April 2, 2019

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

RE: 20.2.70 NMAC Application for a Title V Permit Renewal
Harvest Four Corners, LLC's Horse Canyon Central Delivery Point

Dear Mr. Schooley:

In accordance with 20.2.70.300.B(2) NMAC and on behalf of Harvest Four Corners, LLC, Cirrus Consulting, LLC is pleased to submit the attached application to renew the Part 70 Title V permit for the Horse Canyon Central Delivery Point located in San Juan County, New Mexico.

Should you have any questions regarding this submittal, please contact Ms. Monica Sandoval at (505) 632-4625 or at msandoval@harvestmidstream.com, or me at (801) 484-4412 or at bmyers@cirrusllc.com.

Respectfully submitted,

Robert L. Myers II
Principal

cc: Monica Sandoval, Harvest (electronic copy)

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NEW MEXICO 20.2.70.300.B(2) NMAC
APPLICATION FOR RENEWAL OF
PART 70TITLE V PERMIT P035-R3

HORSE CANYON 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

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Introduction

Harvest Four Corners, LLC (Harvest) is submitting this application to renew the Part 70 Title V operating permit for the Horse Canyon Central Delivery Point. The Horse Canyon CDP is a production-gathering field compressor station that pressurizes and dehydrates natural gas for transport through natural gas pipelines. The facility currently operates under a construction permit, 868-M5, dated December 6, 2011 and a Title V operating permit, P035-R3, dated April 3, 2015, plus several administrative revisions, including a December 2018 revision requesting removal of compressors and dehydrators from the respective permits.

This application is being submitted to renew the April 2015 Title V permit P035-R3 as per the NMED operating permit regulation 20.2.70 NMAC. The lowest level regulatory citations are 20.2.70.300.B(2) and 20.2.70.404.C(1) NMAC.

The station is currently permitted (under the operating permit) to operate seven Waukesha L7042GL natural gas fired internal combustion compressor engines (Units 1-7), three 10 MMSCFD dehydrators (Units 16a/b, 19a/b and 21a/b), and one wastewater evaporation system heater (Unit 25). The station is also equipped with miscellaneous liquid storage tanks and gas transmission equipment, plus allowable fugitive, SSM and Malfunction emissions.

This application will also incorporate any administrative revisions occurring since the last renewal, including the November 2018 notification of change of ownership.

Due to the increasing richness of the gas stream being compressed and dehydrated at this facility, VOC emissions from the glycol dehydrator still vents are also increasing. As such, this application also proposes an increase in the PTE emissions for each dehydrator still vent, using the most recent gas analysis. Concurrent with this application, an NSR application will be submitted requesting the same change.

Table of Contents

Mail Application To:		**For Department use only:**
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 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. For NOI applications, submit the entire UA1, UA2, and UA3 applications on a single CD (no copies are needed). For NOIs, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required.

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.): 1274

Updating Permit/NOI #: P035-R3

1	Facility Name: Horse Canyon 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): See directions in Section 1-D4	
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: 20-4283559	
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: msandoval@harvestmidstream.com
5	☐ Preparer: ☒Consultant: Bobby Myers, Cirrus Consulting, LLC	Phone/Fax: 801-484-4412 / 801-484-4192
a	Mailing Address: 951 Diestel Road, Salt Lake City, UT 84105	E-mail: bmyers@cirrusllc.com
6	Plant Operator Contact: Monica Sandoval	Phone/Fax: 505-632-4625 / 505-632-4782
a	Address: 1755 Arroyo Drive, Bloomfield, NM 87413	E-mail: msandoval@harvestmidstream.com
7	Air Permit Contact: Monica Sandoval	Title: Environmental Specialist
a	E-mail: msandoval@harvestmidstream.com	Phone/Fax: 505-632-4625 / 505-632-4782
b	Mailing Address: 1755 Arroyo Drive, Bloomfield, NM 87413	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☒ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☒ 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 ☒ 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? ☒ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☒ 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 ☒ 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 ☐N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: P-035-R3
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☒ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☒ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☒ Yes ☐ No	If yes, the permit No. is: 868-M5-R6
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☒ 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: 2.25 mmcf	Daily: 54.0 mmcf	Annually: 19,700 mmcf
b	Proposed	Hourly: 2.25 mmcf	Daily: 54.0 mmcf	Annually: 19,700 mmcf
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: N/A	Daily: N/A	Annually: N/A
b	Proposed	Hourly: N/A	Daily: N/A	Annually: N/A

Section 1-D: Facility Location Information

1	Section: 27	Range: 9W	Township: 30N	County: San Juan	Elevation (ft): 5980
2	UTM Zone: ☐ 12 or ☒13			Datum: ☐ NAD 27 ☒ NAD 83 ☐ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 253,700			UTM N (in meters, to nearest 10 meters): 4,074,825	
b	**AND** Latitude (deg., min., sec.): 36° 47' 14"			Longitude (deg., min., sec.): -107° 45' 37"	
3	Name and zip code of nearest New Mexico town: Aztec 87410				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): Drive north from Aztec on Hwy 550 approximately 2 miles, turn right on Hwy 173 and drive to mile marker 13.9, turn left and drive 0.8 miles to site.				
5	The facility is 10 miles ESE of Aztec.				
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: Aztec, none, Rio Arriba County				
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:				
9	Name nearest Class I area: Weminuche Wilderness Area				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 71.52 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: 1700 m				
12	Method(s) used to delineate the Restricted Area: Fence "**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? ☐ Yes ☒ No 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 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	($\frac{\text{hours}}{\text{year}}$): 8760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start:	☐AM ☐PM	End:	☐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:		NOV Tracking No:
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:	Date:	Requirement # (or page # and paragraph #):
d	Provide the required text to be inserted in this permit:		
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: _____ 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.) Travis Jones (20.2.70.300.D.2 NMAC):	Phone: 713-289-2630
a	R.O. Title: EH&S Manager	R.O. e-mail: trjones@harvestmidstream.com
b	R. O. Address: 1111Travis 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): Hilcorp Energy Company	
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: 1111Travis 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: 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: Colorado (24.1 km), Navajo Tribe (17.7 km), Southern Ute Tribe (24.1 km), Ute Mountain Tribe (45.1 km) & Jicarilla Apache Tribe (51.5 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 does not need to be 2-hole punched, but **must be double sided**. 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 on compact disk(s) (CD). For 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.

4) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** **OR** one additional electronic copy of the air dispersion modeling including the input and output files. The dispersion modeling ***summary report only*** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau. The complete dispersion modeling study, including all input/output files, should be submitted electronically as part of the electronic submittal.

5) If 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.

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

1) All required electronic documents shall be submitted in duplicate (2 separate CDs). 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 with the number of additional hard copies corresponding to the number of CD copies required. 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 3 electronic files (2 MSWord docs: Universal Application section 1 and Universal Application section 3-19) and 1 Excel file of the tables (Universal Application section 2) on the CD(s). 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 # (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. 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 #	Engine Serial # / Package 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	Compressor Engine	Waukesha	7042GL	X00012 / C-11345/2	1,478 hp	1,390 hp	9/19/1994 9/19/1994	N/A 1	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
2	Compressor Engine	Waukesha	7042GL	TBD - Not Installed	1,478 hp	1,390 hp	TBD TBD	N/A 2	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
3	Compressor Engine	Waukesha	7042GL	76223 / 233634	1,478 hp	1,390 hp	10/28/1972 10/28/1972	N/A 3	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
4	Compressor Engine	Waukesha	7042GL	804347 / C-10607/12	1,478 hp	1,390 hp	7/14/1992 7/14/1992	N/A 4	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
5	Compressor Engine	Waukesha	7042GL	76225 / C-10607/11	1,478 hp	1,390 hp	7/14/1992 7/14/1992	N/A 5	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
6	Compressor Engine	Waukesha	7042GL	804345 / 365090	1,478 hp	1,390 hp	7/27/1981 7/27/1981	N/A 6	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
7	Compressor Engine	Waukesha	7042GL	804342 / C-10430/3	1,478 hp	1,390 hp	9/23/1991 9/23/1991	N/A 7	20200202	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
16a	Dehydrator	Enertek	J2P10M1 1109	40146	10 MMSCFD	10 MMSCFD	10/01/1990 10/01/1990	NA 16a	31000227	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☒ To Be Modified ☐ To be Replaced	N/A	N/A
16b	Dehydrator Reboiler	Enertek	J2P10M1 1109	40146	0.39 MMBtu/hr	0.39 MMBtu/hr	10/01/1990 10/01/1990	NA 16b	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
19a	Dehydrator	Enertek	J2P10M1 1109	41649	10 MMSCFD	10 MMSCFD	04/1992 04/1992	NA 19a	31000227	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☒ To Be Modified ☐ To be Replaced	N/A	N/A
19b	Dehydrator Reboiler	Enertek	J2P10M1 1109	41649	0.39 MMBtu/hr	0.39 MMBtu/hr	04/1992 04/1992	NA 19b	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21a	Dehydrator	Enertek	J2P10M1 1109	40452	10 MMSCFD	10 MMSCFD	12/1990 12/1990	NA 21a	31000227	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☒ To Be Modified ☐ To be Replaced	N/A	N/A
21b	Dehydrator Reboiler	Enertek	J2P10M1 1109	40452	0.39 MMBtu/hr	0.39 MMBtu/hr	12/1990 12/1990	NA 21b	31000228	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
25	Wastewater Evaporation Unit			8824	2.48 MMBut/hr	2.48 MMBut/hr	7/1994 1998	25 N/A	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
F1	Equipment Leaks						N/A N/A	N/A N/A	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

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 #	Engine Serial # / Package 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.
SSM	SSM						N/A N/A	N/A N/A	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
M1	Malfunctions						N/A N/A	N/A N/A	31000299	☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

[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
26	Tank Heater			250 / Mbtu/hr	#1.a		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
27	Tank Heater			250 / Mbtu/hr	#1.a		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T1-T7	Lubrication Oil Storage Tank			500 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T15	Lubrication Oil Storage Tank			4,200 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T16	Used Oil Storage Tank			6,930 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T17	Waste Water Storage Tank			6,930 / gal	#1.a		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T18	Produced Water Storage Tank			12,600 / gal	#1.a		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T19 & T20	Antifreeze Storage Tank			500 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T21	Corrosion Inhibitor Storage Tank			125 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T22	Petroleum Based Solvent Storage Tank			400 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T25-T34	Glycol Storage Tank			100 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T35	Glycol Storage Tank			16,800 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T36	Used Oil Storage Tank			16,800 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T37	Glycol Storage Tank			1,890 / gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

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
T38	Evaporator Overflow Storage Tank			1,050 gal	#1.a		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T39-T42	Waste Water Storage Tank			16,800 gal	#1.a		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T43 & T44	Produced Water Storage Tank			1,890 gal	#1.a		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T45 & T46	De-Emulsifier Storage Tank			125 gal	#1.a & #5		☒ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T47	Waste Water Storage Tank			16,800 gal	#1.a		☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
T48-T52	Stormwater Storage Tanks			21,000 gal	#1.a		☐ Existing (unchanged) ☐ To be Removed ☒ New/Additional ☐ Replacement Unit ☐ 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
N/A						

[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		TSP[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
Totals																		

[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 TSP unless TSP is set equal to PM10 and PM2.5.

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		TSP[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	4.60	20.14	8.12	35.57	3.06	13.42	6.00E-03	2.63E-02			1.00E-01	4.47E-01	1.00E-01	4.47E-01	-	-	-	-
2	4.60	20.14	8.12	35.57	3.06	13.42	6.00E-03	2.63E-02			1.00E-01	4.47E-01	1.00E-01	4.47E-01	-	-	-	-
3	4.60	20.14	8.12	35.57	3.06	13.42	6.00E-03	2.63E-02			1.00E-01	4.47E-01	1.00E-01	4.47E-01	-	-	-	-
4	4.60	20.14	8.12	35.57	3.06	13.42	6.00E-03	2.63E-02			1.00E-01	4.47E-01	1.00E-01	4.47E-01	-	-	-	-
5	4.60	20.14	8.12	35.57	3.06	13.42	6.00E-03	2.63E-02			1.00E-01	4.47E-01	1.00E-01	4.47E-01	-	-	-	-
6	4.60	20.14	8.12	35.57	3.06	13.42	6.00E-03	2.63E-02			1.00E-01	4.47E-01	1.00E-01	4.47E-01	-	-	-	-
7	4.60	20.14	8.12	35.57	3.06	13.42	6.00E-03	2.63E-02			1.00E-01	4.47E-01	1.00E-01	4.47E-01	-	-	-	-
16a	-	-	-	-	2.42	10.58	-	-			-	-	-	-	-	-	-	-
16b	4.29E-02	0.19	8.75E-03	3.83E-02	5.42E-03	2.37E-02	4.17E-04	1.83E-03			3.30E-03	1.40E-02	3.30E-03	1.40E-02	-	-	2.15E-07	9.40E-07
19a	-	-	-	-	2.42	10.58	-	-			-	-	-	-	-	-	-	-
19b	4.29E-02	0.19	8.75E-03	3.83E-02	5.42E-03	2.37E-02	4.17E-04	1.83E-03			3.30E-03	1.40E-02	3.30E-03	1.40E-02	-	-	2.15E-07	9.40E-07
21a	-	-	-	-	2.42	10.58	-	-			-	-	-	-	-	-	-	-
21b	4.29E-02	0.19	8.75E-03	3.83E-02	5.42E-03	2.37E-02	4.17E-04	1.83E-03			3.30E-03	1.40E-02	3.30E-03	1.40E-02	-	-	2.15E-07	9.40E-07
25	0.28	1.21	0.23	1.01	1.52E-02	6.64E-02	1.65E-03	7.24E-03			2.09E-02	9.17E-02	2.09E-02	9.17E-02	-	-	1.38E-06	6.03E-06
F1	-	-	-	-	1.29	4.30	-	-			-	-	-	-	-	-	-	-
SSM	-	-	-	-	unspecified	10.62	-	-			-	-	-	-	-	-	-	-
M1	-	-	-	-	unspecified	10.00	-	-			-	-	-	-	-	-	-	-
Totals	32.61	142.75	57.10	250.11	29.99	150.74	4.49E-02	0.20			0.73	3.26	0.73	3.26			2.03E-06	8.85E-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 TSP unless TSP is set equal to PM10 and PM2.5.

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		TSP[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						10.62												
Totals						10.62												

[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.

[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 TSP unless TSP is set equal to PM10 and PM2.5.

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

☐ 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 the "-" symbol and on significant figures.

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		TSP		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
25a	25	2.22E-01	9.73E-01	1.87E-01	8.18E-01	1.22E-02	5.35E-02	1.33E-03	5.84E-03			1.69E-02	7.40E-02	1.69E-02	7.40E-02	1.11E-06	4.87E-06
25b	25	8.89E-03	3.89E-02	7.47E-03	3.27E-02	4.89E-04	2.14E-03	5.33E-05	2.34E-04			6.76E-04	2.96E-03	6.76E-04	3.00E-03	4.44E-08	1.95E-07
25c	25	2.78E-02	1.22E-01	2.33E-02	1.02E-01	1.53E-03	6.69E-03	1.67E-04	7.30E-04			2.11E-03	9.25E-03	2.11E-03	9.25E-03	1.39E-07	6.08E-07
25d	25	1.67E-02	7.30E-02	1.40E-02	6.13E-02	9.17E-04	4.02E-03	1.00E-04	4.38E-04			1.27E-03	5.55E-03	1.27E-03	5.55E-03	8.33E-08	3.65E-07
Totals:		0.28	1.21	0.23	1.01	1.52E-02	6.64E-02	1.65E-03	7.24E-03			2.09E-02	9.17E-02	2.09E-02	9.18E-02	1.38E-06	6.03E-06

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	No	22	703	129			157	1.02
2	2	V	No	22	703	129			157	1.02
3	3	V	No	22	703	129			157	1.02
4	4	V	No	22	703	129			157	1.02
5	5	V	No	22	703	129			157	1.02
6	6	V	No	22	703	129			157	1.02
7	7	V	No	22	703	129			157	1.02
16b	16b	V	No	10	600	3			6	0.83
19b	19b	V	No	10	600	3			6	0.83
21b	21b	V	No	10	600	3			6	0.83
25a	25a	V	No	15	600	1			6	0.33
25b	25b	V	No	15	600	1			6	0.33
25c	25c	V	No	15	600	1			6	0.33
25d	25d	V	No	15	600	1			6	0.33

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 ☑ HAP or ☐ TAP		Ethylbenzene ☑ HAP or☐ TAP		Formaldehyde ☑ HAP or☐ TAP		Toluene ☑ HAP or ☐ TAP		Xylenes ☑ 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	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
2	2	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
3	3	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
4	4	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
5	5	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
6	6	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
7	7	0.5	2.4	1.6E-02	7.0E-02	-	-	0.5	2.3	6.4E-03	2.8E-02	4.3E-03	1.9E-02						
16a	16a	1.20	5.2	0.1	0.5	0.4	1.7	-	-	0.6	2.5	9.6E-02	0.4						
16b	16b	1.4E-04	6.0E-04	-	-	-	-	1.4E-04	6.0E-04	-	-	-	-						
19a	19a	1.20	5.2	0.1	0.5	0.4	1.7			0.6	2.5	9.6E-02	0.4						
19b	19b	1.4E-04	6.0E-04	-	-	-	-	1.4E-04	6.0E-04	-	-	-	-						
21a	21a	1.20	5.2	0.1	0.5	0.4	1.7	-	-	0.6	2.5	9.6E-02	0.4						
21b	21b	1.4E-04	6.0E-04		8.0E-03	-	-	1.4E-04	6.0E-04	-	-	-	-						
25	25	1.5E-02	0.1	1.8E-03	8.1E-03	5.3E-03	2.3E-02	2.1E-03	9.2E-03	2.5E-03	1.1E-02	3.3E-03	1.4E-02						
F1	F1	6.7E-03	1.2E-02	1.4E-03	1.9E-03	-	3.5E-03	-	-	4.8E-03	6.4E-03	4.8E-04	6.5E-04						
SSM	SSM	-	0.1	-	1.2E-02	-	2.1E-02	-	-	-	3.9E-02	-	4.0E-03						
M1	M1	-	0.1	-	1.1E-02	-	-	-	-		3.7E-02		3.7E-03						
Totals:		7.4	32.7	0.4	2.0	1.2	5.1	3.6	16.1	1.9	7.8	0.3	1.4						

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	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
2	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
3	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
4	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
5	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
6	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
7	Natural Gas	field natural gas	900 Btu/scf	11.3 Mscf	99.4 MMscf	Negl.	Negl.
16b	Natural Gas	field natural gas	900 Btu/scf	429 scf	3.8 MMscf	Negl.	Negl.
19b	Natural Gas	field natural gas	900 Btu/scf	429 scf	3.8 MMscf	Negl.	Negl.
21b	Natural Gas	field natural gas	900 Btu/scf	429 scf	3.8 MMscf	Negl.	Negl.
25	Natural Gas	field natural gas	900 Btu/scf	2.8 Mscf	24.1 MMscf	Negl.	Negl.

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)
T1-T7	31000299	Lubrication Oil	Lubrication Oil	Insignificant source					
T15	31000299	Lubrication Oil	Lubrication Oil	Insignificant source					
T16	31000299	Used Oil	Used Oil	Insignificant source					
T17	31000299	Waste Water	H2O & <1% Hydrocarbons	Insignificant source					
T18	31000299	Produced Water	H2O & <1% Hydrocarbons	Insignificant source					
T19 & T20	31000299	Antifreeze	Ethylene Glycol	Insignificant source					
T21	31000299	Corrosion Inhibitor	Naphtha & Methyl Alcohol	Insignificant source					
T22	31000299	Petroleum Based Solvent	Jet Kerosene	Insignificant source					
T25-T34	31000299	Glycol	TEG	Insignificant source					
T35	31000299	Glycol	TEG	Insignificant source					
T36	31000299	Used Oil	Used Oil	Insignificant source					
T37	31000299	Glycol	TEG	Insignificant source					
T38	31000299	Evaporator Overflow	Waste H2O/Lubrication Oil/TEG	Insignificant source					
T39-T42	31000299	Waste Water	H2O & <1% Hydrocarbons	Insignificant source					
T43 & T44	31000299	Produced Water	H2O & <1% Hydrocarbons	Insignificant source					
T45 & T46	31000299	De-Emulsifier	Naphtha & Toluene	Insignificant source					

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			
T1-T7		Lubrication Oil	NA	FX	12		Insignificant source						
T15		Lubrication Oil	NA	FX	100		Insignificant source						
T16		Used Oil	NA	FX	165		Insignificant source						
T17		Waste Water	NA	FX	165		Insignificant source						
T18		Produced Water	NA	FX	300		Insignificant source						
T19 & T20		Antifreeze	NA	FX	12		Insignificant source						
T21		Corrosion Inhibitor	NA	FX	3		Insignificant source						
T22		Petroleum Based Solvent	NA	FX	10		Insignificant source						
T25-T34		Glycol	NA	FX	2		Insignificant source						
T35		Glycol	NA	FX	400		Insignificant source						
T36		Used Oil	NA	FX	400		Insignificant source						
T37		Glycol	NA	FX	45		Insignificant source						
T38		Evaporator Overflow	NA	FX	25		Insignificant source						
T39-T42		Waste Water	NA	FX	400		Insignificant source						
T43 & T44		Produced Water	NA	FX	45		Insignificant source						
T45 & T46		De-Emulsifier	NA	FX	3		Insignificant source						

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)**
Field Natural Gas		Gas	19,700 MMcf/yr	Residue Gas		Gas	19,700 MMcf/yr
The station capacity is a direct function of available horsepower. The throughput is therefore dependant on atmospheric temperature and pressure, gas temperature and pressure, relative humidity							
and gas quality, was well as other factors. The "throughput" expressed above is a nominal quantity (with a 15 percent safety factor), neither an absolute maximum, nor an average. Actual throughput							
will vary from the nominal amount.							

