October 17, 2024

Elizabeth Bisbey-Kuehn
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87505-1816

Re: Application to Modify Title V Operating Permit Number P027-R5M2
Harvest Four Corners, LLC – 31-6 Central Delivery Point

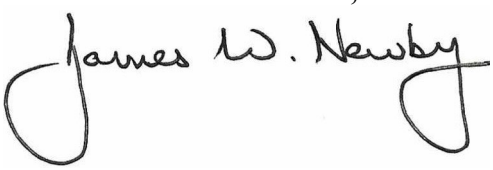
Dear Ms. Bisbey-Kuehn,

On behalf of Harvest Four Corners, LLC (Harvest), Cirrus Consulting, LLC submits the enclosed application to modify the Title V operating permit for the 31-6 Central Delivery Point.

Thank you for your assistance. If you have questions or need any additional information, please contact Jennifer Nygren of Harvest at (505) 324-5128.

Sincerely,

CIRRUS CONSULTING, LLC



James W. Newby

Attachment
31-6 Central Delivery Point Title V Operating Permit Application

c: Jennifer Nygren, Harvest

Cirrus Consulting, LLC
2611 Westbrook Loop
Pea Ridge, Arkansas 72751
Phone: (801) 294-3024
jnewby@cirrusllc.com

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NEW MEXICO 20.2.70 NMAC APPLICATION TO MODIFY TITLE V OPERATING PERMIT NUMBER P027-R5M2

31-6 CENTRAL DELIVERY POINT

Submitted By:

HARVEST FOUR CORNERS, LLC
1755 Arroyo Drive
Bloomfield, New Mexico 87413

Prepared By:

CIRRUS CONSULTING, LLC
2611 Westbrook Loop
Pea Ridge, Arkansas 72751
(801) 294-3024

October 2024

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Table of Contents

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Introduction

The Harvest Four Corners, LLC facility known as 31-6 Central Delivery Point (CDP) currently operates under a New Mexico Air Quality Bureau (NMAQB) construction permit 1031-M10 (as revised), issued on September 7, 2023 and a Title V Operating Permit P027-R5M2, issued on May 25, 2023.

The purpose of this application is to incorporate the following changes into the Title V Operating Permit:

- Replace four (4) of the facility's permitted four-stroke, lean burn (4SLB) engines (Units 4, 6, 13 & 14) with 4 four-stroke, rich burn (4SRB) engines, each equipped with a three-way catalyst to control emissions;
- Add oxidation catalysts to six (6) of the permitted 4SLB RICE (Units 1, 7-9, 16 & 33);
- Add three (3) 30 MMCFD TEG dehydrators (Units 32, 33, and 34);
- Reduce startup and shutdown emissions (Unit SSM) from 12.0 tpy to 7.81 tpy;
- Remove malfunction emissions from the permit;
- Add pneumatic pumps (Units PP1-PP10) to the permit;
- Add pnuematic controllers (Units PC1-PC80) to the permit; and
- Add one (1) pig launcher (Unit PL1) and two (2) pig receivers (Units PR1 & PR2) to the permit.

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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		

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.

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: ☐ 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.

☑ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.

☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full $500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.70.403.C(3) 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: **1006**	Updating Permit/NOI #: **P027-R5M2**
1	Facility Name: **31-6 Central Delivery Point**	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, New Mexico 87413**		

b	Plant Operator's New Mexico Corporate ID or Tax ID: **76-0451075**	
3	Plant Owner(s) name(s): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Plant Owner(s) Mailing Address(s): **Same as #2a above**	
4	Bill To (Company): **Same as #2 above**	Phone/Fax: **Same as #2 above**
a	Mailing Address: **Same as #2a above**	E-mail: **N/A**
5	☐ Preparer: ☑ Consultant: **James Newby, Cirrus Consulting, LLC**	Phone/Fax: (**801) 294-3024**
a	Mailing Address: **2611 Westbrook Loop, Pea Ridge, Arkansas 72751**	E-mail: **jnewby@cirrusllc.com**
6	Plant Operator Contact: **Jennifer Nygren**	Phone/Fax: **(505) 324-5128 / (505) 632-4782**
a	Address: **Same as #2a above**	E-mail: **jdeal@harvestmidstream.com**
7	Air Permit Contact: **Same as #6 above**	Title: **Environmental Specialist**
a	E-mail: **Same as #6a above**	Phone/Fax: **Same as #6 above**
b	Mailing Address: **Same as #2a above**	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ 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): **N/A**
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 **It is assumed this question refers to question 4 rather than question 3.**	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **P027-R5M2**
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑ No	If yes, the NPR No. is: **N/A**
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is: **N/A**
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: **1031-M10**
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is: **N/A**

Section 1-C: Facility Input Capacity & Production Rate

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

[(a)] The station capacity is a direct function of available horsepower. The throughput is therefore dependent 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.

Section 1-D: Facility Location Information

1	Latitude (decimal degrees): **36.835973°**	Longitude (decimal degrees): **-107.419864°**	County: **Rio Arriba**	Elevation (ft): **6,430**
2	UTM Zone: ☐ 12 or ☑ 13	Datum: ☐ NAD 83 ☑ WGS 84		
a	UTM E (in meters, to nearest 10 meters): **284,210**	UTM N (in meters, to nearest 10 meters): **4,079,412**		
3	Name and zip code of nearest New Mexico town: **Navajo Dam, New Mexico 87419**			
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): **From Bloomfield, drive north on Hwy 64 to mile marker 102.3 (approximately 37 miles), turn left on Hwy 527and drive 7.9 miles, turn right on gravel road and drive 7.5 miles, facility is on the right.**			
5	The facility is **approximately 15.4** miles **east** of **Navajo Dam, New Mexico**.			
6	Land Status of facility (check one): ☐ Private ☐ Indian/Pueblo ☐ Government ☑ BLM ☐ Forest Service ☐ Military			
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: **None, none, Rio Arriba County, and San Juan 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/air-quality/modeling-publications/)? ☑ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: **State of Colorado, ~ 18.2 km**			
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): **66.04 km**			
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: **~ 9,083 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? ☐ Yes ☑ No If yes, what is the name and permit number (if known) of the other facility? **N/A**			

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

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

Section 1-F: Other Facility Information

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

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

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

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

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

1	Responsible Official (R.O.)(20.2.70.300.D.2 NMAC): **Michelle McCracken**		Phone: **(713) 515-3924**
a	R.O. Title: **Senior Environmental Manager**	R.O. e-mail: **michelle.mccracken@harvestmidstream.com**	
b	R. O. Address: **1111 Travis Street, Houston, Texas 77002**		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): **Nathan Work**		Phone: **(505) 215-6107**
a	A. R.O. Title: **Operations Manager**	A. R.O. e-mail: **nwork@harvestmidstream.com**	
b	A. R. O. Address: **1755 Arroyo Drive, Bloomfield, New Mexico 87413**		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): **N/A**		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): **Harvest Midstream**		
a	Address of Parent Company: **Same as #1b above**		
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: **Yes, Colorado (≈ 18.2 km), Southern Ute Tribe (≈ 18.2 km), Navajo Tribe (≈ 34.1 km), Jicarilla Apache Tribe (≈ 19.9 km), Ute Mountain Ute Tribe (≈ 74.1 km)**		

Table 2-A: Regulated Emission Sources

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

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Reciprocating Engine	Waukesha	7042GL	C-10607/8 (Pkg. 77051)	1,478 hp	1,371 hp	09/27/1993 5/11/2017	1 1	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
3	Reciprocating Engine	Waukesha	7042GL	296981 (Pkg. 804334)	1,478 hp	1,371 hp	3/2/1976 10/1/1992	3 3	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
4	Reciprocating Engine	Waukesha	7042GL	TBD	1,478 hp	1,371 hp	TBD TBD	N/A 4	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A
4	Reciprocating Engine	Waukesha	7042GSI	TBD	1,480 hp	1373 hp	TBD TBD	4 4	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	4
5	Reciprocating Engine	Waukesha	7042GL	400911 (Pkg. 804368)	1,478 hp	1,371 hp	7/28/1998 12/30/1993	5 5	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
6	Reciprocating Engine	Waukesha	7042GL	TBD	1,478 hp	1,371 hp	TBD TBD	6 6	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A
6	Reciprocating Engine	Waukesha	7042GSI	TBD	1,480 hp	1,373 hp	TBD TBD	6 6	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	6
7	Reciprocating Engine	Waukesha	7042GL	C-12695/1 (Pkg. 804389)	1,478 hp	1,371 hp	11/10/1998 7/21/2016	7 7	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
8	Reciprocating Engine	Waukesha	7042GL	C-12677/2 (Pkg. X00002)	1,478 hp	1,371 hp	10/21/1998 11/10/2004	8 8	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
9	Reciprocating Engine	Waukesha	7042GL	C-11657/3 (Pkg. X00240)	1,478 hp	1,371 hp	2/8/1995 10/10/1995	9 9	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
10	Reciprocating Engine	Waukesha	7042GL	C-12572/1 (Pkg. 77583)	1,478 hp	1,371 hp	2/27/1998 11/5/1997	10 10	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
11	Reciprocating Engine	Waukesha	7042GL	C-61493/1 (Pkg. 76490)	1,478 hp	1,371 hp	02/03/1998 7/19/1995	11 11	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
12	Reciprocating Engine	Waukesha	7042GL	C-13154/1 (Pkg. 77582)	1,478 hp	1,371 hp	11/12/1993 1/25/1993	12 12	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
13	Reciprocating Engine	Waukesha	7042GL	TBD	1,478 hp	1,371 hp	TBD TBD	N/A 13	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
13	Reciprocating Engine	Waukesha	7042GSI	TBD	1,480 hp	1,373 hp	TBD / TBD	13 / 13	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	13
14	Reciprocating Engine	Waukesha	7042GL	TBD	1,478 hp	1,371 hp	TBD / TBD	N/A / 14	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☑ **To be Replaced**	4SLB	N/A
14	Reciprocating Engine	Waukesha	7042GSI	TBD	1,480 hp	1,373 hp	TBD / TBD	14 / 14	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☑ **Replacement Unit** ☐ To Be Modified ☐ To be Replaced	4SRB	14
15	Reciprocating Engine	Waukesha	7042GL	C-12554/4 (Pkg. 77052)	1,478 hp	1,371 hp	2/25/1998 / 2/25/1998	15 / 15	20200202	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	4SLB	N/A
16	Reciprocating Engine	Waukesha	7042GL	208656 (Pkg. 76798)	1,478 hp	1,371 hp	7/30/1971 / 8/18/2005	16 / 16	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
33	Reciprocating Engine	Waukesha	7042GL	317965 (Pkg. 804367)	1,478 hp	1,371 hp	12/1/1978 / 4/5/2017	33 / 33	20200202	☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☑ **To Be Modified** ☐ To be Replaced	4SLB	N/A
SSM	Compressors & Associated Piping	N/A	N/A	N/A	N/A	N/A	N/A / 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
17a	TEG Dehydrator Still Vent	Enertek	J2P12M749	41997	12 mmscfd	12 mmscfd	1992 / 1/1/1992	N/A / 17a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
17b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scf/hr	429 scf/hr	1992 / 1/1/1992	NA / 17b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
18a	TEG Dehydrator Still Vent	Enertek	J2P12M749	41733	12 mmscfd	12 mmscfd	1992 / 1/1/1992	N/A / 18a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
18b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scf/hr	429 scf/hr	1992 / 1/1/1992	N/A / 18b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
19a	TEG Dehydrator Still Vent	Enertek	J2P12M749	41688	12 mmscfd	12 mmscfd	1992 / 1/1/1992	N/A / 19a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
19b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scf/hr	429 scf/hr	1992 / 1/1/1992	N/A / 19b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20a	TEG Dehydrator Still Vent	Enertek	J2P12M749	41747	12 mmscfd	12 mmscfd	1993 / 1/1/1993	N/A / 20a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
20b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scf/hr	429 scf/hr	1993 / 1/1/1993	N/A / 20b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
21a	TEG Dehydrator Still Vent	Enertek	J2P12M749	42380	12 mmscfd	12 mmscfd	1993 1/1/1993	N/A 21a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
21b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scf/hr	429 scf/hr	1993 1/1/1993	N/A 21b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22a	TEG Dehydrator Still Vent	Enertek	J2P12M749	43250	12 mmscfd	12 mmscfd	1993 1/1/1993	N/A 22a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
22b	TEG Dehydrator Reboiler	Enertek	429 scfh	N/A	429 scf/hr	429 scf/hr	1992 1/1/1992	NA 22b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
31a	TEG Dehydrator Still Vent	Enertek	J2P30M749	42857	30 mmscfd	30 mmscfd	2004 12/17/2004	N/A 31a	31000227	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
31b	TEG Dehydrator Reboiler	Enertek	444 scfh	N/A	617 scf/hr	617 scf/hr	2004 12/17/2004	NA 31b	31000228	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
32a	TEG Dehydrator Still Vent	Enertek	TBD	42356	30 mmscfd	30 mmscfd	TBD TBD	N/A 32a	31000227	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
32b	TEG Dehydrator Reboiler	Enertek	TBD	N/A	617 scf/hr	617 scf/hr	TBD TBD	N/A 32b	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
33a	TEG Dehydrator Still Vent	Enertek	TBD	40433	30 mmscfd	30 mmscfd	TBD TBD	N/A 33a	31000227	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
33b	TEG Dehydrator Reboiler	Enertek	TBD	N/A	617 scf/hr	617 scf/hr	TBD TBD	N/A 33b	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
34a	TEG Dehydrator Still Vent	Enertek	TBD	40432	30 mmscfd	30 mmscfd	TBD TBD	N/A 34a	31000227	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
34b	TEG Dehydrator Reboiler	Enertek	TBD	N/A	617 scf/hr	617 scf/hr	TBD TBD	N/A 34b	31000228	☐ Existing (unchanged) ☐ To be Removed ☑ **New/Additional** ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
F1	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	31088811	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
T25, T43, T55, T56	Produced Water Storage Tanks (each)	N/A	N/A	N/A	12,600 gal	12,600 gal	N/A N/A	N/A N/A	40400315	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
T44	Produced Water Storage Tank	N/A	N/A	N/A	1,680 gal	1,680 gal	N/A N/A	N/A N/A	40400315	☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
PP1-PP10	Pneumatic Pumps	N/A	N/A	N/A	N/A	N/A	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
PC1-PC80	Pneumatic Controllers	N/A	N/A	N/A	N/A	N/A	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
C1, C3-C16, C33	Reciprocating Compressor Venting	N/A	N/A	N/A	N/A	N/A	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 https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/InsignificantListTitleV.pdf. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

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

Unit Number	Source Description	Manufacturer	Model No. / Serial No.	Max Capacity / Capacity Units	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5) / Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Manufacture /Reconstruction[2] / Date of Installation /Construction[2]	For Each Piece of Equipment, Check Onc
T-45 & T-46	Used Oil Storage Tank			500 gal	20.2.72.202.B(2) NMAC		☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
T-47 & T-48	Glycol Storage Tank (each)			125 gal	20.2.72.202.B(2) NMAC		☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				125 gal	Insignificant Activity List Item #5		
T-49	Glycol Storage Tank			2,100 gal	20.2.72.202.B(2) NMAC		☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				2,100 gal	Insignificant Activity List Item #5		
T-50	Methanol Storage Tank			500 gal	20.2.72.202.B(5) NMAC		☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #1		
T-51 & T-52	Lube Oil Storage Tank (each)			500 gal	20.2.72.202.B(2) NMAC		☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				500 gal	Insignificant Activity List Item #5		
L1	Truck Loading Emissions (Produced water)			N/A	20.2.72.202.B(5) NMAC		☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				N/A	Insignificant Activity List Item #1		
PL1, PR1 & PR2	Pig Launching & Receiving			N/A	20.2.72.202.B(5) NMAC		☑ **Existing (unchanged)** ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
				N/A	Insignificant Activity List Item #1		

[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
1	Catalytic Converter (oxidation catalyst)	05/19/23	CO, VOC (HAP)	1	CO 93%; VOC 80%	Mfg. data
3	Catalytic Converter (oxidation catalyst)	08/01/07	CO, VOC (HAP)	3	CO 93%; VOC 80%	Mfg. data
4	Catalytic Converter (three-way catalyst)	TBD	NOX, CO, VOC (HAP)	4	NOX 96%; CO 93%, VOC 67%	Mfg. data
5	Catalytic Converter (oxidation catalyst)	08/01/07	CO, VOC (HAP)	5	CO 93%; VOC 80%	Mfg. data
6	Catalytic Converter (three-way catalyst)	TBD	NOX, CO, VOC (HAP)	6	NOX 96%; CO 93%, VOC 67%	Mfg. data
7	Catalytic Converter (oxidation catalyst)	05/17/23	CO, VOC (HAP)	7	CO 93%; VOC 80%	Mfg. data
8	Catalytic Converter (oxidation catalyst)	TBD	CO, VOC (HAP)	8	CO 93%; VOC 80%	Mfg. data
9	Catalytic Converter (oxidation catalyst)	05/17/23	CO, VOC (HAP)	9	CO 93%; VOC 80%	Mfg. data
10	Catalytic Converter (oxidation catalyst)	08/01/07	CO, VOC (HAP)	10	CO 93%; VOC 80%	Mfg. data
11	Catalytic Converter (oxidation catalyst)	08/01/07	CO, VOC (HAP)	11	CO 93%; VOC 80%	Mfg. data
12	Catalytic Converter (oxidation catalyst)	08/01/07	CO, VOC (HAP)	12	CO 93%; VOC 80%	Mfg. data
13	Catalytic Converter (three-way catalyst)	TBD	NOX, CO, VOC (HAP)	13	NOX 96%; CO 93%, VOC 67%	Mfg. data
14	Catalytic Converter (three-way catalyst)	TBD	NOX, CO, VOC (HAP)	14	NOX 96%; CO 93%, VOC 67%	Mfg. data
15	Catalytic Converter (oxidation catalyst)	08/01/07	CO, VOC (HAP)	15	CO 93%; VOC 80%	Mfg. data
16	Catalytic Converter (oxidation catalyst)	05/17/23	CO, VOC (HAP)	16	CO 93%; VOC 80%	Mfg. data
33	Catalytic Converter (oxidation catalyst)	05/17/23	CO, VOC (HAP)	33	CO 93%; VOC 80%	Mfg. data
17a	Still Vent Condenser		VOC & HAP	17a	~65%	GRI-GLYCalc
17a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	17a	100%	Engineering Estimate
18a	Still Vent Condenser		VOC & HAP	18a	~65%	GRI-GLYCalc
18a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	18a	100%	Engineering Estimate
19a	Still Vent Condenser		VOC & HAP	19a	~65%	GRI-GLYCalc
19a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	19a	100%	Engineering Estimate
20a	Still Vent Condenser		VOC & HAP	20a	~65%	GRI-GLYCalc
20a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	20a	100%	Engineering Estimate
21a	Still Vent Condenser		VOC & HAP	21a	~65%	GRI-GLYCalc
21a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	21a	100%	Engineering Estimate
22a	Still Vent Condenser		VOC & HAP	22a	~65%	GRI-GLYCalc
22a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	22a	100%	Engineering Estimate
31a	Still Vent Condenser		VOC & HAP	31a	~65%	GRI-GLYCalc
31a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	31a	100%	Engineering Estimate
32a	Still Vent Condenser		VOC & HAP	32a	~65%	GRI-GLYCalc
32a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	32a	100%	Engineering Estimate
33a	Still Vent Condenser		VOC & HAP	33a	~65%	GRI-GLYCalc
33a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	33a	100%	Engineering Estimate

