

## Well/Lease Information

| | | | |
|---|---|---|---|
| Customer Name: | HARVEST MIDSTREAM | Source: | METER RUN |
| Well Name: | 31-6 STRADDLE SUCTION | Well Flowing: | Y |
| County/State: | | Pressure: | 34 PSIG |
| Location: | | Flow Temp: | 83 DEG. F |
| Lease/PA/CA: | | Ambient Temp: | 90 DEG. F |
| Formation: | | Flow Rate: | MCF/D |
| Cust. Stn. No.: | | Sample Method: | Purge & Fill |
| | | Sample Date: | 07/10/2020 |
| | | Sample Time: | 2.00 PM |
| | | Sampled By: | D. VALENCIA |
| Heat Trace: | N | Sampled by (CO): | HARVEST |
| Remarks: | Calculated Molecular Weight = 17.4823 | | |

## Analysis

| Component: | Mole%: | Unormalized %: | **GPM: | *BTU: | *SP Gravity: |
|---|---|---|---|---|---|
| Nitrogen | 0.1155 | 0.1155 | 0.0130 | 0.00 | 0.0011 |
| CO2 | 3.9918 | 3.9905 | 0.6830 | 0.00 | 0.0607 |
| Methane | 94.1841 | 94.1534 | 15.9980 | 951.26 | 0.5217 |
| Ethane | 1.3719 | 1.3715 | 0.3680 | 24.28 | 0.0142 |
| Propane | 0.2361 | 0.2360 | 0.0650 | 5.94 | 0.0036 |
| Iso-Butane | 0.0384 | 0.0384 | 0.0130 | 1.25 | 0.0008 |
| N-Butane | 0.0317 | 0.0317 | 0.0100 | 1.03 | 0.0006 |
| Neopentane 2,2 dmc3 | 0.0000 | 0.0000 | 0.0000 | 0.00 | 0.0000 |
| I-Pentane | 0.0115 | 0.0115 | 0.0040 | 0.46 | 0.0003 |
| N-Pentane | 0.0052 | 0.0052 | 0.0020 | 0.21 | 0.0001 |
| Neohexane | 0.0001 | N/R | 0.0000 | 0.00 | 0.0000 |
| 2-3-Dimethylbutane | 0.0003 | N/R | 0.0000 | 0.01 | 0.0000 |
| Cyclopentane | 0.0003 | N/R | 0.0000 | 0.01 | 0.0000 |
| 2-Methylpentane | 0.0017 | N/R | 0.0010 | 0.08 | 0.0001 |
| 3-Methylpentane | 0.0007 | N/R | 0.0000 | 0.03 | 0.0000 |
| C6 | 0.0015 | 0.0137 | 0.0010 | 0.07 | 0.0000 |
| Methylcyclopentane | 0.0011 | N/R | 0.0000 | 0.05 | 0.0000 |
| Benzene | 0.0006 | N/R | 0.0000 | 0.02 | 0.0000 |
| Cyclohexane | 0.0007 | N/R | 0.0000 | 0.03 | 0.0000 |
| 2-Methylhexane | 0.0003 | N/R | 0.0000 | 0.02 | 0.0000 |
| 3-Methylhexane | 0.0002 | N/R | 0.0000 | 0.01 | 0.0000 |
| 2-2-4-Trimethylpentane | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| i-heptanes | 0.0002 | N/R | 0.0000 | 0.01 | 0.0000 |
| Heptane | 0.0010 | N/R | 0.0000 | 0.06 | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| Methylcyclohexane | 0.0017 | N/R | 0.0010 | 0.09 | 0.0001 |
| Toluene | 0.0010 | N/R | 0.0000 | 0.04 | 0.0000 |
| 2-Methylheptane | 0.0003 | N/R | 0.0000 | 0.02 | 0.0000 |
| 4-Methylheptane | 0.0002 | N/R | 0.0000 | 0.01 | 0.0000 |
| i-Octanes | 0.0002 | N/R | 0.0000 | 0.01 | 0.0000 |
| Octane | 0.0006 | N/R | 0.0000 | 0.04 | 0.0000 |
| Ethylbenzene | 0.0001 | N/R | 0.0000 | 0.01 | 0.0000 |
| m, p Xylene | 0.0004 | N/R | 0.0000 | 0.02 | 0.0000 |
| o Xylene (& 2,2,4 tmc7) | 0.0001 | N/R | 0.0000 | 0.01 | 0.0000 |
| i-C9 | 0.0002 | N/R | 0.0000 | 0.01 | 0.0000 |
| C9 | 0.0002 | N/R | 0.0000 | 0.01 | 0.0000 |
| i-C10 | 0.0002 | N/R | 0.0000 | 0.01 | 0.0000 |
| C10 | 0.0001 | N/R | 0.0000 | 0.01 | 0.0000 |
| i-C11 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| C11 | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| C12P | 0.0000 | N/R | 0.0000 | 0.00 | 0.0000 |
| Total | 100.00 | 99.967 | 17.159 | 985.14 | 0.6036 |

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY
**@ 14.730 PSIA & 60 DEG. F.

| | | | |
|---|---|---|---|
| COMPRESSIBLITY FACTOR (1/Z): | 1.0022 | CYLINDER #: | 01 |
| BTU/CU.FT IDEAL: | 987.4 | CYLINDER PRESSURE: | 24 PSIG |
| BTU/CU.FT (DRY) CORRECTED FOR (1/Z): | 989.6 | ANALYSIS DATE: | 07/13/2020 |
| BTU/CU.FT (WET) CORRECTED FOR (1/Z): | 972.4 | ANALYIS TIME: | 11:03:20 AM |
| DRY BTU @ 15.025: | 1009.4 | ANALYSIS RUN BY: | PATRICIA KING |
| REAL SPECIFIC GRAVITY: | 0.6047 | | |

**GPM, BTU, and SPG calculations as shown above are based on current GPA constants.**
**GPA Standard: GPA 2286-14**
**GC: SRI Instruments 8610** **Last Cal/Verify: 07/14/2020**
**GC Method: C12+BTEX Gas**

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

**Lease:** 31-6 STRADDLE SUCTION METER RUN 07/14/2020

**Stn. No.:** 33700-10095

**Mtr. No.:**

| | | |
|---|---|---|
| Smpl Date: | 07/10/2020 | 12/26/2018 |
| Test Date: | 07/13/2020 | 12/28/2018 |
| Run No: | HM200063 | HM180020 |
| Nitrogen: | 0.1155 | 0.0920 |
| CO2: | 3.9918 | 4.2055 |
| Methane: | 94.1841 | 93.7409 |
| Ethane: | 1.3719 | 1.4234 |
| Propane: | 0.2361 | 0.2857 |
| I-Butane: | 0.0384 | 0.0493 |
| N-Butane: | 0.0317 | 0.0483 |
| 2,2 dmc3: | 0.0000 | 0.1198 |
| I-Pentane: | 0.0115 | 0.0160 |
| N-Pentane: | 0.0052 | 0.0104 |
| Neohexane: | 0.0001 | 0.0001 |
| 2-3-Cyclopentane: | 0.0003 | 0.0001 |
| 2-Methylpentane: | 0.0003 | 0.0001 |
| 3-Methylpentane: | 0.0017 | 0.0010 |
| C6: | 0.0007 | 0.0003 |
| Methylcyclopentane: | 0.0015 | 0.0010 |
| Benzene: | 0.0011 | 0.0008 |
| Cyclohexane: | 0.0006 | 0.0003 |
| 2-Methylhexane: | 0.0007 | 0.0004 |
| 3-Methylhexane: | 0.0003 | 0.0002 |
| 2-2-4-i-heptanes: | 0.0000 | 0.0000 |
| Heptane: | 0.0000 | 0.0001 |
| Methylcyclohexane: | 0.0002 | 0.0001 |
| Toluene: | 0.0010 | 0.0005 |
| 2-Methylheptane: | 0.0017 | 0.0010 |
| 4-Methylheptane: | 0.0010 | 0.0004 |
| i-Octanes: | 0.0003 | 0.0003 |
| Octane: | 0.0002 | 0.0001 |
| Ethylbenzene: | 0.0002 | 0.0003 |
| m, p Xylene: | 0.0006 | 0.0004 |
| o Xylene (& 2,2,4 i-C9: | 0.0001 | 0.0000 |
| C9: | 0.0004 | 0.0003 |
| i-C10: | 0.0001 | 0.0000 |
| C10: | 0.0002 | 0.0002 |
| i-C11: | 0.0002 | 0.0002 |
| C11: | 0.0002 | 0.0000 |
| C12P: | 0.0001 | 0.0001 |
| | 0.0000 | 0.0000 |
| | 0.0000 | 0.0000 |
| | 0.0000 | 0.0000 |
| BTU: | 989.6 | 993.1 |
| GPM: | 17.1620 | 17.1570 |
| SPG: | 0.6047 | 0.6101 |

2030 Afton Place, Farmington, NM 87401 - (505) 325-6622

24#

GAS ANALYSIS SERVICE

C6+ ☐ C9+ ☐ C12+ BTEX ☐ Helium ☐
N2 Flowback ☐ Sulfurs ☐ Ext. Liquid ☐
Other Extended Analysis

Date 7/01/2020

Sampled By:(Co.) Harvest Midstream

Time 1400 ☐AM ☐PM

Sampled by:(Person) Donny Valencia

Well Flowing: ☒ Yes ☐ No

Company: Harvest Midstream

Heat Trace: ☐ Yes ☒ No

Well Name: 31-6 CDP Straddle Suction

Flow Pressure (PSIG): 34 #

Lease#:

Flow Temp (°F): 83°

County: Rio Arriba Formation: CDP

Ambient Temp (°F): 90°

State: NM Location: 31-6

Flow Rate (MCF/D):

Source: ☑ Meter Run ☐ Tubing ☐ Casing ☐ Bradenhead ☐ Other

Sample Type: ☑ Spot ☐ Composite Sample Method: ☐ Purge & Fill ☐ Other

Meter Number: Le2205

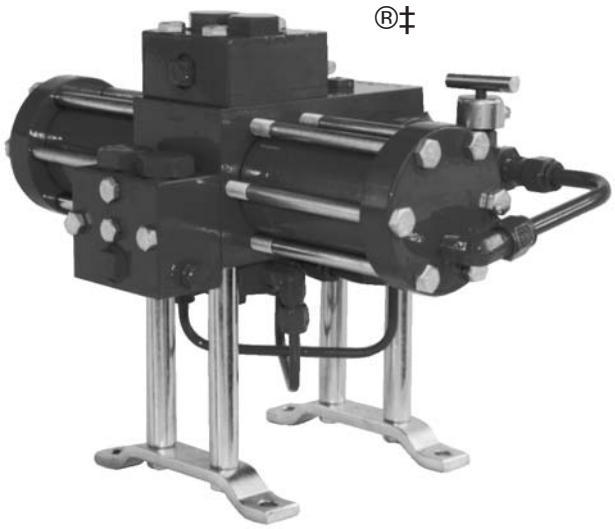
Cylinder Number: 01

Contact: D. Valencia

Remarks: Extended Analysis

33700 - 10095

ITM200063




## PUMPS AVAILABLE:

| “PV” SERIES GLYCOL PUMPS | | | | | |
|---|---|---|---|---|---|
| Catalog Number | Model Number | Capacity Gal. / Hr. | | Working Pressure | |
| | | Min. | Max.** | Min. | Max. |
| GAA | 315 PV | 3 | 13 | 100 | 1500 |
| GAD | 1715 PV | 8 | 40 | 300 | 1500 |
| GAB | 4015 PV | 12 | 40 | 300 | 1500 |
| GAF | 9015 PV | 27 | 90 | 300 | 1500 |
| GAH | 21015 PV | 66 | 210 | 400 | 1500 |
| GAJ | 45015 PV | 166 | 450 | 400 | 1500 |

**Maximum output is affected by system pressure drops. See system operation parameter for maximum output curves.

| “SC” SERIES GLYCOL PUMPS | | | | | |
|---|---|---|---|---|---|
| Catalog Number | Model Number | Capacity Gal. / Hr. | | Working Pressure | |
| | | Min. | Max.** | Min. | Max. |
| GAC | 2015 SC* | 8 | 20 | 100 | 500 |
| GAG | 5015 SC* | 12 | 50 | 100 | 500 |
| GAI | 10015 SC* | 22 | 100 | 100 | 500 |
| GAK | 20015 SC* | 60 | 200 | 100 | 500 |

NOTE: To order a Pump with Viton O Rings add 1 to Catalog number. Example: To order GAA with Viton O Rings, specify: GAA1.

MAXIMUM DESIGN PRESSURE FOR P.V. AND S.C. MODELS IS 1500 psig

## APPLICATIONS:

Circulating pump for gas glycol dehydrators
Circulating pump for gas amine desulphurizers

## FEATURES:

Eliminates absorber liquid level controls
No auxiliary power supply required
Low gas consumption
Completely sealed system prevents loss glycol
No springs or toggles, only two moving assemblies
Hydraulic “cushioned” check valves with removable seats of hardened stainless steel

## OPERATION:

Materials for the vital working parts have been selected for greatest wear resistance. These materials include stainless steel, hard chrome plating, satellite, nylon and teflon. Moving “O” Ring seals are compounded specifically for ethylene glycol service. A complete operational check is given each pump after assembly.

“O” Ring sealed check valve darts are standard in all except the model 315 PV. Teflon sealed darts are available. Capsule type ball checks are used in the 315 PV and are available for 1715 PV, 2015 SC and 4015 PV.

*These pumps are designed for operating pressures between 100 and 500 psig maximum design pressure for all models is 1500 psig.

Oil and Gas
Production Equipment
S. Enertek, Inc.
4901 East Main Street
Farmington, NM 87401
505/326-1151
FAX: 505/325-0317

ENERTEK

VIA FACSIMILE
Fax No. (801) 584-7760
Pages: 1

August 19, 1994

Mr. Lee Batteria
Williams Field Services
Salt Lake City, UT

The following table shows the stack emissions at maximum firing conditions for the dehydrators noted:

| Dehydrator | $NO_x$ #/Day | CO #/Day | Fuel SCFH | Total Stack Gases ACFH | Stack Ht. Ft | Stack Dia Inches | Stack Temp F | Stack Velocity FPS |
|---|---|---|---|---|---|---|---|---|
| J2P10M11109 | 0.86 | 0.17 | 357 | 10010 | 18'-8" | 8 | 600 | 5.1 |
| J2P10M749 | 1.03 | 0.21 | 429 | 12012 | 19'-1" | 10 | 600 | 6.1 |
| J2P12M11109 | 0.86 | 0.17 | 357 | 10010 | 18'-8" | 8 | 600 | 5.1 |
| J2P12M749 | 1.03 | 0.21 | 429 | 12012 | 19'-1" | 10 | 600 | 6.1 |
| J2P20M11109 | 1.03 | 0.21 | 429 | 12012 | 19'-1" | 10 | 600 | 6.1 |

Please call me if you need additional information.