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									

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								

Table 2-P: Greenhouse 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.

		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**	6006	1.10E-02	0.11	0	0									6006.12	
	CO_2e	6006	3.28	2.83	0	0										6012.10
2	**mass GHG**	6006	1.10E-02	0.11	0	0									6006.12	
	CO_2e	6006	3.28	2.83	0	0										6012.10
3	**mass GHG**	6006	1.10E-02	0.11	0	0									6006.12	
	CO_2e	6006	3.28	2.83	0	0										6012.10
4	**mass GHG**	6006	1.10E-02	0.11	0	0									6006.12	
	CO_2e	6006	3.28	2.83	0	0										6012.10
5	**mass GHG**	6006	1.10E-02	0.11	0	0									6006.12	
	CO_2e	6006	3.28	2.83	0	0										6012.10
6	**mass GHG**	6006	1.10E-02	0.11	0	0									6006.12	
	CO_2e	6006	3.28	2.83	0	0										6012.10
7	**mass GHG**	6006	1.10E-02	0.11	0	0									6006.12	
	CO_2e	6006	3.28	2.83	0	0										6012.10
16a	**mass GHG**	16.6	0	0.72	0	0									17.32	
	CO_2e	16.6	0	18.00	0	0										34.60
16b	**mass GHG**	219.19	4.13E-04	4.13E-03	0	0									219.19	
	CO_2e	219.19	0.12	0.10	0	0										219.42
19a	**mass GHG**	16.6	0	0.72	0	0									17.32	
	CO_2e	16.6	0	18.00	0	0										34.60
19b	**mass GHG**	219.19	4.13E-04	4.13E-03	0	0									219.19	
	CO_2e	219.19	0.12	0.10	0	0										219.42
21a	**mass GHG**	16.6	0	0.72	0	0									17.32	
	CO_2e	16.6	0	18.00	0	0										34.60
21b	**mass GHG**	219.19	4.13E-04	4.13E-03	0	0									219.19	
	CO_2e	219.19	0.12	0.10	0	0										219.42
25	**mass GHG**	1407.82	2.66E-03	2.66E-02	0	0									1407.85	
	CO_2e	1407.82	0.79	0.67	0	0										1409.28
F1	**mass GHG**	181.85	0	317.31	0	0									499.16	
	CO2e	181.85	0	7932.75	0	0										8114.60
SSM	**mass GHG**	90.58	0	158.06	0	0									248.64	
	CO2e	90.58	0	3951.50	0	0										4042.08
M1	**mass GHG**	85.32	0	148.88	0	0									234.20	
	CO2e	85.32	0	3722.00	0	0										3807.32
Total	**mass GHG**	44,515	8.09E-02	627	0	0									45,142	
	CO_2e	44,515	24	15,681	0	0										60,220

Section 3

Application Summary

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).

Routine or predictable emissions during Startup, Shutdown, and Maintenance (SSM): 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.

Application Summary

The HFC Horse Canyon CDP is a production-gathering field compressor station that pressurizes and dehydrates natural gas for transport through natural gas pipelines. The facility currently operates under a construction permit, 868-M5, dated December 6, 2011 and a Title V operating permit, P035-R3, dated April 3, 2015, plus several administrative revisions, including a December 2018 revision requesting removal of compressors and dehydrators from the respective permits.

This application is being submitted to renew the April 2015 Title V permit P035-R3 as per the NMED operating permit regulation 20.2.70 NMAC. The lowest level regulatory citations are 20.2.70.300.B(2) and 20.2.70.404.C(1) NMAC.

The station is currently permitted (under the operating permit) to operate seven Waukesha L7042GL natural gas fired internal combustion compressor engines (Units 1-7), three 10 MMSCFD dehydrators (Units 16a/b, 19a/b and 21a/b), and one wastewater evaporation system heater (Unit 25). The station is also equipped with miscellaneous liquid storage tanks and gas transmission equipment, plus allowable fugitive, SSM and Malfunction emissions.

This application will also incorporate any administrative revisions occurring since the last renewal, including the November 2018 notification of change of ownership.

Due to the increasing richness of the gas stream being compressed and dehydrated at this facility, VOC emissions from the glycol dehydrator still vents are also increasing. As such, this application also proposes an increase in the PTE emissions for each dehydrator still vent, using the most recent gas analysis. Concurrent with this application, an NSR application will be submitted requesting the same change.

SSM

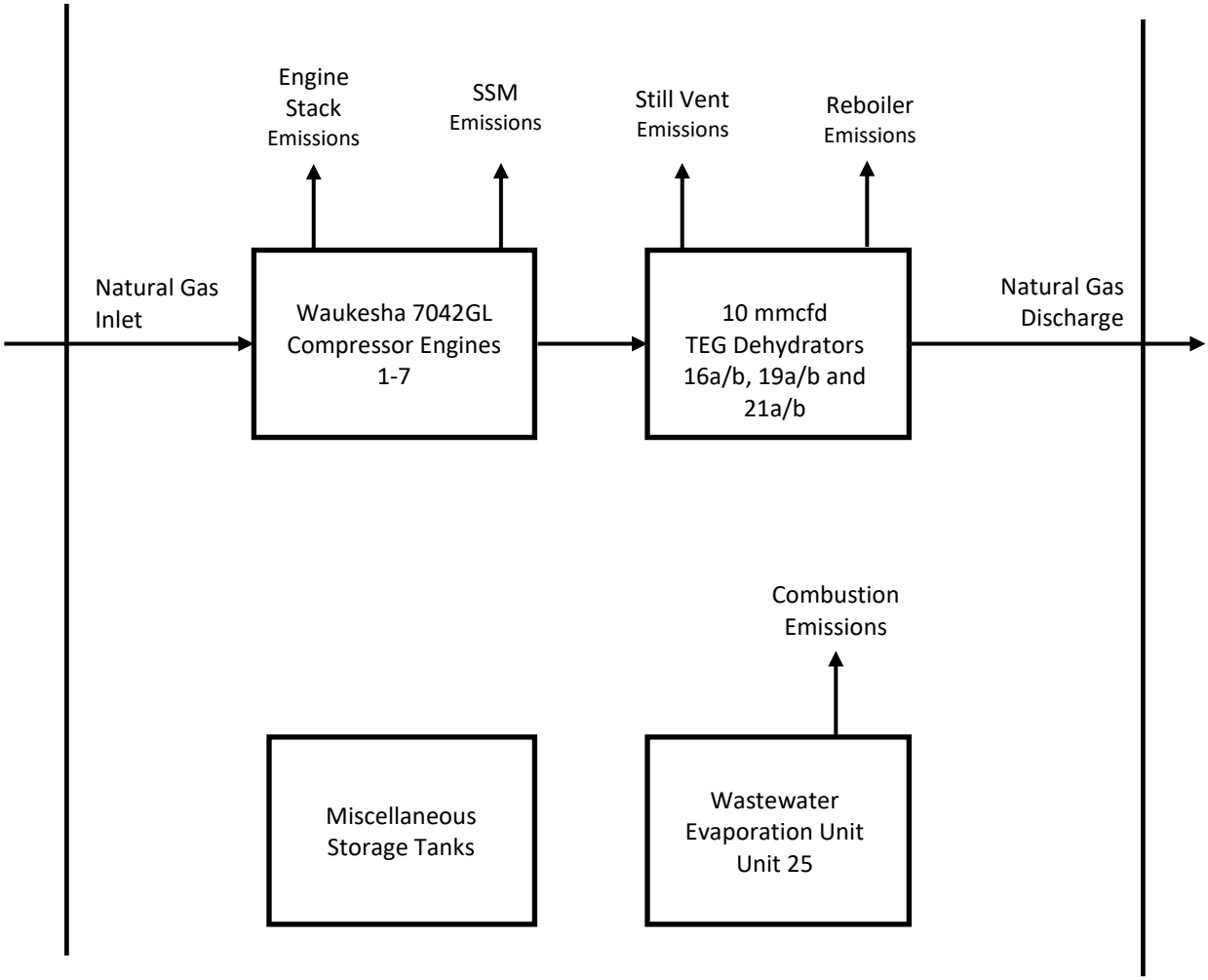
For the reciprocating engines, dehydrators (still vents and reboilers), heaters, equipment leaks (valves, connectors, seals, etc.), and storage tanks, it is concluded that either SSM emissions are not quantifiable or there are no SSM emissions in excess of those identified for steady-state operation as seen in Section 2, Table 2-E. Discussions justifying this conclusion are provided in Section 6.

SSM emissions from compressor blowdowns are calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The number of blowdown events is estimated from historical data. A safety factor is included.

Section 4

Process Flow Sheet

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

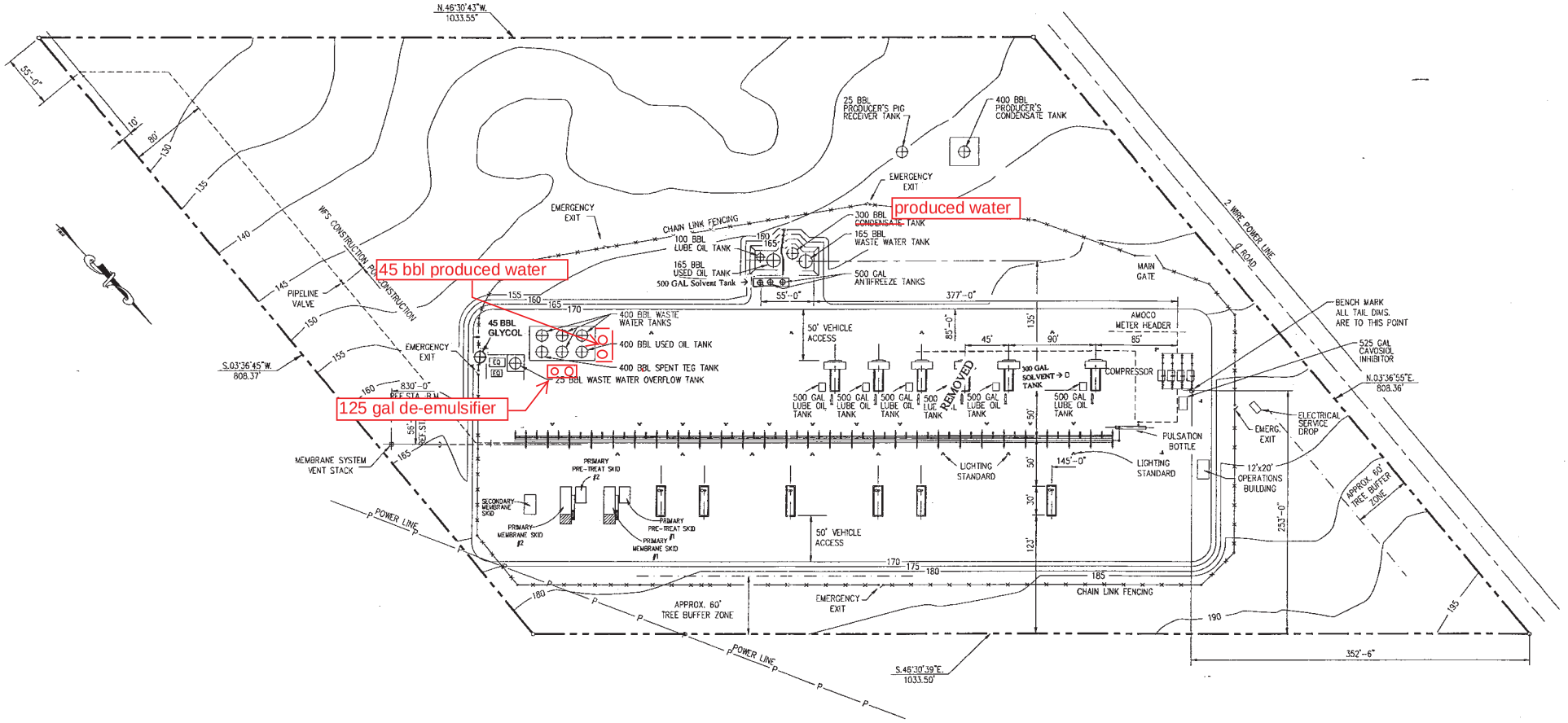
Plot Plan Drawn To Scale

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.

See plot plan on following page.

OPERATIONS		
Manual: HORSE CANYON COMPRESSOR STATION		
Section: SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN	Tab: 13	Document No.: 42.13.001
Effective Date: 12-20-99	Issue No.: 05	Page No.: 5 of 8

ATTACHMENT "A" PRODUCT & WASTE STORAGE



DRAFTING	BY	DATE
DRAWN BY	PHIL	8-21-98
CHECKED BY		
APPROVED BY		
ENGINEER	BY	DATE
DESIGNED BY		

STATE: NEW MEXICO
COUNTY: SAN JUAN

WILLIAMS FIELD SERVICES
ONE OF THE WILLIAMS COMPANIES

HORSE CANYON COMPRESSOR STATION
SPILL PREVENTION CONTROL & COUNTERMEASURE PLAN
PLOT PLAN

SCALE: 1" = 50'
DWG NO.

NO.	DATE	BY	DESCRIPTION	W.O.NO.	CHK.	APP.
02	12/20/99	BES	REVISED PER AS-BUILT			
01	8-21-98	PHIL	REVISED PER UPDATE			

REFERENCE DRAWINGS

DRAWING NO.	TITLE	DRAWING NO.	TITLE	DRAWING NO.	TITLE	DRAWING NO.	TITLE

Section 6

All Calculations

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.

Note that the hydrogen sulfide (H_2S) content of the natural gas at the station is non-detect. Therefore, it is assumed there are no H_2S emissions associated with any of the equipment. Also note that even if H_2S is present, H_2S emissions from the combustion of natural gas are negligible. H_2S is converted to SO_2 during combustion.

Reciprocating Engines

The nitrogen oxides (NO_X), carbon monoxide (CO), and volatile organic compounds (VOC) emissions from the engines (Units 1-9) are calculated from manufacturer's data. The SO_2 and particulate emissions are calculated using AP-42 emission factors from Table 3.2-2. Lead emissions are calculated using the AP-42 emission factor from Table 1.4-2 (even though the engines are internal combustion sources, the emission factor for external combustion is acceptable as lead is not a produced pollutant; rather, emissions are directly related to the lead content of the natural gas). Hazardous air pollutant (HAP) emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming the engines all operate at full site capacity for 8,760 hours per year.

The NO_X, CO and VOC emissions from Units 1-9 are carried forward from previous applications.

The engines at the station startup with no load and a rich fuel mixture. As a result, emissions are minimized. Because the engines take only minutes to reach operating temperature, emissions during startup do not exceed the steady-state allowable limits. Similarly, emissions during shutdown 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 engines are not in operation during maintenance.

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) engine exhaust emissions are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the engine higher heating value (HHV) design heat rates.

Compressors and Piping

SSM emissions from the compressors and associated piping (Unit SSM) occur only during startup and shutdown of a compressor. High pressure gas is used to purge air from the compressors and turn the starters at startup and this gas is then vented to atmosphere. After shutdown, high pressure gas in the compressor 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 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 compressors are also shut down for maintenance of the engines, compressors 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".

SSM emissions from blowdown of the compressors and associated piping at the station are calculated from the quantity of gas vented during each event, the composition of the gas in the compressors, and the number of events.

The quantity of gas vented during each event is determined by Harvest engineering. The composition of the blowdown gas is estimated from the most recent extended gas analysis. For each compressor, the annual number of blowdown events is estimated from historical data. A safety factor is added because VOC and HAP emissions from each blowdown event are dependent on the composition of the gas in the pipeline and because the number of blowdowns in a year may vary. Experience indicates the composition of the gas is likely vary. The use of the safety factor is also designed to ensure an adequate emissions limit, which includes any emissions from other non-blowdown miscellaneous startup, shutdown and maintenance activities.

It is estimated each compressor will experience no more than one blowdown per hour. Having all the compressors blowdown during the same hour is a very unlikely event, but possible. The only time the entire site would blow down at once as a planned event is during the annual system shut down. That is part of the permitted activity. If there is an actual emergency, the station would be shut in, but may or may not be blown down depending on the event. If an emergency blow down is required, that would be reportable as excess emissions.

The SSM emissions identified in this application are routine or predictable startup/shutdown and scheduled maintenance and do not include malfunctions or upsets.

GHG emissions from the compressors are calculated from the annual blowdown volumes and gas composition.

Dehydrator Still Vents

The VOC and HAP emissions from the dehydrator still vents (Units 16a, 19a, & 21a) are calculated using GRI-GLYCalc 4.0. Emissions are calculated assuming both the rated throughput and glycol circulation rates of 90 gallons per hour. The dehydrators operate at full capacity for 8,760 hours per year. To allow for variability in the composition of the inlet gas stream, the dehydrator still vent emission rates identified on the application forms are higher than the calculated emissions.

During startup, the dehydrator reboilers are brought up to temperature before allowing glycol into the absorbers. 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 reboilers are 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 units will not be in operation during maintenance or maintenance is limited to tasks for which there are no excess emissions.

CO_2 and CH_4 still vent emissions are calculated using GRI-GLYCalc 4.0. CH_4 gas-assisted pump emissions are calculated from the facility CH_4 gas stream composition using the emission factor and baseline CH_4 content from the API Compendium, Section 5.1.2, Table 5-4. CO_2 gas-assisted pump emissions are calculated from the CH_4 emissions and facility CO_2 gas stream composition.

Dehydrator Reboilers

The NO_X and CO emission factors for the reboilers (Units 16b, 19b, & 21b) are identified from an Enertek letter dated August 19, 1994. The VOC and SO_2 emission factors are identified from an InFab letter dated July 22, 1998. The particulate and lead emissions are calculated using AP-42 emission factors from Table 1.4-2. HAP emissions are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming the reboilers all operate 8,760 hours per year.

The dehydrator reboilers (uncontrolled) will startup with less fuel input than during steady-state operation, so emissions will be lower than during steady-state operation. During shutdown, the fuel supply will stop quickly, but

air flow may not, causing the continued formation of NO_X. Even so, with no fuel, NO_X formation should be less than during steady-state operation. Emissions due to scheduled maintenance will be negligible as the units will not be in operation.

CO_2, CH_4, and N_2O reboiler exhaust emissions are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the reboiler higher heating value (HHV) fuel usage rates.

Heaters

The NO_X, CO, VOC, SO_2 and particulate emissions from the heaters (Units 25a-25d) are calculated using AP-42 emissions factors from Tables 1.4-1 and 1.4-2. HAP emissions for heaters are calculated using GRI-HAPCalc 3.0. Emissions are calculated assuming the heater operates at full site capacity for 8,760 hours per year.

The heaters (uncontrolled) startup with less fuel input than during steady-state operation, so emissions are lower than during steady-state operation. During shutdown, the fuel supply stops quickly, but air flow may not, causing the continued formation of NO_X. Even so, with no fuel, NO_X formation should be less than during steady-state operation. Emissions due to scheduled maintenance are negligible as the units are not in operation.

CO_2, CH_4, and N_2O heater exhaust emissions are calculated using emission factors from the 40 Code of Federal Regulations (CFR), Part C, Tables C-1 & C-2 and the heater higher heating value (HHV) fuel usage rates.

Equipment Leak Emissions

Fugitive VOC and HAP emissions (Unit F1) from equipment leaks (valves, flanges, seals, etc.) are calculated using total organic compounds (TOC) emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the Environmental Protection Agency (EPA) and the most recent extended gas analysis.