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
34a	Still Vent Condenser		VOC & HAP	34a	~65%	GRI-GLYCalc
34a/b	Combustion or Recycle/Recompression of Flash Gas		VOC & HAP	34a	100%	Engineering Estimate

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	42.07	184.26	29.12	127.57	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
5	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
6	42.07	184.26	29.12	127.57	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
7	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
9	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
10	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
11	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
12	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
13	42.07	184.26	29.12	127.57	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
14	42.07	184.26	29.12	127.57	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
15	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
33	2.72	11.92	8.01	35.09	3.02	13.24	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
SSM	-	-	-	-	-	7.79	-	-	-	-	-	-	-	-	-	-	-	-
17a	-	-	-	-	6.07	26.57	-	-	-	-	-	-	-	-	-	-	-	-
17b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
18a	-	-	-	-	6.07	26.57	-	-	-	-	-	-	-	-	-	-	-	-
18b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
19a	-	-	-	-	6.07	26.57	-	-	-	-	-	-	-	-	-	-	-	-
19b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
20a	-	-	-	-	6.07	26.57	-	-	-	-	-	-	-	-	-	-	-	-
20b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
21a	-	-	-	-	6.07	26.57	-	-	-	-	-	-	-	-	-	-	-	-
21b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
22a	-	-	-	-	6.07	26.57	-	-	-	-	-	-	-	-	-	-	-	-
22b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
31a	-	-	-	-	6.07	26.57	-	-	-	-	-	-	-	-	-	-	-	-
31b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
32a	-	-	-	-	6.52E-01	2.86	-	-	-	-	-	-	-	-	-	-	-	-
32b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
33a	-	-	-	-	6.52E-01	2.86	-	-	-	-	-	-	-	-	-	-	-	-
33b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
34a	-	-	-	-	6.52E-01	2.86	-	-	-	-	-	-	-	-	-	-	-	-
34b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
F1	-	-	-	-	1.61E-01	7.07E-01	-	-	-	-	-	-	-	-	-	-	-	-
T25, T43, T44, T55 & T56	-	-	-	-	-	9.52E-01	-	-	-	-	-	-	-	-	-	-	-	-
PP1-PP10	-	-	-	-	-	7.53	-	-	-	-	-	-	-	-	-	-	-	-
PC1-PC80	-	-	-	-	-	5.16E-01	-	-	-	-	-	-	-	-	-	-	-	-
Totals	201.35	881.93	213.00	932.94	82.85	379.69	1.07E-01	4.67E-01	2.14	9.38	2.14	9.38	2.14	9.38	-	-	2.52E-06	1.10E-05

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

Table 2-E: Requested Allowable Emissions

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

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
3	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
4	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
5	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
6	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
7	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
8	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
9	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
10	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
11	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
12	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
13	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
14	1.62	7.09	1.94	8.50	4.85E-01	2.13	6.76E-03	2.96E-02	2.23E-01	9.77E-01	2.23E-01	9.77E-01	2.23E-01	9.77E-01	-	-	-	-
15	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
16	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
33	2.72	11.92	0.56	2.46	0.60	2.65	5.94E-03	2.60E-02	1.01E-01	4.42E-01	1.01E-01	4.42E-01	1.01E-01	4.42E-01	-	-	-	-
SSM	-	-	-	-	-	7.79	-	-	-	-	-	-	-	-	-	-	-	-
17a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
17b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
18a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
18b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
19a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
19b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
20a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
20b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
21a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
21b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
22a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
22b	4.29E-02	1.88E-01	3.25E-02	1.42E-01	4.79E-03	2.10E-02	8.33E-04	3.65E-03	3.26E-03	1.43E-02	3.26E-03	1.43E-02	3.26E-03	1.43E-02	-	-	2.15E-07	9.4E-07
31a	-	-	-	-	2.12	9.30	-	-	-	-	-	-	-	-	-	-	-	-
31b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
32a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
32b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
33a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
33b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
34a	-	-	-	-	2.28E-01	1.00	-	-	-	-	-	-	-	-	-	-	-	-
34b	4.29E-02	1.88E-01	4.46E-02	1.95E-01	6.46E-03	2.83E-02	8.33E-04	3.65E-03	4.69E-03	2.05E-02	4.69E-03	2.05E-02	4.69E-03	2.05E-02	-	-	3.08E-07	1.35E-06
F1	-	-	-	-	1.61E-01	7.07E-01	-	-	-	-	-	-	-	-	-	-	-	-
T25, T43, T44, T55 & T56	-	-	-	-	-	9.52E-01	-	-	-	-	-	-	-	-	-	-	-	-
PP1-PP10	-	-	-	-	-	7.53	-	-	-	-	-	-	-	-	-	-	-	-
PC1-PC80	-	-	-	-	-	5.16E-01	-	-	-	-	-	-	-	-	-	-	-	-
Totals	39.55	173.22	14.87	65.13	24.96	126.12	1.07E-01	4.67E-01	2.14	9.38	2.14	9.38	2.14	9.38	-	-	2.52E-06	1.10E-05

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

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

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

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

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
SSM	-	-	-	-	unspecified	7.79	-	-	-	-	-	-	-	-	-	-	-	-
Totals																		

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

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

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		PM		PM10		PM2.5		☐ H_2S or ☐ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals:																	

Table 2-H: Stack Exit Conditions

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

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V	N	27.0	702	127.1		-	155.3	1.02
3	3	V	N	27.0	702	127.1		-	155.3	1.02
4	4	V	N	27.0	1125	115.8		-	141.7	1.02
5	5	V	N	27.0	702	127.1		-	155.3	1.02
6	6	V	N	27.0	1125	115.8		-	141.7	1.02
7	7	V	N	27.0	702	127.1		-	155.3	1.02
8	8	V	N	27.0	702	127.1		-	155.3	1.02
9	9	V	N	27.0	702	127.1		-	155.3	1.02
10	10	V	N	27.0	702	127.1		-	155.3	1.02
11	11	V	N	27.0	702	127.1		-	155.3	1.02
12	12	V	N	27.0	702	127.1		-	155.3	1.02
13	13	V	N	27.0	1125	115.8		-	141.7	1.02
14	14	V	N	27.0	1125	115.8		-	141.7	1.02
15	15	V	N	27.0	702	127.1		-	155.3	1.02
16	16	V	N	27.0	702	127.1		-	155.3	1.02
16	16	V	N	27.0	702	127.1		-	155.3	1.02
33	33	V	N	27.0	702	127.1		-	155.3	1.02
17b	17b	V	N	23.5	600	3.3		-	6.1	0.83
18b	18b	V	N	23.25	600	3.3		-	6.1	0.83
19b	19b	V	N	23.0	600	3.3		-	6.1	0.83
20b	20b	V	N	23.17	600	3.3		-	6.1	0.83
21b	21b	V	N	23.5	600	3.3		-	6.1	0.83
22b	22b	V	N	23.17	600	3.3		-	6.1	0.83
31b	31b	V	N	23.08	600	3.3		-	6.1	0.83
32b	32b	V	N	23.08	600	3.3		-	6.1	0.83
33b	33b	V	N	23.09	600	3.3		-	6.1	0.83
34b	34b	V	N	23.08	600	3.3		-	6.1	0.83

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

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

Stack No.	Unit No.(s)	Total HAPs		Benzene ☑ HAP or ☐ TAP		Formaldehyde ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ 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	0.1	0.5	-	-	0.1	0.4												
3	3	0.1	0.5	-	-	0.1	0.4												
4	4	-	-	-	-	-	-												
5	5	0.1	0.5	-	-	0.1	0.4												
6	6	-	-	-	-	-	-												
7	7	0.1	0.5	-	-	0.1	0.4												
8	8	0.1	0.5	-	-	0.1	0.4												
9	9	0.1	0.5	-	-	0.1	0.4												
10	10	0.1	0.5	-	-	0.1	0.4												
11	11	0.1	0.5	-	-	0.1	0.4												
12	12	0.1	0.5	-	-	0.1	0.4												
13	13	-	-	-	-	-	-												
14	14	-	-	-	-	-	-												
15	15	0.1	0.5	-	-	0.1	0.4												
16	16	0.1	0.5	-	-	0.1	0.4												
33	33	0.1	0.5	-	-	0.1	0.4												
SSM	SSM	-	0.1	-	-	-	-												
17a	17a	0.1	0.2	-	0.1	-	-												
17b	17b	-	-	-	-	-	-												
18a	18a	0.1	0.2	-	0.1	-	-												
18b	18b	-	-	-	-	-	-												
19a	19a	0.1	0.2	-	0.1	-	-												
19b	19b	-	-	-	-	-	-												
20a	20a	0.1	0.2	-	0.1	-	-												
20b	20b	-	-	-	-	-	-												
21a	21a	0.1	0.2	-	0.1	-	-												
21b	21b	-	-	-	-	-	-												
22a	22a	0.1	0.2	-	0.1	-	-												
22b	22b	-	-	-	-	-	-												

Stack No.	Unit No.(s)	Total HAPs		Benzene ☑ HAP or ☐ TAP		Formaldehyde ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ 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
31a	31a	-	0.2	-	-	-	-												
31b	31b	-	-	-	-	-	-												
32a	32a	-	-	-	-	-	-												
32b	32b	-	-	-	-	-	-												
33a	33a	-	-	-	-	-	-												
33b	33b	-	-	-	-	-	-												
34a	34a	-	-	-	-	-	-												
34b	34b	-	-	-	-	-	-												
F1	F1	-	-	-	-	-	-												
T25, T43, T44, T55 & T56	T25, T43, T44, T55 & T56	-	0.2	-	-	-	-												
PP1-PP10	PP1-PP10	-	0.1	-	-	-	-												
PC1-PC80	PC1-PC80	-	-	-	-	-	-												
Totals:		1.5	6.8	0.2	1.0	1.0	4.5												

Table 2-J: Fuel

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

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
3	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
4	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
5	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
6	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
7	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
8	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
9	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
10	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
11	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
12	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
13	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
14	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
15	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	12.77 mcfh	111.84 mmcfy	--	--
16	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
33	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	11.22 mcfh	98.31 mmcfy	--	--
17b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
18b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
19b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
20b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
21b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
22b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	429 scfh	3.76 mmcfy	--	--
31b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--
32b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--
33b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--
34b	Natural Gas	Raw/Field Natural Gas	900 Btu/scf	617 scfh	5.40 mmcfy	--	--

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

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

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
T-1 thru T-14	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-15	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-16	31000299	Antifreeze	Water & 50% ethylene glycol	Exempt and insignificant source					
T-17	31000299	Corrosion Inhibitor	Trimethylbenzene, dodecanethiol, naptha & methyl alcohol	Exempt and insignificant source					
T-18 thru T-23	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-24	31000299	Solvent	Jet kerosene or similar material	Exempt and insignificant source					
T-25	40400315	Produced Water	Water & <1% hydrocarbon liquids	*					
T-26	40400313	Used Oil	Used Lube oil	Exempt and insignificant source					
T-27	40400313	Wastewater	Water & <1% residual oil	Exempt and insignificant source					
T-28 & T-29	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-30	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-34 thru T-40	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-42	40400313	Wastewater	Water; ~1% residual oil	Exempt and insignificant source					
T-43	40400315	Produced Water	Water & <1% hydrocarbon liquids	*					
T-44	40400315	Produced Water	Water & <1% hydrocarbon liquids	*					
T-45 & T-46	40400313	Used Oil	Used lube oil	Exempt and insignificant source					
T-47 & T-48	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-49	40705218	Triethylene glycol	Triethylene glycol	Exempt and insignificant source					
T-50	40700816	Methanol	Methanol	Exempt and insignificant source					
T-51 & T-52	40400313	Lube Oil	Lube oil	Exempt and insignificant source					
T-55 & T-56	40400315	Produced Water	Water & <1% hydrocarbon liquids	*					
				* The produced water tanks emission calculation methodology does not provide these data.					

Table 2-L: Tank Data

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

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
T-1 thru T-14		Lube Oil	N/A	FX	12	2	Exempt and insignificant source						
T-15		Lube Oil	N/A	FX	100	16	Exempt and insignificant source						
T-16		Antifreeze	N/A	FX	12	2	Exempt and insignificant source						
T-17		Corrosion Inhibitor	N/A	FX	12	2	Exempt and insignificant source						
T-18 thru T-23		Triethylene glycol	N/A	FX	2	0	Exempt and insignificant source						
T-24		Solvent	N/A	FX	12	2	Exempt and insignificant source						
T-25		Produced Water	N/A	FX	300	48	*						
T-26		Used Oil	N/A	FX	165	26	Exempt and insignificant source						
T-27		Wastewater	N/A	FX	165	26	Exempt and insignificant source						
T-28 & T-29		Lube Oil	N/A	FX	12	2	Exempt and insignificant source						
T-30		Triethylene glycol	N/A	FX	2	0	Exempt and insignificant source						
T-34 thru T-40		Triethylene glycol	N/A	FX	1	0	Exempt and insignificant source						
T-42		Wastewater	N/A	FX	18	3	Exempt and insignificant source						
T-43		Produced Water	N/A	FX	300	48	*						
T-44		Produced Water	N/A	FX	40	6	*						
T-45 & T-46		Used Oil	N/A	FX	12	2	Exempt and insignificant source						
T-47 & T-48		Triethylene glycol	N/A	FX	3	0	Exempt and insignificant source						
T-49		Triethylene glycol	N/A	FX	50	8	Exempt and insignificant source						
T-50		Methanol	N/A	FX	12	2	Exempt and insignificant source						
T-51 & T-52		Lube Oil	N/A	FX	12	2	Exempt and insignificant source						
T-55 & T-56		Produced Water	N/A	FX	300	48	*						
							* The produced water tanks emission calculation methodology does not provide these data.						

Table 2-L2: Liquid Storage Tank Data Codes Reference Table

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

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

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

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

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

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**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53
3	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53
4	**mass GHG**	6,581.4	1.24E-02	1.24E-01									6581.52	
	CO_2e	6,581.4	3.7	3.1										6588.18
5	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53
6	**mass GHG**	6,581.4	1.24E-02	1.24E-01									6581.52	
	CO_2e	6,581.4	3.7	3.1										6588.18
7	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53
8	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53
9	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO2e	6,185.1	3.5	2.9										6191.53
10	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53
11	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO2e	6,185.1	3.5	2.9										6191.53
12	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53
13	**mass GHG**	6,581.4	1.24E-02	1.24E-01									6581.52	
	CO2e	6,581.4	3.7	3.1										6588.18
14	**mass GHG**	6,581.4	1.24E-02	1.24E-01									6581.52	
	CO_2e	6,581.4	3.7	3.1										6588.18
15	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO2e	6,185.1	3.5	2.9										6191.53
16	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO_2e	6,185.1	3.5	2.9										6191.53

		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**								
33	**mass GHG**	6,185.1	1.17E-02	1.17E-01									6185.27	
	CO2e	6,185.1	3.5	2.9										6191.53
SSM	**mass GHG**	74.6	-	877.8									952.40	
	CO_2e	74.6	-	21,944.3										22018.89
17a	**mass GHG**	3.64	-	1.45									5.09	
	CO2e	3.64	-	36.27										39.91
17b	**mass GHG**	219.3	4.13E-04	4.13E-03									219.35	
	CO_2e	219.3	1.23E-01	1.03E-01										219.57
18a	**mass GHG**	3.64	-	1.45									5.09	
	CO2e	3.64	-	36.27										39.91
18b	**mass GHG**	219.3	4.13E-04	4.13E-03									219.35	
	CO2e	219.3	1.23E-01	1.03E-01										219.57
19a	**mass GHG**	3.64	-	1.45									5.09	
	CO2e	3.64	-	36.27										39.91
19b	**mass GHG**	219.3	4.13E-04	4.13E-03									219.35	
	CO2e	219.3	1.23E-01	1.03E-01										219.57
20a	**mass GHG**	3.64	-	1.45									5.09	
	CO2e	3.64	-	36.27										39.91
20b	**mass GHG**	219.3	4.13E-04	4.13E-03									219.35	
	CO2e	219.3	1.23E-01	1.03E-01										219.57
21a	**mass GHG**	3.64	-	1.45									5.09	
	CO2e	3.64	-	36.27										39.91
21b	**mass GHG**	219.3	4.13E-04	4.13E-03									219.35	
	CO2e	219.3	1.23E-01	1.03E-01										219.57
22a	**mass GHG**	3.64	-	1.45									5.09	
	CO2e	3.64	-	36.27										39.91
22b	**mass GHG**	219.3	4.13E-04	4.13E-03									219.35	
	CO2e	219.3	1.23E-01	1.03E-01										219.57
31a	**mass GHG**	4.6	-	1.52									6.16	
	CO2e	4.6	-	38.0										42.60
31b	**mass GHG**	315.3	5.94E-04	5.94E-03									315.30	
	CO2e	315.3	1.77E-01	1.49E-01										315.62
32a	**mass GHG**	3.5	-	1.57									5.02	
	CO2e	3.5	-	39.2										42.70
32b	**mass GHG**	315.3	5.94E-04	5.94E-03									315.30	
	CO2e	315.3	1.77E-01	1.49E-01										315.62

		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**								
33a	**mass GHG**	3.5	-	1.57									5.02	
	CO2e	3.5	-	39.2										42.70
33b	**mass GHG**	315.3	5.94E-04	5.94E-03									315.30	
	CO2e	315.3	1.77E-01	1.49E-01										315.62
34a	**mass GHG**	3.5	-	1.57									5.02	
	CO2e	3.5	-	39.2										42.70
34b	**mass GHG**	315.3	5.94E-04	5.94E-03									315.30	
	CO2e	315.3	1.77E-01	1.49E-01										315.62
F1	**mass GHG**	87.7	-	1,032.7		Includes reciprocating compressor venting							1120.35	
	CO2e	87.7	-	25,817.0										25904.70
T25, T43, T44, T55 & T56	**mass GHG**	-	-	-										
	CO2e	-	-	-										
PP1-PP10	**mass GHG**	2.0	-	23.5									25.46	
	CO2e	2.0	-	586.6										588.58
PC1-PC10	**mass GHG**	16.2	-	190.5									206.74	
	CO2e	16.2	-	4,763.2										4779.45
	mass GHG													
	CO2e													
Total[6]	**mass GHG**	103341.84	1.94E-01	2141.32									105483.36	
	CO_2e	103341.84	57.92	53533.01										156932.77

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

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

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

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

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

Section 3

Application Summary

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

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

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

Application Summary

The Harvest Four Corners, LLC facility known as 31-6 CDP currently operates under a NMAQB construction permit 1031-M10, issued on September 7, 2023 and a Title V Operating Permit P027-R5M2, issued on May 25, 2023.