Sincerely,

Frosty Heath

FH/nb

InFab
INDUSTRIAL FABRICATION

5928 U.S. Highway 64
Farmington, NM 87401

Office: (505)632-2200
Fax: (505)632-8070

July 22, 1998

Mr. Bobby Myers
Williams Field Services
Environmental Affairs
295 Chipeta Way
P O Box 58900
Salt Lake City, UT 84158-0900

The table shown below gives the stack emissions for our larger dehydrators:

| Unit Description | SO lb/day | $NO_x$ lb/ Day | CO lb/ Day | Fuel SCFH | Total Organic Comp. Lb/d | Stack Ht. Ft. | Stack Dia inches | Stack Temp °F | Stack Velocity |
|---|---|---|---|---|---|---|---|---|---|
| 10 MM LP | .01 | .27 | .43 | 659 | .13 | 10' | 8 | 600 | 5.1 |
| 10 MM HP | .01 | .27 | .43 | 659 | .13 | 10' | 10 | 600 | 6.1 |
| 12 MM LP | .02 | .49 | .78 | 1208 | .23 | 10' | 8 | 600 | 5.1 |
| 12 MM HP | .02 | .49 | .78 | 1208 | .23 | 10' | 10 | 600 | 6.1 |
| 15 MM | .02 | .54 | .85 | 1318 | .25 | 10' | 8 | 600 | 5.1 |
| 20 MM LP | .02 | .67 | 1.07 | 1648 | .31 | 10' | 8 | 600 | 5.1 |
| 20 MM HP | .02 | .67 | 1.07 | 1648 | .31 | 10' | 12 | 600 | 6.1 |

If you need any additional information please call me.

Sincerely,

Darby West
VP Engineering

EPA-453/R-95-017

# 1995 Protocol for Equipment Leak Emission Estimates

Emission Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

November 1995

TABLE 2-4. OIL AND GAS PRODUCTION OPERATIONS AVERAGE EMISSION FACTORS (kg/hr/source)

| Equipment Type | Service[a] | Emission Factor (kg/hr/source)[b] |
|---|---|---|
| Valves | Gas | 4.5E-03 |
| | Heavy Oil | 8.4E-06 |
| | Light Oil | 2.5E-03 |
| | Water/Oil | 9.8E-05 |
| Pump seals | Gas | 2.4E-03 |
| | Heavy Oil | NA |
| | Light Oil | 1.3E-02 |
| | Water/Oil | 2.4E-05 |
| Others[c] | Gas | 8.8E-03 |
| | Heavy Oil | 3.2E-05 |
| | Light Oil | 7.5E-03 |
| | Water/Oil | 1.4E-02 |
| Connectors | Gas | 2.0E-04 |
| | Heavy Oil | 7.5E-06 |
| | Light Oil | 2.1E-04 |
| | Water/Oil | 1.1E-04 |
| Flanges | Gas | 3.9E-04 |
| | Heavy Oil | 3.9E-07 |
| | Light Oil | 1.1E-04 |
| | Water/Oil | 2.9E-06 |
| Open-ended lines | Gas | 2.0E-03 |
| | Heavy Oil | 1.4E-04 |
| | Light Oil | 1.4E-03 |
| | Water/Oil | 2.5E-04 |

[a]Water/Oil emission factors apply to water streams in oil service with a water content greater than 50%, from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

[b]These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off shore facilities. "NA" indicates that not enough data were available to develop the indicated emission factor.

[c]The "other" equipment type was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

loading operation, resulting in high levels of vapor generation and loss. If the turbulence is great enough, liquid droplets will be entrained in the vented vapors.

A second method of loading is submerged loading. Two types are the submerged fill pipe method and the bottom loading method. In the submerged fill pipe method, the fill pipe extends almost to the bottom of the cargo tank. In the bottom loading method, a permanent fill pipe is attached to the cargo tank bottom. During most of submerged loading by both methods, the fill pipe opening is below the liquid surface level. Liquid turbulence is controlled significantly during submerged loading, resulting in much lower vapor generation than encountered during splash loading.

The recent loading history of a cargo carrier is just as important a factor in loading losses as the method of loading. If the carrier has carried a nonvolatile liquid such as fuel oil, or has just been cleaned, it will contain vapor-free air. If it has just carried gasoline and has not been vented, the air in the carrier tank will contain volatile organic vapors, which will be expelled during the loading operation along with newly generated vapors.

Cargo carriers are sometimes designated to transport only one product, and in such cases are practicing "dedicated service". Dedicated gasoline cargo tanks return to a loading terminal containing air fully or partially saturated with vapor from the previous load. Cargo tanks may also be "switch loaded" with various products, so that a nonvolatile product being loaded may expel the vapors remaining from a previous load of a volatile product such as gasoline. These circumstances vary with the type of cargo tank and with the ownership of the carrier, the petroleum liquids being transported, geographic location, and season of the year.

One control measure for vapors displaced during liquid loading is called "vapor balance service", in which the cargo tank retrieves the vapors displaced during product unloading at bulk plants or service stations and transports the vapors back to the loading terminal. Figure 5.2-5 shows a tank truck in vapor balance service filling a service station underground tank and taking on displaced gasoline vapors for return to the terminal. A cargo tank returning to a bulk terminal in vapor balance service normally is saturated with organic vapors, and the presence of these vapors at the start of submerged loading of the tanker truck results in greater loading losses than encountered during nonvapor balance, or "normal", service. Vapor balance service is usually not practiced with marine vessels, although some vessels practice emission control by means of vapor transfer within their own cargo tanks during ballasting operations, discussed below.

Emissions from loading petroleum liquid can be estimated (with a probable error of ±30 percent)[4] using the following expression:

$$L_L = 12.46 \frac{SPM}{T} \quad (1)$$

where:

$L_L$ = loading loss, pounds per 1000 gallons ($lb/10^3$ gal) of liquid loaded

S = a saturation factor (see Table 5.2-1)
P = true vapor pressure of liquid loaded, pounds per square inch absolute (psia) (see Figure 7.1-5, Figure 7.1-6, and Table 7.1-2)
M = molecular weight of vapors, pounds per pound-mole (lb/lb-mole) (see Table 7.1-2)
T = temperature of bulk liquid loaded, °R (°F + 460)

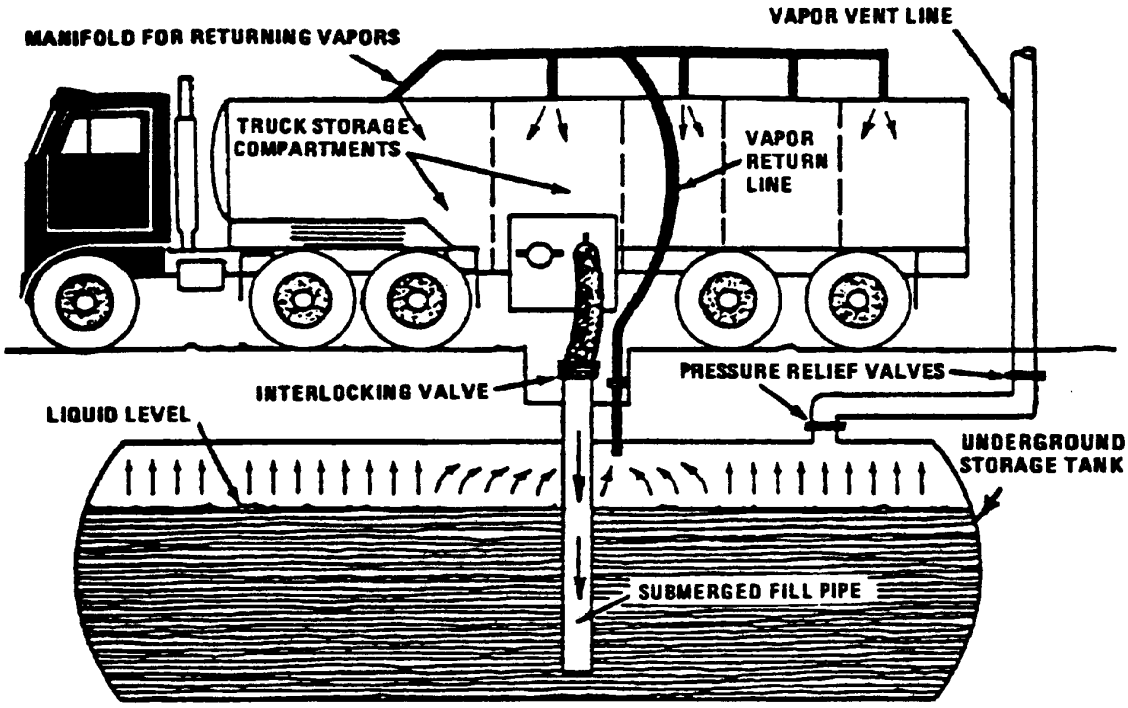



Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

Table 5.2-1. SATURATION (S) FACTORS FOR CALCULATING PETROLEUM LIQUID LOADING LOSSES

| Cargo Carrier | Mode Of Operation | S Factor |
|---|---|---|
| Tank trucks and rail tank cars | Submerged loading of a clean cargo tank | 0.50 |
| | Submerged loading: dedicated normal service | 0.60 |
| | Submerged loading: dedicated vapor balance service | 1.00 |
| | Splash loading of a clean cargo tank | 1.45 |
| | Splash loading: dedicated normal service | 1.45 |
| | Splash loading: dedicated vapor balance service | 1.00 |
| Marine vessels[a] | Submerged loading: ships | 0.2 |
| | Submerged loading: barges | 0.5 |

[a] For products other than gasoline and crude oil. For marine loading of gasoline, use factors from Table 5.2-2. For marine loading of crude oil, use Equations 2 and 3 and Table 5.2-3.

**Table A–1 to Subpart A of Part 98—Global Warming Potentials**

[100-Year Time Horizon]

| Name | CAS No. | Chemical formula | Global warming potential (100 yr.) |
|---|---|---|---|
| Carbon dioxide | 124–38–9 | $CO_2$ | 1 |
| Methane | 74–82–8 | $CH_4$ | [a] 25 |
| Nitrous oxide | 10024–97–2 | $N_2O$ | [a] 298 |
| HFC–23 | 75–46–7 | $CHF_3$ | [a] 14,800 |
| HFC–32 | 75–10–5 | $CH_2F_2$ | [a] 675 |
| HFC–41 | 593–53–3 | $CH_3F$ | [a] 92 |
| HFC–125 | 354–33–6 | $C_2HF_5$ | [a] 3,500 |
| HFC–134 | 359–35–3 | $C_2H_2F_4$ | [a] 1,100 |
| HFC–134a | 811–97–2 | $CH_2FCF_3$ | [a] 1,430 |
| HFC–143 | 430–66–0 | $C_2H_3F_3$ | [a] 353 |
| HFC–143a | 420–46–2 | $C_2H_3F_3$ | [a] 4,470 |
| HFC–152 | 624–72–6 | $CH_2FCH_2F$ | 53 |
| HFC–152a | 75–37–6 | $CH_3CHF_2$ | [a] 124 |
| HFC–161 | 353–36–6 | $CH_3CH_2F$ | 12 |
| HFC–227ea | 431–89–0 | $C_3HF_7$ | [a] 3,220 |
| HFC–236cb | 677–56–5 | $CH_2FCF_2CF_3$ | 1,340 |
| HFC–236ea | 431–63–0 | $CHF_2CHFCF_3$ | 1,370 |
| HFC–236fa | 690–39–1 | $C_3H_2F_6$ | [a] 9,810 |
| HFC–245ca | 679–86–7 | $C_3H_3F_5$ | [a] 693 |
| HFC–245fa | 460–73–1 | $CHF_2CH_2CF_3$ | 1,030 |
| HFC–365mfc | 406–58–6 | $CH_3CF_2CH_2CF_3$ | 794 |
| HFC–43–10mee | 138495–42–8 | $CF_3CFHCFHCF_2CF_3$ | [a] 1,640 |
| Sulfur hexafluoride | 2551–62–4 | $SF_6$ | [a] 22,800 |
| Trifluoromethyl sulphur pentafluoride | 373–80–8 | $SF_5CF_3$ | 17,700 |
| Nitrogen trifluoride | 7783–54–2 | $NF_3$ | 17,200 |
| PFC–14 (Perfluoromethane) | 75–73–0 | $CF_4$ | 7,390 |
| PFC–116 (Perfluoroethane) | 76–16–4 | $C_2F_6$ | [a] 12,200 |
| PFC–218 (Perfluoropropane) | 76–19–7 | $C_3F_8$ | [a] 8,830 |

| Name | CAS No. | Chemical formula | Global warming potential (100 yr.) |
|---|---|---|---|
| Perfluorocyclopropane | 931–91–9 | $C\text{-}C_3F_6$ | 17,340 |
| PFC–3–1–10 (Perfluorobutane) | 355–25–9 | $C_4F_{10}$ | [a] 8,860 |
| Perfluorocyclobutane | 115–25–3 | $C\text{-}C_4F_8$ | [a] 10,300 |
| PFC–4–1–12 (Perfluoropentane) | 678–26–2 | $C_5F_{12}$ | [a] 9,160 |
| PFC–5–1–14 (Perfluorohexane) | 355–42–0 | $C_6F_{14}$ | [a] 9,300 |
| PFC–9–1–18 | 306–94–5 | $C_{10}F_{18}$ | 7,500 |
| HCFE–235da2 (Isoflurane) | 26675–46–7 | $CHF_2OCHClCF_3$ | 350 |
| HFE–43–10pccc (H–Galden 1040x) | E1730133 | $CHF_2OCF_2OC_2F_4OCHF_2$ | 1,870 |
| HFE–125 | 3822–68–2 | $CHF_2OCF_3$ | 14,900 |
| HFE–134 | 1691–17–4 | $CHF_2OCHF_2$ | 6,320 |
| HFE–143a | 421–14–7 | $CH_3OCF_3$ | 756 |
| HFE–227ea | 2356–62–9 | $CF_3CHFOCF_3$ | 1,540 |
| HFE–236ca12 (HG–10) | 78522–47–1 | $CHF_2OCF_2OCHF_2$ | 2,800 |
| HFE–236ea2 (Desflurane) | 57041–67–5 | $CHF_2OCHFCF_3$ | 989 |
| HFE–236fa | 20193–67–3 | $CF_3CH_2OCF_3$ | 487 |
| HFE–245cb2 | 22410–44–2 | $CH_3OCF_2CF_3$ | 708 |
| HFE–245fa1 | 84011–15–4 | $CHF_2CH_2OCF_3$ | 286 |
| HFE–245fa2 | 1885–48–9 | $CHF_2OCH_2CF_3$ | 659 |
| HFE–254cb2 | 425–88–7 | $CH_3OCF_2CHF_2$ | 359 |
| HFE–263fb2 | 460–43–5 | $CF_3CH_2OCH_3$ | 11 |
| HFE–329mcc2 | 67490–36–2 | $CF_3CF_2OCF_2CHF_2$ | 919 |
| HFE–338mcf2 | 156053–88–2 | $CF_3CF_2OCH_2CF_3$ | 552 |
| HFE–338pcc13 (HG–01) | 188690–78–0 | $CHF_2OCF_2CF_2OCHF_2$ | 1,500 |
| HFE–347mcc3 | 28523–86–6 | $CH_3OCF_2CF_2CF_3$ | 575 |
| HFE–347mcf2 | E1730135 | $CF_3CF_2OCH_2CHF_2$ | 374 |
| HFE–347pcf2 | 406–78–0 | $CHF_2CF_2OCH_2CF_3$ | 580 |
| HFE–356mec3 | 382–34–3 | $CH_3OCF_2CHFCF_3$ | 101 |
| HFE–356pcc3 | 160620–20–2 | $CH_3OCF_2CF_2CHF_2$ | 110 |
| HFE–356pcf2 | E1730137 | $CHF_2CH_2OCF_2CHF_2$ | 265 |
| HFE–356pcf3 | 35042–99–0 | $CHF_2OCH_2CF_2CHF_2$ | 502 |

| Name | CAS No. | Chemical formula | Global warming potential (100 yr.) |
|---|---|---|---|
| HFE–365mcf3 | 378–16–5 | $CF_3CF_2CH_2OCH_3$ | 11 |
| HFE–374pc2 | 512–51–6 | $CH_3CH_2OCF_2CHF_2$ | 557 |
| HFE–449sl (HFE–7100)<br>Chemical blend | 163702–07–6<br>163702–08–7 | $C_4F_9OCH_3$<br>$(CF_3)_2CFCF_2OCH_3$ | 297 |
| HFE–569sf2 (HFE–7200)<br>Chemical blend | 163702–05–4<br>163702–06–5 | $C_4F_9OC_2H_5$<br>$(CF_3)_2CFCF_2OC_2H_5$ | 59 |
| Sevoflurane | 28523–86–6 | $CH_2FOCH(CF_3)_2$ | 345 |
| HFE–356mm1 | 13171–18–1 | $(CF_3)_2CHOCH_3$ | 27 |
| HFE–338mmz1 | 26103–08–2 | $CHF_2OCH(CF_3)_2$ | 380 |
| (Octafluorotetramethy-lene)hydroxymethyl group | NA | $X\text{-}(CF_2)_4CH(OH)\text{-}X$ | 73 |
| HFE–347mmy1 | 22052–84–2 | $CH_3OCF(CF_3)_2$ | 343 |
| Bis(trifluoromethyl)-methanol | 920–66–1 | $(CF_3)_2CHOH$ | 195 |
| 2,2,3,3,3-pentafluoropropanol | 422–05–9 | $CF_3CF_2CH_2OH$ | 42 |
| PFPMIE | NA | $CF_3OCF(CF_3)CF_2OCF_2OCF_3$ | 10,300 |

[a] The GWP for this compound is different than the GWP in the version of Table A-1 to subpart A of part 98 published on October 30, 2009.