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

CH_4 and CO_2 equipment leaks emissions are also calculated using the TOC emission factors and gas stream composition. CH_4 gas-driven pneumatic device emissions are calculated from the facility CH_4 gas stream composition using the emission factor and baseline CH_4 content from the API Compendium, Section 5.6.1, Table 5-15. CO_2 gas-driven pneumatic device emissions are calculated from the CH_4 emissions and facility CO_2 gas stream composition. CH_4 pressure relief valve emissions are calculated from the facility CH_4 gas stream composition using the emission factor and baseline CH_4 content from the API Compendium, Section 5.7.2, Table 5-24. CO_2 pressure relief valve emissions are calculated from the CH_4 emissions and facility CO_2 gas stream composition.

Malfunctions

Malfunction (Unit M1) emissions are set at 10.0 tons of VOC per year. Based on the gas release rate associated with the set emission rate, HAP emissions are estimated using the most recent extended gas analysis.

CO_2 and CH_4 malfunction emissions are calculated from the VOC emissions and facility gas stream composition.

Storage Tanks

Where required, VOC and HAP emissions (working/breathing losses) from the storage tanks are calculated using TANKS 4.0.9d. The following assumptions are made for the emissions calculations:

- Residual oil #6 is used as an estimate for lubrication and used oil. As the vapor pressure of residual oil #6 is less than 0.2 psia, the tanks containing lubrication and used oil are assumed to be insignifcant sources;

- The natural gasoline liquid composition identified in HAPCalc 3.0 was used to estimate hydrocarbon emissions from the produced/waste water tanks (the tanks are estimated to contain 99 percent water and one percent hydrocarbons);

- Propylene glycol is used as an estimate for glycol and antifreeze. As the vapor pressure of propylene glycol is less than 0.2 pounds per square inch absolute (psia), the tanks containing glycol and antifreeze are assumed to be insignificant sources;

As Unit T39 is one of the largest produced/waste water storage tank at the station, it is used to estimate emissions for all the produced/waste water tanks (Units T17, T18 & T38-T44). In other words, all the produced/waste water tanks are assumed to have an emission rate equal to that calculated for Unit T39. Using this approach, the combined total VOC emission rate from the produced/waste water storage tanks is 265 pounds per year. As such, they are insignificant sources.

Emissions from the corrosion inhibitor storage tank are calculated at 12 pounds per year. As such, it is an insignificant source.

Emissions from the de-emulsifier4storage tank are calculated at 4 pounds per year. As such, it is an insignificant source.

Due to the nature of operations, startup and shutdown emissions from the storage tanks are assumed to be accounted for in the TANKS 4.0.9d program used to calculate emissions. Emissions due to maintenance will be negligible as the units will not be in operation.

Copies of the TANKS 4.0.9d output files are provided in this section.

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Facility Total Projected Emissions

Criteria Pollutant Emissions

Unit Number	Description	NOX, pph	CO, pph	VOC, pph	SOX, pph	PM10, pph	PM2.5, pph	Lead, pph
1	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
2	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
3	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
4	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
5	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
6	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
7	Waukesha L7042GL	4.60	8.12	3.06	6.01E-03	1.02E-01	1.02E-01	
16a	Dehydrator (10 MMSCFD)			2.42				
16b	Reboiler	4.29E-02	8.75E-03	5.42E-03	4.17E-04	3.26E-03	3.26E-03	2.15E-07
19a	Dehydrator (10 MMSCFD)			2.42				
19b	Reboiler	4.29E-02	8.75E-03	5.42E-03	4.17E-04	3.26E-03	3.26E-03	2.15E-07
21a	Dehydrator (10 MMSCFD)			2.42				
21b	Reboiler	4.29E-02	8.75E-03	5.42E-03	4.17E-04	3.26E-03	3.26E-03	2.15E-07
25	Wastewater Evaporation Unit	2.76E-01	2.31E-01	1.52E-02	1.65E-03	2.09E-02	2.09E-02	1.38E-06
F1	Equipment Leaks			1.29				
SSM	SSM Emissions							
M1	Malfunctions							
	Total	32.59	57.11	30.03	4.50E-02	7.45E-01	7.45E-01	2.02E-06

The pph emission rates for malfunction emissions are unspecified. However, in this table as an estimate they are calculated assuming an even distribution over 8,760 hours per year. This estimate is more conservative than assuming zero emissions.

Facility Total Projected Emissions

Criteria Pollutant Emissions

Unit Number	Description	NOX, tpy	CO, tpy	VOC, tpy	SOX, tpy	PM10, tpy	PM2.5, tpy	Lead, tpy
1	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
2	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
3	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
4	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
5	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
6	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
7	Waukesha L7042GL	20.14	35.57	13.42	2.63E-02	4.47E-01	4.47E-01	
16a	Dehydrator (10 MMSCFD)			10.58				
16b	Reboiler	1.88E-01	3.83E-02	2.37E-02	1.83E-03	1.43E-02	1.43E-02	9.40E-07
19a	Dehydrator (10 MMSCFD)			10.58				
19b	Reboiler	1.88E-01	3.83E-02	2.37E-02	1.83E-03	1.43E-02	1.43E-02	9.40E-07
21a	Dehydrator (10 MMSCFD)			10.58				
21b	Reboiler	1.88E-01	3.83E-02	2.37E-02	1.83E-03	1.43E-02	1.43E-02	9.40E-07
25	Wastewater Evaporation Unit	1.21	1.01	6.64E-02	7.24E-03	9.17E-02	9.17E-02	6.03E-06
F1	Equipment Leaks			4.30				
SSM	SSM Emissions			10.62				
M1	Malfunctions			10.00				
	Total	142.73	250.15	150.76	1.97E-01	3.26	3.26	8.85E-06

Facility Total Projected Emissions

HAP Emissions

Unit Number	Description	Total HAPs, pph	Benzene, pph	Ethyl-benzene, pph	Formalde-hyde, pph	Toluene, pph	Xylenes, pph	1,3-Butadiene, pph	2,2,4-Trimethyl-pentane, pph	Acetalde-hyde, pph	n-Hexane, pph	Methanol, pph	Styrene, pph
1	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
2	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
3	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
4	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
5	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
6	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
7	Waukesha L7042GL	0.5	1.6E-02		0.5	6.4E-03	4.3E-03						
16a	Dehydrator (10 MMSCFD)	1.2	0.1	0.4		0.6	9.6E-02		1.1E-03		2.5E-02		
16b	Reboiler	1.4E-04			1.4E-04				2.3E-05	1.1E-04	1.1E-04	1.6E-04	
19a	Dehydrator (10 MMSCFD)	1.2	0.1	0.4		0.6	9.6E-02		1.1E-03		2.5E-02		
19b	Reboiler	1.4E-04			1.4E-04				2.3E-05	1.1E-04	1.1E-04	1.6E-04	
21a	Dehydrator (10 MMSCFD)	1.2	0.1	0.4		0.6	9.6E-02		1.1E-03		2.5E-02		
21b	Reboiler	1.4E-04			1.4E-04				2.3E-05	1.1E-04	1.1E-04	1.6E-04	
25	Wastewater Evaporation Unit	1.5E-02	1.8E-03	5.3E-03	2.1E-03	2.5E-03	3.3E-03	8.4E-04	7.1E-03	1.8E-03	3.5E-03	2.4E-03	5.2E-03
F1	Equipment Leaks	6.7E-03	1.4E-03			4.8E-03	4.8E-04				1.7E-02		
SSM	SSM Emissions												
M1	Malfunctions												
	Total	7.3	0.5	1.1	3.6	1.7	0.3	8.4E-04	1.0E-02	2.2E-03	0.1	2.9E-03	5.2E-03

The pph emission rates for malfunction emissions are unspecified. However, in this table as an estimate they are calculated assuming an even distribution over 8,760 hours per year. This estimate is more conservative than assuming zero emissions.

Facility Total Projected Emissions

HAP Emissions

Unit Number	Description	Total HAPs, tpy	Benzene, tpy	Ethyl-benzene, tpy	Formalde-hyde, tpy	Toluene, tpy	Xylenes, tpy	1,3-Butadiene, tpy	2,2,4-Trimethyl-pentane, tpy	Acetalde-hyde, tpy	n-Hexane, tpy	Methanol, tpy	Styrene, tpy
1	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
2	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
3	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
4	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
5	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
6	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
7	Waukesha L7042GL	2.4	7.0E-02		2.26	2.8E-02	1.9E-02						
16a	Dehydrator (10 MMSCFD)	5.2	0.5	1.7		2.5	0.4		4.7E-03		0.1		
16b	Reboiler	6.0E-04			6.0E-04				1.0E-04	5.0E-04	5.0E-04	7.0E-04	
19a	Dehydrator (10 MMSCFD)	5.2	0.5	1.7		2.5	0.4		4.7E-03		0.1		
19b	Reboiler	6.0E-04			6.0E-04				1.0E-04	5.0E-04	5.0E-04	7.0E-04	
21a	Dehydrator (10 MMSCFD)	5.2	0.5	1.7		2.5	0.4		4.7E-03		0.1		
21b	Reboiler	6.0E-04			6.0E-04				1.0E-04	5.0E-04	5.0E-04	7.0E-04	
25	Wastewater Evaporation Unit	0.1	8.1E-03	2.3E-02	9.2E-03	1.1E-02	1.4E-02	3.7E-03	3.1E-02	8.0E-03	1.5E-02	1.1E-02	2.3E-02
F1	Equipment Leaks	1.2E-02	1.9E-03	3.5E-03		6.4E-03	6.5E-04		1.2E-03		2.3E-02		
SSM	SSM Emissions	0.1	1.2E-02	2.1E-02		3.9E-02	4.0E-03		6.3E-03		0.1		
M1	Malfunctions	0.1	1.1E-02			3.7E-02	3.7E-03		5.9E-03		0.1		
	Total	32.3	2.1	5.0	15.8	7.7	1.4	3.7E-03	5.9E-02	9.5E-03	0.6	1.3E-02	2.3E-02

16.62 RICE contribution to total HAP
15.48 NESHAP HH total HAP

Engine Exhaust Emissions Data and Calculations

Unit Number: 1-7
Description: Waukesha L7042GL

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Horsepower Calculations

5,980	ft above MSL	Elevation	
1,478	hp	Nameplate hp	Mfg. data
1,390	hp	Site-rated hp	NMAQB Procedure # 02.002-00
1,346	hp	Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001

Engine Specifications

1200	rpm	Engine rpm	Mfg. data
7040	cu in	Engine displacement	Mfg. data
130.33	psi	BMEP	Mfg. data

Fuel Consumption

7349	Btu/hp-hr	Brake specific fuel consumption	Mfg. data
10.22	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x NMAQB site-rated hp / 1,000,000
11,352	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
89,497	MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
99.44	MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled, g/hp-hr	pph	tpy
NOX	1.50	4.60	20.14
CO	2.65	8.12	35.57
VOC	1.00	3.06	13.42

NOX, CO & VOC emission factors (g/hp-hr) taken from Waukesha Bulletin 7005 0102

Pollutant	Uncontrolled, lb/MMBtu	pph	tpy
SO2	5.88E-04	6.01E-03	2.63E-02
PM10	9.99E-03	1.02E-01	4.47E-01
PM2.5	9.99E-03	1.02E-01	4.47E-01

Emission factors (lb/MMBtu) taken from AP-42, Table 3.2-2
Particulate factors include both filterable and condensible emissions

Emissions calculated using the NMAQB site-rated hp
Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

703	°F	Stack exit temperature	Mfg. data
7729	acfm	Stack flowrate	Mfg. data
1.02	ft	Stack exit diameter	Mfg. data
157.38	fps	Stack exit velocity	Stack flowrate / stack area / 60
22.00	ft	Stack height	Mfg. data

GRI-HAPCalc® 3.0
Engines Report

Facility ID:	**HORSE CANYON**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**HORSE CANYON COMPRESSOR**	
User Name:	**Williams Four Corners LLC**	
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: L7042GL

Hours of Operation:	8,760	Yearly
Rate Power:	1,390	hp
Fuel Type:	FIELD GAS	
Engine Type:	4-Stroke, Lean Burn	
Emission Factor Set:	FIELD > EPA > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
Formaldehyde	2.2569	0.16830000 g/bhp-hr	GRI Literature
Benzene	0.0697	0.00520000 g/bhp-hr	GRI Literature
Toluene	0.0282	0.00210000 g/bhp-hr	GRI Literature
Xylenes(m,p,o)	0.0188	0.00140000 g/bhp-hr	GRI Literature
Total	2.3736		

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Horse Canyon 10 mmcfd dehy PTE emissions
File Name: C:\backup\Harvest\NewMexico\permitting\HorseCyn\2019 Mar TV renewal\Horse 10mmcfd dehy PTE.ddf
Date: March 06, 2019

DESCRIPTION:

Description: Horse Canyon 10 mmcfd dehys
EU 15, 16, 18, 19 & 21
10 mmcfd & 1.5 gpm
Gas Sample Pulled 5/29/18

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 89.20 deg. F
Pressure: 879.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	16.4878
Nitrogen	0.0885
Methane	78.9380
Ethane	2.8277
Propane	1.0997
Isobutane	0.1970
n-Butane	0.1881
Isopentane	0.0557
n-Pentane	0.0375
Cyclopentane	0.0020
n-Hexane	0.0129
Cyclohexane	0.0050
Other Hexanes	0.0286
Heptanes	0.0098
Methylcyclohexane	0.0102
2,2,4-Trimethylpentane	0.0005
Benzene	0.0012

Toluene	0.0034
Ethylbenzene	0.0016
Xylenes	0.0003
C8+ Heavies	0.0077

DRY GAS:

Flow Rate:	10.0 MMSCF/day
Water Content:	7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

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

PUMP:

Glycol Pump Type:	Gas Injection
Gas Injection Pump Volume Ratio:	0.080 acfm gas/gpm glycol

FLASH TANK:

Flash Control:	Recycle/recompression
Temperature:	68.0 deg. F
Pressure:	64.6 psig

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Horse Canyon 10 mmcfd dehy PTE emissions
File Name: C:\backup\Harvest\NewMexico\permitting\HorseCyn\2019 Mar TV renewal\Horse 10mmcfd dehy PTE.ddf
Date: March 06, 2019

DESCRIPTION:

Description: Horse Canyon 10 mmcfd dehys
EU 15, 16, 18, 19 & 21
10 mmcfd & 1.5 gpm
Gas Sample Pulled 5/29/18

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1641	3.938	0.7187
Ethane	0.0581	1.394	0.2544
Propane	0.0972	2.333	0.4258
Isobutane	0.0437	1.050	0.1916
n-Butane	0.0640	1.536	0.2802
Isopentane	0.0284	0.682	0.1244
n-Pentane	0.0273	0.655	0.1195
Cyclopentane	0.0088	0.212	0.0386
n-Hexane	0.0246	0.590	0.1076
Cyclohexane	0.0523	1.254	0.2289
Other Hexanes	0.0374	0.897	0.1637
Heptanes	0.0492	1.180	0.2153
Methylcyclohexane	0.1440	3.456	0.6307
2,2,4-Trimethylpentane	0.0011	0.025	0.0047
Benzene	0.1166	2.799	0.5107
Toluene	0.5622	13.492	2.4622
Ethylbenzene	0.3777	9.066	1.6545

Xylenes	0.0957	2.296	0.4190
C8+ Heavies	0.2020	4.847	0.8847
Total Emissions	2.1542	51.700	9.4352
Total Hydrocarbon Emissions	2.1542	51.700	9.4352
Total VOC Emissions	1.9320	46.368	8.4621
Total HAP Emissions	1.1778	28.267	5.1587
Total BTEX Emissions	1.1522	27.652	5.0465

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	18.0970	434.328	79.2649
Ethane	1.4659	35.181	6.4205
Propane	0.9361	22.466	4.1000
Isobutane	0.2376	5.703	1.0408
n-Butane	0.2462	5.909	1.0785
Isopentane	0.0853	2.046	0.3734
n-Pentane	0.0615	1.476	0.2694
Cyclopentane	0.0051	0.122	0.0223
n-Hexane	0.0258	0.620	0.1131
Cyclohexane	0.0138	0.331	0.0604
Other Hexanes	0.0554	1.329	0.2425
Heptanes	0.0212	0.509	0.0929
Methylcyclohexane	0.0258	0.620	0.1132
2,2,4-Trimethylpentane	0.0010	0.024	0.0045
Benzene	0.0030	0.072	0.0132
Toluene	0.0079	0.189	0.0344
Ethylbenzene	0.0026	0.063	0.0115
Xylenes	0.0004	0.010	0.0019
C8+ Heavies	0.0151	0.363	0.0662
Total Emissions	21.3068	511.362	93.3236

Total Hydrocarbon Emissions	21.3068	511.362	93.3236
Total VOC Emissions	1.7439	41.853	7.6382
Total HAP Emissions	0.0408	0.978	0.1786
Total BTEX Emissions	0.0139	0.334	0.0610

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.1641	3.938	0.7187
Ethane	0.0581	1.394	0.2544
Propane	0.0972	2.333	0.4258
Isobutane	0.0437	1.050	0.1916
n-Butane	0.0640	1.536	0.2802
Isopentane	0.0284	0.682	0.1244
n-Pentane	0.0273	0.655	0.1195
Cyclopentane	0.0088	0.212	0.0386
n-Hexane	0.0246	0.590	0.1076
Cyclohexane	0.0523	1.254	0.2289
Other Hexanes	0.0374	0.897	0.1637
Heptanes	0.0492	1.180	0.2153
Methylcyclohexane	0.1440	3.456	0.6307
2,2,4-Trimethylpentane	0.0011	0.025	0.0047
Benzene	0.1166	2.799	0.5107
Toluene	0.5622	13.492	2.4622
Ethylbenzene	0.3777	9.066	1.6545
Xylenes	0.0957	2.296	0.4190
C8+ Heavies	0.2020	4.847	0.8847
Total Emissions	2.1542	51.700	9.4352
Total Hydrocarbon Emissions	2.1542	51.700	9.4352
Total VOC Emissions	1.9320	46.368	8.4621
Total HAP Emissions	1.1778	28.267	5.1587
Total BTEX Emissions	1.1522	27.652	5.0465

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	79.9836	0.7187	99.10
Ethane	6.6749	0.2544	96.19
Propane	4.5258	0.4258	90.59
Isobutane	1.2324	0.1916	84.46
n-Butane	1.3587	0.2802	79.37
Isopentane	0.4978	0.1244	75.01
n-Pentane	0.3890	0.1195	69.27
Cyclopentane	0.0609	0.0386	36.63
n-Hexane	0.2208	0.1076	51.25
Cyclohexane	0.2893	0.2289	20.89
Other Hexanes	0.4062	0.1637	59.70
Heptanes	0.3082	0.2153	30.14
Methylcyclohexane	0.7438	0.6307	15.21
2,2,4-Trimethylpentane	0.0091	0.0047	48.97
Benzene	0.5239	0.5107	2.51
Toluene	2.4967	2.4622	1.38
Ethylbenzene	1.6660	1.6545	0.69
Xylenes	0.4209	0.4190	0.45
C8+ Heavies	0.9508	0.8847	6.96
Total Emissions	102.7588	9.4352	90.82
Total Hydrocarbon Emissions	102.7588	9.4352	90.82
Total VOC Emissions	16.1003	8.4621	47.44
Total HAP Emissions	5.3373	5.1587	3.35
Total BTEX Emissions	5.1074	5.0465	1.19

EQUIPMENT REPORTS:

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages:	1.25	
Calculated Dry Gas Dew Point:	2.65	lbs. H2O/MMSCF
Temperature:	89.2	deg. F
Pressure:	879.0	psig
Dry Gas Flow Rate:	10.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0920	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	48.50	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	4.71	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.47%	94.53%
Carbon Dioxide	99.80%	0.20%
Nitrogen	99.98%	0.02%
Methane	99.99%	0.01%
Ethane	99.95%	0.05%
Propane	99.92%	0.08%
Isobutane	99.89%	0.11%
n-Butane	99.86%	0.14%
Isopentane	99.86%	0.14%
n-Pentane	99.82%	0.18%
Cyclopentane	99.21%	0.79%
n-Hexane	99.70%	0.30%
Cyclohexane	98.69%	1.31%
Other Hexanes	99.77%	0.23%
Heptanes	99.46%	0.54%
Methylcyclohexane	98.57%	1.43%
2,2,4-Trimethylpentane	99.79%	0.21%
Benzene	88.50%	11.50%
Toluene	83.55%	16.45%
Ethylbenzene	79.74%	20.26%
Xylenes	72.66%	27.34%
C8+ Heavies	98.61%	1.39%