The purpose of this application is to incorporate the following changes into the Title V Operating Permit:

- Replace four (4) of the facility's permitted 4SLB engines (Units 4, 6, 13 & 14) with four (4) 4SRB engines, each equipped with a three-way catalyst to control emissions. The purpose of the controls is to meet the emission requirements of 20.2.50 NMAC;
- Add oxidation catalysts to six (6) of the permitted 4SLB RICE (Units 1, 7-9, 16 & 33); and
- Add three (3) 30MMCFD TEG dehydrators (Units 32, 33, and 34). These new dehydrators will handle a different gas stream than those currently handled at the facility.
- Reduce SSM emissions from 12.0 tpy to 7.81 tpy. To ensure compliance with the new ozone rule, Harvest engineering has carefully reviewed and updated the blowdown volumes associated with each of the engines at the facility. The blowdown volume calculations are included the updated calculations workbook.
- Remove malfunction emissions from the permit.
- Add pneumatic pumps (Units PP1-PP10) to the permit.

- Add pnuematic controllers (Units PC1-PC80) to the permit.

- Add one (1) pig launcher (Unit PL1) and two (2) pig receivers (Units PR1 & PR2). They are exempt sources in accordance with 20.2.72.202.B(5) NMAC (VOC emissions are less than 0.5 tons per year) and Title V insignificant sources in accordance with Insignificant Activity Item #1. Note that the equations used to calculate emissions have been updated to more accurately identify purging emissions.

This application is being submitted under 20.2.70.404.C(3) NMAC. The changes identified in this application do not result in any "de-bottlenecking" or other associated emissions, nor do they affect the status of the facility under Title V or PSD.

Process Description

A brief summary of facility operations is outlined in Section 10 of this application.

Startup, Shutdown and Maintenance Emissions

Except for blowdown events (described below), it is concluded there are no SSM emissions in excess of those identified for steady-state operation as seen in Table 2-E of Section 2. Discussions justifying this conclusion are provided in Section 6.

SSM emissions from blowdowns of the compressors and piping associated with the facility were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The number of blowdowns events were estimated based on historical operations. A safety factor was included.

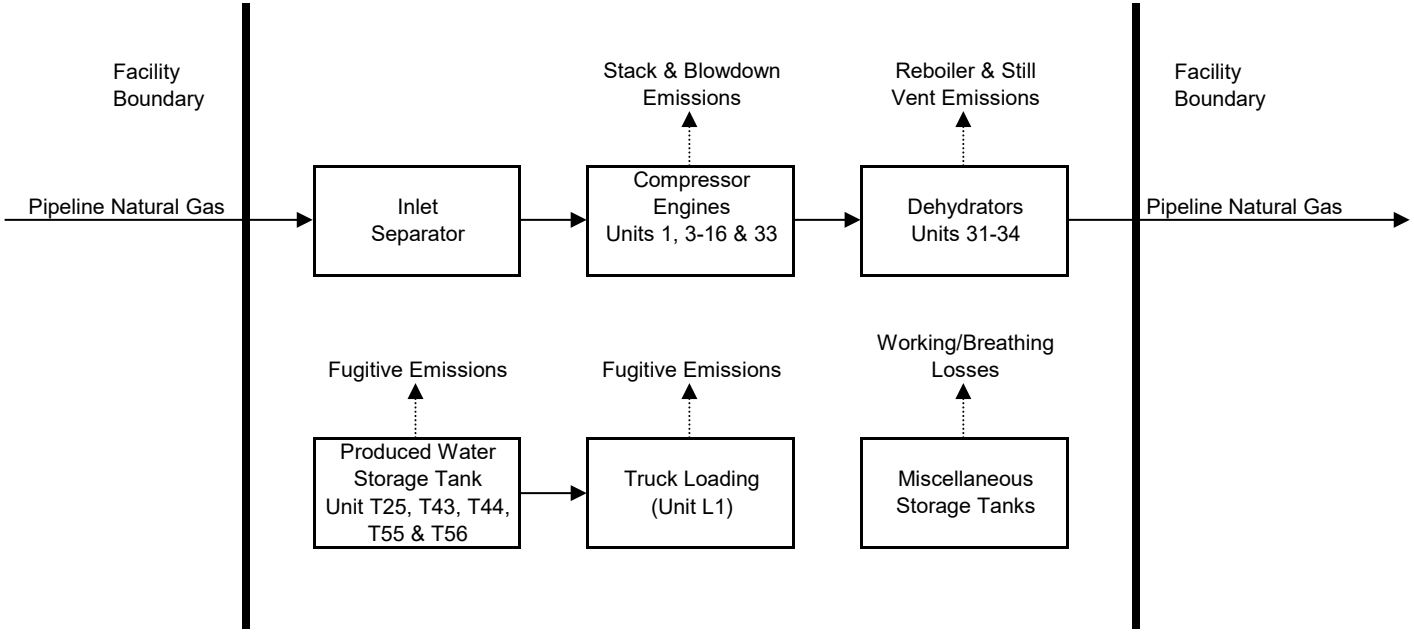
Section 4

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.

A process flow diagram is provided in this section. Please see the following page.

Flow Diagram

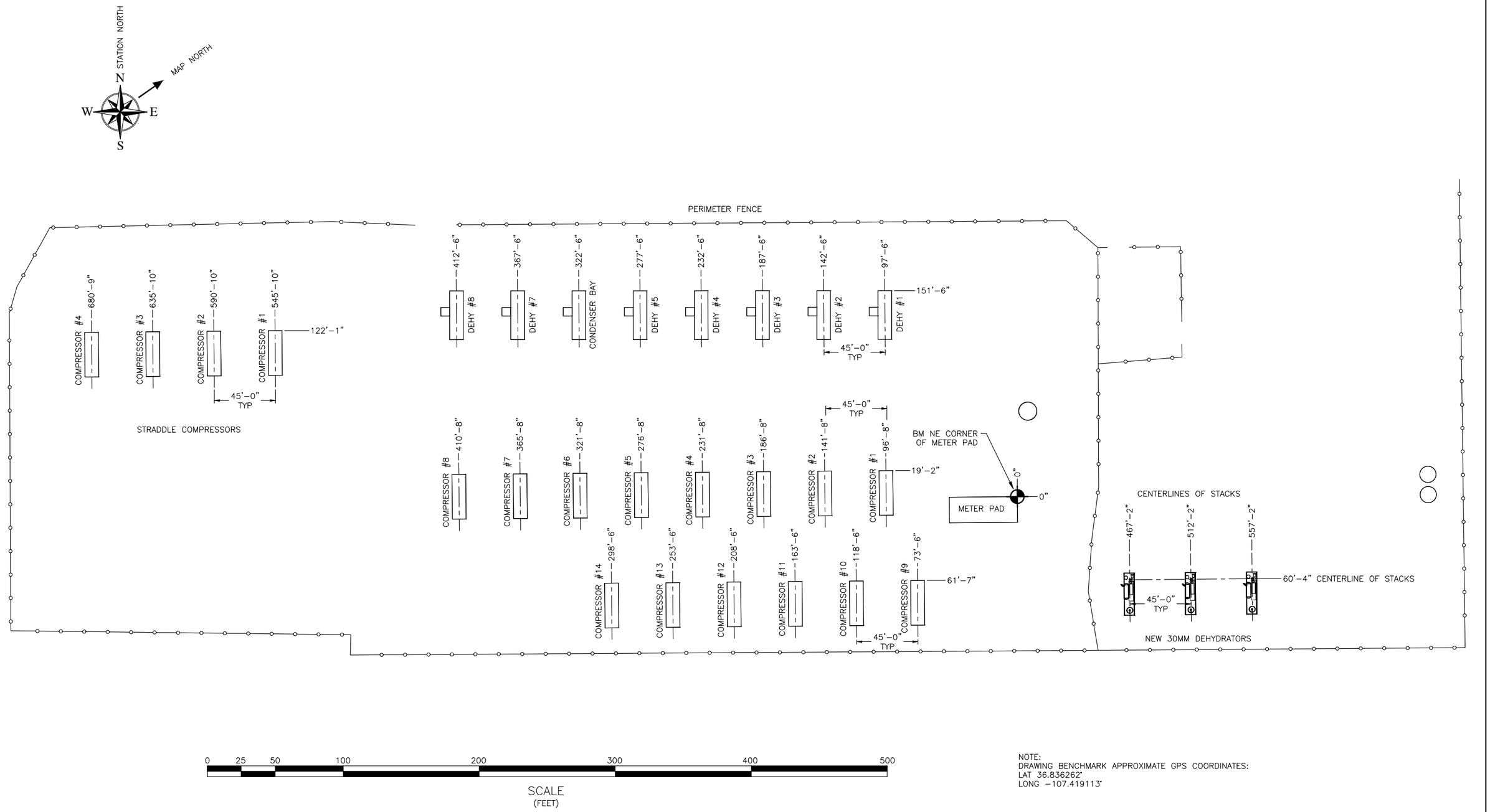


Section 5

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.

A plot plan is provided in this section. Please see the following page.



NOTE:
DRAWING BENCHMARK APPROXIMATE GPS COORDINATES:
LAT 36.836262°
LONG −107.419113°

NOTES:

DRAWING NO.	TITLE
..	..
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REFERENCE DRAWINGS

REV	DRAWN BY	DATE REVISED	CHECKED BY	PROJECT ENG.	APPROVED BY

REVISIONS

HARVEST MIDSTREAM

H4C Office
1755 Arroyo Drive
Bloomfield, NM 87413

31-6 COMPRESSOR STATION
LOCATION OF PROPOSED
30MM DEHYDRATORS

SAN JUAN — NEW MEXICO

DRAWN BY	T. GOOSSEN	SCALE: AS NOTED	A.F.E.:
CHECKED BY	D.J.		
PROJECT ENG.	D.J.		
APPROVED BY			
DATE ISSUED	1/25/2023		

316-30MM-LOCATION

0

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.

Engines

The nitrogen dioxide (NO_2), carbon monoxide (CO), and volatile organic compound (VOC) emissions from the uncontrolled 4SLB engines were calculated from manufacturer's data. The controlled CO and VOC emissions were calculated from the uncontrolled emissions using the catalysts manufacturer's control efficiencies. Note that the NO_X emissions are not controlled by catalytic converters on 4SLB engines. The sulfur dioxide (SO_2) and particulate emissions were calculated using AP-42 emission factors from Table 3.2-2.

The NO_2, CO, and VOC emissions from the uncontrolled 4-stroke, rich burn (4SRB) engines were calculated from manufacturer's data. Controlled NO_2 and CO emissions are calculated from 20.2.50.113 NMAC Table 2 maximum allowed emission factors for new 4SRB engines greater than 500 bhp-hr. The controlled VOC emissions were calculated from a representative three-way catalyst manufacturer's emission factor for controlled engines. The control efficiencies for the controlled emissions were back-calculated relative to the uncontrolled emissions. The sulfur dioxide (SO_2) and particulate emissions were calculated using AP-42 emission factors from Table 3.2-3.

Hazardous air pollution (HAP) emissions for all engines were calculated using GRI-HAPCalc 3.0. All emissions were calculated assuming each engine operates at full site capacity for 8,760 hours per year.

The engines 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 are not expected to 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.

SSM (Compressors and Piping)

SSM blowdown emissions from the compressors and piping associated with the facility occur when high pressure gas is used to purge air from the system prior to startup. Also, after shutdowns, high pressure gas is released to atmosphere as a safety precaution.

VOC and HAP emissions from blowdowns of the compressors and piping associated with the station were calculated from the quantity of gas vented during each event, the composition of the gas, and the number

of events. The worst-case quantity of gas vented during each event was determined by Harvest engineering (these calculations are provided in the Excel workbook on the CD submitted with this application). The composition of the gas was determined from a recent extended gas analysis. For each unit, the annual number of blowdown events were estimated based on historical operations. A safety factor was added because 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.

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

Dehydrator Still Vents

VOC and HAP emissions from the dehydrator still vents were calculated using GRI-GLYCalc 4.0. All emissions were calculated assuming each dehydrator operates 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 VOC emission rates identified on the application forms (Table 2-E) are higher than the calculated emission rates in this section.

The still vent emissions from all of the dehydrators are routed to condensers. The condensers collect the vented regenerator vapors and function as a "knock-out drum" to allow condensable water and hydrocarbon liquids to drop out of the non-condensable still vent emissions stream. The liquid is then routed to a tank for storage and subsequent removal. The non-condensable still vent emissions are released directly to atmosphere

The flash tank emissions from the dehydrators will be recycled/recompressed or routed to the reboilers for combustion.

During startups, the dehydrator reboilers are brought up to temperature before allowing glycol into the absorber. This prevents excess VOC and HAP from collecting in the glycol stream and there are no excess startup emissions above those expected during steady-state operation. During shutdowns, 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 unit will not be in operation during maintenance or maintenance is limited to tasks for which there are no excess emissions.

No modifications are being made to the existing dehydrators or their operation. Permitted VOC emissions from the existing dehydrators are carried forward and not revised.

Dehydrator Reboilers

The NO_X and CO emission factors for the reboilers were identified from an Enertek letter dated August 19, 1994. The VOC and SO_2 emission factors were identified from an InFab letter dated July 22, 1998. The particulate and lead emissions were calculated using AP-42 emission factors from Table 1.4-2. HAP emissions were calculated using GRI-HAPCalc 3.1. All emissions were calculated assuming each reboiler operates 8,760 hours per year.

The dehydrator reboilers (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.

No modifications are being made to the existing reboilers or their operation. Permitted criteria pollutant and HAP emissions from the existing reboilers are carried forward and not revised.

Equipment Leak Emissions

VOC and HAP emissions from equipment leaks were calculated using emission factors from Table 2.4 of the 1995 Protocol for Equipment Leak Emission Estimates published by the Environmental Protection Agency (EPA) and the gas stream composition obtained from a recent extended gas analysis. Emissions were calculated assuming the equipment operates 8,760 hours per year.

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

Storage Tanks

VOC and HAP emissions from the five (5) produced water storage tanks were calculated using emission factors from the Colorado Department of Public Health and Environment (CDPHE) and the Texas Commission on Environmental Quality (TCEQ) applied to the total maximum annual facility throughput of produced water. Using this calculation method, the VOC emission rate is now estimated at more than 0.5 tpy; therefore, the produced water storage tank(s) are no longer an NSR exempt source under 20.2.72.202.B(5) NMAC, and have been included in Table 2-A, Regulated Equipment. However, it is noted the calculated VOC emissions are less than 1 tpy and therefore remain insignificant under the Title V Insignificant Activities List, Item #1 for Title V permitting purposes. The facility is not a “Produced Water Management Unit” as defined under 20.2.50 NMAC.

Where needed, working/breathing losses for the tanks were calculated using TANKS 4.0.d.9. The following assumptions were made:

- Residual oil #6 was used as an estimate for lubrication oil. As the vapor pressure of residual oil #6 is less than 0.2 psia, tanks containing lubrication oil are NSR exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity Item #5.

- The anti-freeze is an inhibited ethylene glycol (EG) coolant containing 50% EG and 50% water. As the vapor pressure of EG is less than 0.2 psia, tanks containing antifreeze are exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity List Item #5.

- Corrosion inhibitor emissions were calculated at 28.86 pounds per year (see attached TANKS 4 results). As such, the corrosion inhibitor tank is exempt under 20.2.72.202.B(5) NMAC and insignificant in accordance with Title V Insignificant Activity List Item #1.a.

- As the vapor pressure of TEG is less than 0.2 psia, tanks containing TEG are exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity List Item #5.

- Jet kerosene was used as an estimate for the solvent. As the vapor pressure of jet kerosene is less than 0.2 psia, tanks containing solvent are exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity List Item #5.

- The wastewater captured and stored at the facility is assumed to be 1% residual oil and 99% water. As the vapor pressure of residual oil is less than 0.2 psia, tanks containing wastewater are exempt sources under 20.2.72.202.B(2) NMAC and Title V insignificant sources in accordance with Insignificant Activity List Item #5;

- Methanol emissions were calculated at 14.44 pounds per year (see attached TANKS 4 results). As such, the methanol tank is exempt under 20.2.72.202.B(5) NMAC and insignificant in accordance with Title V Insignificant Activity List Item #1.a.

Due to the nature of operations, startup and shutdown emissions from the storage tanks are assumed to be accounted for in the calculations discussed above. Emissions due to maintenance are negligible as the units are not in operation during maintenance.

Aside from the addition of TEG storage for the new dehydrators, no other changes are being made to the storage tanks or their operation.

Pneumatic Pumps

VOC and HAP emissions from the natural gas pneumatic pumps were calculated from the quantity of gas vented during the year and composition of the gas. The composition of the gas was determined from a recent extended gas analysis.

Pneumatic Controllers

VOC and HAP emissions from the natural gas pneumatic controllers were calculated from the quantity of gas vented during the year and composition of the gas. The composition of the gas was determined from a recent extended gas analysis.

Truck Loading (Produced Water)

The VOC emissions from produced water truck loading were calculated using the AP-42 emissions factor identified in Section 5.2-1. The data used to calculate the emission factor was obtained assuming the liquid was pure water.

Due to the nature of the source, it is estimated that SSM emissions from truck loading are accounted for in the calculations.

The produced water truck loading is an exempt source in accordance with 20.2.72.202.B(5) NMAC (VOC emissions are less than 0.5 tons per year) and a Title V insignificant source in accordance with Insignificant Activity Item #1.

Pig Launcher & Receivers

VOC and HAP emissions from the pig launcher and receivers were calculated from the quantity of gas vented during each event, the composition of the gas, and the number of events. The quantity of gas vented during each event was determined by Harvest engineering. The composition of the gas was determined from a recent extended gas analysis. The annual number of were estimated based on historical operations.

Due to the nature of the source, it is estimated that SSM emissions from the pig launchers and receivers are already accounted for in the calculations.

The pig launcher and receivers are exempt sources in accordance with 20.2.72.202.B(5) NMAC (VOC emissions are less than 0.5 tons per year) and Title V insignificant sources in accordance with Insignificant Activity Item #1.