**Table C–1 to Subpart C of Part 98—Default $CO_2$ Emission Factors and High Heat Values for Various Types of Fuel**

Table C–1 to Subpart C—Default $CO_2$ Emission Factors and High Heat Values for Various Types of Fuel

| Fuel type | Default high heat value | Default $CO_2$ emission factor |
|---|---|---|
| **Coal and coke** | **mmBtu/short ton** | **kg $CO_2$/mmBtu** |
| Anthracite | 25.09 | 103.69 |
| Bituminous | 24.93 | 93.28 |
| Subbituminous | 17.25 | 97.17 |
| Lignite | 14.21 | 97.72 |
| Coal Coke | 24.80 | 113.67 |
| Mixed (Commercial sector) | 21.39 | 94.27 |
| Mixed (Industrial coking) | 26.28 | 93.90 |
| Mixed (Industrial sector) | 22.35 | 94.67 |
| Mixed (Electric Power sector) | 19.73 | 95.52 |
| **Natural gas** | **mmBtu/scf** | **kg $CO_2$/mmBtu** |
| (Weighted U.S. Average) | $1.026 \times 10^{-3}$ | 53.06 |
| **Petroleum products** | **mmBtu/gallon** | **kg $CO_2$/mmBtu** |
| Distillate Fuel Oil No. 1 | 0.139 | 73.25 |
| Distillate Fuel Oil No. 2 | 0.138 | 73.96 |
| Distillate Fuel Oil No. 4 | 0.146 | 75.04 |
| Residual Fuel Oil No. 5 | 0.140 | 72.93 |
| Residual Fuel Oil No. 6 | 0.150 | 75.10 |
| Used Oil | 0.138 | 74.00 |
| Kerosene | 0.135 | 75.20 |
| Liquefied petroleum gases (LPG)[1] | 0.092 | 61.71 |
| Propane[1] | 0.091 | 62.87 |
| Propylene[2] | 0.091 | 67.77 |
| Ethane[1] | 0.068 | 59.60 |
| Ethanol | 0.084 | 68.44 |
| Ethylene[2] | 0.058 | 65.96 |
| Isobutane[1] | 0.099 | 64.94 |
| Isobutylene[1] | 0.103 | 68.86 |
| Butane[1] | 0.103 | 64.77 |
| Butylene[1] | 0.105 | 68.72 |
| Naphtha (<401 deg F) | 0.125 | 68.02 |
| Natural Gasoline | 0.110 | 66.83 |

| Fuel type | Default high heat value | Default $CO_2$ emission factor |
|---|---|---|
| Other Oil (>401 deg F) | 0.139 | 76.22 |
| Pentanes Plus | 0.110 | 70.02 |
| Petrochemical Feedstocks | 0.125 | 71.02 |
| Petroleum Coke | 0.143 | 102.41 |
| Special Naphtha | 0.125 | 72.34 |
| Unfinished Oils | 0.139 | 74.54 |
| Heavy Gas Oils | 0.148 | 74.92 |
| Lubricants | 0.144 | 74.27 |
| Motor Gasoline | 0.125 | 70.22 |
| Aviation Gasoline | 0.120 | 69.25 |
| Kerosene-Type Jet Fuel | 0.135 | 72.22 |
| Asphalt and Road Oil | 0.158 | 75.36 |
| Crude Oil | 0.138 | 74.54 |
| **Other fuels-solid** | **mmBtu/short ton** | **kg $CO_2$/mmBtu** |
| Municipal Solid Waste | 9.95[3] | 90.7 |
| Tires | 28.00 | 85.97 |
| Plastics | 38.00 | 75.00 |
| Petroleum Coke | 30.00 | 102.41 |
| **Other fuels—gaseous** | **mmBtu/scf** | **kg $CO_2$/mmBtu** |
| Blast Furnace Gas | $0.092 \times 10^{-3}$ | 274.32 |
| Coke Oven Gas | $0.599 \times 10^{-3}$ | 46.85 |
| Propane Gas | $2.516 \times 10^{-3}$ | 61.46 |
| Fuel Gas[4] | $1.388 \times 10^{-3}$ | 59.00 |
| **Biomass fuels—solid** | **mmBtu/short ton** | **kg $CO_2$/mmBtu** |
| Wood and Wood Residuals (dry basis)5 | 17.48 | 93.80 |
| Agricultural Byproducts | 8.25 | 118.17 |
| Peat | 8.00 | 111.84 |
| Solid Byproducts | 10.39 | 105.51 |
| **Biomass fuels—gaseous** | **mmBtu/scf** | **kg $CO_2$/mmBtu** |
| Landfill Gas | $0.485 \times 10^{-3}$ | 52.07 |
| Other Biomass Gases | $0.655 \times 10^{-3}$ | 52.07 |
| **Biomass Fuels—Liquid** | **mmBtu/gallon** | **kg $CO_2$/mmBtu** |
| Ethanol | 0.084 | 68.44 |
| Biodiesel (100%) | 0.128 | 73.84 |
| Rendered Animal Fat | 0.125 | 71.06 |
| Vegetable Oil | 0.120 | 81.55 |

[1] The HHV for components of LPG determined at 60 °F and saturation pressure with the exception of ethylene.

[2] Ethylene HHV determined at 41 °F (5 °C) and saturation pressure.

[3] Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

[4] Reporters subject to subpart X of this part that are complying with § 98.243(d) or subpart Y of this part may only use the default HHV and the default CO2 emission factor for fuel gas combustion under the conditions prescribed in § 98.243(d)(2)(i) and (d)(2)(ii) and § 98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5] Use the following formula to calculate a wet basis HHV for use in Equation C-1:

$$HHV_w = ((100 - M)/100)*HHV_d$$

where

$HHV_w$ = wet basis HHV,
M = moisture content (percent) and
$HHV_d$ = dry basis HHV from Table C-1.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79153, Dec. 17, 2010; 78 FR 71950, Nov. 29, 2013]

# Section 8

## Map(s)

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**A map** such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

| | |
|---|---|
| The UTM or Longitudinal coordinate system on both axes | An indicator showing which direction is north |
| A minimum radius around the plant of 0.8km (0.5 miles) | Access and haul roads |
| Topographic features of the area | Facility property boundaries |
| The name of the map | The area which will be restricted to public access |
| A graphical scale | |

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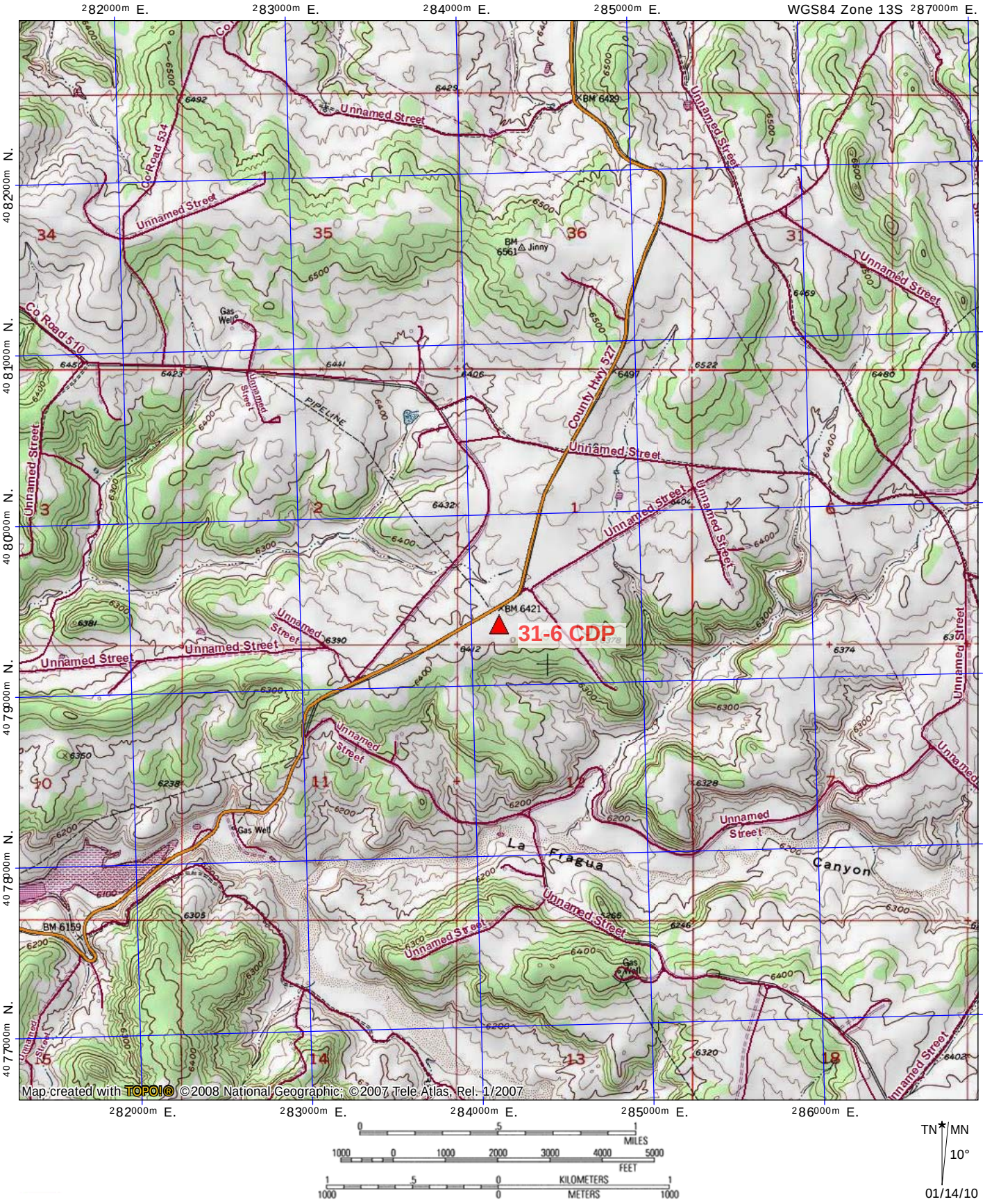
Please see the following page(s).


282000m E.
283000m E.
284000m E.
285000m E.
WGS84 Zone 13S
287000m E.
4082000m N.
4081000m N.
4080000m N.
4079000m N.
4078000m N.
4077000m N.
31-6 CDP
Unnamed Street
County Hwy 527
Co Road 534
Co Road 510
PIPELINE
Gas Well
BM 6429
BM 6561
Jinny
BM 6421
BM 6159
La Fragua Canyon
Map created with TOPO!® ©2008 National Geographic; ©2007 Tele Atlas, Rel. 1/2007
286000m E.
MILES
FEET
KILOMETERS
METERS
TN
MN
10°
01/14/10

# Section 9

## Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)
(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

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☐ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**
This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

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Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

**New Permit** and **Significant Permit Revision** public notices must include all items in this list.

**Technical Revision** public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. ☐ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. ☐ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
3. ☐ A copy of the property tax record (20.2.72.203.B NMAC).
4. ☐ A sample of the letters sent to the owners of record.
5. ☐ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. ☐ A sample of the public notice posted and a verification of the local postings.
7. ☐ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. ☐ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. ☐ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
10. ☐ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
11. ☐ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.

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Not applicable for Title V applications.

# Section 10

## Written Description of the Routine Operations of the Facility

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**A written description of the routine operations of the facility**. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

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The 31-6 Compressor Station compresses and dehydrates pipeline quality natural gas for pipeline transmission using natural gas-fired reciprocating engines.

Natural gas is received from independent producers and is metered as it enters the facility. The natural gas stream typically contains produced water, which is separated from the gas stream via an inlet separator. The natural gas is then compressed for pipeline transmission using compressors driven by up to 16 natural gas-fired reciprocating internal combustion engines. The gas stream is then routed to up to seven triethylene glycol (TEG) dehydrators which further dehydrate the gas stream. The TEG solution comes into contact with the natural gas and removes the water and some hydrocarbons. The rich TEG solution is regenerated by boiling off the water and hydrocarbons and reclaiming the glycol. The resulting produced water is stored in above ground storage tanks and is periodically transported offsite by truck.

Other emission sources at the facility include storage tanks, fugitive emissions from process piping (valves, flanges, seals, etc.), truck loading, and compressor blowdown emissions during startup, shutdown and routine maintenance operations.

The facility is authorized to operate continuously, 24 hours per day, seven days per week, 52 weeks per year, 8,760 hours per year.

# Section 11
## Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

**A. Identify the emission sources evaluated in this section** (list and describe)**:**

**31-6 Central Delivery Point (CDP)**

**B. Apply the 3 criteria for determining a single source:**

**SIC Code:** Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☒ **Yes** ☐ **No**

**Common Ownership or Control:** Surrounding or associated sources are under common ownership or control as this source.

☒ **Yes** ☐ **No**

**Contiguous or Adjacent:** Surrounding or associated sources are contiguous or adjacent with this source.

☒ **Yes** ☐ **No**

**C. Make a determination:**

☒ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

# Section 12

## Section 12.A
## PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

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Not applicable for Title V applications.

# Section 13
## Determination of State & Federal Air Quality Regulations

**This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.**

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

**Required Information for Specific Equipment:**
For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply**. **For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

**Required Information for Regulations that Apply to the Entire Facility:**
See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

**Regulatory Citations for Regulations That Do Not, but Could Apply:**
If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example,** if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

**Regulatory Citations for Emission Standards:**
**For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard.** Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

**Federally Enforceable Conditions:**
All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

**EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc**: http://cfpub.epa.gov/adi/

## *Federal Regulations*

Federal standards and requirements are embodied in Title 40 (Protection of the Environment), Subchapter C (Air Programs) of the CFR, Parts 50 through 99. The applicability of those parts of the CFR that are consistent with the limited list of standards and requirements defined as applicable requirements are identified in the following pages.