FLASH TANK

Flash Control: Recycle/recompression

Flash Temperature: 68.0 deg. F
Flash Pressure: 64.6 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.97%	0.03%
Carbon Dioxide	14.89%	85.11%
Nitrogen	0.86%	99.14%
Methane	0.90%	99.10%
Ethane	3.81%	96.19%
Propane	9.41%	90.59%
Isobutane	15.54%	84.46%
n-Butane	20.63%	79.37%
Isopentane	25.19%	74.81%
n-Pentane	30.94%	69.06%
Cyclopentane	63.53%	36.47%
n-Hexane	48.94%	51.06%
Cyclohexane	79.73%	20.27%
Other Hexanes	40.69%	59.31%
Heptanes	69.98%	30.02%
Methylcyclohexane	85.35%	14.65%
2,2,4-Trimethylpentane	51.51%	48.49%
Benzene	97.61%	2.39%
Toluene	98.73%	1.27%
Ethylbenzene	99.38%	0.62%
Xylenes	99.61%	0.39%
C8+ Heavies	93.82%	6.18%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	39.82%	60.18%
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	1.09%	98.91%
n-Pentane	0.99%	99.01%
Cyclopentane	0.69%	99.31%
n-Hexane	0.73%	99.27%
Cyclohexane	3.70%	96.30%
Other Hexanes	1.63%	98.37%
Heptanes	0.59%	99.41%
Methylcyclohexane	4.35%	95.65%
2,2,4-Trimethylpentane	1.90%	98.10%
Benzene	5.07%	94.93%
Toluene	7.95%	92.05%
Ethylbenzene	10.41%	89.59%
Xylenes	12.90%	87.10%
C8+ Heavies	11.91%	88.09%

STREAM REPORTS:

WET GAS STREAM

Temperature: 89.20 deg. F
Pressure: 893.70 psia
Flow Rate: 4.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.02e-001	2.02e+001
Carbon Dioxide	1.65e+001	7.97e+003
Nitrogen	8.84e-002	2.72e+001
Methane	7.89e+001	1.39e+004
Ethane	2.82e+000	9.34e+002
Propane	1.10e+000	5.33e+002
Isobutane	1.97e-001	1.26e+002
n-Butane	1.88e-001	1.20e+002

Isopentane	5.56e-002	4.42e+001
n-Pentane	3.75e-002	2.97e+001
Cyclopentane	2.00e-003	1.54e+000
n-Hexane	1.29e-002	1.22e+001
Cyclohexane	4.99e-003	4.62e+000
Other Hexanes	2.86e-002	2.71e+001
Heptanes	9.79e-003	1.08e+001
Methylcyclohexane	1.02e-002	1.10e+001
2,2,4-Trimethylpentane	4.99e-004	6.27e-001
Benzene	1.20e-003	1.03e+000
Toluene	3.40e-003	3.44e+000
Ethylbenzene	1.60e-003	1.87e+000
Xylenes	3.00e-004	3.50e-001
C8+ Heavies	7.69e-003	1.44e+001
Total Components	100.00	2.38e+004

DRY GAS STREAM

Temperature: 89.20 deg. F
Pressure: 893.70 psia
Flow Rate: 4.17e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.59e-003	1.11e+000
Carbon Dioxide	1.65e+001	7.96e+003
Nitrogen	8.85e-002	2.72e+001
Methane	7.90e+001	1.39e+004
Ethane	2.83e+000	9.34e+002
Propane	1.10e+000	5.32e+002
Isobutane	1.97e-001	1.26e+002
n-Butane	1.88e-001	1.20e+002
Isopentane	5.56e-002	4.41e+001
n-Pentane	3.74e-002	2.97e+001
Cyclopentane	1.99e-003	1.53e+000
n-Hexane	1.29e-002	1.22e+001
Cyclohexane	4.94e-003	4.56e+000
Other Hexanes	2.85e-002	2.70e+001
Heptanes	9.75e-003	1.07e+001

Methylcyclohexane	1.01e-002	1.08e+001
2,2,4-Trimethylpentane	4.99e-004	6.26e-001
Benzene	1.06e-003	9.11e-001
Toluene	2.84e-003	2.88e+000
Ethylbenzene	1.28e-003	1.49e+000
Xylenes	2.18e-004	2.54e-001
C8+ Heavies	7.60e-003	1.42e+001
Total Components	100.00	2.38e+004

LEAN GLYCOL STREAM

Temperature: 89.20 deg. F
Flow Rate: 1.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	8.31e+002
Water	1.50e+000	1.27e+001
Carbon Dioxide	1.91e-010	1.61e-009
Nitrogen	5.24e-014	4.42e-013
Methane	8.04e-018	6.79e-017
Ethane	2.42e-008	2.05e-007
Propane	1.98e-009	1.67e-008
Isobutane	4.78e-010	4.04e-009
n-Butane	4.99e-010	4.22e-009
Isopentane	3.70e-005	3.12e-004
n-Pentane	3.22e-005	2.72e-004
Cyclopentane	7.21e-006	6.09e-005
n-Hexane	2.15e-005	1.82e-004
Cyclohexane	2.37e-004	2.01e-003
Other Hexanes	7.31e-005	6.17e-004
Heptanes	3.44e-005	2.90e-004
Methylcyclohexane	7.75e-004	6.54e-003
2,2,4-Trimethylpentane	2.43e-006	2.05e-005
Benzene	7.38e-004	6.23e-003
Toluene	5.75e-003	4.85e-002
Ethylbenzene	5.20e-003	4.39e-002
Xylenes	1.68e-003	1.42e-002

C8+ Heavies	3.23e-003	2.73e-002
Total Components	100.00	8.44e+002

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 89.20 deg. F
Pressure: 893.70 psia
Flow Rate: 1.65e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.11e+001	8.31e+002
Water	3.49e+000	3.18e+001
Carbon Dioxide	2.79e+000	2.54e+001
Nitrogen	3.97e-003	3.62e-002
Methane	2.00e+000	1.83e+001
Ethane	1.67e-001	1.52e+000
Propane	1.13e-001	1.03e+000
Isobutane	3.08e-002	2.81e-001
n-Butane	3.40e-002	3.10e-001
Isopentane	1.25e-002	1.14e-001
n-Pentane	9.77e-003	8.91e-002
Cyclopentane	1.53e-003	1.40e-002
n-Hexane	5.54e-003	5.06e-002
Cyclohexane	7.46e-003	6.81e-002
Other Hexanes	1.02e-002	9.34e-002
Heptanes	7.75e-003	7.07e-002
Methylcyclohexane	1.93e-002	1.76e-001
2,2,4-Trimethylpentane	2.30e-004	2.10e-003
Benzene	1.38e-002	1.26e-001
Toluene	6.78e-002	6.19e-001
Ethylbenzene	4.65e-002	4.24e-001
Xylenes	1.21e-002	1.10e-001
C8+ Heavies	2.68e-002	2.44e-001
Total Components	100.00	9.12e+002

FLASH TANK OFF GAS STREAM

Temperature: 68.00 deg. F
Pressure: 79.30 psia
Flow Rate: 6.47e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	3.46e-002	1.06e-002
Carbon Dioxide	2.89e+001	2.17e+001
Nitrogen	7.52e-002	3.59e-002
Methane	6.62e+001	1.81e+001
Ethane	2.86e+000	1.47e+000
Propane	1.25e+000	9.36e-001
Isobutane	2.40e-001	2.38e-001
n-Butane	2.49e-001	2.46e-001
Isopentane	6.93e-002	8.53e-002
n-Pentane	5.00e-002	6.15e-002
Cyclopentane	4.26e-003	5.10e-003
n-Hexane	1.76e-002	2.58e-002
Cyclohexane	9.62e-003	1.38e-002
Other Hexanes	3.77e-002	5.54e-002
Heptanes	1.24e-002	2.12e-002
Methylcyclohexane	1.54e-002	2.58e-002
2,2,4-Trimethylpentane	5.23e-004	1.02e-003
Benzene	2.26e-003	3.00e-003
Toluene	5.01e-003	7.86e-003
Ethylbenzene	1.45e-003	2.63e-003
Xylenes	2.37e-004	4.29e-004
C8+ Heavies	5.20e-003	1.51e-002
Total Components	100.00	4.30e+001

FLASH TANK GLYCOL STREAM

Temperature: 68.00 deg. F
Flow Rate: 1.55e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)

TEG	9.56e+001	8.31e+002
Water	3.66e+000	3.18e+001
Carbon Dioxide	4.36e-001	3.79e+000
Nitrogen	3.59e-005	3.12e-004
Methane	1.89e-002	1.64e-001
Ethane	6.68e-003	5.81e-002
Propane	1.12e-002	9.72e-002
Isobutane	5.03e-003	4.37e-002
n-Butane	7.36e-003	6.40e-002
Isopentane	3.30e-003	2.87e-002
n-Pentane	3.17e-003	2.76e-002
Cyclopentane	1.02e-003	8.88e-003
n-Hexane	2.85e-003	2.48e-002
Cyclohexane	6.24e-003	5.43e-002
Other Hexanes	4.37e-003	3.80e-002
Heptanes	5.69e-003	4.94e-002
Methylcyclohexane	1.73e-002	1.51e-001
2,2,4-Trimethylpentane	1.25e-004	1.08e-003
Benzene	1.41e-002	1.23e-001
Toluene	7.03e-002	6.11e-001
Ethylbenzene	4.85e-002	4.22e-001
Xylenes	1.26e-002	1.10e-001
C8+ Heavies	2.64e-002	2.29e-001
Total Components	100.00	8.69e+002

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: 4.49e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.99e+001	1.91e+001
Carbon Dioxide	7.28e+000	3.79e+000
Nitrogen	9.41e-004	3.12e-004
Methane	8.65e-001	1.64e-001
Ethane	1.63e-001	5.81e-002
Propane	1.86e-001	9.72e-002
Isobutane	6.36e-002	4.37e-002
n-Butane	9.31e-002	6.40e-002
Isopentane	3.33e-002	2.84e-002
n-Pentane	3.20e-002	2.73e-002
Cyclopentane	1.06e-002	8.82e-003
n-Hexane	2.41e-002	2.46e-002
Cyclohexane	5.25e-002	5.23e-002
Other Hexanes	3.67e-002	3.74e-002
Heptanes	4.15e-002	4.92e-002
Methylcyclohexane	1.24e-001	1.44e-001
2,2,4-Trimethylpentane	7.86e-004	1.06e-003
Benzene	1.26e-001	1.17e-001
Toluene	5.16e-001	5.62e-001
Ethylbenzene	3.01e-001	3.78e-001
Xylenes	7.62e-002	9.57e-002
C8+ Heavies	1.00e-001	2.02e-001
Total Components	100.00	2.51e+001

Dehydrator Reboiler Exhaust Emissions Data and Calculations

Unit Number: 16b, 19b & 21b
Description: Dehydrator Reboiler (10 MMSCFD)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.39	MMBtu/hr	Capacity	scf/hr x Btu/scf / 1,000,000
429	scf/hr	Hourly fuel consumption	Mfg. data (Enertek)
3,382	MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
3.76	MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled, lb/day	pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	0.21	8.75E-03	3.83E-02
VOC	0.13	5.42E-03	2.37E-02
SO2	0.01	4.17E-04	1.83E-03

NOX & CO emission factors (lb/day) taken from August 1994 Enertek Letter
TOC and SO2 emission factors (lb/day) taken from July 1998 InFab Letter

Pollutant	Uncontrolled, lb/MMscf	pph	tpy
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 (lb/MMscf) taken from AP-42, Table 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600	°F	Exhaust temperature	Mfg. data (Enertek & InFab)
199.62	cfm	Stack flowrate	Stack velocity x stack area
10	in	Stack diameter	Mfg. data (Enertek & InFab)
6.1	fps	Stack velocity	Mfg. data (Enertek & InFab)
10.0	ft	Stack height	Mfg. data (InFab)

Heater Exhaust Emissions Data and Calculations

Unit Number: 25
Description: Waste Water Treatment Unit

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

2.48	MMBtu/hr	Capacity	Mfg. data
2,756	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
21,725	MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
24.14	MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled, lb/MMscf	pph	tpy
NOX	100	0.28	1.21
CO	84	0.23	1.01
VOC	5.5	1.52E-02	6.64E-02
SO2	0.6	1.65E-03	7.24E-03
PM10	7.60	2.09E-02	9.17E-02
PM2.5	7.60	2.09E-02	9.17E-02
Lead	5.00E-04	1.38E-06	6.03E-06

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Heater Exhaust Emissions Data and Calculations

Unit Number: 25a
Description: Waste Water Treatment Unit (Evaporator)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

2.00	MMBtu/hr	Capacity	Mfg. data
2,222	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
17,520	MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
19.47	MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled, lb/MMscf	pph	tpy
NOX	100	2.22E-01	9.73E-01
CO	84	1.87E-01	8.18E-01
VOC	5.5	1.22E-02	5.35E-02
SO2	0.6	1.33E-03	5.84E-03
PM10	7.60	1.69E-02	7.40E-02
PM2.5	7.60	1.69E-02	7.40E-02
Lead	5.00E-04	1.11E-06	4.87E-06

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600	°F	Exhaust temperature	Mfg. data
0.33	ft	Stack diameter	Mfg. data
6.1	fps	Stack velocity	Mfg. data
15	ft	Stack height	Mfg. data

Heater Exhaust Emissions Data and Calculations

Unit Number: 25b
Description: Waste Water Treatment Unit (Treater)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.08	MMBtu/hr	Capacity	Mfg. data
89	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
701	MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
0.78	MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled, lb/MMscf	pph	tpy
NOX	100	8.89E-03	3.89E-02
CO	84	7.47E-03	3.27E-02
VOC	5.5	4.89E-04	2.14E-03
SO2	0.6	5.33E-05	2.34E-04
PM10	7.60	6.76E-04	2.96E-03
PM2.5	7.60	6.76E-04	2.96E-03
Lead	5.00E-04	4.44E-08	1.95E-07

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600	°F	Exhaust temperature	Mfg. data
0.33	ft	Stack diameter	Mfg. data
6.1	fps	Stack velocity	Mfg. data
15	ft	Stack height	Mfg. data

Heater Exhaust Emissions Data and Calculations

Unit Number: 25c
Description: Waste Water Treatment Unit (Reboiler)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.25	MMBtu/hr	Capacity	Mfg. data
278	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
2,190	MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
2.43	MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled, lb/MMscf	pph	tpy
NOX	100	2.78E-02	1.22E-01
CO	84	2.33E-02	1.02E-01
VOC	5.5	1.53E-03	6.69E-03
SO2	0.6	1.67E-04	7.30E-04
PM10	7.60	2.11E-03	9.25E-03
PM2.5	7.60	2.11E-03	9.25E-03
Lead	5.00E-04	1.39E-07	6.08E-07

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600	°F	Exhaust temperature	Mfg. data
0.33	ft	Stack diameter	Mfg. data
6.1	fps	Stack velocity	Mfg. data
15	ft	Stack height	Mfg. data

Heater Exhaust Emissions Data and Calculations

Unit Number: 25d
Description: Waste Water Treatment Unit (Distillation Unit)

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Fuel Consumption

0.15	MMBtu/hr	Capacity	Mfg. data
167	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
1,314	MMBtu/yr	Annual fuel consumption	MMBtu/hr x 8,760 hr/yr
1.46	MMscf/yr	Annual fuel consumption	scf/hr x 8,760 hr/yr / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content

Steady-State Emission Rates

Pollutant	Uncontrolled, lb/MMscf	pph	tpy
NOX	100	1.67E-02	7.30E-02
CO	84	1.40E-02	6.13E-02
VOC	5.5	9.17E-04	4.02E-03
SO2	0.6	1.00E-04	4.38E-04
PM10	7.60	1.27E-03	5.55E-03
PM2.5	7.60	1.27E-03	5.55E-03
Lead	5.00E-04	8.33E-08	3.65E-07

Emission factors (lb/MMBtu) taken from AP-42, Tables 1.4-1 & 1.4-2

Annual emissions based on 8,760 hr/yr operation

Exhaust Parameters

600	°F	Exhaust temperature	Mfg. data
0.33	ft	Stack diameter	Mfg. data
6.1	fps	Stack velocity	Mfg. data
15	ft	Stack height	Mfg. data

GRI-HAPCalc® 3.0
External Combustion Devices Report

Facility ID:	**HORSE CANYON**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**HORSE CANYON COMPRESSOR**	
User Name:	**Williams Four Corners LLC**	
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: EVAPORATOR

Hours of Operation:	8,760	Yearly
Heat Input:	2.48	MMBtu/hr
Fuel Type:	NATURAL GAS	
Device Type:	HEATER	
Emission Factor Set:	FIELD > EPA > LITERATURE	
Additional EF Set:	-NONE-	

Calculated Emissions (ton/yr)

Chemical Name	Emissions	Emission Factor	Emission Factor Set
HAPs			
3-Methylchloranthrene	0.0000	0.0000000018 lb/MMBtu	EPA
7,12-Dimethylbenz(a)anthracene	0.0000	0.0000000157 lb/MMBtu	EPA
Formaldehyde	0.0092	0.0008440090 lb/MMBtu	GRI Field
Methanol	0.0105	0.0009636360 lb/MMBtu	GRI Field
Acetaldehyde	0.0080	0.0007375920 lb/MMBtu	GRI Field
1,3-Butadiene	0.0037	0.0003423350 lb/MMBtu	GRI Field
Benzene	0.0081	0.0007480470 lb/MMBtu	GRI Field
Toluene	0.0110	0.0010163310 lb/MMBtu	GRI Field
Ethylbenzene	0.0230	0.0021128220 lb/MMBtu	GRI Field
Xylenes(m,p,o)	0.0143	0.0013205140 lb/MMBtu	GRI Field
2,2,4-Trimethylpentane	0.0309	0.0028417580 lb/MMBtu	GRI Field
n-Hexane	0.0153	0.0014070660 lb/MMBtu	GRI Field
Phenol	0.0000	0.0000001070 lb/MMBtu	GRI Field
Styrene	0.0226	0.0020788960 lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000005100 lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000001470 lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000670 lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000004730 lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000900 lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000800 lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000870 lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000600 lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000900 lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000830 lb/MMBtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000870 lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001170 lb/MMBtu	GRI Field

Benzo(a)pyrene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000007600	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000002600	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001200	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000001030	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
Total	0.1566			

Criteria Pollutants

VOC	0.0586	0.0053921569	lb/MMBtu	EPA
PM	0.0809	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0607	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0202	0.0018627451	lb/MMBtu	EPA
CO	0.3515	0.0323636360	lb/MMBtu	GRI Field
NMHC	0.0926	0.0085294118	lb/MMBtu	EPA
NOx	1.0538	0.0970167730	lb/MMBtu	GRI Field
SO2	0.0064	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.1143	0.0105212610	lb/MMBtu	GRI Field
Acetylene	0.1521	0.0140000000	lb/MMBtu	GRI Field
Ethylene	0.0103	0.0009476310	lb/MMBtu	GRI Field
Ethane	0.0286	0.0026312210	lb/MMBtu	GRI Field
Propylene	0.0255	0.0023454550	lb/MMBtu	GRI Field
Propane	0.0116	0.0010686280	lb/MMBtu	GRI Field
Isobutane	0.0159	0.0014640770	lb/MMBtu	GRI Field
Butane	0.0150	0.0013766990	lb/MMBtu	GRI Field
Cyclopentane	0.0123	0.0011304940	lb/MMBtu	GRI Field
Pentane	0.0377	0.0034671850	lb/MMBtu	GRI Field
n-Pentane	0.0154	0.0014221310	lb/MMBtu	GRI Field
Cyclohexane	0.0100	0.0009183830	lb/MMBtu	GRI Field
Methylcyclohexane	0.0239	0.0022011420	lb/MMBtu	GRI Field
n-Octane	0.0310	0.0028538830	lb/MMBtu	GRI Field
1,2,3-Trimethylbenzene	0.0372	0.0034224540	lb/MMBtu	GRI Field
1,2,4-Trimethylbenzene	0.0372	0.0034224540	lb/MMBtu	GRI Field
1,3,5-Trimethylbenzene	0.0372	0.0034224540	lb/MMBtu	GRI Field
n-Nonane	0.0398	0.0036604170	lb/MMBtu	GRI Field
CO2	1,277.9294	117.6470588235	lb/MMBtu	EPA