Engine Exhaust Emissions Data and Calculations

Unit Number: 1, 3, 5, 7-12, 15, 16, & 33
Description: Waukesha L7042GL
Type: Four Stroke Lean Burn (Turbocharged)

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

Horsepower Calculations

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

Engine Specifications

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

Fuel Consumption

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

Steady-State Emission Rates

Pollutants	Emission Factors, g/hp-hr	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy	20.2.50 NMAC Reqmt (Table 1) g/hp-hr	Complies with 20.2.50 NMAC Reqmts?
NOX	0.90	2.72	11.92	2.0	Yes
CO	2.65	8.01	35.09	0.6	No
VOC	1.00	3.02	13.24	0.7	No

Pollutants	Control Efficiencies, %	Controlled Emission Rates, pph	Controlled Emission Rates, tpy	Back-calculated Controlled Emissions, g/hp-hr	Complies with 20.2.50 NMAC Reqmts?
NOX	- -	- -	- -	- -	- -
CO	93	0.56	2.46	0.19	Yes
VOC	80	0.60	2.65	0.20	Yes

Emission factors taken from Waukesha Bulletin 7005 0107
Uncontrolled Emission Rates (pph) = g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Control efficiencies taken based on catalyst manufacturer data sheet.
Controlled Emission Rates (pph) = Uncontrolled Emission Rates (pph) x (1 - (% / 100))
Controlled Emission Rates (tpy) = Uncontrolled Emission Rates (tpy) x (1 - (% / 100))

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

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

Exhaust Parameters

702	°F		Stack exit temperature	Mfg. data
7628	acfm	127.1	Stack flowrate	Mfg. data
1.02	ft		Stack exit diameter	Harvest Four Corners, LLC
0.82	ft^2		Stack exit area	3.1416 x ((ft / 2) ^2)
155.32	fps		Stack exit velocity	acfm / ft^2 / 60 sec/min
27.00	ft		Stack height	Harvest Four Corners, LLC

Engine Exhaust Emissions Data and Calculations

Unit Number: 4, 6, 13, & 14
Description: Waukesha L7042GSI
Type: Four Stroke Rich Burn (Turbocharged)

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

Horsepower Calculations

6,410	ft above MSL	Elevation	
1,480	hp	Nameplate hp	Mfg. data
1,373	hp	NMAQB Site-rated hp	NMAQB Procedure # 02.002-00 (loss of 3% for every 1,000 ft over 4,000 ft)
1,468	hp	Mfg. Site-rated hp	Mfg. product bulletin Power Derate, S8154-6, April 2001 (loss of 2% for every 1,000 ft over 1,500 ft)

Engine Specifications

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

Fuel Consumption

7828	Btu/hp-hr	Brake specific fuel consumption	Mfg. data
11.490	MMBtu/hr	Hourly fuel consumption	Btu/hp-hr x Mfg. site-rated hp / 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
12,767	scf/hr	Hourly fuel consumption	MMBtu/hr x 1,000,000 / Btu/scf
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
100,652	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
111.836	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Uncontrolled Emission Factors g/hp-hr	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy	20.2.50 NMAC Reqmt (Table 1) g/hp-hr	Complies with 20.2.50 NMAC Reqmts?
NOX	13.00	42.07	184.26	0.50	No
CO	9.00	29.12	127.57	0.60	No
VOC	0.15	0.49	2.13	0.70	Yes

Pollutants	Controlled Emission Factors g/hp-hr	Controlled Emission Rates, pph	Controlled Emission Rates, tpy	Back-calculated Control Efficiencies, %	Complies with 20.2.50 NMAC Reqmts?
NOX	0.50	1.62	7.09	96.2	Yes
CO	0.60	1.94	8.50	93.3	Yes
VOC	- -	- -	- -	- -	- -

Uncontrolled NOX, CO & VOC emissions taken from Waukesha 'Environmental 9' VHP (carburetor settings for a 3-way catalyst).
Uncontrolled Emission Rates (pph) = g/hp-hr x Mfg. Site-rated hp / 453.59 g/lb
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Controlled NOX & CO emission factors based on 20.2.50.113 NMAC, Table 2 requirements for a new 4SRB engine >500 bhp-hr.
Controlled Emission Rates (pph) = Controlled Emission Factor g/hp-hr x NMAQB Site-rated hp / 453.59 g/lb
Controlled Emission Rates (tpy) = Controlled Emission Rates (pph) x hr/yr / 2,000 lb/ton
Control efficiencies % = (1 - (Controlled lb/hr / Uncontrolled lb/hr)) x 100

Pollutants	Emission Factors, lb/MMBtu	Uncontrolled Emission Rates, pph	Uncontrolled Emission Rates, tpy
SO2	5.88E-04	6.76E-03	2.96E-02
PM	1.94E-02	2.23E-01	9.77E-01
PM10	1.94E-02	2.23E-01	9.77E-01
PM2.5	1.94E-02	2.23E-01	9.77E-01

Emission factors taken from AP-42, Table 3.2-3
Particulate factors include both filterable and condensible emissions
Uncontrolled Emission Rates (pph) = lb/MMBtu x MMBtu/hr
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Exhaust Parameters

1125	°F		Stack exit temperature	Mfg. data
6947	acfm	115.8	Stack flowrate	Mfg. data
1.02	ft		Stack exit diameter	Harvest Four Corners, LLC
0.82	ft^2		Stack exit area	3.1416 x ((ft / 2) ^2)
141.70	fps		Stack exit velocity	acfm / ft^2 / 60 sec/min
27.00	ft		Stack height	Harvest Four Corners, LLC

GRI-HAPCalc® 3.0
Engines Report

Facility ID:	**31-6 CDP**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**31-6 CENTRAL DELIVERY POINT**	
User Name:	**Harvest 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: 7042GL

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

Calculated Emissions (ton/yr)

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

Unit Name: 7042GSI

Hours of Operation: 8,760 Yearly
Rate Power: 1,468 hp
Fuel Type: FIELD GAS
Engine Type: 4-Stroke, Rich 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	0.5932	0.04188340 g/bhp-hr	GRI Field
Methanol	0.0944	0.00666670 g/bhp-hr	GRI Field
Benzene	0.3130	0.02210000 g/bhp-hr	GRI Field
Toluene	0.1006	0.00710000 g/bhp-hr	GRI Field
Xylenes(m,p,o)	0.0241	0.00170000 g/bhp-hr	GRI Field
Naphthalene	0.0039	0.00027540 g/bhp-hr	GRI Field

2-Methylnaphthalene	0.0007	0.00005050	g/bhp-hr	GRI Field
Acenaphthylene	0.0003	0.00001890	g/bhp-hr	GRI Field
Acenaphthene	0.0002	0.00001090	g/bhp-hr	GRI Field
Dibenzofuran	0.0001	0.00000570	g/bhp-hr	GRI Field
Fluorene	0.0002	0.00001720	g/bhp-hr	GRI Field
Anthracene	0.0001	0.00000400	g/bhp-hr	GRI Field
Phenanthrene	0.0005	0.00003210	g/bhp-hr	GRI Field
Fluoranthene	0.0002	0.00001260	g/bhp-hr	GRI Field
Pyrene	0.0001	0.00000860	g/bhp-hr	GRI Field
Benz(a)anthracene	0.0000	0.00000180	g/bhp-hr	GRI Field
Chrysene	0.0000	0.00000220	g/bhp-hr	GRI Field
Benzo(a)pyrene	0.0000	0.00000040	g/bhp-hr	GRI Field
Benzo(b)fluoranthene	0.0000	0.00000220	g/bhp-hr	GRI Field
Benzo(k)fluoranthene	0.0000	0.00000220	g/bhp-hr	GRI Field
Benzo(g,h,i)perylene	0.0000	0.00000070	g/bhp-hr	GRI Field
Indeno(1,2,3-c,d)pyrene	0.0000	0.00000050	g/bhp-hr	GRI Field
Dibenz(a,h)anthracene	0.0000	0.00000020	g/bhp-hr	GRI Field
Total	1.1316			

Criteria Pollutants

CO	128.6463	9.08349210	g/bhp-hr	GRI Field
NMEHC	3.7385	0.26396820	g/bhp-hr	GRI Field
NOx	106.5958	7.52654670	g/bhp-hr	GRI Field

Other Pollutants

Methane	13.8794	0.98000000	g/bhp-hr	GRI Field
Ethylene	1.7939	0.12666670	g/bhp-hr	GRI Field
Ethane	4.3432	0.30666670	g/bhp-hr	GRI Field
Propylene	0.3399	0.02400000	g/bhp-hr	GRI Field
Propane	1.3596	0.09600000	g/bhp-hr	GRI Field

Compressor Blowdown Emissions Calculations

Unit Number: SSM
Description: Compressor & Piping Associated With Station (for Units 3-14)

Throughput

12	# of units	Number of units	Harvest Four Corners, LLC
227	events/yr/unit	Blowdowns per year per unit	Harvest Four Corners, LLC
12,370	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
33,695,880	scf/yr	Annual gas loss	# of units x events/yr/unit x scf/ever

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.576E-04	6.03
Benzene	3.418E-07	5.76E-03
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	1.697E-06	2.86E-02
2,2,4-Trimethlypentane (Isooctane)	0.000E+00	0.00E+00
Toluene	1.008E-06	1.70E-02
Xylene	9.291E-07	1.57E-02

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	2.9547	44.01	3.427E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3291	28.01	2.429E-04
Methane	95.3540	16.04	4.031E-02
Ethane	1.0902	30.07	8.640E-04
Propane	0.1916	44.09	2.226E-04
Isobutane	0.0332	58.12	5.086E-05
n-Butane	0.0248	58.12	3.802E-05
Isopentane	0.0109	72.15	2.068E-05
n-Pentane	0.0056	72.15	1.073E-05
Cyclopentane	0.0001	70.14	1.534E-07
n-Hexane	0.0007	86.17	1.697E-06
Cyclohexane	0.0002	84.16	5.524E-07
Other hexanes	0.0014	86.18	3.205E-06
Heptanes	0.0007	100.20	1.973E-06
Methylcyclohexane	0.0007	98.19	1.719E-06
2,2,4-Trimethlypentane (Isooctane)	0.0000	100.21	0.000E+00
Benzene	0.0002	78.11	3.418E-07
Toluene	0.0004	92.14	1.008E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0003	106.17	9.291E-07
C8+ Heavies	0.0011	110.00	3.128E-06
Total	99.9999		
Total VOC			3.576E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/20
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Compressor Blowdown Emissions Calculations

Unit Number: SSM
Description: Compressor & Piping Associated With Station (for Units 1, 15, 16 & 33)

Throughput

4	# of units	Number of units	Harvest Four Corners, LLC
227	events/yr/unit	Blowdowns per year per unit	Harvest Four Corners, LLC
10,850	scf/event	Gas loss per blowdown	Harvest Four Corners, LLC
9,851,800	scf/yr	Annual gas loss	# of units x events/yr/unit x scf/ever

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.576E-04	1.76
Benzene	3.418E-07	1.68E-03
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	1.697E-06	8.36E-03
2,2,4-Trimethlypentane (Isooctane)	0.000E+00	0.00E+00
Toluene	1.008E-06	4.96E-03
Xylene	9.291E-07	4.58E-03

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	2.9547	44.01	3.427E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3291	28.01	2.429E-04
Methane	95.3540	16.04	4.031E-02
Ethane	1.0902	30.07	8.640E-04
Propane	0.1916	44.09	2.226E-04
Isobutane	0.0332	58.12	5.086E-05
n-Butane	0.0248	58.12	3.802E-05
Isopentane	0.0109	72.15	2.068E-05
n-Pentane	0.0056	72.15	1.073E-05
Cyclopentane	0.0001	70.14	1.534E-07
n-Hexane	0.0007	86.17	1.697E-06
Cyclohexane	0.0002	84.16	5.524E-07
Other hexanes	0.0014	86.18	3.205E-06
Heptanes	0.0007	100.20	1.973E-06
Methylcyclohexane	0.0007	98.19	1.719E-06
2,2,4-Trimethlypentane (Isooctane)	0.0000	100.21	0.000E+00
Benzene	0.0002	78.11	3.418E-07
Toluene	0.0004	92.14	1.008E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0003	106.17	9.291E-07
C8+ Heavies	0.0011	110.00	3.128E-06
Total	99.9999		
Total VOC			3.576E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/20
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 31-6 CDP
File Name: C:\1 - Cirrus\1 - Projects\1 - Harvest\1 - Permitting\2 - Title V\31-6\1 - Application\31-6 - GRI-GLYCalc - EU 17-22.ddf
Date: October 12, 2024

DESCRIPTION:

Description: Unit Numbers: 17-22
Capacity: 12 MMSCFD
10/20/23 & 9/20/23 Gas Analyses

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 95.00 deg. F
Pressure: 375.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	2.9547
Nitrogen	0.3291
Methane	95.3540
Ethane	1.0902
Propane	0.1916
Isobutane	0.0332
n-Butane	0.0248
Isopentane	0.0109
n-Pentane	0.0056
Cyclopentane	0.0001
n-Hexane	0.0007
Cyclohexane	0.0002
Other Hexanes	0.0014
Heptanes	0.0007
Methylcyclohexane	0.0007
Benzene	0.0002
Toluene	0.0004
Xylenes	0.0003
C8+ Heavies	0.0011

DRY GAS:

Flow Rate:	12.0 MMSCF/day
Water Content:	4.0 lbs. H2O/MMSCF

LEAN GLYCOL:

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

PUMP:

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

FLASH TANK:

Flash Control:	Recycle/recompression
Temperature:	89.0 deg. F
Pressure:	36.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device:	Condenser
Temperature:	100.0 deg. F
Pressure:	11.7 psia

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 CDP
File Name: C:\1 - Cirrus\1 - Projects\1 - Harvest\1 - Permitting\2 - Title V\31-6\1 - Application\31-6 - GRI-GLYCalc - EU 17-22.ddf
Date: October 12, 2024

DESCRIPTION:

Description: Unit Numbers: 17-22
Capacity: 12 MMSCFD
10/20/23 & 9/20/23 Gas Analyses

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3312	7.949	1.4507
Ethane	0.0336	0.808	0.1474
Propane	0.0252	0.606	0.1106
Isobutane	0.0110	0.264	0.0482
n-Butane	0.0125	0.300	0.0547
Isopentane	0.0084	0.200	0.0366
n-Pentane	0.0062	0.148	0.0270
Cyclopentane	0.0007	0.016	0.0030
n-Hexane	0.0021	0.049	0.0090
Cyclohexane	0.0033	0.079	0.0145
Other Hexanes	0.0028	0.068	0.0123
Heptanes	0.0052	0.125	0.0228
Methylcyclohexane	0.0149	0.358	0.0654
Benzene	0.0272	0.653	0.1191
Toluene	0.0690	1.655	0.3020
Xylenes	0.0546	1.312	0.2394
C8+ Heavies	0.0012	0.030	0.0054
Total Emissions	0.6091	14.619	2.6679

Total Hydrocarbon Emissions	0.6091	14.619	2.6679
Total VOC Emissions	0.2443	5.862	1.0698
Total HAP Emissions	0.1529	3.669	0.6695
Total BTEX Emissions	0.1508	3.619	0.6605

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3316	7.959	1.4525
Ethane	0.0337	0.810	0.1477
Propane	0.0254	0.611	0.1114
Isobutane	0.0112	0.268	0.0489
n-Butane	0.0127	0.305	0.0558
Isopentane	0.0088	0.211	0.0384
n-Pentane	0.0065	0.156	0.0285
Cyclopentane	0.0007	0.018	0.0033
n-Hexane	0.0024	0.057	0.0105
Cyclohexane	0.0041	0.098	0.0178
Other Hexanes	0.0032	0.076	0.0138
Heptanes	0.0075	0.181	0.0330
Methylcyclohexane	0.0222	0.533	0.0973
Benzene	0.0384	0.922	0.1683
Toluene	0.1428	3.426	0.6253
Xylenes	0.2378	5.707	1.0416
C8+ Heavies	0.1786	4.286	0.7822
Total Emissions	1.0676	25.623	4.6761
Total Hydrocarbon Emissions	1.0676	25.623	4.6761
Total VOC Emissions	0.7023	16.854	3.0759
Total HAP Emissions	0.4214	10.113	1.8457
Total BTEX Emissions	0.4190	10.056	1.8352

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	30.3707	728.897	133.0237
Ethane	0.7721	18.530	3.3818
Propane	0.2353	5.647	1.0306
Isobutane	0.0616	1.478	0.2698
n-Butane	0.0512	1.228	0.2242
Isopentane	0.0288	0.691	0.1260
n-Pentane	0.0163	0.392	0.0715
Cyclopentane	0.0005	0.012	0.0021
n-Hexane	0.0030	0.071	0.0130
Cyclohexane	0.0013	0.031	0.0057
Other Hexanes	0.0054	0.130	0.0237
Heptanes	0.0041	0.098	0.0179
Methylcyclohexane	0.0050	0.120	0.0219
Benzene	0.0013	0.032	0.0058
Toluene	0.0028	0.068	0.0124
Xylenes	0.0016	0.039	0.0071
C8+ Heavies	0.0105	0.251	0.0459
Total Emissions	31.5715	757.716	138.2831
Total Hydrocarbon Emissions	31.5715	757.716	138.2831
Total VOC Emissions	0.4287	10.288	1.8776
Total HAP Emissions	0.0087	0.209	0.0382
Total BTEX Emissions	0.0057	0.138	0.0252

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3312	7.949	1.4507
Ethane	0.0336	0.808	0.1474
Propane	0.0252	0.606	0.1106
Isobutane	0.0110	0.264	0.0482
n-Butane	0.0125	0.300	0.0547
Isopentane	0.0084	0.200	0.0366
n-Pentane	0.0062	0.148	0.0270
Cyclopentane	0.0007	0.016	0.0030
n-Hexane	0.0021	0.049	0.0090
Cyclohexane	0.0033	0.079	0.0145

Other Hexanes	0.0028	0.068	0.0123
Heptanes	0.0052	0.125	0.0228
Methylcyclohexane	0.0149	0.358	0.0654
Benzene	0.0272	0.653	0.1191
Toluene	0.0690	1.655	0.3020
Xylenes	0.0546	1.312	0.2394
C8+ Heavies	0.0012	0.030	0.0054
Total Emissions	0.6091	14.619	2.6679
Total Hydrocarbon Emissions	0.6091	14.619	2.6679
Total VOC Emissions	0.2443	5.862	1.0698
Total HAP Emissions	0.1529	3.669	0.6695
Total BTEX Emissions	0.1508	3.619	0.6605

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	134.4762	1.4507	98.92
Ethane	3.5295	0.1474	95.82
Propane	1.1420	0.1106	90.32
Isobutane	0.3187	0.0482	84.89
n-Butane	0.2799	0.0547	80.47
Isopentane	0.1645	0.0366	77.76
n-Pentane	0.1000	0.0270	73.02
Cyclopentane	0.0054	0.0030	45.15
n-Hexane	0.0235	0.0090	61.58
Cyclohexane	0.0235	0.0145	38.23
Other Hexanes	0.0375	0.0123	67.09
Heptanes	0.0509	0.0228	55.27
Methylcyclohexane	0.1192	0.0654	45.13
Benzene	0.1741	0.1191	31.58
Toluene	0.6377	0.3020	52.64
Xylenes	1.0487	0.2394	77.18
C8+ Heavies	0.8280	0.0054	99.35
Total Emissions	142.9592	2.6679	98.13
Total Hydrocarbon Emissions	142.9592	2.6679	98.13
Total VOC Emissions	4.9535	1.0698	78.40