### FEDERAL REGULATIONS APPLICABILITY CHECKLIST

| FEDERAL REGU-LATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| 40 CFR 50 | **National Ambient Air Quality Standards (NAAQS)** | Yes | Facility | The requirement to comply with the National Ambient Air Quality Standards applies to all sources operating within the State of New Mexico, including the station. |
| 40 CFR 52 | **Approval and Promulgation of Implementation Plans** | Yes | Facility | 40 CFR 52.21, *Prevention of Significant Deterioration of Air Quality* applies to the facility, as it is a Prevention of Significant Deterioration (PSD) major source.<br><br>(The remainder of the subpart addresses approval of local, state and/or tribal agency Implementation Plans for administering the Prevention of Deterioration (PSD) program. ) |
| NSPS<br><br>40 CFR 60, Subpart A | **General Provisions** | No | | Applies if any other NSPS subpart applies. No other NSPS subpart applies, and the regulation is not applicable. |
| NSPS<br><br>40 CFR60, Subpart Da | Performance Standards for **Electric Utility Steam Generating Units** | No | | The subpart applies to each electric utility steam generating unit that is capable of combusting more than 73 megawatts (MW) (250 million British thermal units per hour (MMBtu/hr)) heat input of fossil fuel (either alone or in combination with any other fuel); and that commences construction, modification, or reconstruction after September 18, 1978.<br><br>The facility is not an affected facility as defined under the regulation; therefore, the subpart does not apply. |
| NSPS<br><br>40 CFR 60, Subpart Db | Standards of Performance for **Industrial-Commercial-Institutional Steam Generating Units** | No | | The subpart applies to each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour).<br><br>The facility is not an affected facility as defined in the regulation; therefore, the subpart does not apply. |
| NSPS<br><br>40 CFR 60, Subpart Dc | Standards of Performance for **Small Industrial-Commercial-Institutional Steam Generating Units** | No | | The subpart applies to each steam generating unit that commences construction, modification, or reconstruction after June 9, 1989, and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr).<br><br>The facility does not have any affected sources under the regulation; therefore, the subpart does not apply. |

| FEDERAL REGU-LATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| NSPS<br><br>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** | No | | The affected facility to which this subpart applies are storage tanks with capacity greater than 151,416 liters (40,000 gallons) that are used to store petroleum liquids for which construction is commenced after May 18, 1978.<br><br>The facility does not have equipment defined as an affected facility as defined in the regulation; therefore, the subpart does not apply. |
| NSPS<br><br>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** | No | | The affected facility to which this subpart applies is any storage vessel with a capacity greater than or equal to 75 cubic meters ($m^3$) used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.<br><br>All of the storage tanks at the facility are below 75 $m^3$ capacity. Therefore, the regulation does not apply. |
| NSPS<br><br>40 CFR 60 Subpart GG | Standards of Performance for **Stationary Gas Turbines** | No | | Affected facilities under the subpart are stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour and for which construction commenced after October 3, 1977<br><br>There are no turbines at the facility and the subpart is not applicable. |
| NSPS<br><br>40 CFR 60, Subpart KKK | Standards of Performance for **Leaks of VOC from Onshore Gas Plants** | No | | An affected facility under the subpart is an onshore gas plant that commences construction, reconstruction, or modification after January 20, 1984, and includes the group of all equipment (each pump, pressure relief device, open-ended valve or line, valve, compressor, and flange or other connector that is in VOC service or in wet gas service, and any device or system required by this subpart) except compressors (defined in § 60.631) within a process unit. A compressor station, dehydration unit, sweetening unit, underground storage tank, field gas gathering system, or liquefied natural gas unit is covered by this subpart if it is located at an onshore natural gas processing plant. If the unit is not located at the plant site, then it is exempt from the provisions of the subpart.<br><br>The facility is not an onshore gas plant and the subpart does not apply. |
| NSPS<br><br>40 CFR 60, Subpart LLL | Standards of Performance for **Onshore Natural Gas Processing: $SO_2$ Emissions** | No | | An affected facility is each sweetening unit, and each sweetening unit followed by a sulfur recovery unit, for which construction or modification commenced after January 20, 1984 at a natural gas processing plant.<br><br>The facility is not a natural gas processing plant and does not include any affected units as defined by the subpart; therefore the subpart does not apply. |
| NSPS<br><br>40 CFR 60, Subpart JJJJ | Standards of Performance for **Stationary Spark Ignition Internal Combustion Engines** | No | | Under § 60.4230, the requirements of the subpart apply to spark-ignition (SI), reciprocating internal combustion engines (RICE) constructed, modified or reconstructed after June 12, 2006.<br><br>RICE units 1, 3, 5, 7, 8, 10-12, 15, 16, and 33 were each constructed prior to the June 12, 2006 regulatory applicability date of subpart JJJJ. Therefore, the regulation is not applicable to these RICE. The engines have not undergone either "modification" or "reconstruction" under NSPS. |

| FEDERAL REGU-LATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| | | | | Engine units 4, 6, 9, 13 and 14 RICE are not installed. The applicability of subpart JJJJ to the RICE will be evaluated if and when any of the unit 4, 6, 9, 13 and/or 14 RICE are installed. |
| NSPS<br><br>40 CFR 60, Subpart KKKK | Standards of Performance for **Stationary Combustion Turbines** | No | | This subpart establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines that commenced construction, modification or reconstruction after February 18, 2005.<br><br>There are no stationary gas turbines at the facility. Therefore, the subpart does not apply. |
| NSPS<br><br>40 CFR 60, Subpart OOOO | Standards of Performance for **Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015** | No | | Subpart OOOO establishes natural gas production, processing, transmission and distribution emission and equipment standards, including well completions; single continuous bleed, natural gas driven pneumatic controllers operating at bleed rates greater than 6 scfh and located between a wellhead and point of custody transfer; equipment leaks and sweetening units at natural gas processing plants; reciprocating compressors; centrifugal compressors; and storage vessels at well sites. The regulation includes provisions for initial and continuous compliance demonstrations, and recordkeeping and reporting requirements.<br><br>As it applies to the natural gas production segment, "affected sources" include the following sources constructed, modified or reconstructed after August 23, 2011 and before September 18, 2015:<br>- Each affected single natural gas well, as described in the regulation;<br>- Each reciprocating compressor, unless it is located at a well site or adjacent well site;<br>- Each single continuous bleed, natural gas driven pneumatic controller operating at a bleed rate of greater than 6 scfh and located between a wellhead and point of custody transfer;<br>- Each single storage vessel affected facility with VOC emissions of six (6) tpy or greater.<br><br>The equipment at the facility were constructed prior to the applicability date; therefore, the regulation is not applicable to the existing equipment. |
| NSPS<br><br>40 CFR 60, Subpart OOOOa | Standards of Performance for **Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015** | No | | Subpart OOOOa establishes emission standards and compliance schedules for the control of GHG methane emission limits as well as emission standards and compliance schedules for the control of VOC and SO2 emissions from crude oil and natural gas facilities that commence construction, modification, or reconstruction after September 18, 2015.<br><br>As it applies to equipment at a compressor station in the natural gas production segment, "affected sources" include the following emission sources constructed, modified or reconstructed after September 18, 2015 (§60.5365a):<br>- Each single reciprocating compressor (§60.5365a(c));<br>- Each pneumatic controller that is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh (§60.5365a(d)(1));<br>- Each single storage vessel with the potential for VOC emissions equal to or greater than 6 tpy (§60.5365a(e)); and<br>- The collection of fugitive emissions components at a compressor station, as defined in §60.5430a (§60.5365a(j)).<br>The reciprocating compressors, pneumatic controllers, and collection of fugitive emissions components equipment at the facility, were each constructed prior to the applicability date or do not otherwise trigger the applicability of the regulation.<br>Should a new affected source be installed at the facility, the applicability of the subpart to that source shall be evaluated upon installation. Harvest will comply with the applicable requirements in the subpart for any future devices installed. |

| FEDERAL REGU-LATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| NESHAP<br><br>40 CFR 61, Subpart A | **General Provisions** | No | | 40 CFR 61National Emission Standards for Hazardous Air Pollutants (NESHAP) provides standards for equipment that emits hazardous air pollutants by specific source types.<br><br>Subpart A, General Provisions, applies if any other 40 CFR 61 NESHAP subpart applies. Subpart A is not applicable because there are no stationary sources at this facility for which a standard is prescribed under this part. |
| NESHAP<br><br>40 CFR 61, Subpart V | National Emission Standard for **Equipment Leaks (Fugitive Emission Sources)** | No | | 40 CFR 61, subpart V provides equipment standards, and monitoring, recordkeeping and reporting standards for specified equipment in VHAP service, including fugitive emissions from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and required control devices or systems.<br><br>Subpart V is not applicable because none of the potentially affected sources are in VHAP service. |
| MACT<br><br>40 CFR 63, Subpart A | **General Provisions** | Yes | Dehydrator units 17a-22a & 31a | Applies if any other 40 CFR 63 (NESHAP/MACT) subpart applies. Subpart HH applies, as discussed below. |
| MACT<br><br>40 CFR 63, Subpart M | National Emission Standard for **Asbestos** | No | | The subpart includes standards for minimizing asbestos emissions from several operations, including demolition and renovation activities.<br><br>No existing or planned operation or activity at this facility triggers the applicability of this requirement. Therefore, the regulation does not apply. |
| MACT<br><br>40 CFR 63, Subpart HH | National Emission Standards for Hazardous Air Pollutants From **Oil and Natural Gas Production Facilities** | Yes | Dehydrator units 17a-22a & 31a | Under § 63.760, the subpart applies to owners and operators of affected sources located at oil and natural gas production facilities, including facilities that are major and area sources of hazardous air pollutants (HAP).<br><br>Under the definitions provided in §63.761, the 31-6 CDP facility is a natural gas production field facility. As such, the definition of "major source" in §63.762 provides that only HAP emissions from glycol dehydration units and storage vessels are aggregated for a major source determination. The aggregated HAP emissions from the facility dehydrators and storage vessels are below the major HAP source thresholds; therefore, the facility is an **area** source of HAP under Subpart HH.<br><br>The TEG dehydrators are located in an area that is not within an UA plus offset and UC boundary (as defined in §63.761).<br><br>Under §63.764(e)(1)(ii), the owner or operator of an affected area source [TEG dehydrator] with *actual* average benzene emissions from the process vent to the atmosphere of less than 0.90 megagrams per year (~1 tpy) is exempt from the operational, recordkeeping and notification requirements in §63.764(d), provided that documentation of the exemption determination is maintained as required in §63.774(d)(1). |
| MACT<br><br>40 CFR 63 Subpart HHH | National Emission Standards for Hazardous Air Pollutants From **Natural Gas Transmission and Storage Facilities** | No | | §63.1270, applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271.<br><br>A production segment natural gas compressor station is not in the natural gas transmission and storage source category covered by the subpart. Therefore, the regulation does not apply. |

| FEDERAL REGU-LATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| MACT<br><br>40 CFR 63 Subpart YYYY | National Emission Standards for Hazardous Air Pollutants From **Stationary Combustion Turbines** | No | | Under §63.6080, subpart YYYY establishes emission and operating limitations for stationary combustion turbines located at a major source of HAP emissions. Under § 63.6175, "*Major source*, as used in this subpart, has the same meaning as in §63.2, except that . . . (3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination . . . "<br><br>The facility is not a major source of HAP as defined by the regulation. Therefore, the subpart does not apply. |
| MACT<br><br>40 CFR 63, Subpart ZZZZ | National Emission Standards for Hazardous Air Pollutants for **Stationary Reciprocating Internal Combustion Engines** | No | | 40 CFR 63, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from existing, new, modified and reconstructed stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP. The regulation contains provisions for initial and continuous compliance demonstration.<br><br>As defined at §63.6585(c), the station is an **major** source of HAP. Under §63.6590(a)(1)(i), a stationary RICE greater than 500 horsepower (hp) located at an major source of HAP is considered an "existing" unit if construction or reconstruction commenced before December 19, 2002. ("Construction" does not include the reinstallation of an existing engine at another location.) Each of the engines that have been installed at the facility is an "existing" engine under the regulation.<br><br>The 4-stroke, lean burn (4SLB) RICE units 1, 3, 5, 7, 8, 10-12, 15, 16, and 33 each have a site rating of more than 500 hp and were constructed prior to December 19, 2002. Under §63.6590(b)(3)(ii), existing 4SLB stationary RICE with site rating of more than 500 hp, located at a major source of HAP do not have to meet the requirements of the subpart and of subpart A, including initial notification requirements. Therefore, the subpart is not applicable to engine units 1, 3, 5, 7, 8, 10-12, 15, 16, and 33.<br><br>Engine units 4, 6, 9, 13 and 14 RICE are not installed. The applicability of the subpart to the RICE will be evaluated if and when if and when any of the unit 4, 6, 9, 13 and/or 14 RICE are installed. |
| MACT<br><br>40 CFR 63 Subpart DDDDD | National Emission Standards for Hazardous Air Pollutants for **Industrial, Commercial, and Institutional Boilers and Process Heaters** | No | | 40 CFR 63, Subpart DDDDD establishes emission limits and work practice standards for industrial, commercial, or institutional boiler or process heaters, as defined in § 63.7575, that are located at or are part of a major source of HAP, as defined under § 63.2 or § 63.761 (40 CFR 63, subpart HH), except as specified under § 63.7491.<br><br>As defined under the regulation, the facility is an area source of HAP. Further, under § 63.7506(c)(3), existing small gaseous fuel boilers and process heaters are not subject to any requirements under the subpart or of subpart A, including notification provisions. Therefore, the regulation is not applicable. |
| MACT<br><br>40 CFR 63 Subpart JJJJJJ | National Emission Standards for Hazardous Air Pollutants for **Industrial, Commercial, and Institutional Boilers Area Sources** | No | | 40 CFR 63, Subpart JJJJJJ establishes emission limits, work practice standards, emission reduction measures, and management practices for new, reconstructed, or existing affected sources that are industrial, commercial, or institutional boilers within a subcategory listed in §63.11200 and defined in §63.11237, and that are located at an area source of HAP.<br><br>The facility does not have industrial, commercial or institutional boilers of one of the listed subcategories. Also, under § 63.11195(e), the regulation does not apply to gas-fired units. Therefore, the regulation does not apply. |