Unit Name: REBOILER

Hours of Operation:	8,760	Yearly
Heat Input:	0.39	MMBtu/hr
Fuel Type:	NATURAL GAS	
Device Type:	BOILER	
Emission Factor Set:	FIELD > EPA > 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	0.0006	0.0003522500	lb/MMBtu	GRI Field
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	0.0000062550	lb/MMBtu	GRI Field
Toluene	0.0000	0.0000053870	lb/MMBtu	GRI Field
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	0.0005	0.0003214790	lb/MMBtu	GRI Field
Phenol	0.0000	0.0000000950	lb/MMBtu	GRI Field
Naphthalene	0.0000	0.0000002950	lb/MMBtu	GRI Field
2-Methylnaphthalene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Acenaphthylene	0.0000	0.0000000550	lb/MMBtu	GRI Field
Biphenyl	0.0000	0.0000011500	lb/MMBtu	GRI Field
Acenaphthene	0.0000	0.0000000800	lb/MMBtu	GRI Field
Fluorene	0.0000	0.0000000700	lb/MMBtu	GRI Field
Anthracene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Phenanthrene	0.0000	0.0000000550	lb/MMBtu	GRI Field
Fluoranthene	0.0000	0.0000000800	lb/MMBtu	GRI Field
Pyrene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Benz(a)anthracene	0.0000	0.0000000750	lb/MMBtu	GRI Field
Chrysene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Benzo(a)pyrene	0.0000	0.0000000600	lb/MMBtu	GRI Field
Benzo(b)fluoranthene	0.0000	0.0000001350	lb/MMBtu	GRI Field
Benzo(k)fluoranthene	0.0000	0.0000004400	lb/MMBtu	GRI Field
Benzo(g,h,i)perylene	0.0000	0.0000001500	lb/MMBtu	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.0000001000	lb/MMBtu	GRI Field
Dibenz(a,h)anthracene	0.0000	0.0000000950	lb/MMBtu	GRI Field
Lead	0.0000	0.0000004902	lb/MMBtu	EPA
Total	0.0024			

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	0.0525	0.0307275000	lb/MMBtu	GRI Field
NMHC	0.0146	0.0085294118	lb/MMBtu	EPA
NOx	0.1508	0.0882553330	lb/MMBtu	GRI Field
SO2	0.0010	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0100	0.0058790650	lb/MMBtu	GRI Field
Acetylene	0.0091	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0009	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0029	0.0016804650	lb/MMBtu	GRI Field
Propylene	0.0016	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0021	0.0012019050	lb/MMBtu	GRI Field
Butane	0.0024	0.0013866350	lb/MMBtu	GRI Field
Cyclopentane	0.0001	0.0000405000	lb/MMBtu	GRI Field

Pentane	0.0035	0.0020656400	lb/MMBtu	GRI Field
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

Fugitive Emissions Speciation

Unit Number: F1
Description: Valves, Connectors, Seals & Open-Ended Lines

Equipment	Number of Components, #	Emission Factor, kg/hr/source	Emission Factor, pph/source	TOC Emission Rate, pph	TOC Emission Rate, tpy
Valves	684	4.50E-03	9.90E-03	6.77	29.66
Connectors	703	2.00E-04	4.40E-04	0.31	1.35
Pump Seals	6	2.40E-03	5.28E-03	0.03	0.14
Compressor Seals	52	8.80E-03	1.94E-02	1.01	4.41
Pressure Relief Valves	58	8.80E-03	1.94E-02	1.12	4.92
Open-Ended Lines	190	2.00E-03	4.40E-03	0.84	3.66
TOTAL				**10.08**	**44.14**

Emission factors are from the EPA "1995 Protocol for Equipment Leak Emission Estimates"
Annual emissions are calculated assuming 8,760 hours per year of operation

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Component Weight, lb/lb-mole	Weight Percent, %	VOC Emission Rate, pph	VOC Emission Rate, tpy
Carbon dioxide	16.4878	44.010	725.628	33.522	--	--
Hydrogen sulfide	0	34.070	0.000	0.000	--	--
Nitrogen	0.0885	28.013	2.479	0.115	--	--
Methane	78.938	16.043	1266.402	58.504	--	--
Ethane	2.8277	30.070	85.029	3.928	--	--
Propane	1.0997	44.097	48.493	2.240	2.26E-01	9.89E-01
Isobutane	0.194	58.123	11.276	0.521	5.25E-02	2.30E-01
n-Butane	0.1881	58.123	10.933	0.505	5.09E-02	2.23E-01
Isopentane	0.0557	72.150	4.019	0.186	1.87E-02	8.20E-02
n-Pentane	0.0375	72.150	2.706	0.125	1.26E-02	5.52E-02
Cyclopentane	0.002	70.134	0.140	0.006	6.53E-04	2.86E-03
n-Hexane	0.0129	86.177	1.112	0.051	5.18E-03	2.27E-02
Cyclohexane	0.005	84.161	0.421	0.019	1.96E-03	8.58E-03
Other hexanes	0.0286	86.177	2.465	0.114	1.15E-02	5.03E-02
Heptanes	0.0098	100.204	0.982	0.045	4.57E-03	2.00E-02
Methylcyclohexane	0.0102	98.188	1.002	0.046	4.66E-03	2.04E-02
2,2,4-Trimethylpentane	0.0005	114.231	0.057	0.003	2.66E-04	1.16E-03
Benzene	0.0012	78.114	0.094	0.004	4.36E-04	1.91E-03
Toluene	0.0034	92.141	0.313	0.014	1.46E-03	6.39E-03
Ethylbenzene	0.0016	106.167	0.170	0.008	7.91E-04	3.46E-03
Xylenes	0.0003	106.167	0.032	0.001	1.48E-04	6.50E-04
C8+ Heavies	0.0077	114.231	0.880	0.041	4.10E-03	1.79E-02
TOTAL	100.0002		2164.632	100.000	**3.96E-01**	**1.74**

Gas stream composition obtained from Horse Canyon extended gas analysis dated 5/29/18
The VOC emissions are calculated as weight percentages of the TOC emissions

Fugitive Emissions Components

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

Number of Compression Units at the Facility: 7
Number of Dehydrators at the Facility: 3

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	308	413	0	28	42	77	0	28	63
Components from dehydrators	18	30	6	0	9	18	0	9	12
TOTAL	447	516	6	52	58	143	3	47	87
ADJUSTED TOTAL	684	703	6	52	58	190	--	--	--

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)

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

Identification

User Identification:	Horse Canyon Tank T39 (waste water)
City:	Bloomfield
State:	New Mexico
Company:	Williams Four Corners, LLC
Type of Tank:	Vertical Fixed Roof Tank
Description:	16,800 Gallon Waste Water Storage Tank

Tank Dimensions

Shell Height (ft):	16.00
Diameter (ft):	14.00
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.00
Volume (gallons):	16,800.00
Turnovers:	52.00
Net Throughput(gal/yr):	873,600.00
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.00

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

Horse Canyon Tank T39 (waste water) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

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/Waste Water	All	64.94	53.24	76.64	58.39	0.3262	0.2169	0.4803	20.8128			18.15	
Benzene						1.3372	0.9653	1.8208	78.1100	0.0001	0.0002	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butane						28.6704	23.0459	35.2667	58.1300	0.0008	0.0584	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Ethylbenzene						0.1286	0.0854	0.1894	106.1700	0.0000	0.0000	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.0042	0.0245	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0049	0.0990	72.15	Option 3: A=27691, B=7.558
Toluene						0.3844	0.2666	0.5435	92.1300	0.0001	0.0001	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Water						0.3089	0.2032	0.4584	18.0200	0.9900	0.8178	18.02	Option 1: VP60 = .2561 VP70 = .3629
Xylenes (mixed isomers)						0.1073	0.0710	0.1586	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)

Horse Canyon Tank T39 (waste water) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	56.1571
Vapor Space Volume (cu ft):	1,385.4424
Vapor Density (lb/cu ft):	0.0012
Vapor Space Expansion Factor:	0.1064
Vented Vapor Saturation Factor:	0.8653
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,385.4424
Tank Diameter (ft):	14.0000
Vapor Space Outage (ft):	9.0000
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	7.0000
Roof Outage (ft):	0.0000
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.0000
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0000
Shell Radius (ft):	7.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0012
Vapor Molecular Weight (lb/lb-mole):	20.8128
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3262
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
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):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1064
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.2634
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3262
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2169
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4803
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8653
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.3262

Vapor Space Outage (ft):	9.0000
Working Losses (lb):	105.0086
Vapor Molecular Weight (lb/lb-mole):	20.8128
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3262
Annual Net Throughput (gal/yr.):	873,600.0000
Annual Turnovers:	52.0000
Turnover Factor:	0.7436
Maximum Liquid Volume (gal):	16,800.0000
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	14.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	161.1657

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

Emissions Report for: Annual

Horse Canyon Tank T39 (waste water) - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Produced/Waste Water	105.01	56.16	161.17
Water	85.88	45.92	131.80
Butane	6.13	3.28	9.41
Pentane (-n)	10.40	5.56	15.96
Hexane (-n)	2.57	1.38	3.95
Benzene	0.02	0.01	0.04
Toluene	0.01	0.00	0.01
Ethylbenzene	0.00	0.00	0.00
Xylenes (mixed isomers)	0.00	0.00	0.00

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

Identification

User Identification:	125 gal Corrosion Inhibitor Tank
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Horizontal Tank
Description:	Horse Canyon

Tank Dimensions

Shell Length (ft):	5.00
Diameter (ft):	3.00
Volume (gallons):	125.00
Turnovers:	6.00
Net Throughput(gal/yr):	750.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

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

125 gal Corrosion Inhibitor Tank - Horizontal Tank
Bloomfield, New Mexico

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	64.94	53.24	76.64	58.39	1.2063	0.8476	1.6749	41.6020			68.63	
1,2,4-Trimethylbenzene						0.0248	0.0155	0.0388	120.1900	0.4000	0.0136	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Jet naphtha (JP-4)						1.4482	1.0972	1.7992	80.0000	0.2700	0.3565	120.00	Option 1: VP60 = 1.3 VP70 = 1.6
Methyl alcohol						1.6820	1.1617	2.3895	32.0400	0.2700	0.6211	32.04	Option 2: A=7.897, B=1474.08, C=229.13
Xylene (-m)						0.1073	0.0710	0.1586	106.1700	0.0600	0.0088	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)

125 gal Corrosion Inhibitor Tank - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	10.6472
Vapor Space Volume (cu ft):	22.5114
Vapor Density (lb/cu ft):	0.0089
Vapor Space Expansion Factor:	0.1593
Vented Vapor Saturation Factor:	0.9125
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	22.5114
Tank Diameter (ft):	3.0000
Effective Diameter (ft):	4.3713
Vapor Space Outage (ft):	1.5000
Tank Shell Length (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0089
Vapor Molecular Weight (lb/lb-mole):	41.6020
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2063
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
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):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1593
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.8272
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2063
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.8476
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	1.6749
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9125
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	1.2063
Vapor Space Outage (ft):	1.5000
Working Losses (lb):	0.8961
Vapor Molecular Weight (lb/lb-mole):	41.6020
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.2063
Annual Net Throughput (gal/yr.):	750.0000

Annual Turnovers:	6.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	3.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	11.5433

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

Emissions Report for: Annual

125 gal Corrosion Inhibitor Tank - Horizontal Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Corrosion Inhibitor	0.90	10.65	11.54
1,2,4-Trimethylbenzene	0.01	0.14	0.16
Methyl alcohol	0.56	6.61	7.17
Jet naphtha (JP-4)	0.32	3.80	4.12
Xylene (-m)	0.01	0.09	0.10

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

Identification

User Identification:	125 gal De-emulsifier Tank
City:	Bloomfield
State:	New Mexico
Company:	Williams
Type of Tank:	Horizontal Tank
Description:	Horse Canyon

Tank Dimensions

Shell Length (ft):		5.00
Diameter (ft):		4.00
Volume (gallons):		125.00
Turnovers:		6.00
Net Throughput(gal/yr):		750.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good

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

125 gal De-emulsifier Tank - Horizontal Tank
Bloomfield, New Mexico

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
De-emulsifier	All	64.94	53.24	76.64	58.39	0.3741	0.2549	0.5353	35.4918			27.97	
Jet naphtha (JP-4)						1.4482	1.0972	1.7992	80.0000	0.2300	0.4678	120.00	Option 1: VP60 = 1.3 VP70 = 1.6
Toluene						0.3844	0.2666	0.5435	92.1300	0.2000	0.1619	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Water						0.3084	0.2031	0.4583	18.0000	0.5700	0.3703	18.00	Option 1: VP60 = .255246 VP70 = .362758

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

125 gal De-emulsifier Tank - Horizontal Tank
Bloomfield, New Mexico

Annual Emission Calcaulations

Standing Losses (lb):	3.5761
Vapor Space Volume (cu ft):	40.0203
Vapor Density (lb/cu ft):	0.0024
Vapor Space Expansion Factor:	0.1079
Vented Vapor Saturation Factor:	0.9619
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	40.0203
Tank Diameter (ft):	4.0000
Effective Diameter (ft):	5.0475
Vapor Space Outage (ft):	2.0000
Tank Shell Length (ft):	5.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0024
Vapor Molecular Weight (lb/lb-mole):	35.4918
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3741
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
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):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.1079
Daily Vapor Temperature Range (deg. R):	46.7976
Daily Vapor Pressure Range (psia):	0.2805
Breather Vent Press. Setting Range(psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3741
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2549
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.5353
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9619
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.3741
Vapor Space Outage (ft):	2.0000
Working Losses (lb):	0.2371
Vapor Molecular Weight (lb/lb-mole):	35.4918
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3741
Annual Net Throughput (gal/yr.):	750.0000

Annual Turnovers:	6.0000
Turnover Factor:	1.0000
Tank Diameter (ft):	4.0000
Working Loss Product Factor:	1.0000

Total Losses (lb):	3.8132

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

Emissions Report for: Annual

125 gal De-emulsifier Tank - Horizontal Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
De-emulsifier	0.24	3.58	3.81
Jet naphtha (JP-4)	0.11	1.67	1.78
Toluene	0.04	0.58	0.62
Water	0.09	1.32	1.41

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

Identification

User Identification:	Horse Canyon 500-bbl snow tanks
City:	Bloomfield
State:	New Mexico
Company:	ConocoPhillips
Type of Tank:	Vertical Fixed Roof Tank
Description:	Horse Canyon 500-bbl produced water tanks to handle excessive storm (rain & snowmelt) runoff from facilties for the Wastewater Evaporation Unit

Tank Dimensions

Shell Height (ft):	15.50
Diameter (ft):	15.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	19,828.82
Turnovers:	52.00
Net Throughput(gal/yr):	1,031,098.60
Is Tank Heated (y/n):	Y

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition	Good
Roof Color/Shade:	Gray/Light
Roof Condition:	Good

Roof Characteristics

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

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

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

Horse Canyon 500-bbl snow tanks - Vertical Fixed Roof Tank
Bloomfield, New Mexico

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	64.94	53.24	76.64	58.39	0.3095	0.2042	0.4596	19.0221			18.17	
2,3-Dimethylbutane						3.4384	2.5896	4.4997	86.1800	0.0001	0.0011	86.18	Option 2: A=6.8098, B=1127.187, C=228.9
2-Methylpentane						3.0810	2.3028	4.0606	86.1800	0.0005	0.0048	86.18	Option 2: A=6.8391, B=1135.41, C=226.57
Decane (-n)						0.0374	0.0286	0.0489	142.2900	0.0006	0.0001	142.29	Option 1: VP60 = .033211 VP70 = .041762
Heptane (-n)						0.7080	0.4981	0.9910	100.2000	0.0037	0.0081	100.20	Option 3: A=37358, B=8.2585
Hexane (-n)						2.1727	1.6003	2.9030	86.1700	0.0005	0.0034	86.17	Option 2: A=6.876, B=1171.17, C=224.41
i-butane						28.6704	23.0459	35.2667	58.1300	0.0002	0.0177	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Isopentane						11.2522	8.5746	14.3915	72.1500	0.0003	0.0104	72.15	Option 1: VP60 = 10.005 VP70 = 12.53
n-butane						28.6704	23.0459	35.2667	58.1300	0.0002	0.0177	58.13	Option 1: VP60 = 26.098 VP70 = 31.306
Nonane (-n)						0.0741	0.0558	0.0981	128.2600	0.0013	0.0003	128.26	Option 1: VP60 = .065278 VP70 = .08309
Octane (-n)						0.1666	0.1231	0.2250	114.2300	0.0022	0.0011	114.23	Option 1: VP60 = .145444 VP70 = .188224
Pentane (-n)						7.6199	5.8716	9.7769	72.1500	0.0003	0.0071	72.15	Option 3: A=27691, B=7.558
water						0.3038	0.1997	0.4526	18.0200	0.9901	0.9284	18.02	Option 2: A=8.07131, B=1730.63, C=233.426

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

Horse Canyon 500-bbl snow tanks - Vertical Fixed Roof Tank
Bloomfield, New Mexico

Annual Emission Calcaulations	
Standing Losses (lb):	30.3580
Vapor Space Volume (cu ft):	1,352.9711
Vapor Density (lb/cu ft):	0.0010
Vapor Space Expansion Factor:	0.0662
Vented Vapor Saturation Factor:	0.8884
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,352.9711
Tank Diameter (ft):	15.0000
Vapor Space Outage (ft):	7.6563
Tank Shell Height (ft):	15.5000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.1563
Roof Outage (Cone Roof)	
Roof Outage (ft):	0.1563
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	7.5000
Vapor Density	
Vapor Density (lb/cu ft):	0.0010
Vapor Molecular Weight (lb/lb-mole):	19.0221
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3095
Daily Avg. Liquid Surface Temp. (deg. R):	524.6094
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):	518.0642
Tank Paint Solar Absorptance (Shell):	0.5400
Tank Paint Solar Absorptance (Roof):	0.5400
Daily Total Solar Insulation Factor (Btu/sqft day):	1,765.3167
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0662
Daily Vapor Temperature Range (deg. R):	23.3988
Daily Vapor Pressure Range (psia):	0.2554
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3095
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.2042
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.4596
Daily Avg. Liquid Surface Temp. (deg R):	524.6094
Daily Min. Liquid Surface Temp. (deg R):	512.9100
Daily Max. Liquid Surface Temp. (deg R):	536.3088
Daily Ambient Temp. Range (deg. R):	27.9250
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.8884
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.3095
Vapor Space Outage (ft):	7.6563

Working Losses (lb):	107.4645
Vapor Molecular Weight (lb/lb-mole):	19.0221
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.3095
Annual Net Throughput (gal/yr.):	1,031,098.6030
Annual Turnovers:	52.0000
Turnover Factor:	0.7436
Maximum Liquid Volume (gal):	19,828.8193
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	15.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	137.8226

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

Emissions Report for: Annual

Horse Canyon 500-bbl snow tanks - Vertical Fixed Roof Tank
Bloomfield, New Mexico

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
produced water	107.46	30.36	137.82
2,3-Dimethylbutane	0.11	0.03	0.15
2-Methylpentane	0.51	0.14	0.66
i-butane	1.90	0.54	2.44
n-butane	1.90	0.54	2.44
Pentane (-n)	0.76	0.21	0.97
Hexane (-n)	0.36	0.10	0.46
Isopentane	1.12	0.32	1.44
Heptane (-n)	0.87	0.25	1.11
Octane (-n)	0.12	0.03	0.16
Nonane (-n)	0.03	0.01	0.04
Decane (-n)	0.01	0.00	0.01
water	99.77	28.18	127.95

Compressor Blowdown Emissions Data and Calculations

Unit Number: 1a-7a
Description: Compressor & Piping for 7 compressor packages

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Emission Rates

Pollutant	Uncontrolled, tpy	Aggregate tpy
VOC	1.52	10.62
2,2,4-Trimethylpentane	8.94E-04	6.25E-03
Benzene	1.67E-03	1.17E-02
Ethylbenzene	0	2.12E-02
n-Hexane	1.98E-02	0.14
Toluene	5.59E-03	3.91E-02
Xylene	5.68E-04	3.98E-03

Emission Rate (tpy) = Total Gas Loss (scf/yr) * Emission Factor (lb/scf) / 2,000 lb/ton

Startups & Shutdowns

210 events/yr Blowdowns per year Harvest Four Corners, LLC

Compressor Loss

6,442 scf/event Gas loss per startup/shutdown Harvest Four Corners, LLC

Total Gas Loss

1,352,820 scf/yr Total Gas Loss (scf/hr) = Compressor Loss (scf/event) * Startups & Shutdowns (events/yr)

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Emission Factor, lb/scf
Carbon dioxide	16.4878	44.01	1.91E-02
Hydrogen sulfide	0	34.07	0.00E+00
Nitrogen	0.0885	28.01	6.54E-05
Methane	78.938	16.04	3.34E-02
Ethane	2.8277	30.07	2.24E-03
Propane	1.0997	44.09	1.28E-03
Isobutane	0.194	58.12	2.97E-04
n-Butane	0.1881	58.12	2.88E-04
Isopentane	0.0557	72.15	1.06E-04
n-Pentane	0.0375	72.15	7.13E-05
Cyclopentane	0.002	70.14	3.70E-06
n-Hexane	0.0129	86.17	2.93E-05
Cyclohexane	0.005	84.16	1.11E-05
Other hexanes	0.0286	86.18	6.50E-05
Heptanes	0.0098	100.20	2.59E-05
Methylcyclohexane	0.0102	98.19	2.64E-05
2,2,4-Trimethylpentane	0.0005	100.21	1.32E-06
Benzene	0.0012	78.11	2.47E-06
Toluene	0.0034	92.14	8.26E-06
Ethylbenzene	0.0016	106.17	4.48E-06
Xylenes	0.0003	106.17	8.40E-07
C8+ Heavies	0.0077	110.00	2.23E-05
Total	100.0002		5.71E-02
Total VOC			2.24E-03

Gas stream composition obtained from Horse Canyon extended gas analysis dated 5/29/18
Emission Factor (lb/scf) = [Mole Percent (scf/scf) / 100] * Molecular Weight (lb/lb-mole / 379.3 (scf/lb-mole)

Malfunction Emissions Data and Calculations

Unit Number: M1
Description: Malfunctions

Note: Where more than one emissions unit is identified above, this worksheet provides the emission rates and operating parameters for each individual emissions unit.