Total HAP Emissions	1.8839	0.6695	64.46
Total BTEX Emissions	1.8604	0.6605	64.50

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	100.00 deg. F
Condenser Pressure:	11.70 psia
Condenser Duty:	4.70e-002 MM BTU/hr
Hydrocarbon Recovery:	0.04 bbls/day
Produced Water:	3.65 bbls/day
VOC Control Efficiency:	65.22 %
HAP Control Efficiency:	63.73 %
BTEX Control Efficiency:	64.01 %
Dissolved Hydrocarbons in Water:	282.89 mg/L

Component	Emitted	Condensed
Water	0.13%	99.87%
Carbon Dioxide	97.79%	2.21%
Nitrogen	99.93%	0.07%
Methane	99.88%	0.12%
Ethane	99.76%	0.24%
Propane	99.22%	0.78%
Isobutane	98.56%	1.44%
n-Butane	98.04%	1.96%
Isopentane	95.14%	4.86%
n-Pentane	94.72%	5.28%
Cyclopentane	90.80%	9.20%
n-Hexane	86.24%	13.76%
Cyclohexane	81.37%	18.63%
Other Hexanes	89.43%	10.57%
Heptanes	69.06%	30.94%
Methylcyclohexane	67.25%	32.75%
Benzene	70.77%	29.23%
Toluene	48.30%	51.70%
Xylenes	22.98%	77.02%
C8+ Heavies	0.69%	99.31%

ABSORBER

Calculated Absorber Stages:	1.95	
Specified Dry Gas Dew Point:	4.00	lbs. H2O/MMSCF
Temperature:	95.0	deg. F
Pressure:	375.0	psig
Dry Gas Flow Rate:	12.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0484	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	110.20	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	3.95	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.62%	96.38%
Carbon Dioxide	99.81%	0.19%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.95%	0.05%
Propane	99.91%	0.09%
Isobutane	99.85%	0.15%
n-Butane	99.80%	0.20%
Isopentane	99.78%	0.22%
n-Pentane	99.71%	0.29%
Cyclopentane	98.81%	1.19%
n-Hexane	99.46%	0.54%
Cyclohexane	97.72%	2.28%
Other Hexanes	99.60%	0.40%
Heptanes	98.88%	1.12%
Methylcyclohexane	97.14%	2.86%
Benzene	80.84%	19.16%
Toluene	70.17%	29.83%
Xylenes	43.10%	56.90%
C8+ Heavies	92.48%	7.52%

FLASH TANK

Flash Control:	Recycle/recompression	
Flash Temperature:	89.0	deg. F
Flash Pressure:	36.0	psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.95%	0.05%
Carbon Dioxide	15.13%	84.87%
Nitrogen	1.03%	98.97%
Methane	1.08%	98.92%
Ethane	4.19%	95.81%
Propane	9.76%	90.24%
Isobutane	15.33%	84.67%
n-Butane	19.92%	80.08%
Isopentane	23.61%	76.39%
n-Pentane	28.72%	71.28%
Cyclopentane	60.59%	39.41%
n-Hexane	44.76%	55.24%
Cyclohexane	76.65%	23.35%
Other Hexanes	37.26%	62.74%
Heptanes	64.93%	35.07%
Methylcyclohexane	82.30%	17.70%
Benzene	96.86%	3.14%
Toluene	98.22%	1.78%
Xylenes	99.41%	0.59%
C8+ Heavies	95.12%	4.88%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	35.69%	64.31%
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	1.30%	98.70%
n-Pentane	1.17%	98.83%
Cyclopentane	0.74%	99.26%

n-Hexane	0.89%	99.11%
Cyclohexane	3.94%	96.06%
Other Hexanes	1.99%	98.01%
Heptanes	0.68%	99.32%
Methylcyclohexane	4.64%	95.36%
Benzene	5.13%	94.87%
Toluene	8.01%	91.99%
Xylenes	12.96%	87.04%
C8+ Heavies	12.43%	87.57%

STREAM REPORTS:

WET GAS STREAM

Temperature: 95.00 deg. F
Pressure: 389.70 psia
Flow Rate: 5.01e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	2.32e-001	5.52e+001
Carbon Dioxide	2.95e+000	1.71e+003
Nitrogen	3.28e-001	1.21e+002
Methane	9.51e+001	2.02e+004
Ethane	1.09e+000	4.32e+002
Propane	1.91e-001	1.11e+002
Isobutane	3.31e-002	2.54e+001
n-Butane	2.47e-002	1.90e+001
Isopentane	1.09e-002	1.04e+001
n-Pentane	5.59e-003	5.33e+000
Cyclopentane	9.98e-005	9.24e-002
n-Hexane	6.98e-004	7.95e-001
Cyclohexane	2.00e-004	2.22e-001
Other Hexanes	1.40e-003	1.59e+000
Heptanes	6.98e-004	9.25e-001
Methylcyclohexane	6.98e-004	9.06e-001
Benzene	2.00e-004	2.06e-001
Toluene	3.99e-004	4.86e-001
Xylenes	2.99e-004	4.20e-001

C8+ Heavies	1.10e-003	2.47e+000
Total Components	100.00	2.27e+004

DRY GAS STREAM

Temperature: 95.00 deg. F
Pressure: 389.70 psia
Flow Rate: 5.00e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.43e-003	2.00e+000
Carbon Dioxide	2.95e+000	1.71e+003
Nitrogen	3.29e-001	1.21e+002
Methane	9.54e+001	2.02e+004
Ethane	1.09e+000	4.32e+002
Propane	1.91e-001	1.11e+002
Isobutane	3.32e-002	2.54e+001
n-Butane	2.48e-002	1.90e+001
Isopentane	1.09e-002	1.03e+001
n-Pentane	5.58e-003	5.31e+000
Cyclopentane	9.88e-005	9.13e-002
n-Hexane	6.96e-004	7.91e-001
Cyclohexane	1.95e-004	2.17e-001
Other Hexanes	1.39e-003	1.58e+000
Heptanes	6.92e-004	9.14e-001
Methylcyclohexane	6.80e-004	8.80e-001
Benzene	1.62e-004	1.66e-001
Toluene	2.81e-004	3.41e-001
Xylenes	1.29e-004	1.81e-001
C8+ Heavies	1.02e-003	2.28e+000
Total Components	100.00	2.26e+004

LEAN GLYCOL STREAM

Temperature: 95.00 deg. F
Flow Rate: 3.50e+000 gpm

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

TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	1.64e-011	3.22e-010
Nitrogen	7.82e-014	1.54e-012
Methane	4.28e-018	8.43e-017
Ethane	4.83e-009	9.51e-008
Propane	2.17e-010	4.27e-009
Isobutane	5.66e-011	1.12e-009
n-Butane	4.70e-011	9.26e-010
Isopentane	5.88e-006	1.16e-004
n-Pentane	3.92e-006	7.73e-005
Cyclopentane	2.81e-007	5.53e-006
n-Hexane	1.09e-006	2.14e-005
Cyclohexane	8.47e-006	1.67e-004
Other Hexanes	3.25e-006	6.41e-005
Heptanes	2.63e-006	5.19e-005
Methylcyclohexane	5.49e-005	1.08e-003
Benzene	1.05e-004	2.08e-003
Toluene	6.31e-004	1.24e-002
Xylenes	1.80e-003	3.54e-002
C8+ Heavies	1.29e-003	2.54e-002
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 95.00 deg. F
Pressure: 389.70 psia
Flow Rate: 3.69e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.41e+001	1.94e+003
Water	4.02e+000	8.29e+001
Carbon Dioxide	2.73e-001	5.62e+000
Nitrogen	8.99e-003	1.85e-001
Methane	1.49e+000	3.07e+001
Ethane	3.91e-002	8.06e-001
Propane	1.26e-002	2.61e-001
Isobutane	3.53e-003	7.28e-002

n-Butane	3.10e-003	6.39e-002
Isopentane	1.83e-003	3.77e-002
n-Pentane	1.11e-003	2.29e-002
Cyclopentane	6.00e-005	1.24e-003
n-Hexane	2.61e-004	5.39e-003
Cyclohexane	2.68e-004	5.52e-003
Other Hexanes	4.19e-004	8.63e-003
Heptanes	5.66e-004	1.17e-002
Methylcyclohexane	1.37e-003	2.83e-002
Benzene	2.03e-003	4.18e-002
Toluene	7.67e-003	1.58e-001
Xylenes	1.33e-002	2.75e-001
C8+ Heavies	1.04e-002	2.14e-001
Total Components	100.00	2.06e+003

FLASH TANK OFF GAS STREAM

Temperature: 89.00 deg. F
Pressure: 50.70 psia
Flow Rate: 7.76e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.24e-001	4.55e-002
Carbon Dioxide	5.30e+000	4.77e+000
Nitrogen	3.20e-001	1.83e-001
Methane	9.26e+001	3.04e+001
Ethane	1.26e+000	7.72e-001
Propane	2.61e-001	2.35e-001
Isobutane	5.18e-002	6.16e-002
n-Butane	4.31e-002	5.12e-002
Isopentane	1.95e-002	2.88e-002
n-Pentane	1.11e-002	1.63e-002
Cyclopentane	3.40e-004	4.87e-004
n-Hexane	1.69e-003	2.98e-003
Cyclohexane	7.50e-004	1.29e-003
Other Hexanes	3.07e-003	5.41e-003
Heptanes	2.00e-003	4.09e-003
Methylcyclohexane	2.49e-003	5.01e-003
Benzene	8.23e-004	1.32e-003

Toluene	1.50e-003	2.82e-003
Xylenes	7.42e-004	1.61e-003
C8+ Heavies	3.01e-003	1.05e-002
Total Components	100.00	3.66e+001

FLASH TANK GLYCOL STREAM

Temperature: 89.00 deg. F
Flow Rate: 3.61e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.58e+001	1.94e+003
Water	4.09e+000	8.28e+001
Carbon Dioxide	4.20e-002	8.51e-001
Nitrogen	9.39e-005	1.90e-003
Methane	1.64e-002	3.32e-001
Ethane	1.67e-003	3.37e-002
Propane	1.26e-003	2.54e-002
Isobutane	5.51e-004	1.12e-002
n-Butane	6.29e-004	1.27e-002
Isopentane	4.39e-004	8.89e-003
n-Pentane	3.25e-004	6.58e-003
Cyclopentane	3.70e-005	7.49e-004
n-Hexane	1.19e-004	2.41e-003
Cyclohexane	2.09e-004	4.23e-003
Other Hexanes	1.59e-004	3.22e-003
Heptanes	3.74e-004	7.58e-003
Methylcyclohexane	1.15e-003	2.33e-002
Benzene	2.00e-003	4.05e-002
Toluene	7.67e-003	1.55e-001
Xylenes	1.35e-002	2.73e-001
C8+ Heavies	1.01e-002	2.04e-001
Total Components	100.00	2.02e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

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

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 1.14e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.84e+001	5.33e+001
Carbon Dioxide	6.43e-001	8.51e-001
Nitrogen	2.26e-003	1.90e-003
Methane	6.88e-001	3.32e-001
Ethane	3.73e-002	3.37e-002
Propane	1.92e-002	2.54e-002
Isobutane	6.38e-003	1.12e-002
n-Butane	7.29e-003	1.27e-002
Isopentane	4.05e-003	8.78e-003
n-Pentane	3.00e-003	6.50e-003
Cyclopentane	3.53e-004	7.43e-004
n-Hexane	9.23e-004	2.39e-003
Cyclohexane	1.61e-003	4.07e-003
Other Hexanes	1.22e-003	3.15e-003
Heptanes	2.50e-003	7.53e-003
Methylcyclohexane	7.53e-003	2.22e-002
Benzene	1.64e-002	3.84e-002
Toluene	5.15e-002	1.43e-001
Xylenes	7.45e-002	2.38e-001
C8+ Heavies	3.49e-002	1.79e-001
Total Components	100.00	5.52e+001

CONDENSER VENT GAS STREAM

Temperature: 100.00 deg. F
Pressure: 11.70 psia
Flow Rate: 1.81e+001 scfh

Component	Conc.	Loading

	(vol%)	(lb/hr)
Water	8.22e+000	7.07e-002
Carbon Dioxide	3.96e+001	8.32e-001
Nitrogen	1.42e-001	1.90e-003
Methane	4.32e+001	3.31e-001
Ethane	2.34e+000	3.36e-002
Propane	1.20e+000	2.52e-002
Isobutane	3.96e-001	1.10e-002
n-Butane	4.50e-001	1.25e-002
Isopentane	2.42e-001	8.35e-003
n-Pentane	1.79e-001	6.16e-003
Cyclopentane	2.01e-002	6.75e-004
n-Hexane	5.01e-002	2.06e-003
Cyclohexane	8.23e-002	3.31e-003
Other Hexanes	6.85e-002	2.82e-003
Heptanes	1.09e-001	5.20e-003
Methylcyclohexane	3.18e-001	1.49e-002
Benzene	7.29e-001	2.72e-002
Toluene	1.57e+000	6.90e-002
Xylenes	1.08e+000	5.46e-002
C8+ Heavies	1.52e-002	1.23e-003
Total Components	100.00	1.51e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.06e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	5.32e+001	999374.
Carbon Dioxide	3.43e-002	1.83e-002	343.
Nitrogen	1.78e-006	9.47e-007	0.
Methane	6.29e-004	3.35e-004	6.
Ethane	7.72e-005	4.11e-005	1.
Propane	5.07e-005	2.70e-005	1.
Isobutane	1.24e-005	6.58e-006	0.
n-Butane	1.91e-005	1.01e-005	0.
Isopentane	9.28e-006	4.94e-006	0.
n-Pentane	7.47e-006	3.97e-006	0.

Cyclopentane	6.17e-006	3.28e-006	0.
n-Hexane	2.17e-006	1.15e-006	0.
Cyclohexane	2.10e-005	1.12e-005	0.
Other Hexanes	2.35e-006	1.25e-006	0.
Heptanes	3.12e-006	1.66e-006	0.
Methylcyclohexane	4.61e-005	2.46e-005	0.
Benzene	5.40e-003	2.87e-003	54.
Toluene	1.17e-002	6.23e-003	117.
Xylenes	1.03e-002	5.48e-003	103.
C8+ Heavies	4.20e-007	2.24e-007	0.
Total Components	100.00	5.32e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.04e-003 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	3.19e-002	1.42e-004
Carbon Dioxide	1.14e-001	5.06e-004
Nitrogen	1.07e-004	4.73e-007
Methane	1.62e-002	7.21e-005
Ethane	9.14e-003	4.06e-005
Propane	3.88e-002	1.72e-004
Isobutane	3.47e-002	1.54e-004
n-Butane	5.38e-002	2.39e-004
Isopentane	9.50e-002	4.22e-004
n-Pentane	7.63e-002	3.39e-004
Cyclopentane	1.47e-002	6.51e-005
n-Hexane	7.38e-002	3.28e-004
Cyclohexane	1.68e-001	7.47e-004
Other Hexanes	7.48e-002	3.32e-004
Heptanes	5.24e-001	2.33e-003
Methylcyclohexane	1.63e+000	7.25e-003
Benzene	1.88e+000	8.36e-003
Toluene	1.52e+001	6.76e-002
Xylenes	4.00e+001	1.78e-001
C8+ Heavies	3.99e+001	1.77e-001
Total Components	100.00	4.44e-001

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 31-6 CDP
File Name: C:\1 - Cirrus\1 - Projects\1 - Harvest\1 - Permitting\2 - Title V\31-6\1 - Application\31-6 - GRI-GLYCalc - EU 31 .ddf
Date: October 12, 2024

DESCRIPTION:

Description: Unit Number: 31
Capacity: 30 MMSCFD
10/20/23 & 9/20/24 Gas Analyses

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 87.00 deg. F
Pressure: 415.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	2.9547
Nitrogen	0.3291
Methane	95.3540
Ethane	1.0902
Propane	0.1916
Isobutane	0.0332
n-Butane	0.0248
Isopentane	0.0109
n-Pentane	0.0056
Cyclopentane	0.0001
n-Hexane	0.0007
Cyclohexane	0.0002
Other Hexanes	0.0014
Heptanes	0.0007
Methylcyclohexane	0.0007
Benzene	0.0002
Toluene	0.0004
Xylenes	0.0003
C8+ Heavies	0.0011

DRY GAS:

Flow Rate:	30.0 MMSCF/day
Water Content:	3.0 lbs. H2O/MMSCF

LEAN GLYCOL:

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

PUMP:

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

FLASH TANK:

Flash Control:	Recycle/recompression
Temperature:	90.0 deg. F
Pressure:	41.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device:	Condenser
Temperature:	100.0 deg. F
Pressure:	11.7 psia

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 CDP
File Name: C:\1 - Cirrus\1 - Projects\1 - Harvest\1 - Permitting\2 - Title V\31-6\1 - Application\31-6 - GRI-GLYCalc - EU 31 .ddf
Date: October 12, 2024

DESCRIPTION:

Description: Unit Number: 31
Capacity: 30 MMSCFD
10/20/23 & 9/20/24 Gas Analyses

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3467	8.320	1.5184
Ethane	0.0357	0.858	0.1565
Propane	0.0301	0.722	0.1318
Isobutane	0.0133	0.318	0.0580
n-Butane	0.0153	0.368	0.0671
Isopentane	0.0101	0.242	0.0442
n-Pentane	0.0075	0.180	0.0329
Cyclopentane	0.0008	0.019	0.0034
n-Hexane	0.0025	0.059	0.0108
Cyclohexane	0.0037	0.089	0.0163
Other Hexanes	0.0034	0.081	0.0148
Heptanes	0.0059	0.142	0.0259
Methylcyclohexane	0.0164	0.393	0.0717
Benzene	0.0316	0.759	0.1385
Toluene	0.0830	1.993	0.3637
Xylenes	0.0753	1.806	0.3297
C8+ Heavies	0.0010	0.024	0.0043
Total Emissions	0.6822	16.373	2.9880

Total Hydrocarbon Emissions	0.6822	16.373	2.9880
Total VOC Emissions	0.2998	7.195	1.3132
Total HAP Emissions	0.1924	4.617	0.8427
Total BTEX Emissions	0.1899	4.558	0.8319

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3473	8.335	1.5211
Ethane	0.0358	0.860	0.1570
Propane	0.0304	0.729	0.1330
Isobutane	0.0135	0.323	0.0590
n-Butane	0.0157	0.376	0.0686
Isopentane	0.0106	0.256	0.0466
n-Pentane	0.0080	0.192	0.0350
Cyclopentane	0.0009	0.021	0.0038
n-Hexane	0.0029	0.069	0.0127
Cyclohexane	0.0046	0.111	0.0203
Other Hexanes	0.0038	0.091	0.0167
Heptanes	0.0088	0.211	0.0386
Methylcyclohexane	0.0251	0.603	0.1100
Benzene	0.0482	1.157	0.2111
Toluene	0.1866	4.480	0.8175
Xylenes	0.3687	8.849	1.6150
C8+ Heavies	0.1618	3.882	0.7085
Total Emissions	1.2727	30.544	5.5742
Total Hydrocarbon Emissions	1.2727	30.544	5.5742
Total VOC Emissions	0.8895	21.349	3.8962
Total HAP Emissions	0.6064	14.555	2.6562
Total BTEX Emissions	0.6035	14.485	2.6435