| FEDERAL REGU-LATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| 40 CFR 64 | **Compliance Assurance Monitoring** | No | | 40 CFR 64, *Compliance Assurance Monitoring* (CAM) monitoring requirements are applicable to sources that are located at a at a major source, that are required to obtain a part 70 or 71 permit, and with uncontrolled criteria pollutant emission rates equal to or exceeding the major source threshold (100 tons per year), that use a control device to achieve compliance with an emission limit or standard, and which the resulting controlled emissions are less than the major source threshold. Passive control devices such as lean-burn technology are not considered a control device as defined in 40 CFR 64 definitions and as clarified in discussions with EPA.<br><br>There are no emission units at the facility with uncontrolled emissions that are a major source, including the replacement engine units 5, 11 and 16.. Therefore, the regulation is not applicable under §64.2(a). |
| 40 CFR 68 | **Chemical Accident Prevention Provisions** | No | | 40 CFR 68, *Chemical Accident Prevention Provisions*, is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds. |
| 40 CFR 70 | **State Operating Permit Programs** | No | | 40 CFR 70, *State Operating Permit Programs*, is not applicable: The regulation provides for the establishment of comprehensive State air quality permitting programs consistent with the requirements of title V of the Clean Air Act (Act). New Mexico Environment Department (NMED) was delegated authority by the EPA to administer the State operating permit program through regulations adopted into the State Implementation Plant (SIP) and 20.2.70 NMAC.<br><br>Although Harvest is subject to the Operating Permit Program for facilities within NMED jurisdiction as implemented by the State, there are no specific requirements of the regulation that are applicable directly to applicants. Therefore, the regulation does not apply. |
| 40 CFR 71 | **Federal Operating Permit Programs** | No | | 40 CFR 71, *Federal Operating Permit Programs* sets forth requirements and the corresponding standards and procedures by which the EPA Administrator issues operating permits in the absence of an approved State operating permit program.<br><br>The NMED has received delegated authority by the EPA to administer Title V permits under the State operating permit program approved under 40 CFR Part 70. There are no specific requirements applicable directly to applicants with facilities in NMED jurisdiction. Therefore, 40 CFR 71 does not apply. |
| 40 CFR 72 | **Permits Regulation** | No | | 40 CFR 72, *Permits Regulation*, is not applicable because the facility does not operate a source subject to Title IV of the Clean Air Act (CAA). |
| 40 CFR 73 | **Sulfur Dioxide Allowance System** | No | | 40 CFR 73, *Sulfur Dioxide Allowance System*, is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA). |
| 40 CFR 75 | **Continuous Emission Monitoring** | No | | 40 CFR 75, *Continuous Emission Monitoring*, is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA) and does not measure emissions with Continuous Emission Monitoring Systems (CEMS). |
| 40 CFR 76 | **Acid Rain Nitrogen Dioxide Emission Reduction Program** | No | | 40 CFR 76, *Acid Rain Nitrogen Dioxide Emission Reduction Program*, is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA). |
| 40 CFR 77 | **Excess Emissions** | No | | 40 CFR 77, *Excess Emissions*, is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA). |

| FEDERAL REGU-LATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| 40 CFR 78 | **Appeal Procedures for Acid Rain Program** | No | | 40 CFR 78, *Appeal Procedures for Acid Rain Program*, is not applicable to the facility because it does not operate a source subject to Title IV of the Clean Air Act (CAA). |
| 40 CFR 82 | **Protection of Stratospheric Ozone** | No | | The purpose of 40 CFR 82, *Protection of Stratospheric Ozone* is to implement the *Montreal Protocol on Substances that Deplete the Ozone Layer*. Under §82.1(b), the subpart applies to anyone that produces, transforms, destroys, imports or exports a controlled substance or imports or exports a controlled product.<br><br>The facility does not carry out any of the listed activities, nor does it maintain or service motor vehicle air conditioning units or refrigeration equipment. The facility does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances. Therefore, the subpart does not have direct applicability to the facility. |
| 40 CFR 98 | **Mandatory Greenhouse Gas Reporting** | Yes | Facility | 40 CFR 98, *Mandatory Greenhouse Gas Reporting*, is a federal requirement that is applicable to facilities that include source categories listed in Subpart A, Table A-3, or to facilities with annual emissions of 25,000 metric tons of $CO_2$ equivalent ($CO_2e$) or more in combined emissions from stationary fuel combustion units, miscellaneous uses of carbonate, and all applicable source categories listed in Table A–3 and Table A–4 of Subpart A.<br><br>The regulation is applicable to the facility as its actual annual $CO_2e$ emissions are above the major source threshold as defined in Subpart A, *General Provision*, Subpart C, *General Stationary Fuel Combustion Sources*, and, as applicable, Subpart W, *Petroleum Oil and Natural Gas Systems.* The GHG emissions inventory is reported annually. |
| CAA Section 112(r) | **Chemical Accident Prevention Provisions** | No | | CAA Section 112(r), *Chemical Accident Prevention Provisions*. The station does not store designated toxic and flammable chemicals in quantities exceeding the applicable thresholds. |

## *State Regulations*

Applicable state requirements are embodied in the New Mexico SIP, the New Mexico Administrative Code (NMAC), and the terms and conditions of any preconstruction permits issued pursuant to regulations promulgated through rulemaking under Title I of the CAA. A summary of the applicability of the NMACs is presented on the following pages.

### STATE REGULATIONS APPLICABILITY CHECKLIST

| STATE REGU-LATIONS CITATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| 20.2.1 NMAC | **General Provisions** | Yes | Facility | 20.2.1 NMAC, *General Provisions*, establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with NMACs.<br><br>Although this regulation may apply to the facility, it does not impose any specific requirements. |

| STATE REGU-LATIONS CITATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| 20.2.2 NMAC | **Definitions *** | No | | 20.2.2 NMAC, *Definitions*, establishes definitions used throughout the remaining regulations.<br>Although this regulation may apply to the facility, it does not impose any specific requirements on the operation of the facility as described in the permit. Therefore, the regulation is considered not applicable. |
| 20.2.3 NMAC | **Ambient Air Quality Standards** | Yes | Facility | 20.2.3 NMAC, *Ambient Air Quality Standards*, is a SIP approved regulation that limits the maximum allowable concentration of total suspended particulates (TSP), sulfur compounds, carbon monoxide (CO) and nitrogen dioxide ($NO_2$) in the areas of New Mexico under the jurisdiction of the Environmental Improvement Board. Under subsection 20.2.3.9, the requirements of the part are not considered applicable requirements under 20.2.70 NMAC (i.e., federally enforceable requirements), as defined by that part. However, the regulation applies to sources required to obtain a permit under 20.2.72 NMAC, and it does not limit which terms and conditions of permits issued pursuant to 20.2.72 NMAC are applicable requirements for permits issued pursuant to 20.2.70 NMAC. |
| 20.2.5 NMAC | **Source Surveillance** | No | | 20.2.5 NMAC, *Source Surveillance*, establishes the NMAQB's authority to require recordkeeping/ surveillance upon request.<br>Although this regulation may apply to the facility, it does not impose any specific requirements on the operation of the facility as described in the permit. Therefore, the regulation is considered not applicable. |
| 20.2.7 NMAC | **Excess Emissions** | Yes | Facility | 20.2.7 NMAC, *Excess Emissions*, is applicable because it prohibits excess emissions and proscribes notification procedures in the event of excess emissions. |
| 20.2.8 NMAC | **Emissions Leaving New Mexico** | No | | 20.2.8 NMAC, *Emissions Leaving New Mexico*, establishes prohibitions on the release of pollutants that cross New Mexico State boundaries.<br>Although this regulation may apply to the facility, it does not impose any specific requirements on the operation of the facility as described in the permit. Therefore, the regulation is considered not applicable. |
| 20.2.33 NMAC | **Gas Burning Equipment - Nitrogen Dioxide** | No | | 20.2.33 NMAC, *Gas Burning Equipment - Nitrogen Dioxide*, does not apply to the station because the compressor station does not include new or existing gas burning equipment (external combustion emission sources, such as gas fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit. |
| 20.2.34 NMAC | **Oil Burning Equipment: $NO_2$** | No | | 20.2.34 NMAC, *Oil Burning Equipment: $NO_2$*, does not apply to the station because the compressor station does not have oil burning equipment. |
| 20.2.35 NMAC | **Natural Gas Processing Plant – Sulfur** | No | | 20.2.35 NMAC, *Natural Gas Processing Plant – Sulfur*, applies to new natural gas processing plants for which a modification commenced on or after July 1, 1974. The regulation is not applicable to the station because the facility is not a natural gas processing plant. |

| STATE REGU-LATIONS CITATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| 20.2.38 NMAC | **Hydrocarbon Storage** | No | | 20.2.38 NMAC, *Hydrocarbon Storage Facilities*, is not applicable because the facility does not store hydrocarbons containing hydrogen sulfide; does not have a hydrocarbon liquid throughput of 50,000 barrels or greater located within a municipality or within five miles of a municipality with population of 20,000 or more; nor is there a new hydrocarbon tank battery with storage capacity of 65,000 gallons or greater. |
| 20.2.61.109 NMAC | **Smoke & Visible Emissions** | Yes | RICE units 1, 3-16 & 33; and dehydrator reboiler units 17b-22b & 31b | 20.2.61 NMAC, *Smoke and Visible Emissions*, limits visible emissions from stationary combustion equipment to less than 20 percent opacity.<br><br>The facility compressor engines and reboilers are subject to the regulation as they are each a stationary combustion source. |
| 20.2.70 NMAC | **Operating Permits** | Yes | Facility | 20.2.70 NMAC, *Operating Permits*, contains permitting requirements for major sources of criteria and hazardous air pollutants subject to Part 70 (Title V) permitting requirements.<br><br>The facility PTE for $NO_X$, CO, VOC and HAP exceeds the Title V major source permitting thresholds. Therefore, the regulation is applicable. The facility is currently permitted under Title V Operating Permit No. **P027-R4**. |
| 20.2.71 NMAC | **Operating Permit Fees** | Yes | Facility | 20.2.71 NMAC, *Operating Permit Emission Fees*, specifies fees for emissions from facilities subject to Part 70 (Title V) permitting requirements under 20.2.70 NMAC.<br><br>The regulation is applicable as the facility is subject to permitting requirements under 20.2.70 NMAC. |
| 20.2.72 NMAC | **Construction Permits** | Yes | Facility | 20.2.72 NMAC, *Construction Permits*, requires a construction [NSR] permit for stationary source with emissions greater than 10 pounds per hour or 25 tons per year of criteria pollutants.<br><br>The station emissions exceed the permit requirement thresholds; therefore, the station is required to apply for and obtain an NSR permit. The construction (NSR) permit issued under 20.2.72 for this facility is permit No. **PSD 1031-M9-R10**. |
| 20.2.73 NMAC | **NOI & Emissions Inventory Requirements** | Yes | Facility | 20.2.73 NMAC requires that owners/operators intending to construct a new stationary source that has a potential emission rate (uncontrolled emissions) greater than 10 tons per year of any regulated air contaminant, or 1 ton per year of lead, must file a notice of intent (NOI) with the department.<br><br>The station emits regulated air pollutants in amounts greater than 10 tons per year. Therefore, the facility is subject to the regulation. The requirement to file an NOI with the Department is fulfilled with the application for a construction permit under 20.2.72 NMAC. |
| 20.2.74 NMAC | **Permits – PSD** | Yes | Facility | 20.2.74 NMAC, Permits, Prevention of Significant Deterioration (PSD), provides requirements for sources subject to permit requirements for PSD facilities.<br><br>The facility CO emissions exceed the PSD permit threshold levels. Therefore, the regulation is applicable.<br><br>The facility Waukesha 7042GL compressor engines underwent a Best Available Control Technology (BACT) analysis (NSR permit 1031-M4). BACT for the Waukesha 7042GL engines was determined to be "Lean Burn" technology. All of the Waukesha 7042GL compressor engines comply with the established BACT. |

| STATE REGU-LATIONS CITATION | Title | Applies? Enter Yes or No | Unit(s) or Facility | JUSTIFICATION: |
|---|---|---|---|---|
| 20.2.75 NMAC | **Construction Permit Fees** | Yes | Facility | 20.2.75 NMAC, *Construction Permit Fees*, establishes the fee schedule associated with the filing of permits and permit revisions.<br><br>The regulation is applicable to the facility for construction permit applications submitted under 20.2.72 NMAC. |
| 20.2.77 NMAC | **New Source Performance Standards** | No | | 20.2.77 NMAC, *New Source Performance Standards*, incorporates by reference specific Standards of Performance for New Stationary Sources (NSPS) codified under 40 CFR 60, as amended through January 15, 2017.<br><br>The regulation is not applicable as none of the facility equipment are subject to any NSPS subpart. |
| 20.2.78 NMAC | **Emission Standards for HAPS** | No | | 20.2.78 NMAC, *Emission Standards for Hazardous Air Pollutants*, incorporates by reference specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) codified under 40 CFR 61, as amended through January 15, 2017.<br><br>The regulation is not applicable as none of the facility emission units are subject to any NESHAP under 40 CFR 61. |
| 20.2.79 NMAC | **Permits – Nonattainment Areas** | No | | 20.2.79 NMAC, *Permits - Nonattainment Areas*, is not applicable to the compressor station because the it is not located within a non-attainment area. |
| 20.2.80 NMAC | **Stack Heights** | No | | 20.2.80 NMAC, *Stack Heights*, establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling.<br><br>Air quality dispersion modeling is not required for this Title V Operating Permit renewal application submitted under 20.2.70 NMAC. |
| 20.2.82 NMAC | **MACT Standards for source categories of HAPS** | Yes | Dehydrator units 17a-22a & 31a | 20.2.82 NMAC, *Maximum Achievable Control Technology Standards for Source Categories of Hazardous Air Pollutants*, incorporates by reference specified federal Maximum Available Control Technology (MACT) Standards codified in 40 CFR 63, as amended through January 15, 2017.<br><br>TEG dehydrator units 17a, 18a, 19a, 20a, 21a, 22a and 31a are each subject to 40 CFR 63, subpart HH.<br><br>Currently installed engine units 1, 3, 5, 7, 8, 10-12, 15, 16, and 33 are not subject to any 40 CFR 63 NESHAP/MACT subpart. The applicability of 40 CFR 63 to engine unit 4, 6, 9, 13 and/or 14 will be evaluated upon their installation. |
| 20.2.84 NMAC | **Acid Rain Permits** | No | | 20.2.84 NMAC, *Acid Rain Permits*, is not applicable to the station because the compressor station does not operate an affected unit under the regulation. |

# Section 14

## Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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☒ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☒ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☒ **Title V** (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

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# Section 15

## Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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**Alternative Operating Scenarios:** Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

**Construction Scenarios**: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: https://www.env.nm.gov/aqb/permit/aqb_pol.html. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title “Construction Scenarios”, specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

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Not applicable.

# Section 16

## Air Dispersion Modeling

1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

| **What is the purpose of this application?** | Enter an X for each purpose that applies |
|---|---|
| New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above. | |
| New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. **Note:** Neither modeling nor a modeling waiver is required for VOC emissions. | |
| Reporting existing pollutants that were not previously reported. | |
| Reporting existing pollutants where the ambient impact is being addressed for the first time. | |
| Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above. | X |
| Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC) | |
| Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements. | |
| Other: i.e. SSM modeling. See #2 above. | |
| This application does not require modeling since this is a No Permit Required (NPR) application. | |
| This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC). | |
| This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines. | X |

**Check each box that applies:**

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☐ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
☒ No modeling is required.

An ambient air quality impact analysis including dispersion modeling was previously submitted in the permit application for NSR permit 0338-M7. The dispersion modeling demonstrated compliance with the National Ambient Air Quality Standards and applicable PSD increments. Dispersion modeling was not required for permits 0338-M8 or –M9.

# Section 17

## Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

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### Compliance Test History Table

| Unit No. | Test Description | Test Date |
|---|---|---|
| 1 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A. | June 18, 2020 |
| 3 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A &.C. | Jan. 12, 2021 |
| 5 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A &.C. | Jan. 12, 2021 |
| 7 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027 | June 17, 2020 |
| 8 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027 | Dec. 20, 2011 |
| 10 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A &.C. | Jan. 13, 2021 |
| 11 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A &.C. | Jan. 13, 2021 |
| 12 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A &.C. | Feb. 18, 2021 |
| 15 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A &.C. | Jan. 14, 2021 |
| 16 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P023-R3, Condition A201.A | July 1, 2020 |
| 33 | Compliance test for $NO_X$ and CO, in accordance with Operating Permit P027-R4, Condition A201.A. | June 19, 2020 |

# Section 18

## Addendum for Streamline Applications

Do not print this section unless this is a streamline application.