Emission Rates

Pollutant	Emission Rate, tpy
VOC	10.00
2,2,4-Trimethylpentane	5.89E-03
Benzene	1.10E-02
Ethylbenzene	2.00E-02
n-Hexane	0.13
Toluene	3.68E-02
Xylene	3.75E-03

HAP Emission Rate (tpy) = VOC Emission Rate (tpy) * [HAP Weight Percent of VOC (%) / 100]

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Component Weight, lb/lb-mole	Weight Percent of VOC, %
Carbon dioxide	16.4878	44.01	--	--
Hydrogen sulfide	0	34.07	--	--
Nitrogen	0.0885	28.01	--	--
Methane	78.938	16.04	--	--
Ethane	2.8277	30.07	--	--
Propane	1.0997	44.09	4.85E-01	5.70E+01
Isobutane	0.194	58.12	1.13E-01	1.33E+01
n-Butane	0.1881	58.12	1.09E-01	1.29E+01
Isopentane	0.0557	72.15	4.02E-02	4.73E+00
n-Pentane	0.0375	72.15	2.71E-02	3.18E+00
Cyclopentane	0.002	70.14	1.40E-03	1.65E-01
n-Hexane	0.0129	86.17	1.11E-02	1.31E+00
Cyclohexane	0.005	84.16	4.21E-03	4.95E-01
Other hexanes	0.0286	86.18	2.46E-02	2.90E+00
Heptanes	0.0098	100.20	9.82E-03	1.15E+00
Methylcyclohexane	0.0102	98.19	1.00E-02	1.18E+00
2,2,4-Trimethylpentane	0.0005	100.21	5.01E-04	5.89E-02
Benzene	0.0012	78.11	9.37E-04	1.10E-01
Toluene	0.0034	92.14	3.13E-03	3.68E-01
Ethylbenzene	0.0016	106.17	1.70E-03	2.00E-01
Xylenes	0.0003	106.17	3.19E-04	3.75E-02
C8+ Heavies	0.0077	110.00	8.47E-03	9.96E-01
Total VOC			0.85	100.00

Gas stream composition obtained from Horse Canyon extended gas analysis dated 5/29/18
Component Weight (lb/lb-mole) = [Mole Percent (scf/scf) / 100] * Molecular Weight (lb/lb-mole)
Weight Percent of VOC (%) = 100 * Component Weight (lb/lb-mole) / Total VOC (lb/lb-mole)

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Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

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 (reciprocating internal combustion engines and the dehydrator reboilers) are calculated from emission factors from 40 CFR 98, Part C, Tables C-1 & C-2, and the engine 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 are noted in the GHG 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 Potential To Emit emission calculations.

SSM Compressor Blowdown GHG. Compressor blowdown emissions (unit 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.

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 less than the combined blowdown valve leakage and rod packing emissions that occur when compressor(s) are in operation. Therefore, the PTE is calculated assuming 8,760 hours per year of compressor operation (corresponding with isolation valve leakage occurring zero 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, used lube oil, TEG, antifreeze and corrosion inhibitor storage tanks are considered to be zero, based on the stored contents are either non-flashing liquids or post-flashed liquid. Similarly, any liquids transferred during truck loading do not contain appreciable amounts of any gases, including GHG.

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.

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Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	CH4, tpy	N2O, tpy	GHG, tpy	CO2e, tpy
Engines	42,041.45	0.79	7.93E-02	42,042.32	42,084.91
Compressor Blowdowns (SSM)	90.58	158.06	0	248.64	4,042.02
Heaters & Boilers	1,407.82	2.66E-02	2.66E-03	1,407.84	1,409.27
Dehydrators	49.80	2.15	0	51.96	103.67
Reboilers	657.53	1.24E-02	1.24E-03	657.54	658.21
Equipment Leaks	14.80	25.82	0	40.62	660.40
Dehydrator Glycol Gas-Assisted Pump Emissions	131.87	230.10	0	361.96	5,884.31
Gas Driven Pneumatic Devices (Compressor Station Only)	35.15	61.33	0	96.48	1,568.51
Pressure Relief Valves (Compressor Station Only)	3.13E-02	5.45E-02	0	8.58E-02	1.39
Malfunctions	85.32	148.88	0	234.21	3,807.39
Total	44,514.35	627.24	8.32E-02	45,141.67	60,220.09
add pneumatics and PRVs to Euipment Leaks (F1) for Table 2-P	181.85	317.31	0.00	499.16	8,114.62

Engine & Turbine Exhaust Emissions

Unit Number	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
1	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
2	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
3	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
4	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
5	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
6	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
7	Waukesha L7042GL	53.02	1.00E-03	1.00E-04	6,005.92	1.13E-01	1.13E-02
	Total				42,041.45	0.79	7.93E-02

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

Emission Rate (tpy) = Emission Factor (kg/MMBtu) * 2.2 lb/kg * Fuel Usage (MMBtu/yr) / 2,000 lb/ton

Unit Number	Description	Fuel Type	Operating Time, hr/yr	LHV Design Heat Rate, MMBtu/hr	HHV	
					Design Heat Rate, MMBtu/hr	Fuel Usage, MMBtu/yr
1	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
2	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
3	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
4	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
5	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
6	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979
7	Waukesha L7042GL	Nat. Gas	8,760	10.58	11.76	102,979

The fuel types and operating times are provided by Harvest

The LHV design heat rates are taken from manufacturers data

HHV Design Heat Rate (MMBtu/hr) = LHV Design Heat Rate (MMBtu/hr) / 0.9 LHV/HHV

HHV Fuel Usage (MMBtu/yr) = HHV Design Heat Rate (MMBtu/hr) * Operating Time (hr/yr)

Green House Gas Emissions Data and Calculations

Compressor Blowdown Emissions (SSM)

Unit Number	Description	Total Gas Loss, scf/yr	Emission Rates	
			CO2, tpy	CH4, tpy
1a	Compressor	1,352,820	12.94	22.58
2a	Compressor	1,352,820	12.94	22.58
3a	Compressor	1,352,820	12.94	22.58
4a	Compressor	1,352,820	12.94	22.58
5a	Compressor	1,352,820	12.94	22.58
6a	Compressor	1,352,820	12.94	22.58
7a	Compressor	1,352,820	12.94	22.58
	Total		90.58	158.06

Annual blowdown volumes are calculated from data provided by Harvest
Emission Rate (tpy) = Total Gas Loss (scf/yr) * Emission Factor (lb/scf) / 2,000 lb/ton

Heater & Boiler Exhaust Emissions

Unit Number	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
NA	Wastewater Treatment	53.02	1.00E-03	1.00E-04	1,407.82	2.66E-02	2.66E-03

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

Unit Number	Description	Fuel Type	Operating Time, hr/yr	LHV Design Heat Rate, MMBtu/hr	HHV	
					Design Heat Rate, MMBtu/hr	Fuel Usage, MMBtu/yr
NA	Wastewater Treatment	Nat. Gas	8,760	2.480	2.756	24,139

The fuel type and operating time are provided by Harvest
The LHV design heat rate is taken from manufacturers data
HHV Design Heat Rate (MMBtu/hr) = LHV Design Heat Rate (MMBtu/hr) / 0.9 LHV/HHV
HHV Fuel Usage (MMBtu/yr) = HHV Design Heat Rate (MMBtu/hr) * Operating Time (hr/yr)

Dehydrator Emissions

Unit Number	Description	Emission Rates	
		CO2, tpy	CH4, tpy
16a	Dehydrator (10 MMSCFD)	16.60	0.72
19a	Dehydrator (10 MMSCFD)	16.60	0.72
21a	Dehydrator (10 MMSCFD)	16.60	0.72
	Total	49.80	2.15

The emission rates are taken from the GRI-GLYCalc output file, Regenerator Overheads Stream

Green House Gas Emissions Data and Calculations

Reboiler Exhaust Emissions

Unit Number	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	CH4, kg/MMBtu	N2O, kg/MMBtu	CO2, tpy	CH4, tpy	N2O, tpy
16b	Reboiler (10 MMSCFD)	53.02	1.00E-03	1.00E-04	219.18	4.13E-03	4.13E-04
19b	Reboiler (10 MMSCFD)	53.02	1.00E-03	1.00E-04	219.18	4.13E-03	4.13E-04
21b	Reboiler (10 MMSCFD)	53.02	1.00E-03	1.00E-04	219.18	4.13E-03	4.13E-04
	Total				657.53	1.24E-02	1.24E-03

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

Unit Number	Description Description	Fuel Type	Operating Time, hr/yr	LHV			HHV	
				Fuel Usage, scf/hr	Fuel Heat Content, Btu/scf	Fuel Usage, MMBtu/hr	Fuel Usage, MMBtu/hr	Fuel Usage, MMBtu/yr
16b	Reboiler (10 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
19b	Reboiler (10 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
21b	Reboiler (10 MMSCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758

The fuel types and operating times are provided by Harvest
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 Usage (MMBtu/hr) = LHV Fuel Usage (scf/hr) * LHV Fuel Heat Content (Btu/scf) / 1,000,000 Btu/MMBtu
HHV Fuel Usage (MMBtu/hr) = LHV Fuel Usage (MMBtu/hr) / 0.9 LHV/HHV
HHV Fuel Usage (MMBtu/yr) = HHV Fuel Usage (MMBtu/hr) * Operating Time (hr/yr)

Equipment Leaks Emissions

Unit Number	Description	Emission Rates	
		CO2, tpy	CH4, tpy
F1	Equipment Leaks	14.80	25.82

CO2 Emission Rate (tpy) = Total TOC Emission Rate (tpy) * (Weight Percent CH4 (%) / 100)
* [(CO2 Content (mole %) / 100) * CO2 Molecular Weight (ton/ton-mole)]
/ [(CH4 Content (mole %) / 100) * CH4 Molecular Weight (ton/ton-mole)]
CH4 Emission Rate (tpy) = Total TOC Emission Rate (tpy) * (Weight Percent CH4 (%) / 100)

Equipment	Number of Components, #	Emission Factor, kg/hr/source	Emission Factor, pph/source	TOC Emission Rate,	
				pph	tpy
Valves	684	4.50E-03	9.90E-03	6.772	29.660
Connectors	703	2.00E-04	4.40E-04	0.309	1.355
Pump Seals	6	2.40E-03	5.28E-03	0.032	0.139
Compressor Seals	52	8.80E-03	1.94E-02	1.007	4.409
Pressure Relief Valves	58	8.80E-03	1.94E-02	1.123	4.918
Open-Ended Lines	190	2.00E-03	4.40E-03	0.836	3.662
Total				10.078	44.143

The number of components are calculated from the number of compressors and dehydrators (see calculations workbook)
The emission factors are taken from the EPA "1995 Protocol for Equipment Leak Emission Estimates"
TOC Emission Rate (pph) = Number of Components (#) * Emission Factor (pph/source)
TOC Emission Rate (tpy) = Emission Rate (pph) * 8,760 hr/yr / 2,000 lb/ton

Green House Gas Emissions Data and Calculations

Dehydrator Glycol Gas-Assisted Pump Emissions

Unit Number	Description	CH4 Molecular Weight, lb/lb-mole	CO2 Molecular Weight, lb/lb-mole	Emission Rates	
				CO2, tpy	CH4, tpy
16	Dehydrator (10 MMSCFD)	16.04	44.01	43.96	76.70
19	Dehydrator (10 MMSCFD)	16.04	44.01	43.96	76.70
21	Dehydrator (10 MMSCFD)	16.04	44.01	43.96	76.70
	Total			131.87	230.10

CO2 Emission Rate (tpy) = Production Rate (MMscfd) * 365 day/yr * CH4 Emission Factor (tonne/MMscf)
* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)]
* [(Facility CO2 Content (mole %) / 100) * CO2 Molecular Weight (tonne/tonne-mole)]
/ [(Facility CH4 Content (mole %) / 100) * CH4 Molecular Weight (tonne/tonne-mole)]
* 2,204.6 lb/tonne / 2,000 lb/ton

CH4 Emission Rate (tpy) = Production Rate (MMscfd) * 365 day/yr * CH4 Emission Factor (tonne/MMscf)
* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)]
* 2,204.6 lb/tonne / 2,000 lb/ton

The CH4 and CO2 molecular weights are calculated from the periodic table

Unit Number	Description	Production Rate, MMscfd	CH4 Emission Factor, tonne/MMscf	Baseline CH4 Content, mole %	Facility CH4 Content, mole %	Facility CO2 Content, mole %
16	Dehydrator (10 MMSCFD)	10	1.903E-02	78.8	78.9	16.5
19	Dehydrator (10 MMSCFD)	10	1.903E-02	78.8	78.9	16.5
21	Dehydrator (10 MMSCFD)	10	1.903E-02	78.8	78.9	16.5

The production rates are provided by Harvest
The CH4 emission factor and baseline CH4 content are taken from the API Compendium, Section 5.1.2, Table 5-4
Facility CH4 and CO2 contents are obtained from the extended gas analysis

Gas Driven Pneumatic Devices and Pressure Relief Valve Emissions (Compressor Stations Only)

Unit Number	Description	CH4 Molecular Weight, lb/lb-mole	CO2 Molecular Weight, lb/lb-mole	Emission Rates	
				CO2, tpy	CH4, tpy
NA	Gas Driven Devices	16.04	44.01	35.15	61.33
NA	Pressure Relief Valves	16.04	44.01	3.13E-02	5.45E-02

CO2 Emission Rate (tpy) = (Number of Devices (#) * CH4 Emission Factor (tonne/device-yr)
* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)]
* [(Facility CO2 Content (mole %) / 100) * CO2 Molecular Weight (tonne/tonne-mole)]
/ [(Facility CH4 Content (mole %) / 100) * CH4 Molecular Weight (tonne/tonne-mole)])
* 2,204.6 lb/tonne / 2,000 lb/ton

CH4 Emission Rate (tpy) = (Number of Devices (#) * CH4 Emission Factor (tonne/device-yr)
* [Facility CH4 Content (mole %) / Baseline CH4 Content (mole %)])
* 2,204.6 lb/tonne / 2,000 lb/ton

The CH4 and CO2 molecular weights are calculated from the periodic table

Green House Gas Emissions Data and Calculations

Unit Number	Description	Number of Devices, #	CH4 Emission Factor, tonne/device-yr	Baseline CH4 Content, mole %	Facility CH4 Content, mole %	Facility CO2 Content, mole %
NA	Gas Driven Devices	23	2.415	78.8	78.9	16.5
NA	Pressure Relief Valves	76	0.00065	78.8	78.9	16.5

The number of devices are provided by Harvest
The gas driven pneumatic devices CH4 emission factor and baseline CH4 content are taken from the API Compendium, Section 5.6.1, Table 5-15
The pressure relief valve CH4 emission factor and baseline CH4 content are taken from the API Compendium, Section 5.7.2, Table 5-24
Facility CH4 and CO2 contents are obtained from the extended gas analysis

Malfunction Emissions

Unit Number	Description	Emission Rates		
		VOC, tpy	CO2, tpy	CH4, tpy
M1	Malfunctions	10.00	85.32	148.88

VOC emission rate is estimated (see calculations workbook)
GHG Emission Rate (tpy) = VOC Emission Rate (tpy) * (Total Component Weight (lb/lb-mole) / VOC Component Weight (lb-lb-mole))
* (GHG Weight Percent of Total (%) / 100)

Gas Stream Composition

Component	Mole Percent, %	Molecular Weight, lb/lb-mole	Component Weight, lb/lb-mole	Weight Percent of Total, %	Emission Factor, lb/scf
Carbon Dioxide	16.4878	44.01	7.26	33.5264	1.91E-02
Hydrogen Sulfide	0	34.07	0.00	0.0000	0.00E+00
Nitrogen	0.0885	28.01	0.02	0.1145	6.54E-05
Methane	78.938	16.04	12.66	58.5011	3.34E-02
Ethane	2.8277	30.07	0.85	3.9286	2.24E-03
Propane	1.0997	44.09	0.48	2.2402	1.28E-03
IsoButane	0.194	58.12	0.11	0.5210	2.97E-04
Normal Butane	0.1881	58.12	0.11	0.5051	2.88E-04
IsoPentane	0.0557	72.15	0.04	0.1857	1.06E-04
Normal Pentane	0.0375	72.15	0.03	0.1250	7.13E-05
Cyclopentane	0.002	70.14	0.00	0.0065	3.70E-06
n-Hexane	0.0129	86.17	0.01	0.0514	2.93E-05
Cyclohexane	0.005	84.16	0.00	0.0194	1.11E-05
Other Hexanes	0.0286	86.18	0.02	0.1139	6.50E-05
Heptanes	0.0098	100.20	0.01	0.0454	2.59E-05
Methylcyclohexane	0.0102	98.19	0.01	0.0463	2.64E-05
2,2,4-Trimethylpentane	0.0005	100.21	0.00	0.0023	1.32E-06
Benzene	0.0012	78.11	0.00	0.0043	2.47E-06
Toluene	0.0034	92.14	0.00	0.0145	8.26E-06
Ethylbenzene	0.0016	106.17	0.00	0.0078	4.48E-06
Xylenes	0.0003	106.17	0.00	0.0015	8.40E-07
C8+ heavies	0.0077	110.00	0.01	0.0391	2.23E-05
Total	100.0002		21.64	100.0000	5.71E-02
VOC			0.85	--	2.24E-03

Gas stream composition obtained from Horse Canyon extended gas analysis dated 5/29/18
Component Weight (lb/lb-mole) = [Mole Percent (scf/scf) / 100] * Molecular Weight (lb/lb-mole)
Weight Percent of Total (%) = 100 * Component Weight (lb/lb-mole) / Total (lb/lb-mole)
Weight Percent of VOC (%) = 100 * Component Weight (lb/lb-mole) / Total VOC (lb/lb-mole)
Emission Factor (lb/scf) = [Mole Percent (mole/mole) / 100] * Molecular Weight (lb/lb-mole) / 379.3 scf/lb-mole

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Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☐ 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.
- ☐ 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.
- ☐ If an EPA document or other material is referenced, include a complete copy.
- ☐ Fuel specifications sheet.
- ☐ 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.

HAP emissions from the engines, reboilers, and heater are calculated using GRI-HAPCalc. Emissions from the dehydrators are calculated using GRI-GLYCalc 4.0. Emissions from the storage tanks are calculated using TANKS 4.0.9d. All information currently available for the models is provided in Section 6.

STANDARD EQUIPMENT

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

BARRING DEVICE – Manual.

BEARINGS – Heavy duty, replaceable, precision type.

BREATHER – Closed 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, and dynamically balanced.

CYLINDERS – Removable wet type cylinder liners, chrome plated on outer diameter. Induction hardened.

CYLINDER HEADS – Twelve interchangeable. Two hard faced intake and two hard faced exhaust valves per cylinder. Hard 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, for jacket water temperature, lube oil temperature, intake manifold temperature, individual cylinder exhaust temperature and a common pre turbine temperatures, one on each bank. Magnetic pickup wired for customer supplied tachometer. 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. 24V DC 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. 90 gallon (340 litres) capacity including filter and cooler.

PAINT – Oilfield orange primer.

PISTONS – Aluminum with floating pin. 10.5:1 compression ratio. 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.

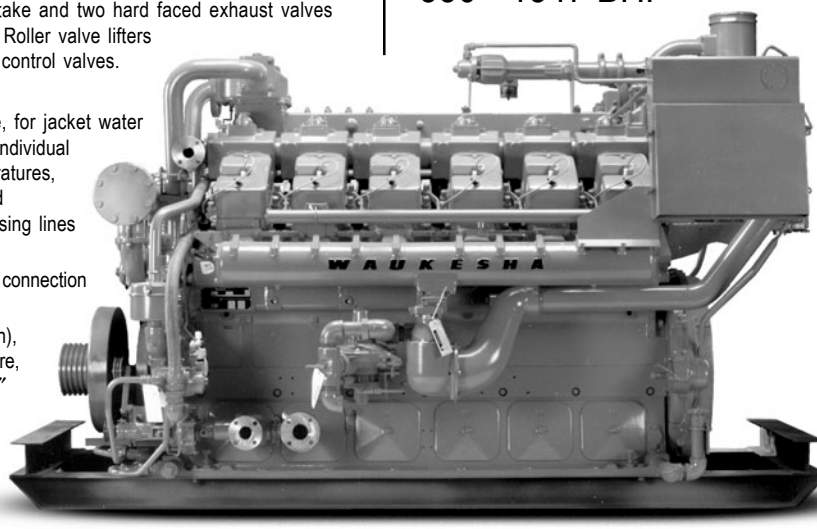
Engine Jacket – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4″ (102 mm) inlets and (1) 5″ (127 mm) outlet.