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	22.3786	537.087	98.0184
Ethane	0.6090	14.617	2.6676
Propane	0.1966	4.718	0.8610
Isobutane	0.0531	1.274	0.2326
n-Butane	0.0450	1.080	0.1972
Isopentane	0.0253	0.608	0.1110
n-Pentane	0.0146	0.350	0.0639
Cyclopentane	0.0004	0.010	0.0019
n-Hexane	0.0027	0.064	0.0118
Cyclohexane	0.0012	0.028	0.0051
Other Hexanes	0.0049	0.117	0.0213
Heptanes	0.0037	0.089	0.0162
Methylcyclohexane	0.0045	0.108	0.0197
Benzene	0.0012	0.029	0.0053
Toluene	0.0028	0.067	0.0122
Xylenes	0.0019	0.045	0.0083
C8+ Heavies	0.0077	0.185	0.0338
Total Emissions	23.3532	560.477	102.2871
Total Hydrocarbon Emissions	23.3532	560.477	102.2871
Total VOC Emissions	0.3655	8.773	1.6011
Total HAP Emissions	0.0086	0.206	0.0375
Total BTEX Emissions	0.0059	0.141	0.0258

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3467	8.320	1.5184
Ethane	0.0357	0.858	0.1565
Propane	0.0301	0.722	0.1318
Isobutane	0.0133	0.318	0.0580
n-Butane	0.0153	0.368	0.0671
Isopentane	0.0101	0.242	0.0442
n-Pentane	0.0075	0.180	0.0329
Cyclopentane	0.0008	0.019	0.0034
n-Hexane	0.0025	0.059	0.0108
Cyclohexane	0.0037	0.089	0.0163
Other Hexanes	0.0034	0.081	0.0148

Heptanes	0.0059	0.142	0.0259
Methylcyclohexane	0.0164	0.393	0.0717
Benzene	0.0316	0.759	0.1385
Toluene	0.0830	1.993	0.3637
Xylenes	0.0753	1.806	0.3297
C8+ Heavies	0.0010	0.024	0.0043
Total Emissions	0.6822	16.373	2.9880
Total Hydrocarbon Emissions	0.6822	16.373	2.9880
Total VOC Emissions	0.2998	7.195	1.3132
Total HAP Emissions	0.1924	4.617	0.8427
Total BTEX Emissions	0.1899	4.558	0.8319

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	99.5395	1.5184	98.47
Ethane	2.8246	0.1565	94.46
Propane	0.9939	0.1318	86.74
Isobutane	0.2915	0.0580	80.09
n-Butane	0.2657	0.0671	74.75
Isopentane	0.1577	0.0442	71.94
n-Pentane	0.0989	0.0329	66.70
Cyclopentane	0.0057	0.0034	40.37
n-Hexane	0.0244	0.0108	55.87
Cyclohexane	0.0254	0.0163	35.89
Other Hexanes	0.0380	0.0148	61.03
Heptanes	0.0547	0.0259	52.68
Methylcyclohexane	0.1297	0.0717	44.73
Benzene	0.2164	0.1385	36.00
Toluene	0.8297	0.3637	56.16
Xylenes	1.6232	0.3297	79.69
C8+ Heavies	0.7423	0.0043	99.42
Total Emissions	107.8613	2.9880	97.23
Total Hydrocarbon Emissions	107.8613	2.9880	97.23
Total VOC Emissions	5.4972	1.3132	76.11
Total HAP Emissions	2.6937	0.8427	68.72

Total BTEX Emissions	2.6693	0.8319	68.83

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	100.00 deg. F
Condenser Pressure:	11.70 psia
Condenser Duty:	8.01e-002 MM BTU/hr
Hydrocarbon Recovery:	0.05 bbls/day
Produced Water:	6.53 bbls/day
VOC Control Efficiency:	66.30 %
HAP Control Efficiency:	68.27 %
BTEX Control Efficiency:	68.53 %
Dissolved Hydrocarbons in Water:	306.41 mg/L

Component	Emitted	Condensed
Water	0.09%	99.91%
Carbon Dioxide	96.65%	3.35%
Nitrogen	99.89%	0.11%
Methane	99.82%	0.18%
Ethane	99.69%	0.31%
Propane	99.12%	0.88%
Isobutane	98.44%	1.56%
n-Butane	97.88%	2.12%
Isopentane	94.84%	5.16%
n-Pentane	94.16%	5.84%
Cyclopentane	89.97%	10.03%
n-Hexane	85.08%	14.92%
Cyclohexane	80.12%	19.88%
Other Hexanes	88.75%	11.25%
Heptanes	67.13%	32.87%
Methylcyclohexane	65.16%	34.84%
Benzene	65.61%	34.39%
Toluene	44.49%	55.51%
Xylenes	20.41%	79.59%
C8+ Heavies	0.61%	99.39%

ABSORBER

Calculated Absorber Stages:	2.22	
Specified Dry Gas Dew Point:	3.00	lbs. H2O/MMSCF
Temperature:	87.0	deg. F
Pressure:	415.0	psig
Dry Gas Flow Rate:	30.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0820	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	79.15	lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio:	2.21	gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.78%	96.22%
Carbon Dioxide	99.91%	0.09%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.96%	0.04%
Isobutane	99.94%	0.06%
n-Butane	99.91%	0.09%
Isopentane	99.90%	0.10%
n-Pentane	99.87%	0.13%
Cyclopentane	99.48%	0.52%
n-Hexane	99.76%	0.24%
Cyclohexane	98.99%	1.01%
Other Hexanes	99.82%	0.18%
Heptanes	99.50%	0.50%
Methylcyclohexane	98.73%	1.27%
Benzene	90.44%	9.56%
Toluene	84.44%	15.56%
Xylenes	64.71%	35.29%
C8+ Heavies	97.29%	2.71%

FLASH TANK

Flash Control:	Recycle/recompression	
Flash Temperature:	90.0	deg. F
Flash Pressure:	41.0	psig

	Left in	Removed in

Component	Glycol	Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	20.28%	79.72%
Nitrogen	1.42%	98.58%
Methane	1.53%	98.47%
Ethane	5.56%	94.44%
Propane	13.38%	86.62%
Isobutane	20.22%	79.78%
n-Butane	25.80%	74.20%
Isopentane	29.84%	70.16%
n-Pentane	35.61%	64.39%
Cyclopentane	66.44%	33.56%
n-Hexane	52.07%	47.93%
Cyclohexane	80.64%	19.36%
Other Hexanes	44.37%	55.63%
Heptanes	70.63%	29.37%
Methylcyclohexane	85.40%	14.60%
Benzene	97.67%	2.33%
Toluene	98.65%	1.35%
Xylenes	99.56%	0.44%
C8+ Heavies	95.99%	4.01%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	23.66%	76.34%
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	1.20%	98.80%
n-Pentane	1.08%	98.92%
Cyclopentane	0.70%	99.30%
n-Hexane	0.82%	99.18%

Cyclohexane	3.82%	96.18%
Other Hexanes	1.85%	98.15%
Heptanes	0.66%	99.34%
Methylcyclohexane	4.55%	95.45%
Benzene	5.10%	94.90%
Toluene	7.99%	92.01%
Xylenes	12.97%	87.03%
C8+ Heavies	12.36%	87.64%

STREAM REPORTS:

WET GAS STREAM

Temperature: 87.00 deg. F
Pressure: 429.70 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.67e-001	9.91e+001
Carbon Dioxide	2.95e+000	4.28e+003
Nitrogen	3.29e-001	3.04e+002
Methane	9.52e+001	5.04e+004
Ethane	1.09e+000	1.08e+003
Propane	1.91e-001	2.78e+002
Isobutane	3.31e-002	6.36e+001
n-Butane	2.48e-002	4.75e+001
Isopentane	1.09e-002	2.59e+001
n-Pentane	5.59e-003	1.33e+001
Cyclopentane	9.98e-005	2.31e-001
n-Hexane	6.99e-004	1.99e+000
Cyclohexane	2.00e-004	5.55e-001
Other Hexanes	1.40e-003	3.98e+000
Heptanes	6.99e-004	2.31e+000
Methylcyclohexane	6.99e-004	2.26e+000
Benzene	2.00e-004	5.15e-001
Toluene	3.99e-004	1.21e+000
Xylenes	3.00e-004	1.05e+000
C8+ Heavies	1.10e-003	6.17e+000

Total Components	100.00	5.66e+004

DRY GAS STREAM

Temperature: 87.00 deg. F
Pressure: 429.70 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.32e-003	3.75e+000
Carbon Dioxide	2.95e+000	4.28e+003
Nitrogen	3.29e-001	3.04e+002
Methane	9.54e+001	5.04e+004
Ethane	1.09e+000	1.08e+003
Propane	1.92e-001	2.78e+002
Isobutane	3.32e-002	6.35e+001
n-Butane	2.48e-002	4.74e+001
Isopentane	1.09e-002	2.59e+001
n-Pentane	5.59e-003	1.33e+001
Cyclopentane	9.95e-005	2.30e-001
n-Hexane	6.98e-004	1.98e+000
Cyclohexane	1.98e-004	5.49e-001
Other Hexanes	1.40e-003	3.97e+000
Heptanes	6.97e-004	2.30e+000
Methylcyclohexane	6.91e-004	2.24e+000
Benzene	1.81e-004	4.65e-001
Toluene	3.38e-004	1.03e+000
Xylenes	1.94e-004	6.79e-001
C8+ Heavies	1.07e-003	6.01e+000
Total Components	100.00	5.65e+004

LEAN GLYCOL STREAM

Temperature: 87.00 deg. F
Flow Rate: 3.50e+000 gpm

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

TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	1.89e-011	3.72e-010
Nitrogen	8.28e-014	1.63e-012
Methane	4.56e-018	8.98e-017
Ethane	5.15e-009	1.02e-007
Propane	2.40e-010	4.73e-009
Isobutane	6.28e-011	1.24e-009
n-Butane	5.26e-011	1.04e-009
Isopentane	6.55e-006	1.29e-004
n-Pentane	4.40e-006	8.68e-005
Cyclopentane	3.07e-007	6.05e-006
n-Hexane	1.22e-006	2.41e-005
Cyclohexane	9.36e-006	1.84e-004
Other Hexanes	3.64e-006	7.17e-005
Heptanes	2.95e-006	5.82e-005
Methylcyclohexane	6.07e-005	1.20e-003
Benzene	1.31e-004	2.59e-003
Toluene	8.23e-004	1.62e-002
Xylenes	2.79e-003	5.50e-002
C8+ Heavies	1.16e-003	2.28e-002
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 87.00 deg. F
Pressure: 429.70 psia
Flow Rate: 3.75e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.26e+001	1.94e+003
Water	5.97e+000	1.25e+002
Carbon Dioxide	2.59e-001	5.42e+000
Nitrogen	6.55e-003	1.37e-001
Methane	1.08e+000	2.27e+001
Ethane	3.08e-002	6.45e-001
Propane	1.08e-002	2.27e-001
Isobutane	3.18e-003	6.66e-002
n-Butane	2.90e-003	6.07e-002

Isopentane	1.72e-003	3.61e-002
n-Pentane	1.08e-003	2.27e-002
Cyclopentane	6.21e-005	1.30e-003
n-Hexane	2.68e-004	5.60e-003
Cyclohexane	2.86e-004	5.98e-003
Other Hexanes	4.18e-004	8.75e-003
Heptanes	5.99e-004	1.26e-002
Methylcyclohexane	1.47e-003	3.08e-002
Benzene	2.48e-003	5.20e-002
Toluene	9.82e-003	2.06e-001
Xylenes	2.03e-002	4.26e-001
C8+ Heavies	9.18e-003	1.92e-001
Total Components	100.00	2.09e+003

FLASH TANK OFF GAS STREAM

Temperature: 90.00 deg. F
Pressure: 55.70 psia
Flow Rate: 5.80e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.77e-001	4.87e-002
Carbon Dioxide	6.43e+000	4.32e+000
Nitrogen	3.16e-001	1.35e-001
Methane	9.13e+001	2.24e+001
Ethane	1.33e+000	6.09e-001
Propane	2.92e-001	1.97e-001
Isobutane	5.98e-002	5.31e-002
n-Butane	5.07e-002	4.50e-002
Isopentane	2.30e-002	2.53e-002
n-Pentane	1.32e-002	1.46e-002
Cyclopentane	4.08e-004	4.37e-004
n-Hexane	2.04e-003	2.69e-003
Cyclohexane	9.01e-004	1.16e-003
Other Hexanes	3.69e-003	4.87e-003
Heptanes	2.41e-003	3.69e-003
Methylcyclohexane	3.00e-003	4.50e-003
Benzene	1.02e-003	1.21e-003
Toluene	1.97e-003	2.78e-003

Xylenes	1.16e-003	1.89e-003
C8+ Heavies	2.96e-003	7.72e-003
Total Components	100.00	2.79e+001

FLASH TANK GLYCOL STREAM

Temperature: 90.00 deg. F
Flow Rate: 3.69e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.38e+001	1.94e+003
Water	6.04e+000	1.25e+002
Carbon Dioxide	5.32e-002	1.10e+000
Nitrogen	9.39e-005	1.94e-003
Methane	1.68e-002	3.47e-001
Ethane	1.73e-003	3.58e-002
Propane	1.47e-003	3.04e-002
Isobutane	6.51e-004	1.35e-002
n-Butane	7.57e-004	1.57e-002
Isopentane	5.21e-004	1.08e-002
n-Pentane	3.90e-004	8.07e-003
Cyclopentane	4.18e-005	8.65e-004
n-Hexane	1.41e-004	2.92e-003
Cyclohexane	2.33e-004	4.83e-003
Other Hexanes	1.88e-004	3.88e-003
Heptanes	4.29e-004	8.87e-003
Methylcyclohexane	1.27e-003	2.63e-002
Benzene	2.46e-003	5.08e-002
Toluene	9.82e-003	2.03e-001
Xylenes	2.05e-002	4.24e-001
C8+ Heavies	8.93e-003	1.85e-001
Total Components	100.00	2.07e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

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

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.03e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.89e+001	9.54e+001
Carbon Dioxide	4.67e-001	1.10e+000
Nitrogen	1.30e-003	1.94e-003
Methane	4.05e-001	3.47e-001
Ethane	2.23e-002	3.58e-002
Propane	1.29e-002	3.04e-002
Isobutane	4.33e-003	1.35e-002
n-Butane	5.03e-003	1.57e-002
Isopentane	2.76e-003	1.06e-002
n-Pentane	2.07e-003	7.98e-003
Cyclopentane	2.29e-004	8.59e-004
n-Hexane	6.28e-004	2.89e-003
Cyclohexane	1.03e-003	4.64e-003
Other Hexanes	8.26e-004	3.81e-003
Heptanes	1.64e-003	8.81e-003
Methylcyclohexane	4.78e-003	2.51e-002
Benzene	1.15e-002	4.82e-002
Toluene	3.79e-002	1.87e-001
Xylenes	6.49e-002	3.69e-001
C8+ Heavies	1.77e-002	1.62e-001
Total Components	100.00	9.77e+001

CONDENSER VENT GAS STREAM

Temperature: 100.00 deg. F
Pressure: 11.70 psia
Flow Rate: 2.10e+001 scfh

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

Water	8.22e+000	8.19e-002
Carbon Dioxide	4.36e+001	1.06e+000
Nitrogen	1.25e-001	1.94e-003
Methane	3.90e+001	3.47e-001
Ethane	2.15e+000	3.57e-002
Propane	1.23e+000	3.01e-002
Isobutane	4.12e-001	1.33e-002
n-Butane	4.76e-001	1.53e-002
Isopentane	2.53e-001	1.01e-002
n-Pentane	1.88e-001	7.51e-003
Cyclopentane	1.99e-002	7.73e-004
n-Hexane	5.16e-002	2.46e-003
Cyclohexane	7.98e-002	3.72e-003
Other Hexanes	7.09e-002	3.38e-003
Heptanes	1.07e-001	5.91e-003
Methylcyclohexane	3.01e-001	1.64e-002
Benzene	7.31e-001	3.16e-002
Toluene	1.63e+000	8.30e-002
Xylenes	1.28e+000	7.53e-002
C8+ Heavies	1.04e-002	9.82e-004
Total Components	100.00	1.83e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.91e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	9.99e+001	9.53e+001	999315.
Carbon Dioxide	3.79e-002	3.61e-002	379.
Nitrogen	1.57e-006	1.49e-006	0.
Methane	5.68e-004	5.42e-004	6.
Ethane	7.08e-005	6.75e-005	1.
Propane	5.22e-005	4.97e-005	1.
Isobutane	1.29e-005	1.23e-005	0.
n-Butane	2.02e-005	1.92e-005	0.
Isopentane	9.69e-006	9.24e-006	0.
n-Pentane	7.87e-006	7.50e-006	0.
Cyclopentane	6.10e-006	5.81e-006	0.

n-Hexane	2.23e-006	2.13e-006	0.
Cyclohexane	2.04e-005	1.94e-005	0.
Other Hexanes	2.43e-006	2.32e-006	0.
Heptanes	3.07e-006	2.92e-006	0.
Methylcyclohexane	4.36e-005	4.16e-005	0.
Benzene	5.41e-003	5.16e-003	54.
Toluene	1.22e-002	1.16e-002	122.
Xylenes	1.22e-002	1.17e-002	122.
C8+ Heavies	2.89e-007	2.75e-007	0.
Total Components	100.00	9.53e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.32e-003 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	3.51e-002	1.97e-004
Carbon Dioxide	1.28e-001	7.17e-004
Nitrogen	1.28e-004	7.18e-007
Methane	1.44e-002	8.08e-005
Ethane	7.90e-003	4.44e-005
Propane	3.88e-002	2.18e-004
Isobutane	3.52e-002	1.98e-004
n-Butane	5.55e-002	3.12e-004
Isopentane	9.62e-002	5.41e-004
n-Pentane	8.16e-002	4.59e-004
Cyclopentane	1.43e-002	8.03e-005
n-Hexane	7.64e-002	4.30e-004
Cyclohexane	1.61e-001	9.03e-004
Other Hexanes	7.59e-002	4.26e-004
Heptanes	5.14e-001	2.89e-003
Methylcyclohexane	1.55e+000	8.71e-003
Benzene	2.03e+000	1.14e-002
Toluene	1.64e+001	9.20e-002
Xylenes	5.01e+001	2.82e-001
C8+ Heavies	2.86e+001	1.61e-001
Total Components	100.00	5.62e-001

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: 31-6 CDP
File Name: C:\1 - Cirrus\1 - Projects\1 - Harvest\1 - Permitting\2 - Title V\31-6\1 - Application\31-6 - GRI-GLYCalc - EU 32-34.ddf
Date: October 12, 2024

DESCRIPTION:

Description: Unit Number: 32-34
Capacity: 30 MMSCFD
10/20/23 Gas Analysis

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 87.00 deg. F
Pressure: 415.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	2.1802
Nitrogen	0.0754
Methane	97.4382
Ethane	0.2979
Propane	0.0083

DRY GAS:

Flow Rate: 30.0 MMSCF/day
Water Content: 3.6 lbs. H2O/MMSCF

LEAN GLYCOL:

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

PUMP:

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

FLASH TANK:

Flash Control: Recycle/recompression
Temperature: 90.0 deg. F
Pressure: 41.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device: Condenser
Temperature: 100.0 deg. F
Pressure: 11.7 psia

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: 31-6 CDP
File Name: C:\1 - Cirrus\1 - Projects\1 - Harvest\1 - Permitting\2 - Title V\31-6\1 - Application\31-6 - GRI-GLYCalc - EU 32-34.ddf
Date: October 12, 2024

DESCRIPTION:

Description: Unit Number: 32-34
Capacity: 30 MMSCFD
10/20/23 Gas Analysis

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3584	8.602	1.5698
Ethane	0.0099	0.238	0.0434
Propane	0.0013	0.032	0.0058
Total Emissions	0.3696	8.871	1.6190
Total Hydrocarbon Emissions	0.3696	8.871	1.6190
Total VOC Emissions	0.0013	0.032	0.0058

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3591	8.618	1.5728
Ethane	0.0099	0.238	0.0435
Propane	0.0013	0.032	0.0058
Total Emissions	0.3704	8.888	1.6221
Total Hydrocarbon Emissions	0.3704	8.888	1.6221

Total VOC Emissions	0.0013	0.032	0.0058

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	22.7776	546.662	99.7658
Ethane	0.1658	3.980	0.7264
Propane	0.0085	0.204	0.0371
Total Emissions	22.9519	550.846	100.5293
Total Hydrocarbon Emissions	22.9519	550.846	100.5293
Total VOC Emissions	0.0085	0.204	0.0371

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.3584	8.602	1.5698
Ethane	0.0099	0.238	0.0434
Propane	0.0013	0.032	0.0058
Total Emissions	0.3696	8.871	1.6190
Total Hydrocarbon Emissions	0.3696	8.871	1.6190
Total VOC Emissions	0.0013	0.032	0.0058

COMBINED REGENERATOR VENT/FLASH GAS EMISSION CONTROL REPORT:

Component	Uncontrolled tons/yr	Controlled tons/yr	% Reduction
Methane	101.3387	1.5698	98.45

Ethane	0.7698	0.0434	94.37
Propane	0.0430	0.0058	86.48
Total Emissions	102.1515	1.6190	98.42
Total Hydrocarbon Emissions	102.1515	1.6190	98.42
Total VOC Emissions	0.0430	0.0058	86.48

EQUIPMENT REPORTS:

CONDENSER

Condenser Outlet Temperature:	100.00	deg. F
Condenser Pressure:	11.70	psia
Condenser Duty:	7.95e-002	MM BTU/hr
Produced Water:	6.47	bbls/day
VOC Control Efficiency:	0.20	%
HAP Control Efficiency:	0.00	%
BTEX Control Efficiency:	0.00	%
Dissolved Hydrocarbons in Water:	7.61	mg/L

Component	Emitted	Condensed
Water	0.07%	99.93%
Carbon Dioxide	95.97%	4.03%
Nitrogen	99.90%	0.10%
Methane	99.81%	0.19%
Ethane	99.77%	0.23%
Propane	99.80%	0.20%

ABSORBER

Calculated Absorber Stages:	1.86	
Specified Dry Gas Dew Point:	3.60	lbs. H2O/MMSCF
Temperature:	87.0	deg. F
Pressure:	415.0	psig
Dry Gas Flow Rate:	30.0000	MMSCF/day
Glycol Losses with Dry Gas:	0.0809	lb/hr
Wet Gas Water Content:	Saturated	
Calculated Wet Gas Water Content:	79.02	lbs. H2O/MMSCF

Calculated Lean Glycol Recirc. Ratio: 2.23 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	4.55%	95.45%
Carbon Dioxide	99.91%	0.09%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.96%	0.04%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 90.0 deg. F
Flash Pressure: 41.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.96%	0.04%
Carbon Dioxide	20.55%	79.45%
Nitrogen	1.44%	98.56%
Methane	1.55%	98.45%
Ethane	5.65%	94.35%
Propane	13.55%	86.45%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	23.84%	76.16%
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%

STREAM REPORTS:

WET GAS STREAM

Temperature: 87.00 deg. F
Pressure: 429.70 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.66e-001	9.89e+001
Carbon Dioxide	2.18e+000	3.16e+003
Nitrogen	7.53e-002	6.96e+001
Methane	9.73e+001	5.15e+004
Ethane	2.97e-001	2.95e+002
Propane	8.29e-003	1.21e+001
Total Components	100.00	5.51e+004

DRY GAS STREAM

Temperature: 87.00 deg. F
Pressure: 429.70 psia
Flow Rate: 1.25e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.58e-003	4.50e+000
Carbon Dioxide	2.18e+000	3.16e+003
Nitrogen	7.54e-002	6.96e+001
Methane	9.74e+001	5.15e+004
Ethane	2.98e-001	2.95e+002
Propane	8.30e-003	1.21e+001
Total Components	100.00	5.50e+004

LEAN GLYCOL STREAM

Temperature: 87.00 deg. F
Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.85e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	1.39e-011	2.74e-010
Nitrogen	1.89e-014	3.73e-013
Methane	4.64e-018	9.15e-017
Ethane	1.41e-009	2.77e-008
Propane	1.04e-011	2.05e-010
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 87.00 deg. F
Pressure: 429.70 psia
Flow Rate: 3.74e+000 gpm
NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.28e+001	1.94e+003
Water	5.93e+000	1.24e+002
Carbon Dioxide	1.91e-001	4.00e+000
Nitrogen	1.50e-003	3.13e-002
Methane	1.11e+000	2.31e+001
Ethane	8.41e-003	1.76e-001
Propane	4.69e-004	9.81e-003
Total Components	100.00	2.09e+003

FLASH TANK OFF GAS STREAM

Temperature: 90.00 deg. F
Pressure: 55.70 psia
Flow Rate: 5.70e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.75e-001	4.74e-002
Carbon Dioxide	4.80e+000	3.18e+000
Nitrogen	7.34e-002	3.09e-002
Methane	9.46e+001	2.28e+001
Ethane	3.67e-001	1.66e-001
Propane	1.28e-002	8.48e-003
Total Components	100.00	2.62e+001

FLASH TANK GLYCOL STREAM

Temperature: 90.00 deg. F
Flow Rate: 3.69e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.39e+001	1.94e+003
Water	6.01e+000	1.24e+002
Carbon Dioxide	3.98e-002	8.21e-001
Nitrogen	2.18e-005	4.50e-004
Methane	1.74e-002	3.59e-001
Ethane	4.81e-004	9.92e-003
Propane	6.44e-005	1.33e-003
Total Components	100.00	2.06e+003

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

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

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F

Pressure: 14.70 psia
Flow Rate: 2.01e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.92e+001	9.44e+001
Carbon Dioxide	3.53e-001	8.21e-001
Nitrogen	3.04e-004	4.50e-004
Methane	4.24e-001	3.59e-001
Ethane	6.24e-003	9.92e-003
Propane	5.70e-004	1.33e-003
Total Components	100.00	9.56e+001

CONDENSER VENT GAS STREAM

Temperature: 100.00 deg. F
Pressure: 11.70 psia
Flow Rate: 1.68e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	8.22e+000	6.55e-002
Carbon Dioxide	4.05e+001	7.88e-001
Nitrogen	3.63e-002	4.50e-004
Methane	5.05e+001	3.58e-001
Ethane	7.44e-001	9.90e-003
Propane	6.80e-002	1.33e-003
Total Components	100.00	1.22e+000

CONDENSER PRODUCED WATER STREAM

Temperature: 100.00 deg. F
Flow Rate: 1.89e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	1.00e+002	9.44e+001	999641.
Carbon Dioxide	3.51e-002	3.31e-002	351.
Nitrogen	4.54e-007	4.28e-007	0.

Methane	7.34e-004	6.93e-004	7.
Ethane	2.45e-005	2.31e-005	0.
Propane	2.87e-006	2.71e-006	0.
Total Components	100.00	9.44e+001	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 100.00 deg. F

The calculated flow rate is less than 0.000001 #mol/hr.
The stream flow rate and composition are not reported.

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 17b-22b
Description: Dehydrator Reboilers (12 MMSCFD)

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

Fuel Consumption

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

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	0.78	3.25E-02	1.42E-01
VOC	0.12	4.79E-03	2.10E-02
SO2	0.02	8.33E-04	3.65E-03

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

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

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

Exhaust Parameters

600	°F		Exhaust temperature	Mfg. data (Enertek & InFab)
198.03	cfm	3.30	Stack flowrate	fps x ft^2 x 60 sec/min
0.83	ft		Stack diameter	Mfg. data (InFab)
0.54	ft^2		Stack exit area	3.1416 x ((ft / 2) ^2)
6.1	fps		Stack velocity	Mfg. data (Enertek & InFab)
23.50	ft		Stack height - units 17b & 21b	Harvest Four Corners, LLC
23.25	ft		Stack height - unit 18b	Harvest Four Corners, LLC
23.17	ft		Stack height - units 20b & 22b	Harvest Four Corners, LLC
23.00	ft		Stack height - unit 19b	Harvest Four Corners, LLC

Dehydrator Reboiler Exhaust Emissions Calculations

Unit Number: 31b-34b
Description: Dehydrator Reboilers (30 MMCFD)

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

Fuel Consumption

617	scf/hr	Hourly fuel consumption	(MMBtu/hr / Btu/scf) x 1,000,000
900	Btu/scf	Field gas heating value	Nominal heat content
0.555	MMBtu/hr	Capacity	Manufacturer data
8,760	hr/yr	Annual operating time	Harvest Four Corners, LLC
4,862	MMBtu/yr	Annual fuel consumption	MMBtu/hr x hr/yr
5.40	MMscf/yr	Annual fuel consumption	scf/hr x hr/yr / 1,000,000

Steady-State Emission Rates

Pollutants	Emission Factors, lb/day	Uncontrolled Emission Rates, pph	tpy
NOX	1.03	4.29E-02	1.88E-01
CO	1.07	4.46E-02	1.95E-01
VOC	0.16	6.46E-03	2.83E-02
SO2	0.02	8.33E-04	3.65E-03

NOX emission factor taken from August 1994 Enertek Letter *(20 mmcfd)*
CO, TOC and SO2 emission factors taken from July 1998 InFab Letter *(20 mmcfd)*
50% of TOC emissions are assumed to be VOC emissions, consistent with AP-42, Table 1.4-2
Uncontrolled Emission Rates (pph) = lb/day / 24 hr/day
Uncontrolled Emission Rates (tpy) = Uncontrolled Emission Rates (pph) x hr/yr / 2,000 lb/ton

Pollutants	Emission Factors, lb/MMscf	Uncontrolled Emission Rates, pph	tpy
PM	7.60	4.69E-03	2.05E-02
PM10	7.60	4.69E-03	2.05E-02
PM2.5	7.60	4.69E-03	2.05E-02
Lead	5.00E-04	3.08E-07	1.35E-06

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

Exhaust Parameters

600	°F		Exhaust temperature	Mfg. data (Enertek & InFab)
198.03	cfm	3.30	Stack flowrate	fps x ft^2 x 60 sec/min
0.83	ft		Stack diameter	Mfg. data (InFab)
0.54	ft^2		Stack exit area	3.1416 x ((ft / 2) ^2)
6.1	fps		Stack velocity	Mfg. data (Enertek & InFab)
23.08	ft		Stack height	Mfg. data (InFab)

GRI-HAPCalc® 3.0
External Combustion Devices Report

Facility ID:	**31-6 CDP**	**Notes:**
Operation Type:	**COMPRESSOR STATION**	
Facility Name:	**31-6 CENTRAL DELIVERY POINT**	
User Name:	**Harvest 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: REBOILER#1

Hours of Operation:	8,760	Yearly
Heat Input:	0.38	MMBtu/hr
Fuel Type:	NATURAL GAS	
Device Type:	BURNER	
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	0.0090	0.0053921569	lb/MMBtu	EPA
PM	0.0124	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0093	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0031	0.0018627451	lb/MMBtu	EPA
CO	0.0511	0.0307275000	lb/MMBtu	GRI Field
NMHC	0.0142	0.0085294118	lb/MMBtu	EPA
NOx	0.1469	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	0.0098	0.0058790650	lb/MMBtu	GRI Field
Acetylene	0.0089	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0009	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0028	0.0016804650	lb/MMBtu	GRI Field
Propylene	0.0016	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0020	0.0012019050	lb/MMBtu	GRI Field
Butane	0.0023	0.0013866350	lb/MMBtu	GRI Field
Cyclopentane	0.0001	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0034	0.0020656400	lb/MMBtu	GRI Field
n-Pentane	0.0033	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	195.8118	117.6470588235	lb/MMBtu	EPA

Unit Name: REBOILER#2

Hours of Operation: 8,760 Yearly

Heat Input: 0.55 MMBtu/hr

Fuel Type: NATURAL GAS

Device Type: BURNER

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	0.0008	0.0003522500	lb/MMBtu	GRI Field
Methanol	0.0010	0.0004333330	lb/MMBtu	GRI Field
Acetaldehyde	0.0007	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	0.0008	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	0.0034			

Criteria Pollutants

VOC	0.0130	0.0053921569	lb/MMBtu	EPA
PM	0.0179	0.0074509804	lb/MMBtu	EPA
PM, Condensible	0.0135	0.0055882353	lb/MMBtu	EPA
PM, Filterable	0.0045	0.0018627451	lb/MMBtu	EPA
CO	0.0740	0.0307275000	lb/MMBtu	GRI Field
NMHC	0.0205	0.0085294118	lb/MMBtu	EPA
NOx	0.2126	0.0882553330	lb/MMBtu	GRI Field
SO2	0.0014	0.0005880000	lb/MMBtu	EPA

Other Pollutants

Dichlorobenzene	0.0000	0.0000011765	lb/MMBtu	EPA
Methane	0.0142	0.0058790650	lb/MMBtu	GRI Field
Acetylene	0.0128	0.0053314000	lb/MMBtu	GRI Field
Ethylene	0.0013	0.0005264000	lb/MMBtu	GRI Field
Ethane	0.0040	0.0016804650	lb/MMBtu	GRI Field
Propylene	0.0022	0.0009333330	lb/MMBtu	GRI Field
Propane	0.0029	0.0012019050	lb/MMBtu	GRI Field
Butane	0.0033	0.0013866350	lb/MMBtu	GRI Field
Cyclopentane	0.0001	0.0000405000	lb/MMBtu	GRI Field
Pentane	0.0050	0.0020656400	lb/MMBtu	GRI Field
n-Pentane	0.0048	0.0020000000	lb/MMBtu	GRI Field
Cyclohexane	0.0001	0.0000451000	lb/MMBtu	GRI Field
Methylcyclohexane	0.0004	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	283.4118	117.6470588235	lb/MMBtu	EPA

Equipment Leaks Emissions Calculations

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

Steady-State Emission Rates

Equipment	Number of Components, # of sources	Emission Factors, kg/hr/source	Emission Factors, lb/hr/source	Uncontrolled Emission Rates, pph	tpy
Valves	1377	0.0045	0.0099	13.63	59.71
Connectors	1527	0.0002	0.0004	0.67	2.94
Pump Seals	20	0.0024	0.0053	0.11	0.46
Compressor Seals	88	0.0088	0.0194	1.70	7.46
Pressure Relief Valves	133	0.0088	0.0194	2.57	11.28
Open-Ended Lines	388	0.0020	0.0044	1.71	7.48
Total				**20.40**	**89.33**

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

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight, Percent %	Uncontrolled Emission Rates, pph	tpy
Carbon dioxide	2.9547	44.010	1.300	7.581	1.55E+00	6.77E+00
Hydrogen sulfide	0.0000	34.070	0.000	0.000	0.00E+00	0.00E+00
Nitrogen	0.3291	28.013	0.092	0.537	1.10E-01	4.80E-01
Methane	95.3540	16.043	15.298	89.180	1.82E+01	7.97E+01
Ethane	1.0902	30.070	0.328	1.911	3.90E-01	1.71E+00
Propane	0.1916	44.097	0.084	0.492	1.00E-01	4.40E-01
Isobutane	0.0332	58.123	0.019	0.112	2.29E-02	1.00E-01
n-Butane	0.0248	58.123	0.014	0.084	1.72E-02	7.51E-02
Isopentane	0.0109	72.150	0.008	0.046	9.33E-03	4.09E-02
n-Pentane	0.0056	72.150	0.004	0.024	4.84E-03	2.12E-02
Cyclopentane	0.0001	70.134	0.000	0.000	6.92E-05	3.03E-04
n-Hexane	0.0007	86.177	0.001	0.004	7.65E-04	3.35E-03
Cyclohexane	0.0002	84.161	0.000	0.001	2.49E-04	1.09E-03
Other hexanes	0.0014	86.177	0.001	0.007	1.45E-03	6.33E-03
Heptanes	0.0007	100.204	0.001	0.004	8.90E-04	3.90E-03
Methylcyclohexane	0.0007	98.188	0.001	0.004	7.75E-04	3.40E-03
2,2,4-Trimethylpentane (Isooct	0.0000	114.231	0.000	0.000	0.00E+00	0.00E+00
Benzene	0.0002	78.114	0.000	0.001	1.54E-04	6.75E-04
Toluene	0.0004	92.141	0.000	0.002	4.55E-04	1.99E-03
Ethylbenzene	0.0000	106.167	0.000	0.000	0.00E+00	0.00E+00
Xylenes	0.0003	106.167	0.000	0.002	4.19E-04	1.84E-03
C8+ Heavies	0.0011	114.231	0.001	0.007	1.47E-03	6.42E-03
Total	99.9999		17.154			
Total VOC				0.791	1.61E-01	7.07E-01

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/2018.
Component Weights (lb/lb-mole) = (% / 100) * Molecular Weights (lb/lb-mole)
Weight Percent (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Uncontrolled Emission Rates (pph) = Total Uncontrolled Emission Rate (from Table 1 above) (pph) x (% / 100)
Uncontrolled Emission Rates (tpy) = Total Uncontrolled Emission Rate (from Table 1 above) (tpy) x (% / 100)

Equipment Leaks Emissions Calculations

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

Component Count

Number of Compressors at the Facility: 16
Number of Dehydrators at the Facility: 10