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**Streamline Applications do not require a complete application. Submit Sections 1-A, 1-B, 1-D, 1-F, 1-G, 2-A, 2-C thru L, Sections 3 thru 8, Section 13, Section 18, Section 22, and Section 23 (Certification). Other sections may be required at the discretion of the Department. 20.2.72.202 NMAC Exemptions do not apply to Streamline sources. 20.2.72.219 NMAC revisions and modifications do not apply to Streamline sources, thus 20.2.72.219 type actions require a complete new application submittal. Please do not print sections of a streamline application that are not required.**

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Not applicable.

# Section 19

## Requirements for Title V Program

Do not print this section unless this is a Title V application.

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**Who Must Use this Attachment**:

* Any major source as defined in 20.2.70 NMAC.
* Any source, including an area source, subject to a standard or other requirement promulgated under Section 111 - Standards of Performance for New Stationary Sources, or Section 112 Hazardous Air Pollutants, of the 1990 federal Clean Air Act ("federal Act"). Non-major sources subject to Sections 111 or 112 of the federal Act are exempt from the obligation to obtain an 20.2.70 NMAC operating permit until such time that the EPA Administrator completes rulemakings that require such sources to obtain operating permits. In addition, sources that would be required to obtain an operating permit solely because they are subject to regulations or requirements under Section 112(r) of the federal Act are exempt from the requirement to obtain an Operating Permit.
* Any Acid Rain source as defined under title IV of the federal Act. The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are encouraged to submit both applications simultaneously.
* Any source in a source category designated by the EPA Administrator ("Administrator"), in whole or in part, by regulation, after notice and comment.

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### 19.1 - 40 CFR 64, Compliance Assurance Monitoring (CAM) (20.2.70.300.D.10.e NMAC)

Any source subject to 40CFR, Part 64 (Compliance Assurance Monitoring) must submit all the information required by section 64.7 with the operating permit application. The applicant must prepare a separate section of the application package for this purpose; if the information is already listed elsewhere in the application package, make reference to that location. Facilities not subject to Part 64 are invited to submit periodic monitoring protocols with the application to help the AQB to comply with 20.2.70 NMAC. Sources subject to 40 CFR Part 64, must submit a statement indicating your source's compliance status with any enhanced monitoring and compliance certification requirements of the federal Act.

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The 31-6 CDP is not subject to 40 CFR, Part 64, Compliance Assurance Monitoring (CAM); consequently, a monitoring protocol is not required with this application.

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### 19.2 - Compliance Status (20.2.70.300.D.10.a & 10.b NMAC)

Describe the facility's compliance status with each applicable requirement at the time this permit application is submitted. This statement should include descriptions of or references to all methods used for determining compliance. This statement should include descriptions of monitoring, recordkeeping and reporting requirements and test methods used to determine compliance with all applicable requirements. Refer to Section 2, Tables 2-N and 2-O of the Application Form as necessary. (20.2.70.300.D.11 NMAC) For facilities with existing Title V permits, refer to most recent Compliance Certification for existing requirements. Address new requirements such as CAM, here, including steps being taken to achieve compliance.

---

The 31-6 CDP is in compliance with all applicable requirements affecting the facility. A copy of Part 1 (Permit Requirements Certification Table) of the 2021 Annual Compliance Certification (ACC) is provided in Section 20, Other Relevant Information. It identifies the requirements of the current Title V operating permit and the methods and data used to determine compliance with that permit. It is assumed that compliance with the Title V operating permit ensures compliance with the construction permit and New Mexico regulations.

## 19.3 - Continued Compliance (20.2.70.300.D.10.c NMAC)

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

The 31-6 CDP will continue to be in compliance with applicable requirements for which it is in compliance at the time of this permit application. In addition, the station will, in a timely manner or consistent with such schedule expressly required by the applicable requirement, comply with other applicable requirements as they come into effect during the permit term.

## 19.4 - Schedule for Submission of Compliance (20.2.70.300.D.10.d NMAC)

You must provide a proposed schedule for submission to the department of compliance certifications during the permit term. This certification must be submitted annually unless the applicable requirement or the department specifies a more frequent period. A sample form for these certifications will be attached to the permit.

The submittal of compliance certifications during the five-year term of the operating permit will occur annually.

## 19.5 - Stratospheric Ozone and Climate Protection

In addition to completing the four (4) questions below, you must submit a statement indicating your source's compliance status with requirements of Title VI, Section 608 (National Recycling and Emissions Reduction Program) and Section 609 (Servicing of Motor Vehicle Air Conditioners).

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? **Yes** **No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? **Yes** **No**
   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? **Yes** **No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)

The facility does not produce, manufacture, transform, destroy, import, or export any stratospheric ozone-depleting substances (CFCs, HCFCs); does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale any product that may contain stratospheric ozone-depleting substances.

Harvest shall continue to maintain compliance with the conditions stipulated in 40 CFR 82, Subparts A-G of the Stratospheric Ozone Protection Program (Title VI of the Clean Air Act Amendments).

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## 19.6 - Compliance Plan and Schedule

Applications for sources, which are not in compliance with all applicable requirements at the time the permit application is submitted to the department, must include a proposed compliance plan as part of the permit application package. This plan shall include the information requested below:

**A. Description of Compliance Status:** (20.2.70.300.D.11.a NMAC)
A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

**B. Compliance plan:** (20.2.70.300.D.11.B NMAC)
A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

**C. Compliance schedule:** (20.2.70.300D.11.c NMAC)
A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

**D. Schedule of Certified Progress Reports:** (20.2.70.300.D.11.d NMAC)
A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

**E. Acid Rain Sources:** (20.2.70.300.D.11.e NMAC)
If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

**NOTE**: The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

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The 31-6 CDP is in compliance with all applicable requirements; consequently, a compliance plan, a compliance schedule, and a schedule of certified progress reports is not required.

The 31-6 CDP is not equipped with any acid rain sources; consequently, compliance with the acid rain provisions is not required as a part of this permit application.

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## 19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

The 31-6 CDP is not subject to 40 CFR 68, Chemical Accident Prevention Provisions; consequently, a Risk Management Plan is not required.

## 19.8 - Distance to Other States, Bernalillo, Indian Tribes and Pueblos

Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B NMAC)?

(If the answer is yes, state which apply and provide the distances.)

Yes, the property on which the station is constructed and operated on is closer than 80 km (50 miles) from other states, local pollution control programs and Indian tribes and pueblos as described below:

**Neighboring States, Class I Areas, and Indian Lands**

| | Approximate Distance to Facility (kilometers) |
|---|---|
| **Neighboring States** | |
| Colorado | 18.2 |
| **Indian Lands** | |
| Southern Ute Tribe | 18.2 |
| Jicarilla Apache Tribe | 19.9 |
| Navajo Nation | 34.1 |
| Ute Mountain Ute Tribe | 74.1 |

## 19.9 - Responsible Official

The responsible official for the 31-6 CDP is Travis Jones, EH&S Manager.

# Section 20

## Other Relevant Information

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**Other relevant information**. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

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As discussed in Section 19.2, this section contains the Part 1 (Permit Requirements Certification Table) of the 2020 Annual Compliance Certification (ACC).

# Title V Annual Compliance Certification
# for Permits P027-R4 & P027-R4M1

## Title (TV) Permit Administration Amendment

On **December 19, 2018** NMED AQB issued an Administrative Amendment to Operating Permit **P027-R4**.

The Administrative Amendment **P027-R4M1** corrected the following:

1. **The Department clarifies the information on page 1 of the permit as follows:**

   a. **Permittee is changed to** **Harvest Four Corners LLC**
   **1755 Arroyo Dr**
   **Bloomfield, NM 87413**

   b. **Facility Owner is** **Harvest Four Corners LLC**
   **1755 Arroyo Dr**
   **Bloomfield, NM 87413**

For this Administrative Amendment **(P027-R4M1)**, the facility can use one Annual Compliance Certification (ACC) Form which will cover both TV Permits.

Although the facility is only required to submit one ACC Form, the facility shall submit **two (2)** separate TV Report Certification Forms. Each form shall list the corresponding TV Permit number, TV Permit Issue Date and Reporting Period.

Please note that this is a one-time authorization. Submittal forms for future Administrative Revisions will be evaluated on a case by case basis.

This form can also be used for future submittals that cover only the **P027-R4M1** permit.

# Part 1 - Permit Requirements Certification Table

## Annual Compliance Certification Data for Title V Permit No. P027-R4 & P027-R4M1

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| **FACILITY SPECIFIC REQUIREMENTS**<br>**A101 Permit Duration (expiration)**<br><br>**A.** The term of this permit is five (5) years. It will expire five years from the date of issuance. Application for renewal of this permit is due twelve (12) months prior to the date of expiration. (20.2.70.300.B.2 and 302.B NMAC) | An application to renew P027-R4 that is submitted at least 12 months prior to the June 20, 2022 expiration of this permit will demonstrate compliance with this condition. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A101 Permit Duration (expiration)**<br><br>**B.** If a timely and complete application for a permit renewal is submitted, consistent with 20.2.70.300 NMAC, but the Department has failed to issue or disapprove the renewal permit before the end of the term of the previous permit, then the permit shall not expire and all the terms and conditions of the permit shall remain in effect until the renewal permit has been issued or disapproved. (20.2.70.400.D NMAC) | An application to renew P027-R4 that is submitted at least 12 months prior to the June 20, 2022 expiration of this permit will demonstrate compliance with this condition. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A102 Facility: Description**<br><br>**B.** This facility is located approximately 30.4 miles east of Aztec, New Mexico in Rio Arriba County (20.2.70.302.A(7) NMAC). | Semi-annual reports and this ACC are used to determine that the source continues to comply with this condition.<br><br>. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| **A103 Facility: Applicable Regulations**<br><br>**A.** The permittee shall comply with all applicable sections of the requirements listed in Table 103.A | Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the identified applicable requirements of Table 103-A. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

**Table 103.A: Applicable Requirements**

| **Applicable Requirements** | **Federally Enforceable** | **Unit No.** |
|---|---|---|
| NSR Permit: 1031-M9, -M9R1, -M9R2, -M9R3, -M9R4, -M9R5, and -M9R6 (Per 20.2.72 NMAC) | X | Entire Facility |
| 20.2.1 NMAC General Provisions | X | Entire Facility |
| 20.2.7 NMAC Excess Emissions | X | Entire Facility |
| 20.2.61 NMAC Smoke and Visible Emissions | X | 1, 3-16, 33, 17b-22b, 31b |
| 20.2.70 NMAC Operating Permits | X | Entire Facility |
| 20.2.71 NMAC Operating Permit Emission Fees | X | Entire Facility |
| 20.2.72 NMAC Construction Permit | X | Entire Facility |
| 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements | X | Entire Facility |
| 20.2.74 NMAC Prevention of Significant Deterioration | X | Entire Facility |
| 20.2.77 NMAC New Source Performance | X | Potentially Engine Unit 13 |
| 20.2.82 NMAC MACT Standards for Source Categories of HAPS | X | Dehydrator Units 17a-22a, & 31a & Potentially Engine Unit 13 |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| 40 CFR 50 National Ambient Air Quality Standards | X | Entire Facility | | |
| 40 CFR 60, Subpart A, General Provisions | X | Potentially Engine Unit 13 | | |
| 40 CFR 60, Subpart JJJ | X | Potentially Engine Unit 13 | | |
| 40 CFR 63, Subpart A, General Provisions | X | Dehydrator Units 17a22a 31a & Potentially Engine Unit 13 | | |
| 40 CFR 63, Subpart HH | X | Dehydrator Units 17a-22a & 31a | | |
| 40 CFR 63, Subpart ZZZZ | X | Potentially Engine Unit 13 | | |
| **A103 Facility: Applicable Regulations**<br><br>**C.** Compliance with the terms and conditions of this permit regarding source emissions and operation demonstrate compliance with national ambient air quality standards specified at 40 CFR 50, which were applicable at the time air dispersion modeling was performed for NOx for the facility's NSR Permit 1031-M4 and for CO for the facility's NSR Permit 1031-M7. | Semi-annual reports and the annual emissions inventory are used to demonstrate compliance with the terms and conditions of this permit. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A104 Facility: Regulated Sources**<br><br>**A.** Table 104.A lists all of the process equipment authorized for this facility. Emission units that were identified as insignificant or trivial activities (as defined in 20.2.70.7 NMAC) and equipment not regulated pursuant to the Act are not included. | Semi-annual reports and the annual emissions inventory, along with the Management of Change Request (MOCR) procedures, are used to determine that no unauthorized equipment has been added or operated during the applicable period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|

**Table 104.A: Regulated Sources List**

| Unit No. | Source Description | Make Model | Serial No. | Skid Package No. | Maximum Capacity/Permitted Capacity | Manufacture Date | Installation or Construction Date |
|---|---|---|---|---|---|---|---|
| 1 | 4SLB RICE | Waukesha 7042GL | C-10999/2A | 77051 | 1478 hp/ 1371 hp | 9/27/1993 | 5/11/2017 |
| 3 | 4SLB RICE | Waukesha 7042GL | C-12572/1 | 804334 | 1478 hp/ 1371 hp | 3/31/98 | 11/4/2015 |
| 4 | 4SLB RICE | Waukesha 7042GL | 319838 | 804388 | 1478 hp/ 1371 hp | 7/01/1978 | 2/2/1994 |
| 5 | 4SLB RICE | Waukesha 7042GL | C-10371/1 | 804368 | 1478 hp/ 1371 hp | 8/4/1991 | 12/30/1993 |
| 6 | 4SLB RICE | Waukesha 7042GL | C-11192/2 | 76489 | 1478 hp/ 1371 hp | 5/1/1994 | 7/20/1995 |
| 7 | 4SLB RICE | Waukesha 7042GL | 403191 | 804389 | 1478 hp/ 1371 hp | 3/5/1991 | 7/21/2016 |
| 8 | 4SLB RICE | Waukesha 7042GL | C-12677/2 | X00002 | 1478 hp/ 1371 hp | 3/3/1991 | 11/10/2004 |
| 9 | 4SLB RICE | Waukesha 7042GL | 261376 | 76352 | 1478 hp/ 1371 hp | 2/01/1974 | 10/10/1995 |
| 10 | 4SLB RICE | Waukesha 7042GL | 403312 | 77583 | 1478 hp/ 1371 hp | 5/3/1991 | 7/18/2005 |
| 11 | 4SLB RICE | Waukesha 7042GL | C-11100/6 | 76490 | 1478 hp/ 1371 hp | 3/28/1994 | 7/19/1995 |
| 12 | 4SLB RICE | Waukesha 7042GL | C-10607/3 | 77582 | 1478 hp/ 1371 hp | 6/30/1992 | 11/9/2004 |