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. The DSM meets Canadian Standards Association Class 1, Group D, Division 2, hazardous location requirements.

Waukesha® VHP

L7042GL

VHP™ Series Gas Engine
886 - 1547 BHP



Model L7042GL Turbocharged and Intercooled, Twelve Cylinder, Lean Combustion, Four-Cycle Gas Engine

SPECIFICATIONS

Cylinders
V 12

Piston Displacement
7040 cu. in.
(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
90 gal.
(340 L)

Starting System
125 - 150 psi air/gas
24/32V electric

Dry Weight
21,000 lb.
(9525 kg)

Full Load Exhaust Emissions
Nox - 1.50 g/bhp-hr
CO - 2.65 g/bhp-hr
HC - 1.00 g/bhp-hr
(non-methane)

Waukesha Engine ISO 9001 CERTIFIED

POWER RATINGS: L7042GL VHP SERIES GAS ENGINES

Model	I.C. Water Inlet Temp. °F (°C) (Tcra)	C.R.	Brake Horsepower (kWb Output) 800 rpm	900 rpm	1000 rpm	1100 rpm	1200 rpm
High Speed Turbo[1]	85° (29°)	10.5:1	928 (692)	1160 (865)	1289 (961)	1418 (1057)	1547 (1154)
High Speed Turbo[1]	130° (54°)	10.5:1	886 (661)	1108 (826)	1232 (919)	1355 (1010)	1478 (1102)
Low Speed Turbo[2]	85° (29°)	10.5:1	1031 (769)	1160 (865)	1289 (961)	— —	— —
Low Speed Turbo[2]	130° (54°)	10.5:1	985 (735)	1108 (826)	1232 (919)	— —	— —

[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 auxiliary water temperature Tcra (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/ft^3 (35.3 MJ/nm^3) SLHV value, with a 91 Waukesha Knock Index®.

For conditions or fuels other than standard, the Waukesha Engine Sales Engineering Department.

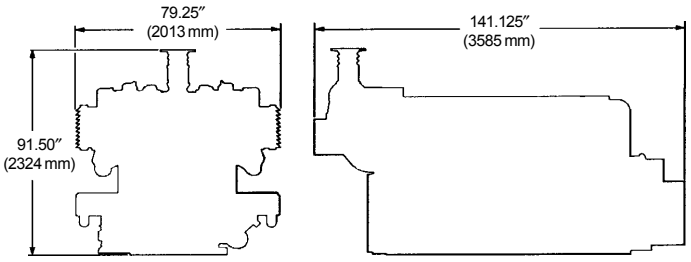
PERFORMANCE: L7042GL VHP SERIES GAS ENGINES

	English	130° F ICW		85° F ICW	
	RPM	1200	1000	1200	1000
	Power (Bhp)	1478	1232	1547	1289
Low NO_x Settings	BSFC (Btu/bhp-hr)	7155	6815	7180	6840
	NOx (grams/bhp-hr)	0.90	0.90	0.70	0.70
	CO (grams/bhp-hr)	2.75	2.65	2.65	2.55
	NMHC (grams/bhp--hr)	1.00	1.00	1.10	1.10
Low Fuel Consumption Settings	BSFC (Btu/bhp-hr)	6910	6615	6935	6640
	NOx (grams/bhp-hr)	1.50	1.60	1.30	1.40
	CO (grams/bhp-hr)	3.00	2.75	2.90	2.65
	NMHC (grams/bhp--hr)	0.70	1.00	0.80	1.10

	Metric	54° C ICW		29° C ICW	
	RPM	1200	1000	1200	1000
	Power (kWb)	1103	919	1154	962
Low NO_x Settings	BSFC (kJ/kW-hr)	10124	9643	10160	9679
	NOx (g/nm^3)	0.37	0.37	0.29	0.29
	CO (g/nm^3)	1.14	1.10	1.10	1.05
	NMHC (g/nm^3)	0.41	0.41	0.45	0.45
Low Fuel Consumption Settings	BSFC (kJ/kW-hr)	9778	9360	9813	9396
	NOx (g/nm^3)	0.62	0.66	0.54	0.58
	CO (g/nm^3)	1.24	1.14	1.20	1.10
	NMHC (g/nm^3)	0.29	0.41	0.33	0.45

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/ft^3 saturated low heat value.
3) Data based on standard conditions of 77° F (25° C) ambient temperature, 29.53 inches Hg (100kPa) barometric pressure, 30% relative humidity (0.3 inches Hg / 1 kPa 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 Sales Engineering Department.



DRESSER
Waukesha

WAUKESHA ENGINE
DRESSER, INC.
1000 West St. Paul Avenue
Waukesha, WI 53188-4999
Phone: (262) 547-3311 Fax: (262) 549-2795
waukeshaengine.dresser.com

WAUKESHA ENGINE
DRESSER INDUSTRIAL PRODUCTS, B.V.
Farmsumerweg 43, Postbus 330
9900 AH Appingedam, The Netherlands
Phone: (31) 596-652222 Fax: (31) 596-628111

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.

Bulletin 7005 0102

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

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	.25	10'	8	600	5.1
12 MM HP	.02	.49	.78	1208	.25	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

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO_x[b]		CO	
	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)[c]	280	A	84	B
Uncontrolled (Post-NSPS)[c]	190	A	84	B
Controlled - Low NO_x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO_x burners	50	D	84	B
Controlled - Low NO_x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

[a] Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $1b/10^6$ scf to lb/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. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_X emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_X emission factor.

[c] NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

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, 4.2×10^4 $lb/10^6$ 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.

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.

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.

biogenic fuels, you shall report the results of each quarterly sample analysis, expressed as a decimal fraction (*e.g.,* if the biogenic fraction of the CO_2emissions is 30 percent, report 0.30).

(3) Within 30 days of receipt of a written request from the Administrator, you shall submit explanations of the following:

(i) An explanation of how company records are used to quantify fuel consumption, if the Tier 1 or Tier 2 Calculation Methodology is used to calculate CO_2emissions.

(ii) An explanation of how company records are used to quantify fuel consumption, if solid fuel is combusted and the Tier 3 Calculation Methodology is used to calculate CO_2emissions.

(iii) An explanation of how sorbent usage is quantified.

(iv) An explanation of how company records are used to quantify fossil fuel consumption in units that uses CEMS to quantify CO_2emissions and combusts both fossil fuel and biomass.

(v) An explanation of how company records are used to measure steam production, when it is used to calculate CO_2mass emissions under §98.33(a)(2)(iii) or to quantify solid fuel usage under §98.33(c)(3).

(4) Within 30 days of receipt of a written request from the Administrator, you shall submit the verification data and information described in paragraphs (e)(2)(iii), (e)(2)(v), and (e)(2)(vii) of this section.

[, as amended at 75 FR 79151, Dec. 17, 2010]

§ 98.37 Records that must be retained.

In addition to the requirements of §98.3(g), you must retain the applicable records specified in §§98.34(f) and (g), 98.35(b), and 98.36(e).

§ 98.38 Definitions.

All terms used in this subpart have the same meaning given in the Clean Air Act and subpart A of this part.

Table C–1 to Subpart C of Part 98—Default CO_2Emission Factors and High Heat Values for Various Types of Fuel

Table C–1 to Subpart C—Default CO&ihel2; 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	103.54
Bituminous	24.93	93.40
Subbituminous	17.25	97.02
Lignite	14.21	96.36
Coke	24.80	102.04
Mixed (Commercial sector)	21.39	95.26

Mixed (Industrial coking)	26.28	93.65
Mixed (Industrial sector)	22.35	93.91
Mixed (Electric Power sector)	19.73	94.38
Natural gas	mmBtu/scf	kg CO_2/mmBtu
(Weighted U.S. Average)	1.028×10^{-3}	53.02
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	0.135	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)	0.092	62.98
Propane	0.091	61.46
Propylene	0.091	65.95
Ethane	0.069	62.64
Ethanol	0.084	68.44
Ethylene	0.100	67.43
Isobutane	0.097	64.91
Isobutylene	0.103	67.74
Butane	0.101	65.15
Butylene	0.103	67.73
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.83
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.129	70.97
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34
Unfinished Oils	0.139	74.49
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	74.49
Other fuels-solid	mmBtu/short ton	kg CO_2/mmBtu

Municipal Solid Waste	9.95[1]	90.7
Tires	26.87	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	0.092×10^{-3}	274.32
Coke Oven Gas	0.599×10^{-3}	46.85
Propane Gas	2.516×10^{-3}	61.46
Fuel Gas[2]	1.388×10^{-3}	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Wood and Wood Residuals	15.38	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	25.83	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Biogas (Captured methane)	0.841×10^{-3}	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO_2/mmBtu
Ethanol	0.084	68.44
Biodiesel	0.128	73.84
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

[1]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.

[2]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.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79153, Dec. 17, 2010]

Table C–2 to Subpart C of Part 98—Default $CH_4$and N_2O Emission Factors for Various Types of Fuel

Table C–2 to Subpart C—Default CH&ihel4; and N&ihel2;O Emission Factors for Various Types of Fuel

	Default CH&ihel4; emission factor (kg	Default N&ihel2;O emission factor (kg

Fuel type	CH&ihel4;/mmBtu)	N&ihel2;O/mmBtu)
Coal and Coke (All fuel types in Table C–1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum (All fuel types in Table C–1)	3.0×10^{-03}	6.0×10^{-04}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C–1)	3.2×10^{-02}	4.2×10^{-03}
Biogas	3.2×10^{-03}	6.3×10^{-04}
Biomass Fuels—Liquid (All fuel types in Table C–1)	1.1×10^{-03}	1.1×10^{-04}

Note: Those employing this table are assumed to fall under the IPCC definitions of the “Energy Industry” or “Manufacturing Industries and Construction”. In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC “Energy Industry” category may employ a value of 1g of CH&ihel4;/mmBtu.

[74 FR 56374, Oct. 30, 2009, as amended at 75 FR 79154, Dec. 17, 2010]

Editorial Note: At 74 FR 56374, Oct. 30, 2009, part 98 was added. The added part included two tables identified as “C–2 to Subpart C”.

Browse Previous | Browse Next

default CH_4 content that can be used for adjusting the emission factors to other CH_4 contents. The default CH_4 content and associated uncertainties for each industry segment are provided in Table E-4. The GRI/EPA study did not observe any active gas-assisted pumps in the transmission and storage segments, so no emission factors are presented for these industry segments.

Table 5-4. GRI/EPA Kimray Pump CH_4 Emission Factors

Industry Segment	CH_4 Emission Factor [a], Original Units	CH_4 Emission Factor [b], Converted to Tonnes Basis	CH_4 Content Basis for Industry Segment	Uncertainty [c] (+/- %)
Production	992.0 scf/10^6 scf gas processed	0.01903 tonnes/10^6 scf gas processed	78.8 mole %	82.8
		0.6720 tonnes/10^6 m^3 gas processed		
Processing	177.75 scf/10^6 scf gas processed	0.0034096 tonnes/10^6 scf gas processed	86.8 mole %	61.5
		0.12041 tonnes/10^6 m^3 gas processed		

Footnotes and Sources:
[a] Myers, D.B. and M.R. Harrison. *Methane Emissions from the Natural Gas Industry, Volume 15: Gas Assisted Glycol Pumps*, Final Report, GRI-94/0257.33 and EPA-600/R-96-080o, Gas Research Institute and U.S. Environmental Protection Agency, June 1996.
[b] CH_4 emission factors converted from scfy are based on 60°F and 14.7 psia.
[c] Uncertainty is based on a 95% confidence interval; however, because the data used to calculate the reference emission factor were unavailable, the uncertainty at a 95% confidence interval was calculated based on the uncertainty at a 90% confidence interval presented in the source assuming a data set size of 10.

An example calculation for glycol dehydrator Kimray pump CH_4 emissions is given below.

EXHIBIT 5.2: Sample Calculation for Dehydration Kimray Vent Emissions

INPUT DATA:
From the previous example, a glycol dehydrator at a gas processing plant treats 25×10^6 scf/day of gas. This dehydration unit includes a gas-operated pump but does not include a flash separator. Calculate the vented emissions from the pump and from the dehydrator as a whole.

CALCULATION METHODOLOGY:
1. *Calculate emissions from the pump.* Assuming the pump is a Kimray or similar type, Table 5-4 provides an appropriate emission factor. The CH_4 emissions are calculated by multiplying this emission factor by the annual gas throughput and adjusting for the facility CH_4 concentration, as shown below.

$$E_{CH_4,pump} = \frac{25\times10^6 \text{ scf}}{\text{day}} \times \frac{365 \text{ day}}{\text{yr}} \times \frac{0.0034096 \text{ tonne } CH_4}{10^6 \text{ scf}} \times \frac{0.90 \text{ tonne mole } CH_4 \text{ (facility)}}{0.868 \text{ tonne mole } CH_4 \text{ (default)}}$$

$$E_{CH_4,pump} = 32.26 \text{ tonnes } CH_4/\text{yr}$$

factors. The emission factors can be adjusted based on the CH_4 content of the site-specific gas used to drive the devices if the natural gas is significantly different from the default basis. Also, if the pneumatic devices are driven with gas that contains significant quantities of CO_2, the CH_4 emission factors can be adjusted based on the relative concentrations of CH_4 and CO_2 in the gas to estimate the CO_2 emissions.

In production, the continuous bleed, intermittent bleed, and average pneumatic device emission factors shown in Table 5-15 are taken from the 1996 GRI/EPA report (Volumes 2 and 12) (Harrison, 1996; Shires, 1996). The pneumatic device emission factors from the GRI/EPA reports were derived using vendor and/or measured data for both intermittent and continuous bleed devices. The instrument controller emission factor (pressure unspecified) is taken from a 2002 CAPP document and is based on data collected in Alberta, Canada (CAPP, 2002). Other pneumatic device emission factors such as transmitters and controllers are taken from a 2003 CAPP report (CAPP, 2003). The emission factors from the 2003 CAPP document are most appropriate for standard (high-bleed) components that were common prior to 1985 and are a function of the device operating pressure (factors are given at 140 kPa or 240 kPa, both gauge pressure).

Table 5-15. Gas-Driven Pneumatic Device CH_4 Emission Factors

Device Type	Emission Factor [a], Original Units		Uncertainty [b] (±%)	Emission Factor [c], Converted to Tonnes Basis	
Production Segment				Based on 78.8 mole% CH_4 [a]	
Continuous bleed [a]	654	scfd gas/device	40.3	3.608	tonnes/device-yr
Continuous bleed, low/no-bleed [d]	33.4	scfd gas/device	107	0.184	tonnes/device-yr
Continuous bleed, high-bleed [d]	896	scfd gas/device	33.1	4.941	tonnes/device-yr
Intermittent bleed [a]	323	scfd gas/device	41.2	1.782	tonnes/device-yr
Production average[a] (if device type is unknown)	*345*	*scfd CH_4/device*	*49.5*	*2.415*	*tonnes/device-yr*
Transmitter (140 kPag) [e]	0.12	m^3 gas/hr/device	Uncertainty not specified	0.56	tonnes/device-yr
Transmitter (240 kPag) [e]	0.2	m^3 gas/hr/device		0.94	tonnes/device-yr
Controller (140 kPag) [e]	0.6	m^3 gas/hr/device		2.8	tonnes/device-yr
Controller (240 kPag) [e]	0.8	m^3 gas/hr/device		3.7	tonnes/device-yr
Controller (pressure not specified) [f]	0.1996	m^3 gas/hr/device		0.9333	tonnes/device-yr
I/P Transducer (140 kPag) [e]	0.6	m^3 gas/hr/device		2.8	tonnes/device-yr
I/P Transducer (240 kPag) [e]	0.8	m^3 gas/hr/device		3.7	tonnes/device-yr
P/P Positioner (140 kPag) [e]	0.32	m^3 gas/hr/device		1.5	tonnes/device-yr

Table 5-15. Gas-Driven Pneumatic Device CH_4 Emission Factors, continued

Device Type	Emission Factor [a], Original Units	Uncertainty [b] (±%)	CH_4 Emission Factor [c], Converted to Tonnes Basis
Production Segment, continued			Based on 78.8 mole% CH_4 [a]
P/P Positioner (240 kPag) [e]	0.5 m^3 gas/hr/device		2.3 tonnes/device-yr
I/P Positioner (140 kPag) [e]	0.4 m^3 gas/hr/device		1.9 tonnes/device-yr
I/P Positioner (240 kPag) [e]	0.6 m^3 gas/hr/device		2.8 tonnes/device-yr
Processing			Based on 86.8 mole% CH_4 [a]
Continuous bleed	497,584 scf gas/device-yr	35.5	8.304 tonnes/device-yr
Piston valve operator	48 scf gas/device-yr	60.9	8.010E-04 tonnes/device-yr
Pneumatic/hydraulic valve operator	5,627 scf gas/device-yr	134	0.0939 tonnes/device-yr
Turbine valve operator	67,599 scf gas/device-yr	407	1.128 tonnes/device-yr
Processing average (if device type is unknown)	*164,949 scf CH_4/plant-yr*	*170*	*3.164 tonnes/plant-yr*
	7.431 [g] scf CH_4/MMscf processed		*1.425E-04 tonnes/10^6 scf processed* *5.034E-03 tonnes/10^6 m^3 processed*
Transmission and Storage			Based on 93.4 mole% CH_4 [a]
Continuous bleed	497,584 scf gas/device-yr	35.5	8.915 tonnes/device-yr
Pneumatic/hydraulic valve operator	5,627 scf gas/device-yr	134	0.1008 tonnes/device-yr
Turbine valve operator	67,599 scf gas/device-yr	407	1.211 tonnes/device-yr
Transmission or Storage average (if device type is unknown)	*162,197 scf CH_4/device-yr*	*96.3*	*3.111 tonnes/device-yr*
Distribution			
Pneumatic isolation valves [h] based on 93.4 mole% CH_4	0.366 tonnes CH_4/device-yr	Uncertainty not specified	0.366 tonnes/device-yr
Pneumatic control loops [h] based on 94.4 mole% CH_4	3.465 tonnes CH_4/device-yr		3.465 tonnes/device-yr
Distribution average (if device type is unknown) based on 94.9 mole% CH4 weighted avg.	*2.941 tonnes CH_4/device-yr*		*2.941 tonnes/device-yr*

Footnotes and Sources:

[a] Shires, T.M. and M.R. Harrison. *Methane Emissions from the Natural Gas Industry, Volume 12: Pneumatic Devices, Final Report,* GRI-94/0257.29 and EPA-600/R-96-080l, Gas Research Institute and U.S. Environmental Protection Agency, June 1996; and Harrison, M.R., L.M. Campbell, T.M. Shires, and R.M. Cowgill. *Methane Emissions from the Natural Gas Industry, Volume 2: Technical Report, Final Report,* GRI-94/0257.1 and EPA-600/R-96-080b, Gas Research Institute and U.S. Environmental Protection Agency, June 1996. The average CH_4 concentration associated with these emission factors is provided in Table E-4.

[b] Uncertainty based on 95% confidence interval converted from the 90% confidence intervals for the data used to develop the original emission factor.

[c] CH_4 emission factors converted from scf or m^3 are based on 60°F and 14.7 psia.

[d] High-bleed devices refer to devices with leak rates greater than 6 scf/hr while low-bleed devices are 6 scf/hr or lower. Developed from data used for Volume 12 of the GRI/EPA natural gas industry CH_4 emissions study (Shires, 1996). Refer to Appendix B for the development of these emission factors.

[e] Canadian Association of Petroleum Producers (CAPP), *Calculating Greenhouse Gas Emissions*, Table 1-12, Canadian Association of Petroleum Producers, Publication Number 2003-03, April 2003. Note that the emission factors provided by this source are for the total gas emitted and were converted to a CH_4 basis using the CH_4 content shown in the table. I/P refers to a device that converts electric current to pneumatic pressure. P/P refers to a device that converts pneumatic pressure to pneumatic pressure.

[f] Canadian Association of Petroleum Producers (CAPP), *Estimation of Flaring and Venting Volumes from Upstream Oil and Gas Facilities*, Table 3-4, Canadian Association of Petroleum Producers, Publication Number 2002-0009, May 2002. Factor shown is based on data collected in Alberta, and was converted from a total gas basis to a CH_4 basis using the CH_4 content shown in the table.

[g] Shires, T.M. and C.J. Loughran. *Updated Canadian National Greenhouse Gas Inventory for 1995, Emission Factor Documentation, Technical Memorandum*, August 23, 2001.

[h] Derived from estimated processing pneumatic devices vented CH_4 emissions (0.1196 ± 133% Bscf/YR) (Harrison, et al., Vol 2, 1996), and estimated annual gas processed (16,450.855 Bscf/YR (DOE, 1993)).

Similarly, the GRI/EPA study developed a PRV emission factor based on the average size and duration of release events at production facilities. The amount of gas released through a PRV is highly dependent on upstream gas pressure and valve size. A more detailed estimation method for PRV releases is provided in Appendix B (CAPP, 2002, Section 3.2.3).

Table 5-24. Production Segment CH_4 Emission Factors for Other Non-Routine Releases

Source	CH_4 Emission Factor [a], Original Units	CH_4 Emission Factor [b], Converted to Tonnes Basis	CH_4 Content Basis of Factor	Uncertainty [c] (±%)
Pressure relief valves releases	34 scfy/PRV	0.00065 tonnes/PRV-yr	78.8 mole %	310
Gathering gas pipeline mishaps (dig-ins)	669 scfy/mile	0.0128 tonnes/mile-yr 0.00797 tonnes/km-yr	78.8 mole %	2,350
Offshore emergency shutdown (ESD)	256,888 scfy/platform	4.9276 tonnes/platform-yr	78.8 mole %	276

Footnotes and Sources:
[a] Shires, T.M. *Methane Emissions from the Natural Gas Industry, Volume 7: Blow and Purge Activities, Final Report*, GRI-94/0257.24 and EPA-600/R-96-080g, Gas Research Institute and U.S. Environmental Protection Agency, June 1996.
[b] CH_4 emission factors converted from scf or m^3 are based on 60°F and 14.7 psia. The CH_4 emission factors can be adjusted based on the relative concentrations of CH_4 and CO_2 to estimate CO_2 emissions.
[c] Uncertainty based on 95% confidence interval converted from the 90% confidence intervals for the data used to develop the original emission factor.

Dig-ins of gathering gas lines in production are unintentional mishaps that result in gas being released to the atmosphere. Gathering crude pipelines may emit CH_4, entrained in the crude at pipeline pressure, but dig-in or leak emission factors for these pipelines are not readily available.

As with the maintenance emission factors presented earlier, the other release emission factors can be adjusted based on the CH_4 content of the site-specific gas, if the natural gas has a significantly different CH_4 content from the default basis (if given). Also, if the facility gas contains a significant quantity of CO_2, the CH_4 emission factor can be adjusted based on the relative concentrations of CH_4 and CO_2 in the gas to estimate the CO_2 emissions.

An example calculation is given in Exhibit 5.32 that illustrates the use of emission factors from other production segment non-routine emission sources.

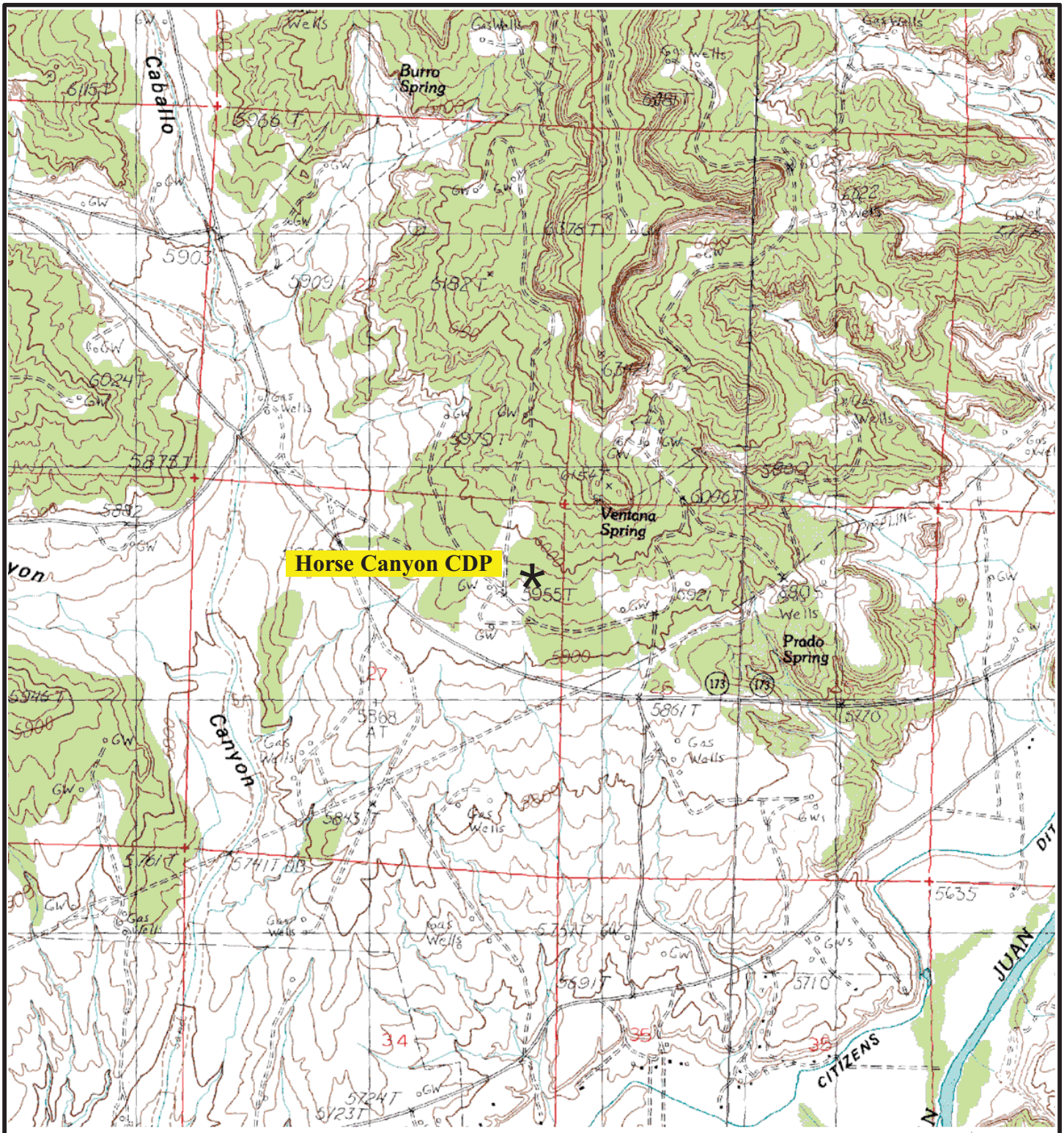
Section 8

Map(s)

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	

Please see the following page(s).



Source: USGS Archuleta and Turley, NM Quadrangles

0 2000
Scale (Feet)

Figure 1 Site Vicinity / Topographic Map
Horse Canyon CDP Compressor Station

Section 27, Township 30N Range 9W
San Juan County, New Mexico

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")

☐ **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.

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.

Not applicable, as this is a Title V application.

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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.

The Horse Canyon CDP compresses and dehydrates natural gas for pipeline transmission.

The facility is being permitted for operation of seven natural gas fired engines, all driving compressors, and three dehydrators. Other emission sources at the facility will include a heater, miscellaneous storage tanks and fugitive equipment leaks from process piping (valves, flanges, seals, etc.). The storage tanks will be used to store lubrication and used oil, produced/waste water, antifreeze, corrosion inhibitor, solvent, glycol and de-emulsifier.

The facility typically operates 24 hours per day, seven days per week, 52 weeks per year, 8,760 hours per year.

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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)**:**

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):

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Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

- ☐ **a minor PSD source before and after this modification (if so, delete C and D below).**
- ☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**
- ☐ **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**
- ☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**
- ☐ **a new PSD Major Source after this modification.**

B. **This facility [is or is not] one of the listed 20.2.74.501 Table I – PSD Source Categories. The "project" emissions** for this modification are **[significant or not significant]. [Discuss why.] The "project" emissions listed below [do or do not] only result from changes described in this permit application, thus no emissions from other [revisions or modifications, past or future] to this facility. Also, specifically discuss whether this project results in "de-bottlenecking", or other associated emissions resulting in higher emissions. The project emissions (before netting) for this project are as follows [see Table 2 in 20.2.74.502 NMAC for a complete list of significance levels]:**

a. **NOx: XX.X TPY**
b. **CO: XX.X TPY**
c. **VOC: XX.X TPY**
d. **SOx: XX.X TPY**
e. **TSP (PM): XX.X TPY**
f. **PM10: XX.X TPY**
g. **PM2.5: XX.X TPY**
h. **Fluorides: XX.X TPY**
i. **Lead: XX.X TPY**
j. **Sulfur compounds (listed in Table 2): XX.X TPY**
k. **GHG: XX.X TPY**

C. **Netting [is required, and analysis is attached to this document.] OR [is not required (project is not significant)] OR [Applicant is submitting a PSD Major Modification and chooses not to net.]**

D. **BACT** is **[not required for this modification, as this application is a minor modification.] OR [required, as this application is a major modification. List pollutants subject to BACT review and provide a full top down BACT determination.]**

E. If this is an existing PSD major source, or any facility with emissions greater than 250 TPY (or 100 TPY for 20.2.74.501 Table 1 – PSD Source Categories), determine whether any permit modifications are related, or could be considered a single project with this action, and provide an explanation for your determination whether a PSD modification is triggered.

Not applicable, as this is a Title V application.

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/

STATE REGULATIONS APPLICABILITY CHECKLIST

STATE REGU-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications. Although this regulation may apply to the facility, it does not impose any specific requirements.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	If subject, this would normally apply to the entire facility. 20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. 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.
20.2.7 NMAC	Excess Emissions	Yes	Facility	If subject, this would normally apply to the entire facility. This regulation is applicable because it prohibits excess emissions and proscribes notification procedures in the event of excess emissions.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		This regulation 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		This regulation does not apply to the station because the compressor station does not have oil burning equipment.
20.2.35 NMAC	Natural Gas Plant – Sulfur	No		The regulation is not applicable to the station because the facility is not a natural gas processing plant.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	**These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.**
20.2.38 NMAC	Hydrocarbon Storage Facility	No		This regulation is not applicable because the facility does not store hydrocarbons containing hydrogen sulfide; is not 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.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No		This regulation does not apply as it does not recover sulfur.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	1-7, 16b, 19b, 21b & 25	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment. The compressor engines, dehydrator reboilers and wastewater evaporator burners 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. The facility Potential To Emit for criteria pollutants, HAP and GHG exceeds the major source Title V permitting thresholds. Therefore, the regulation is applicable. The facility is currently permitted under Title V Operating Permit **P035-R3**.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	If subject to 20.2.70 NMAC and your permit includes numerical ton per year emission limits, you are subject to 20.2.71 NMAC and normally applies to the entire facility.

STATE REGU-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
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. 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. **868-M5-R5**.
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. 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 – Prevention of Significant Deterioration (PSD)	Yes	Facility	20.2.74 NMAC, Permits, Prevention of Significant Deterioration (PSD), provides requirements for sources subject to permit requirements for PSD facilities. The facility has federally enforceable permit emissions in excess of the 250 tpy PSD permitting threshold level. Therefore, the regulation potentially applies. NSR permit applications must determine if a major modification, as defined at 20.2.74.7.AE NMAC, as part of the permit modification process.
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. The regulation is applicable to the facility for its construction permit under 20.2.72 NMAC. (The construction permit fees do not apply to this Title V Operating Permit application submitted under 20.2.70 NMAC.)
20.2.77 NMAC	New Source Performance	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 Part 60, as amended in the Federal Register through September 15, 2015. The regulation may potentially apply to emission units installed at the facility at a future date if they are subject to an NSPS under 40 CFR 60..
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 September 15, 2015. The regulation is not applicable as none of the emission units at the facility 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 station because the compressor station is not located within a non-attainment area.
20.2.80 NMAC	Stack Heights	Yes	Facility	20.2.80 NMAC, *Stack Heights*, establishes guidelines for the selection of an appropriate stack height for the purposes of atmospheric dispersion modeling. Atmospheric dispersion modeling was previously provided in support of the facility's construction permit. Air quality dispersion modeling is not required for this Operating Permit renewal application submitted under 20.2.70 NMAC.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	1-7, 16a, 19a & 21a	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 September 15, 2015.

STATE REGU-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
				The facility includes equipment that are subject to MACT subparts A, HH and ZZZZ as they were promulgated through March 6, 2013. Therefore, the regulation is applicable. The regulation has potential applicability to permitted RICE and dehydrators not yet installed (TBD).

FEDERAL REGULATIONS APPLICABILITY CHECKLIST

FEDERAL REGU-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	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.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Potentially applicable to Unit 2	Applies if any other NSPS subpart applies. NSPS subparts A, JJJJ and OOOOa may potentially be applicable, as discussed below.
NSPS 40 CFR60.40a, Subpart Da	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. The compressor station is not an affected facility as defined under the regulation; therefore, the subpart does not apply.
NSPS 40 CFR60.40b Subpart Db	**Electric Utility 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). The compressor station is not an affected facility as defined in the regulation; therefore, the subpart does not apply.
40 CFR 60.40c, 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). The facility does not have any affected sources under the regulation; therefore, the subpart does not apply.
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for **Storage Vessels for Petroleum Liquids** for which Construction, Reconstruction, or Mod 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. The facility does not have equipment that are an affected facility as defined in the regulation; therefore, the subpart does not apply.
NSPS 40 CFR 60, Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Mod Commenced After July 23, 1984	No		The affected facility to which this subpart applies is any storage vessels 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. All of the storage tanks at the facility are below 75 m^3 capacity, and the regulation does not apply.
NSPS	**Stationary Gas**	No		Affected facilities under the subpart are stationary gas turbines of 10 MMBtu/hour

FEDERAL REGU-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 60.330 Subpart GG	**Turbines**			or greater, installed on or after October 3, 1977. There are no turbines at the facility. Therefore, the subpart is not applicable.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**	No		The facility is not an onshore gas plant and the subpart does not apply.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions	No		The facility is not an onshore gas plant and the subpart does not apply.
NSPS 40 CFR Part 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 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. As it applies to the natural gas production segment, "affected sources" include the following sources constructed, modified or reconstructed after August 23, 2011: - Each affected single natural gas well, as described in the regulation; - Each reciprocating compressor, unless it is located at a well site or adjacent well site; - 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; - Each single storage vessel affected facility with VOC emissions of six (6) tpy or greater. The equipment at the facility were constructed prior to the applicability date or do not otherwise trigger the applicability of the regulation.
NSPS 40 CFR Part 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 SO_2 emissions for crude oil and natural gas facilities that commence construction, modification, or reconstruction after September 18, 2015. 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): - Each single reciprocating compressor (§60.5365a(c)); - 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)); - Each single storage vessel with the potential for VOC emissions equal to or greater than 6 tpy (§60.5365a(e)); and The collection of fugitive emissions components at a compressor station, as defined in §60.5430a (§60.5365a(j)). The equipment at the facility were constructed prior to the applicability date or do not otherwise trigger the applicability of the regulation. Should a new affected source be installed at the facility, the applicability of the

FEDERAL REGU-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
				subpart to that source shall be evaluated upon installation. As applicable, Harvest will comply with the applicable requirements in the subpart for any future devices installed.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for **Stationary Compression Ignition Internal Combustion Engines**	No		There are no compression ignition units. Therefore, the regulation does not apply
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for **Stationary Spark Ignition Internal Combustion Engines**	Yes	Potentially Unit 2	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. As reflected in Table 2-A of the application, compressor RICE units 1, 3, 4, 5. 6 and 7 were constructed prior to the regulatory applicability date. Therefore, the regulation is not applicable to these units. The engines have not undergone either "modification" or "reconstruction" under NSPS. Engine unit 2 is not installed. The applicability of subpart JJJJ will be evaluated upon installation.
NESHAP 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. 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 40 CFR 61 Subpart V	National Emission Standards 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. Subpart V is not applicable because none of the potentially affected sources are in VHAP service.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Units 16a, 19a & 21a Potentially Unit 2	Applies if any other 40 CFR 63 (NESHAP/MACT) subpart applies. The area source provisions of subpart HH apply to the TEG dehydrators. The major source provisions of subpart ZZZZ are applicable to the compressor engines.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	Yes	Units 16a, 19a & 21a	This regulation is applicable because the station is equipped with dehydrators; however, as the station is an area HAP source as defined by the Subpart and as actual annual average benzene emissions from each unit are less than one ton per year, the dehydrators are exempt per paragraph 63.764(e). The station does not contain storage vessels with the potential for flashing losses or compressors or ancillary equipment in volatile HAP service as defined by the subpart, thus these portions of the regulation are not applicable.
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From **Natural Gas Transmission and Storage Facilities**	No		Under §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. 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-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for **Major Industrial, Commercial, and Institutional Boilers & 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. 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 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for **Stationary Reciprocating Internal Combustion Engines (RICE MACT)**	No	Potentially Unit 2	This regulation applies because the station is a major HAP source equipped with stationary RICE. Under paragraph 63.6590(b)(3), the existing (commenced construction prior to December 19, 2002) spark ignition 4SLB stationary RICE at the plant (Units 1, 3, 4, 5, 6 and 7)) are not required to meet the requirements of Subparts A or ZZZZ (including initial notification requirements). Upon installation of Unit 2, applicability will be re-evaluated.
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. There are no emission units at the facility with uncontrolled emissions that are a major source. Therefore, the regulation is not applicable under §64.2(a).
40 CFR 68	**Chemical Accident Prevention**	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.
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	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).
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide Allowance Emissions**	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).
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions 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).
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **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).
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**		N/A	40 CFR 82, *Protection of Stratospheric Ozone*, is not applicable to the facility because it does not produce, manufacture, transform, destroy, import, or export ozone-depleting substances; does not maintain or service motor vehicle air conditioning units or refrigeration equipment; and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances.

FEDERAL REGU-LATIONS CITATION	Title	Applies ? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
				Note: Owners and operators of appliances subject to 40 CFR 82.150 Recycling and Emissions Reduction have recordkeeping and reporting requirements even if the owner/operator is not performing the actual work. **Note:** Disposal definition in 82.152: Disposal means the process leading to and including: (1) The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water; (2) The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or (3) The disassembly of any appliance for reuse of its component parts. “Major maintenance, service, or repair means” any maintenance, service, or repair that involves the removal of any or all of the following appliance components: compressor, condenser, evaporator, or auxiliary heat exchange coil; or any maintenance, service, or repair that involves uncovering an opening of more than four (4) square inches of “flow area” for more than 15 minutes.

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Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☒ **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)

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.

There are no alternative operating scenarios associated with the plant.

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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.	
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.	

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. Air dispersion modeling was last conducted for permit 868-M4.

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Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R3.	9/24/18
3	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R3.	6/2/10
4	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R3.	8/30/18
5	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R3.	6/3/10
6	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R3.	6/29/17
7	Tested in accordance with EPA test methods for NOx and CO as required by Title V permit P035-R3.	8/29/18
2	Units not currently installed.	

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Section 18

Addendum for Streamline Applications

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

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.

Not applicable, as this is not a streamline application.

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Section 19

Requirements for Title V Program

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

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.

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.

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

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 Horse Canyon CDP is in compliance with all applicable requirements affecting the facility. A copy of Part 1 (Permit Requirements Certification Table) of the 2018 annual compliance certification is provided in Section 20, Other Relevant Information. It identifies all the requirements of the current Title V operating permit and the methods and data used to determine compliance. 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 Horse Canyon 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 station 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.

HFC 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).

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**.

The Horse Canyon 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 Horse Canyon 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.

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 Horse Canyon 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.

Colorado (24.1 km)

Navajo Tribe (17.7 km)
Southern Ute Tribe (24.1 km)
Ute Mountain Tribe (45.1 km)
Jicarilla Apache Tribe (51.5 km)

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC:

The responsible official for the Horse Canyon CDP is Travis Jones.

Section 20

Other Relevant Information

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.

A copy of Part 1 (Permit Requirements Certification Table) of the 2018 annual compliance certification is provided in this section.

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Section 21

Addendum for Landfill Applications

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

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/

Not applicable, as the Horse Canyon CDP is not a landfill.

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Section 22: Certification

Company Name: Harvest Four Corners, LLC

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 13 day of March, 2019, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature — 3/13/2019 Date

Travis Jones Printed Name — EHS MANAGER Title

Scribed and sworn before me on this 13 day of March, 2019.

My authorization as a notary of the State of New Mexico expires on the 30 day of October, 2019.

Notary's Signature — 3/13/2019 Date

Monica Sandoval
Notary's Printed Name

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.

OFFICIAL SEAL
MONICA SANDOVAL
Notary Public
State of New Mexico
My Commission Expires 10/30/2019