| 1. Permit Condition # and Permit Condition: | | | 2. Method(s) or other information or other facts used to determine the compliance status: | | | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|---|---|---|---|
| 13 | 4SLB RICE | Waukesha 7042GL | TBD | TBD | 1478 hp/ 1371 hp | TBD | | TBD |
| 14 | 4SLB RICE | Waukesha 7042GL | C-11661/1 | 804369 | 1478 hp/ 1371 hp | 4/05/1995 | | 12/6/2013 |
| 15 | 4SLB RICE | Waukesha 7042GL | 401158 | 77052 | 1478 hp/ 1371 hp | 9/22/1980 | | 5/24/2016 |
| 16 | 4SLB RICE | Waukesha 7042GL | C-11060/2 | 76798 | 1478 hp/ 1371 hp | 12/21/1993 | | 8/18/2005 |
| 33 | 4SLB RICE | Waukesha 7042GL | C-10607/13 | 804367 | 1478 hp/ 1371 hp | 7/20/1992 | | 4/5/2017 |
| 17a | Glycol Dehy Still Vent/Flash Tank | Enertek J2P12M749 | 41997 | N/A | Inlet Capacity: 12 MMscfd<br>Lean Glycol Recirc Pump Capacity: 3.5 gal/min | 1/1/1992 | | 1/1/1992 |
| 17b | Glycol Dehy Reboiler Burner | Enertek J2P12M749 | 41997 | N/A | Heater Capacity: 0.386 MMBtu/hr | 1/1/1992 | | 1/1/1992 |
| 18a | Glycol Dehy Still Vent/Flash Tank | Enertek J2P12M749 | 41733 | N/A | Inlet Capacity: 12 MMscfd<br>Lean Glycol Recirc Pump Capacity: 3.5 gal/min | 1/1/1992 | | 1/1/1992 |
| 18b | Glycol Dehy Reboiler Burner | Enertek J2P12M749 | 41733 | N/A | Heater Capacity: 0.386 MMBtu/hr | 1/1/1992 | | 1/1/1992 |
| 19a | Glycol Dehy Still Vent/Flash Tank | Enertek J2P12M749 | 41688 | N/A | Inlet Capacity: 12 MMscfd<br>Lean Glycol Recirc Pump Capacity: 3.5 gal/min | 1/1/1992 | | 1/1/1992 |
| 19b | Glycol Dehy Reboiler Burner | Enertek J2P12M749 | 41688 | N/A | Heater Capacity: 0.386 MMBtu/hr | 1/1/1992 | | 1/1/1992 |

| 1. Permit Condition # and Permit Condition: | | | 2. Method(s) or other information or other facts used to determine the compliance status: | | | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|---|---|---|---|
| 20a | Glycol Dehy Still Vent/Flash Tank | Enertek J2P12M749 | 41747 | N/A | Inlet Capacity: 12 MMscfd<br>Lean Glycol Recirc Pump Capacity: 3.5 gal/min | 1/1/1993 | | 1993 |
| 20b | Glycol Dehy Reboiler Burner | Enertek J2P12M749 | 41747 | N/A | Heater Capacity: 0.386 MMBtu/hr | 1/1/1993 | | 1993 |
| 21a | Glycol Dehy Still Vent/Flash Tank | Enertek J2P12M749 | 42380 | N/A | Inlet Capacity: 12 MMscfd<br>Lean Glycol Recirc Pump Capacity: 3.5 gal/min | 1/1/1993 | | 1993 |
| 21b | Glycol Dehy Reboiler Burner | Enertek J2P12M749 | 42380 | N/A | Heater Capacity: 0.386 MMBtu/hr | 1/1/1993 | | 1993 |
| 22a | Glycol Dehy Still Vent/Flash Tank | Enertek J2P12M749 | 43250 | N/A | Inlet Capacity: 12 MMscfd<br>Lean Glycol Recirc Pump Capacity: 3.5 gal/min | 1/1/1993 | | 1993 |
| 22b | Glycol Dehy Reboiler Burner | Enertek J2P12M749 | 43250 | N/A | Heater Capacity: 0.386 MMBtu/hr | 1/1/1992 | | 1992 |
| 31a | Glycol Dehy Still Vent/Flash Tank | Enertek J2P30M749 | 42857 | N/A | Inlet Capacity: 30 MMscfd<br>Lean Glycol Recirc Pump Capacity: 3.5 gal/min | 2004 | | 12/17/2004 |
| 31b | Glycol Dehy Reboiler Burner | Enertek J2P30M749 | 42857 | N/A | Heater Capacity: 0.4 MMBtu/hr | 2004 | | 12/17/2004 |

1. Each dehydrator unit consists of a) still vent/flash tank and b) reboiler burner.
2. All TBD (to be determined) units and like-kind engine replacements must be evaluated for applicability to NSPS and MACT requirements.

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| **A105 Facility: Control Equipment**<br>**A.** Table 105.A lists all the pollution control equipment required for this facility. Each emission point is identified by the same number that was assigned to it in the permit application. | Semi-annual reports and the annual emissions inventory, along with the Management of Change Request (MOCR) procedures, are used to demonstrate that only authorized lean-burn units are operated during the applicable period, and that affected units are not operated without catalytic converters. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

**Table 105.A: Control Equipment List**

| Control Equipment Unit No.* | Control Description | Pollutants being controlled | Control for Unit Number(s) | PSD BACT? |
|---|---|---|---|---|
| 3 | DCL International Inc. 2-DC66-12 Catalytic Converter or equivalent | CO and VOCs | 3 | No |
| 3 | Lean Burn design | NOx | 3 | Yes |
| 5 | DCL International Inc. 2-DC66-12 Catalytic Converter or equivalent | CO and VOCs | 5 | No |
| 5 | Lean Burn design | NOx | 5 | Yes |
| 6 | DCL International Inc. 2-DC66-12 Catalytic Converter or equivalent | CO and VOCs | 6 | No |
| 6 | Lean Burn design | NOx | 6 | Yes |
| 10 | DCL International Inc. 2-DC66-12 Catalytic Converter or equivalent | CO and VOCs | 10 | No |
| 10 | Lean Burn design | NOx | 10 | Yes |
| 11 | DCL International Inc. 2-DC66-12 Catalytic Converter or equivalent | CO and VOCs | 11 | No |
| 11 | Lean Burn design | NOx | 11 | Yes |
| 12 | DCL International Inc. 2-DC66-12 Catalytic Converter or equivalent | CO and VOCs | 12 | No |
| 12 | Lean Burn design | NOx | 12 | Yes |
| 13 | DCL International Inc. 2-DC66-12 | CO and VOCs | 13 | No |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| | Catalytic Converter or equivalent | | | |
| 13 | Lean Burn design | NOx | 13 | Yes |
| 15 | DCL International Inc. 2-DC66-12 Catalytic Converter or equivalent | CO and VOCs | 15 | No |
| 15 | Lean Burn design | NOx | 15 | Yes |

*The designated Control Equipment Unit No. is the same as the associated Regulated Equipment List numbers.

| | | | | |
|---|---|---|---|---|
| **A106 Facility: Allowable Emissions**<br><br>**A.** The following table(s) list the emission units, and their allowable emission limits.<br><br>(40 CFR 50, 40 CFR 60, Subparts A and JJJ; 40 CFR 63, Subparts A, HH, and ZZZZ; Paragraphs 1, 7, and 8 of 20.2.70.302.A NMAC and NSR Permits 1031-M8 and 1031-M9). | Semi-annual reports, periodic monitoring, the annual emissions inventory and this ACC are used to determine that the source continues to comply with allowable emissions. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

**Table 106.A: Allowable Emissions**

| Emission Unit No. | $NO_x$ lb/hr [1] | $NO_x$ tons/y | CO lb/hr | CO tons/y | VOC lb/hr | VOC tons/y |
|---|---|---|---|---|---|---|
| 1 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |
| 3 | 2.7 | 11.9 | 0.6 [2] | 2.5 | 0.6 [2] | 2.6 |
| 4 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |
| 5 | 2.7 | 11.9 | 0.6[2] | 2.5 | 0.6[2] | 2.6 |
| 6 | 2.7 | 11.9 | 0.6[2] | 2.5 | 0.6[2] | 2.6 |
| 7 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |
| 8 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |
| 9 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 2.7 | 11.9 | 0.6[2] | 2.5 | 0.6[2] | 2.6 |
| 11 | 2.7 | 11.9 | 0.6[2] | 2.5 | 0.6[2] | 2.6 |
| 12 | 2.7 | 11.9 | 0.6[2] | 2.5 | 0.6[2] | 2.6 |
| 13 | 2.7 | 11.9 | 0.6[2] | 2.5 | 0.6[2] | 2.6 |
| 14 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |
| 15 | 2.7 | 11.9 | 0.6[2] | 2.5 | 0.6[2] | 2.6 |
| 16 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |
| 17a | -[3] | - | - | - | 2.1 | 9.3 |
| 18a | - | - | - | - | 2.1 | 9.3 |
| 19a | - | - | - | - | 2.1 | 9.3 |
| 20a | - | - | - | - | 2.1 | 9.3 |
| 21a | - | - | - | - | 2.1 | 9.3 |
| 22a | - | - | - | - | 2.1 | 9.3 |
| 31a | - | - | - | - | 2.1 | 9.2 |
| 33 | 2.7 | 11.9 | 8.0 | 35.0 | 3.0 | 13.2 |

1 Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO2
2 Indicates the application represented controlled emissions less than 1.0 pph for this pollutant.
3 "-" indicates the application represented emissions as not expected for this pollutant.
4 To report excess emissions for sources with no pound per hour and/or ton per year emission limits, see condition B110.E.
5 Title V annual fee assessments are based on the sum of allowable tons per year emission limits in Sections A106 and A107.

| | | | | |
|---|---|---|---|---|
| **A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions**<br><br>**A.** The maximum allowable SSM and Malfunction emission limits for this facility are listed in Table 107.A and were relied upon by the Department to determine compliance with | Records of SSM emissions are maintained to ensure compliance. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| applicable regulations and ambient air quality standards. | | | | |

**A107 Facility: Allowable SSM and Malfunction Units, Activities, and Emission Limits**

| Unit No. | Description | VOC (tpy) |
|---|---|---|
| SSM | Compressor & Associated Piping Blowdowns during Routine and Predictable Startup, Shutdown, and/or Maintenance (SSM) | 12.0 |
| M1 | Venting [2] of Gas due to Malfunctions. | 10.0 |

1 This authorization does not include VOC combustion emissions.
2 To report excess emissions for sources with no pound per hour and/or ton per year emission limits, see condition B110.E.

| | | | | |
|---|---|---|---|---|
| **A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions**<br><br>**B.** The authorization of emission limits for startup, shutdown, maintenance, and malfunction does not supersede the requirements to minimize emissions according to Conditions B101.C and B107.A. | SSM emissions are minimized in accordance with the facility SSM Plan | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions**<br><br>**C. SSM VOC Emissions (Units 1a, 3a-16a, & 33a)**<br>**Requirement:** The permittee shall perform a facility inlet gas analysis once every year and complete the following recordkeeping to demonstrate compliance with routine and predictable startup, shutdown, and maintenance (SSM) emission limits (NSR 1031-M9, | Records of SSM emissions are maintained to ensure compliance along with annual inlet gas analysis. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| Condition C). | | | | |
| **Monitoring:** The permittee shall monitor the permitted routine and predictable startups and shutdowns and scheduled maintenance events. | Records of SSM events and associated volumes, along with extended gas analyses, are maintained to ensure compliance. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Recordkeeping:** To demonstrate compliance, each month records shall be kept of the cumulative total VOC emissions due to SSM events during the first 12 months and thereafter of the monthly rolling 12-month total of VOC emissions due to SSM events.<br>Records shall also be kept of the inlet gas analysis, the percent VOC of the gas based on the most recent gas analysis, and of the volume of total gas vented in MMscf used to calculate the VOC emissions.<br>The permittee shall record the calculated emissions and parameters used in calculations in accordance with Condition B109, except the requirement in B109.E to record the start and end times of SSM events shall not apply to the venting of known quantities of VOC. | Records of SSM events and associated volumes, along with extended gas analyses, are maintained to ensure compliance. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall report in accordance with Section B110. | Records of SSM emissions are maintained and reported in the applicable semi-annual report. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A107 Facility: Allowable Startup, Shutdown, & Maintenance (SSM) and Malfunction Emissions**<br>**D. Malfunction VOC Emissions**<br>**Requirement:** The permittee shall perform a facility inlet gas analysis once every year and complete the following recordkeeping to | Record of the facility inlet gas analysis is included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| demonstrate compliance with malfunction (M1) emission limits in Table A107.A (NSR 1031-M9, Condition D). | | | | |
| **Monitoring:** The permittee shall monitor all malfunction events that result in VOC emissions including identification of the equipment or activity that is the source of emissions. | Malfunctions occurring during the applicable monitoring peirods were recorded and counted towards the permitted malfunction emission limit. Malfunction events that occurred and were reported as per 20.2.7 NMAC would be reported in Part 2 of the affected semi-annual report, Deviation Summary Report. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| To demonstrate compliance, each month records shall be kept of the cumulative total VOC emissions due to malfunction events during the first 12 months and, thereafter of the monthly rolling 12-month total of VOC emissions due to malfunction events.<br><br>Records shall also be kept of the inlet gas analysis, the percent VOC of the gas based on the most recent gas analysis, of the volume of total gas vented in MMscf used to calculate the VOC emissions, a description of the event, and whether the emissions resulting from the event will be used toward the permitted malfunction emission limit or whether the event is reported as excess emissions of the pound per hour limits in Table 106.A (or the pound per hour limits in condition B110E, if applicable), under 20.2.7 NMAC.<br><br>The permittee shall record the calculated emissions and parameters used in calculations in accordance with Condition B109, except the requirement in B109.E to record the start and end times of malfunction events shall not apply to the venting of known quantities of VOC. | Malfunctions occurring during the applicable monitoring peirods were recorded and counted towards the permitted malfunction emission limit. Malfunction events that occurred and were reported as per 20.2.7 NMAC would be reported in Part 2 of the affected semi-annual report, Deviation Summary Report. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall report in | Malfunctions occurring during the applicable | ☐ **Continuous** | ☒ **Yes** | ☐ **Yes** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| accordance with Section B110. | monitoring peirods were recorded as required. | ☒ **Intermittent** | ☐ **No** | ☒ **No** |
| **A108 Facility: Allowable Operations**<br><br>**A.** This facility is authorized for continuous operation. No monitoring, recordkeeping, and reporting requirements are required to demonstrate compliance with continuous hours of operation. | No requirements. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A109 Facility: Reporting Schedules**<br><br>**A.** A Semi-Annual Report of monitoring activities is due within 45 days following the end of every 6-month reporting period. The six month reporting periods start on March 1st and September 1st of each year. | The first semi-annual report for this compliance period was submitted October 14, 2020, within 45 days of the end of the monitoring period. Submittal of the semi-annual report associated with this ACC by April 14 will demonstrate compliance with this requirement. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A109 Facility: Reporting Schedules**<br><br>**B.** The Annual Compliance Certification Report is due within 30 days of the end of every 12-month reporting period. The 12-month reporting period starts on March 1st of each year. | This ACC will be submitted by March 30. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A110 Facility: Fuel and Fuel Sulfur Requirements**<br><br>**A. Fuel and Fuel Sulfur Requirements (Units 1, 3-16, 33 and Dehydrator Units 17b-22b, 31b)** | Natural gas is used for fuel. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| **Requirement:** All combustion emission units shall combust only natural gas containing no more than 0.2 grains of total sulfur per 100 dry standard cubic feet (NSR permit 1031-M8, condition 1.e, revised). | | | | |
| **Monitoring:** None. Compliance is demonstrated through records. | Length of stain tube and/or ASTM D-6667 Method test results are maintained as required and are included with the applicable semi-annual report. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Recordkeeping:** The permittee shall demonstrate compliance with the natural gas limit on total sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, or fuel gas analysis, specifying the allowable limit or less. If fuel gas analysis is used, the analysis shall not be older than one year. Alternatively, the sulfur content of fuel gas shall be measured and recorded annually using a stain tube method. Alternatively, compliance may be demonstrated by keeping a receipt or invoice from a commercial fuel supplier, with each fuel delivery, which shall include the delivery date, the fuel type delivered, the amount of fuel delivered, and the maximum sulfur content of the fuel. | Length of stain tube and/or ASTM D-6667 Method test results are maintained as required and are included with the applicable semi-annual report. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall report in accordance with Section B110. | Length of stain tube and/or ASTM D-6667 Method test results are included with the applicable semi-annual report. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A111 Facility: 20.2.61 NMAC Opacity**<br><br>**A. Opacity for Engine Units 1, 3-16, 33 and Dehydrator Units 17b-22b, 31b**<br><br>**Requirement:** Visible emissions from all stationary combustion emission stacks shall not | Natural gas is used for fuel. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| equal or exceed an opacity of 20 percent in accordance with the requirements at 20.2.61.109 NMAC (Title V permit P027-R3 condition A111.A). | | | | |
| **Monitoring:** Use of natural gas fuel constitutes compliance with 20.2.61 NMAC unless opacity exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during steady state operation, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 9 (EPA Method 9) as required by 20.2.61.114 NMAC, or the operator will be allowed to shut down the equipment to perform maintenance/repair to eliminate the visible emissions. Following completion of equipment maintenance/repair, the operator shall conduct visible emission observations following startup in accordance with the following procedures:<br>• Visible emissions observations shall be conducted over a 10-minute period during operation after completion of startup mode in accordance with the procedures at 40 CFR 60, Appendix A, Reference Method 22 (EPA Method 22). If no visible emissions are observed, no further action is required.<br>• If any visible emissions are observed during completion of the EPA Method 22 observation, subsequent opacity observations shall be conducted over a 10-minute period, in accordance with the procedures at EPA Method 9 as required by 20.2.61.114 NMAC.<br>For the purposes of this condition, Startup mode is defined as the startup period that is described in the facility's startup plan. | Natural gas is used for fuel. No visible emissions were observed during the monitoring period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| | | | | |
| **Recordkeeping:** If any visible emissions observations were conducted, the permittee shall keep records in accordance with the requirements of Section B109 and as follows:<br>• For any visible emissions observations conducted in accordance with EPA Method 22, record the information on the form referenced in EPA Method 22, Section 11.2.<br>• For any opacity observations conducted in accordance with the requirements of EPA Method 9, record the information on the form referenced in EPA Method 9, Sections 2.2 and 2.4. | Natural gas is used for fuel. No visible emissions were observed during the monitoring period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall report in accordance with Section B110. | Natural gas is used for fuel. No visible emissions were observed during the monitoring period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A115 Facility: Inlet Gas Flow**<br><br>**A. Specific Quantities Coal Seam and Conventional Gas Streams in Facility Inlet for Engine Units 1, 3-16, 33 and Dehydrator Units 17-22, 31**<br>**Requirement:** The permittee shall comply with VOC emission limits. These units may combust either coal seam and/or conventional gas streams. The combustion fuel shall be pipeline quality natural gas. (NSR 1031M9) | Records of gas volumes and gas quality are maintained and reported in the applicable semi-annual reports. Pipeline quality natural gas is used for fuel. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The permittee shall measure on a daily basis the inlet gas flow to the compressor station and the specific quantities (MMSCFD) of coal seam and conventional gas streams. | Records of gas volumes and gas quality are maintained and reported in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| **Recordkeeping:** The permittee shall record and measure, on a daily basis, the inlet gas flow to the compressor station and the specific quantities (MMSCFD) of coal seam and conventional gas streams. | Records of gas volumes and gas quality are maintained as required and are reported in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall report in accordance with Section B110. | Records of gas volumes and gas quality are reported in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **EQUIPMENT SPECIFIC REQUIREMENTS OIL AND GAS INDUSTRY**<br><br>**A201 Engines**<br><br>**A. Periodic Testing for Units 1, 3-16, 33**<br>**Requirement:** Compliance with the allowable emission limits in Table 106.A shall be demonstrated by completing periodic emission tests during the monitoring period. (Title V permit P027-R3 condition A201A). | The periodic test reports included in the applicable semi-annual reports demonstrate compliance with emissions limits. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The permittee shall test using a portable analyzer or EPA Reference Methods subject to the requirements and limitations of Section B108, General Monitoring Requirements. Emission testing is required for NOx and CO and shall be carried out as described below.<br><br>Test results that demonstrate compliance with the NOx and CO emission limits shall also be considered to demonstrate compliance with the VOC emission limits.<br><br>For units with g/hp-hr emission limits, in addition to the requirements stated in Section | Test results are included with the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| B108, the engine load shall be calculated by using the following equation:<br><br>Load(Hp) =<br><br>$\frac{\text{Fuel consumption (scfh) x Measured fuel heating value (LHV btu/scf)}}{\text{Manufacturer's rated BSFC (btu/bhp-hr) at 100% load or best efficiency}}$<br><br>(1) The testing shall be conducted as follows:<br>a. Testing frequency shall be once per quarter for Units 3, 5, 6, 10, 11, 12, 13, & 15 and once per year for Units 1, 4, 7, 8, 9, 14, 16, & 33<br>b. The monitoring period is defined as a calendar quarter or as a calendar year.<br>(2) The tests shall continue based on the existing testing schedule.<br>(3) All subsequent monitoring shall occur in each succeeding monitoring period. No two monitoring events shall occur closer together than 25% of a monitoring period.<br>(4) The permittee shall follow the General Testing Procedures of Section B111.<br>(5) Performance testing required by 40 CFR 60, Subpart JJJJ or IIII or 40 CFR 63, Subpart ZZZZ may be used to satisfy these periodic testing requirements if they meet the requirements of this condition and are completed during the specified monitoring period. | | | | |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| | | | | |
| **Recordkeeping:** The permittee shall maintain records in accordance with Section B109, B110, and B111. | Test results are included with the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall maintain records in accordance with Section B109, B110, and B111. | Test results are included with the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A201 Engines**<br><br>**B. Initial Compliance Test (Unit 13)**<br>**Requirement:** Compliance with the allowable emission limits in Table 106.A shall be demonstrated by performing an initial compliance test (NSR 1031-M8, Condition 6.a.). | Unit 13 had not been installed as of the end of this compliance period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The permittee shall perform an initial compliance test in accordance with the General Testing Requirements of Section B111. Emission testing is required for NOx and CO. Test results that demonstrate compliance with the NOx and CO emission limits shall also be considered to demonstrate compliance with the volatile organic compound (VOC) emission limits. The monitoring exemptions of Section B108 do not apply to this requirement.<br><br>For units with g/hp-hr emission limits, the engine load shall be calculated by using the following equation:<br><br>Load(Hp) = | Unit 13 had not been installed as of the end of this compliance period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| Fuel consumption (scfh) x Measured fuel heating value (LHV btu/scf) / Manufacturer's rated BSFC (btu/bhp-hr) at 100% load or best efficiency | | | | |
| **Recordkeeping:** The permittee shall maintain records in accordance with the applicable sections in Section B109, B110, and B111. | Unit 13 had not been installed as of the end of this compliance period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall maintain records in accordance with the applicable sections in Section B109, B110, and B111. | Unit 13 had not been installed as of the end of this compliance period. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A201 Engines**<br>**C. Catalytic Converter Operation for Units 3, 5, 6, 10, 11, 12, 13, & 15**<br>**Requirement:** The units shall be equipped and operated with a catalytic converter (oxidation catalyst) to control CO, VOC, and HAP emissions. Engines equipped with oxidation catalysts are not required to operate with an AFR. The permittee shall maintain the units according to manufacturer's or supplier's recommended maintenance, including replacement of oxygen sensor as necessary for oxygen-based controllers (NSR 1031-M8, Condition 10, revised). | Maintenance and repair records are used to document proper operation of engines and catalytic converters. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The unit(s) shall be operated with the catalytic converter, which includes during catalyst maintenance periods. During periods of catalyst maintenance, the permittee shall either (1) shut down the engine(s); or (2) replace the catalyst with a functionally equivalent spare to allow the engine to remain in operation. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

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|---|---|---|---|---|
| **Recordkeeping:** The permittee shall maintain records in accordance with Section B109. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall report in accordance with Section B110. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A201 Engines**<br><br>**D. 40 CFR 60, Subpart JJJJ for Unit 13**<br>**Requirement:** The unit will be subject to 40 CFR 60, Subparts A and JJJJ if the source is constructed (ordered) and manufactured after the applicability dates in 40 CFR 60.4230 and the permittee shall comply with the notification requirements in Subpart A and the specific requirements of Subpart JJJJ. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The permittee shall comply with all applicable monitoring requirements in 40 CFR 60 Subpart A and Subpart JJJJ, including but not limited to 60.4243. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Recordkeeping:** The permittee shall comply with all applicable recordkeeping requirements in 40 CFR 60 Subpart A and Subpart JJJJ, including but not limited to 60.4245. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall comply with all applicable reporting requirements in 40 CFR 60 Subpart A and Subpart JJJJ, including but not limited to 60.4245. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A201 Engines**<br><br>**E. 40 CFR 63, Subpart ZZZZ Unit 13**<br>**Requirement:** The unit will be subject to 40 CFR 63, Subparts A and ZZZZ if the source is constructed after an applicability date in 40 CFR | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

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|---|---|---|---|---|
| 63.6590 and the permittee shall comply with the notification requirements in Subpart A and the specific requirements of Subpart ZZZZ. | | | | |
| **Monitoring:** The permittee shall comply with all applicable monitoring requirements in 40 CFR 63 Subpart A and ZZZZ. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Recordkeeping:** The permittee shall comply with all applicable recordkeeping requirements in 40 CFR 63 Subpart A and ZZZZ, including but not limited to 63.6655 and 63.10. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall comply with all applicable reporting requirements in 40 CFR 63 Subpart A and ZZZZ, including but not limited to 63.6645, 63.6650, 63.9, and 63.10. | Records of catalyst maintenance are recorded in the SSM records of condition A107.C and included in the applicable semi-annual reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A202 Glycol Dehydrators**<br><br>**A. Extended Gas Analysis and GRI-GLYCalc calculation for Units 17a-22a, 31a**<br>**Requirement:** Compliance with the allowable VOC emission limits in Table 106.A shall be demonstrated by conducting a quarterly extended gas analysis on the dehydrator inlet gas and by calculating emissions using GRI-GLYCalc (NSR 1031-M8, Conditions 3.a. and 4.a). | Dehydrator extended gas analysis records and associated GLYCalc analyses are included with the applicable semi-annual monitoring reports.<br><br>Note that condition A203.A of the November 15, 2017 NSR permit 1031-M9-R7 now requires that gas sampling and GLYCalc be completed annually rather than quarterly. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The permittee shall conduct a quarterly GRI-GlyCalc analysis using the most recent extended gas analysis, and verify the input data. The permittee may use a method of calculating dehydrator emissions other than the most current version of GRI-GlyCalc if approved by the Department. Changes in the calculated emissions due solely to a change in the calculation methodology shall not be | Dehydrator extended gas analysis and GLYCalc input/output records are included with the applicable semi-annual monitoring reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

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|---|---|---|---|---|
| deemed an exceedance of an emission limit. | | | | |
| **Recordkeeping:** The permittee shall identify in a summary table all parameters that were used as inputs in the GRI-GLYcalc model. The permittee shall keep a record of the results, noting the emission rates for the dehydrator obtained from estimates using GRI-GLYcalc. | Dehydrator extended gas analysis and GLYCalc input/output records are included with the applicable semi-annual monitoring reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall report in accordance with Section B110 | Dehydrator extended gas analysis and GLYCalc input/output records are included with the applicable semi-annual monitoring reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A202 Glycol Dehydrators**<br><br>**B. Glycol pump circulation rate for Units 17a-22a, 31a**<br>**Requirement:** Compliance with the allowable VOC emission limits in Table 106.A shall be demonstrated by monitoring the glycol pump circulation rate for Units 17, 18, 19, 20, 21, 22, & 31. The glycol pump circulation rate shall not exceed 210 gallons per hour (3.5 gallons per minute) (NSR 1031-M8, conditions 3.b and 4.b). | Dehydrator glycol pump recircuation rate records are included with the applicable semi-annual monitoring reports | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The permittee shall monitor the circulation rate quarterly, based on a calendar quarter (January 1st through March 31st, April 1 through June 30th, July 1st through September 30th, and October 1st through December 31st). Monitoring shall include an inspection of pump rate setting or other method previously approved by the Department. | Dehydrator glycol pump recircuation rate records are included with the applicable semi-annual monitoring reports | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Recordkeeping:** The permittee shall maintain records that include a description of the monitoring and are in accordance with Section B109. | Dehydrator glycol pump recircuation rate records are included with the applicable semi-annual monitoring reports | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

| 1. Permit Condition # and Permit Condition: | 2. Method(s) or other information or other facts used to determine the compliance status: | 3. What is the frequency of data collection used to determine compliance? | 4. Was this facility in compliance with this requirement during the reporting period? | 5. Were there any deviations associated with this requirement during the reporting period? |
|---|---|---|---|---|
| **Reporting:** The permittee shall report in accordance with Section B110. | Dehydrator glycol pump recircuation rate records are included with the applicable semi-annual monitoring reports | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **A202 Glycol Dehydrators**<br>**C. 40 CFR 63, Subpart HH for Units 17a-22a, & 31a**<br>**Requirement:** The units are subject to 40 CFR 63, Subpart HH and the permittee shall comply with all applicable requirements. | Dehydrator annual GLYCalc analysis records, including gas analysis, demonstrating dehydrator area source exemption status are included with the applicable semi-annual monitoring reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Monitoring:** The permittee shall monitor as required by 40 CFR 63.772(b)(2) to demonstrate facility is exempt from general standards. | Dehydrator annual GLYCalc analysis records, including gas analysis, demonstrating dehydrator area source exemption status are included with the applicable semi-annual monitoring reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Recordkeeping:** The permittee shall generate and maintain the records required by 40 CFR 63.774(d)(1)(ii) to demonstrate compliance with the general standard exemptions found in 40 CFR 63.764(e). | Dehydrator annual GLYCalc analysis records, including gas analysis, demonstrating dehydrator area source exemption status are included with the applicable semi-annual monitoring reports. | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |
| **Reporting:** The permittee shall meet all applicable reporting in 40 CFR 63, Subparts A and HH and in Section B110. | Records required to demonstrate compliance with the general standard exemption found in 40 CFR 63.764(e) have been generated and are maintained as required by 40 CFR 63.774(d)(1)(ii). | ☐ **Continuous**<br>☒ **Intermittent** | ☒ **Yes**<br>☐ **No** | ☐ **Yes**<br>☒ **No** |

# Section 21

## Addendum for Landfill Applications

Do not print this section unless this is a landfill application.

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**Landfill Applications are not required to complete Sections 1-C Input Capacity and Production Rate, 1-E Operating Schedule, 17 Compliance Test History, and 18 Streamline Applications. Section 12 – PSD Applicability is required only for Landfills with Gas Collection and Control Systems and/or landfills with other non-fugitive stationary sources of air emissions such as engines, turbines, boilers, heaters. All other Sections of the Universal Application Form are required.**

**EPA Background Information for MSW Landfill Air Quality Regulations:**
**https://www3.epa.gov/airtoxics/landfill/landflpg.html**

**NM Solid Waste Bureau Website: https://www.env.nm.gov/swb/**

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Not applicable.

# Section 22: Certification

Company Name: HARVEST MIDSTREAM

I, TRAVIS JONES, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 8 day of APRIL, 2021, upon my oath or affirmation, before a notary of the State of NEW MEXICO.

*Signature — Date: 4/8/2021

TRAVIS JONES — Printed Name

EHS MANAGER — Title

Scribed and sworn before me on this 8 day of April, 2021.

My authorization as a notary of the State of New Mexico expires on the 31 day of August, 2021.

Notary's Signature — Date: April 8, 2021

Jodi L. Bohannon — Notary's Printed Name

Official Seal
JODI L BOHANNON
Notary Public
State of New Mexico
My Comm. Expires 8/31/21

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.