Process Equipment Description	Equipment Count						Instrument Count		
	Valves	Connectors	Pump Seals	Compressor Seals	Pressure Relief Valves	Open-End	Flow	Level	Pressure
Station inlet, meter run to pulsation dampener	17	14	0	0	1	13	3	0	3
Pulsation dampener	12	8	0	0	0	2	0	4	1
Compressor suction header	7	4	0	0	0	3	0	0	1
Suction header feed to instrument gas header	3	1	0	0	0	1	0	0	0
Compressor discharge header and bypass to station discharge	6	5	0	0	0	3	0	1	1
Compressor discharge header and suction header bypass lines	4	2	0	0	0	2	0	0	1
Fuel gas header	2	2	0	0	1	2	0	0	1
Instrument gas header	2	2	0	0	1	2	0	0	0
Station discharge header	9	5	0	0	1	6	0	0	2
Fuel gas recovery header	2	2	0	0	1	2	0	0	0
Fuel gas feed and filter loop	15	9	0	0	0	1	0	4	1
Instrument gas feed and filter loop	9	11	0	0	0	3	0	0	0
Produced water storage tank	1	0	0	0	0	1	0	1	0
ESD panel	12	0	0	0	0	0	0	0	0
Starting gas header	6	2	0	0	1	3	0	0	0
Hot gas header	2	2	0	0	0	2	0	0	0
Volume bottle lop	12	4	0	24	1	2	0	0	1
Components from Compressors	704	944	0	64	96	176	0	64	144
Components from dehydrators	60	100	20	0	30	60	0	30	40
Total	885	1117	20	88	133	284	3	104	196
Adjusted Total	1377	1527	20	88	133	388			

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 the evaluation of a comparable facility (Sim Mesa Central Delivery Point)

Storage Tank Emissions Calculations

Unit Number: T25, T43, T44, T55 & T56
Description: Produced Water Tank

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

Throughput

7,270	bbl/yr	Annual liquid throughput	Harvest Four Corners, LLC

Emission Rates

Pollutant	Emission Factor, lb/bbl	Uncontrolled, Emission Rate, tpy
VOC	0.262	9.52E-01
Benzene	0.007	2.54E-02
Ethylbenzene	0.0007	2.54E-03
n-Hexane	0.022	8.00E-02
Toluene	0.009	3.27E-02
Xylene	0.006	2.18E-02

VOC, Benzene, and n-Hexane emission factors are taken from the CDPHE PS Memo 09-02 (Oil & Gas Produced Water Tank Batteries - Regulatory Definitions & Permitting Guidance)
Ethylbenzene, toluene, and xylene emissions factors (Non-Texas) are taken from the TCEQ Project 2010-29 (Emission Factor Determination for Produced Water Storage Tanks) report
Uncontrolled Emission Rates (tpy) = lb/bbl x bbl/yr / 2,000 lb/ton

Pneumatic Pump Emissions Calculations

Unit Number: PP1-PP10
Description: Pneumatic Pumps

Throughput

42,135,600 scf/yr Annual gas loss Harvest Four Corners, LLC

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.576E-04	7.53
Benzene	3.418E-07	7.20E-03
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	1.697E-06	3.57E-02
Isooctane	0.000E+00	0.00E+00
Toluene	1.008E-06	2.12E-02
Xylene	9.291E-07	1.96E-02

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	2.9547	44.01	3.427E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3291	28.01	2.429E-04
Methane	95.3540	16.04	4.031E-02
Ethane	1.0902	30.07	8.640E-04
Propane	0.1916	44.09	2.226E-04
Isobutane	0.0332	58.12	5.086E-05
n-Butane	0.0248	58.12	3.802E-05
Isopentane	0.0109	72.15	2.068E-05
n-Pentane	0.0056	72.15	1.073E-05
Cyclopentane	0.0001	70.14	1.534E-07
n-Hexane	0.0007	86.17	1.697E-06
Cyclohexane	0.0002	84.16	5.524E-07
Other hexanes	0.0014	86.18	3.205E-06
Heptanes	0.0007	100.20	1.973E-06
Methylcyclohexane	0.0007	98.19	1.719E-06
Isooctane	0.0000	100.21	0.000E+00
Benzene	0.0002	78.11	3.418E-07
Toluene	0.0004	92.14	1.008E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0003	106.17	9.291E-07
C8+ Heavies	0.0011	110.00	3.128E-06
Total	99.9999		
Total VOC			3.576E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/2018.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Pneumatic Controller Emissions Calculations

Unit Number: PC1-PC80
Description: Pneumatic Controllers (Exempt Sources)

Throughput

2,887,979 scf/yr Annual gas loss Harvest Four Corners, LLC

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.576E-04	5.16E-01
Benzene	3.418E-07	4.94E-04
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	1.697E-06	2.45E-03
Isooctane	0.000E+00	0.00E+00
Toluene	1.008E-06	1.46E-03
Xylene	9.291E-07	1.34E-03

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	2.9547	44.01	3.427E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3291	28.01	2.429E-04
Methane	95.3540	16.04	4.031E-02
Ethane	1.0902	30.07	8.640E-04
Propane	0.1916	44.09	2.226E-04
Isobutane	0.0332	58.12	5.086E-05
n-Butane	0.0248	58.12	3.802E-05
Isopentane	0.0109	72.15	2.068E-05
n-Pentane	0.0056	72.15	1.073E-05
Cyclopentane	0.0001	70.14	1.534E-07
n-Hexane	0.0007	86.17	1.697E-06
Cyclohexane	0.0002	84.16	5.524E-07
Other hexanes	0.0014	86.18	3.205E-06
Heptanes	0.0007	100.20	1.973E-06
Methylcyclohexane	0.0007	98.19	1.719E-06
Isooctane	0.0000	100.21	0.000E+00
Benzene	0.0002	78.11	3.418E-07
Toluene	0.0004	92.14	1.008E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0003	106.17	9.291E-07
C8+ Heavies	0.0011	110.00	3.128E-06
Total	99.9999		
Total VOC			3.576E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/2018.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Truck Loading (Produced Water) Emissions Calculations

Unit Number: L1
Description: Truck Loading (Exempt Source)

Emission Factor

0.6	Saturation factor, S	AP-42, Table 5.2-1 (submerged loading & dedicated service)
0.4581 psia (maximum)	True vapor pressure of liquid, P	Estimated using Antoine's Equation (see calculations below)
0.3045 psia (average)	True vapor pressure of liquid, P	Estimated using Antoine's Equation (see calculations below)
18.02 lb/lb-mole	Molecular weight of vapors, M	TANKS 4.0 Database
77 °F (maximum)	Temperature of liquid	Estimated (see calculations below)
65 °F (average)	Temperature of liquid	Estimated (see calculations below)
536.67 °R (maximum)	Temperature of liquid, T	°F + 459.67
524.67 °R (average)	Temperature of liquid, T	°F + 459.67
0.11 lb/10^3 gal (maximum)	Emission factor, L	AP-42, Section 5.2, Equation 1
0.08 lb/10^3 gal (average)	Emission factor, L	AP-42, Section 5.2, Equation 1

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

Production Rate

3.36 10^3 gal/hr	Maximum hourly production rate	Harvest Four Corners, LLC
7.270 10^3 gal/yr	Maximum annual production rate (aggregate)	Harvest Four Corners, LLC

Steady-State Emission Rates

Pollutant	Uncontrolled Emission Rates, pph	tpy
VOC	3.86E-01	2.84E-04

The short-term emission rates are calculated using the maximum true vapor pressure and maximum temperature of the liquid
The annual emission rates are calculated using the average true vapor pressure and average temperature of the liquid
Uncontrolled Emission Rate (pph) = lb/10^3 gal x 10^3 gal/hr
Uncontrolled Emission Rate (tpy) = lb/10^3 gal x 10^3 gal/yr / 2,000 lb/ton

Pollutants	Mass Fraction	Uncontrolled Emission Rates, pph	tpy
Benzene	0.0267	1.03E-04	7.59E-08
Ethylbenzene	0.0027	1.03E-05	7.59E-09
n-Hexane	0.0840	3.24E-04	2.39E-07
Toluene	0.0344	1.33E-04	9.76E-08
m-Xylene	0.0229	8.85E-05	6.51E-08

HAP mass fractions are estimated from the produced water tank emission factors
HAP Mass Fraction = HAP Emission Factor (lb/bbl) / VOC Emission Factor (lb/bbl)
Emission Rates (pph) = VOC Emission Rate (pph) x HAP Mass Fraction
Emission Rates (tpy) = VOC Emission Rate (tpy) x HAP Mass Fraction

Truck Loading (Produced Water) Emissions Calculations

Unit Number: L1
Description: Truck Loading (Exempt Source)

Vapor Pressure of Produced Water:

It is estimated that the true vapor pressure of produced water is approximately equal to the true vapor pressure of pure water. An estimate of the true vapor pressure for water is calculated using Antoine's equation (see AP-42, Section 7.1, Equation 1-25).

Maximum:

Temperature = 77 °F

log P = A - (B / (C + T))

A = 8.07131
B = 1730.63
C = 233.426
T = 25.00 °C
P = mmHg

P = 10^(A - (B / (C + T))

P = 23.69 mmHg
P = 0.4581 psi

Average:

Temperature = 65 °F

log P = A - (B / (C + T))

A = 8.07131
B = 1730.63
C = 233.426
T = 18.33 °C
P = mmHg

P = 10^(A - (B / (C + T))

P = 15.75 mmHg
P = 0.3045 psi

Note: 760 mmHg = 14.7 psia

Pig Launcher Emissions Calculations

Unit Number: PL1
Description: Pig Receiver (Exempt Source)

Pipe Volume

Outside Diameter, in	Wall Thickness, in	Pipe Length, ft	Pipe Volume, ft^3
20	0.375	6	12.127

Pipe Volume
3.1416 x (((Outside Diameter - (2 x Wall Thickness)) / 12 / 2) ^2) x Pipeline Length

Blowdown Volume (Per Event)

Blowdown Pressure, psig	Atmospheric Pressure, psi	Blowdown Gas Loss, scf	Number of Purges, #	Purge Pressure, psig	Purge Gas Loss, mscf	Total Gas Loss, scf
390	11.66	331	2	30	69	400

Blowdown Gas Loss
Pipe Volume x ((Blowdown Pressure + Atmospheric Pressure) / 14.7)
Purge Gas Loss
Number of Purges x Pipe Volume x ((Purge Pressure + Atmospheric Pressure) / 14.7)

Throughput

26	events/yr	Blowdowns per year	Harvest Four Corners, LLC
400	scf/event	Gas loss per blowdown	Calculated (see table above)
10,402	scf/yr	Annual gas loss	events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.576E-04	1.86E-03
Benzene	3.418E-07	1.78E-06
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	1.697E-06	8.82E-06
Isooctane	0.000E+00	0.00E+00
Toluene	1.008E-06	5.24E-06
Xylene	9.291E-07	4.83E-06

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Pig Launcher Emissions Calculations

Unit Number: PL1
Description: Pig Receiver (Exempt Source)

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	2.9547	44.01	3.427E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3291	28.01	2.429E-04
Methane	95.3540	16.04	4.031E-02
Ethane	1.0902	30.07	8.640E-04
Propane	0.1916	44.09	2.226E-04
Isobutane	0.0332	58.12	5.086E-05
n-Butane	0.0248	58.12	3.802E-05
Isopentane	0.0109	72.15	2.068E-05
n-Pentane	0.0056	72.15	1.073E-05
Cyclopentane	0.0001	70.14	1.534E-07
n-Hexane	0.0007	86.17	1.697E-06
Cyclohexane	0.0002	84.16	5.524E-07
Other hexanes	0.0014	86.18	3.205E-06
Heptanes	0.0007	100.20	1.973E-06
Methylcyclohexane	0.0007	98.19	1.719E-06
Isooctane	0.0000	100.21	0.000E+00
Benzene	0.0002	78.11	3.418E-07
Toluene	0.0004	92.14	1.008E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0003	106.17	9.291E-07
C8+ Heavies	0.0011	110.00	3.128E-06
Total	99.9999		
Total VOC			3.576E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/2018.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

Pig Receiver Emissions Calculations

Unit Number: PR1 & PR2
Description: Pig Receiver (Exempt Source)

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

Pipe Volume

Outside Diameter, in	Wall Thickness, in	Pipe Length, ft	Pipe Volume, ft^3
20	0.375	10	20.211

Pipe Volume
3.1416 x (((Outside Diameter - (2 x Wall Thickness)) / 12 / 2) ^2) x Pipeline Length

Blowdown Volume (Per Event)

Blowdown Pressure, psig	Atmospheric Pressure, psi	Blowdown Gas Loss, scf	Number of Purges, #	Purge Pressure, psig	Purge Gas Loss, mscf	Total Gas Loss, scf
30	11.66	57	2	30	115	172

Blowdown Gas Loss
Pipe Volume x ((Blowdown Pressure + Atmospheric Pressure) / 14.7)
Purge Gas Loss
Number of Purges x Pipe Volume x ((Purge Pressure + Atmospheric Pressure) / 14.7)

Throughput

52	events/yr	Blowdowns per year	Harvest Four Corners, LLC
172	scf/event	Gas loss per blowdown	Calculated (see table above)
8,935	scf/yr	Annual gas loss	events/yr x scf/event

Emission Rates

Pollutants	Emission Factors, lb/scf	Uncontrolled, Emission Rates, tpy
VOC	3.576E-04	1.60E-03
Benzene	3.418E-07	1.53E-06
Ethylbenzene	0.000E+00	0.00E+00
n-Hexane	1.697E-06	7.58E-06
Isooctane	0.000E+00	0.00E+00
Toluene	1.008E-06	4.50E-06
Xylene	9.291E-07	4.15E-06

Emission factors calculated from gas composition (see table below)
Uncontrolled Emission Rates (tpy) = scf/yr x lb/scf / 2,000 lb/ton

Pig Receiver Emissions Calculations

Unit Number: PR1 & PR2
Description: Pig Receiver (Exempt Source)

Gas Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Emission Factors, lb/scf
Carbon dioxide	2.9547	44.01	3.427E-03
Hydrogen sulfide	0.0000	34.07	0.000E+00
Nitrogen	0.3291	28.01	2.429E-04
Methane	95.3540	16.04	4.031E-02
Ethane	1.0902	30.07	8.640E-04
Propane	0.1916	44.09	2.226E-04
Isobutane	0.0332	58.12	5.086E-05
n-Butane	0.0248	58.12	3.802E-05
Isopentane	0.0109	72.15	2.068E-05
n-Pentane	0.0056	72.15	1.073E-05
Cyclopentane	0.0001	70.14	1.534E-07
n-Hexane	0.0007	86.17	1.697E-06
Cyclohexane	0.0002	84.16	5.524E-07
Other hexanes	0.0014	86.18	3.205E-06
Heptanes	0.0007	100.20	1.973E-06
Methylcyclohexane	0.0007	98.19	1.719E-06
Isooctane	0.0000	100.21	0.000E+00
Benzene	0.0002	78.11	3.418E-07
Toluene	0.0004	92.14	1.008E-06
Ethylbenzene	0.0000	106.17	0.000E+00
Xylenes	0.0003	106.17	9.291E-07
C8+ Heavies	0.0011	110.00	3.128E-06
Total	99.9999		
Total VOC			3.576E-04

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/2018.
Emission Factors (lb/scf) = (% / 100) x lb/lb-mole / 379.4 scf/lb-mole

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

Identification

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

Tank Dimensions

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

Paint Characteristics

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

Roof Characteristics

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

Breather Vent Settings

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

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

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

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

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

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

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

Annual Emission Calcaulations

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

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

Total Losses (lb):	14.4414

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

Emissions Report for: Annual

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

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

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

Identification

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

Tank Dimensions

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

Paint Characteristics

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

Roof Characteristics

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

Breather Vent Settings

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

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

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

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

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

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

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

Annual Emission Calcaulations

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

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

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

Emissions Report for: Annual

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

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

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)

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

The CO_2 and CH_4 emissions from blowdown events were calculated from the annual blowdown volumes and gas composition.

The reciprocating compressor CO_2 and CH_4 emissions were calculated using a combination of equations W-26 & W-36 (from Subpart W).

Dehydrator CO_2 and CH_4 emissions were calculated using GRI-GLYCalc.

CO_2 and CH_4 from emission sources including equipment leaks (fugitive emissions), gas-driven pneumatic devices, and gas-driven pneumatic pumps were calculated using the gas stream composition, component counts, and the applicable Subpart W methodology.

Green House Gas Emissions Data and Calculations

Sources	Facility Total Emissions				
	CO2, tpy	N2O, tpy	CH4, tpy	GHG, tpy	CO2e, tpy
Engine & Turbine Exhaust	100,547.25	1.89E-01	1.89	100,549.34	100,651.10
SSM Blowdowns	74.63	--	877.77	952.40	22,018.89
Reciprocating Compressor Venting	84.21	--	991.97	1,076.18	24,883.53
Dehydrators	36.86	--	14.93	51.79	410.16
Reboiler Exhaust	2,577.22	4.86E-03	0.05	2,577.28	2,579.88
Equipment Leaks	3.46	--	40.71	44.16	1,021.17
Natural Gas Pneumatic Device Venting	16.21	--	190.53	206.74	4,779.45
Natural Gas Driven Pneumatic Pump Venting	2.00	--	23.46	25.46	588.58
Total	103,341.84	1.94E-01	2,141.32	105,483.36	156,932.77

Engine & Turbine Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	N2O, kg/MMBtu	CH4, kg/MMBtu	CO2, tpy	N2O, tpy	CH4, tpy
1	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
3	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
4	Waukesha 7042GSI	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
5	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
6	Waukesha 7042GSI	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
7	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
8	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
9	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
10	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
11	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
12	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
13	Waukesha 7042GSI	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
14	Waukesha 7042GSI	53.06	1.00E-04	1.00E-03	6,581.39	1.24E-02	1.24E-01
15	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
16	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
33	Waukesha 7042GL	53.06	1.00E-04	1.00E-03	6,185.14	1.17E-02	1.17E-01
	Total				100,547.25	1.89E-01	1.89

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

Unit Numbers	Description	Fuel Types	Operating Times, hr/yr	LHV Design Heat Rates, MMBtu/hr	HHV	
					Design Heat Rates, MMBtu/hr	Fuel Usages, MMBtu/yr
1	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
3	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
4	Waukesha 7042GSI	Nat. Gas	8,760	11.58	12.87	112,761
5	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
6	Waukesha 7042GSI	Nat. Gas	8,760	11.58	12.87	112,761
7	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
8	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
9	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
10	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
11	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
12	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
13	Waukesha 7042GSI	Nat. Gas	8,760	11.58	12.87	112,761
14	Waukesha 7042GSI	Nat. Gas	8,760	11.58	12.87	112,761
15	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
16	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972
33	Waukesha 7042GL	Nat. Gas	8,760	10.89	12.10	105,972

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

Green House Gas Emissions Data and Calculations

SSM Blowdown Emissions

Unit Numbers	Description	Total Gas Losses, scf/yr	CO2 Emission Factors, lb/scf	CH4 Emission Factors, lb/scf	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
SSM	SSM Blowdowns	43,547,680	0.0034	0.0403	74.63	-	877.77
	Total	43,547,680	0.0034	0.0403	74.63	-	877.77

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

Reciprocating Compressor Venting Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
NA	Blowdown Valve Leakage	8.04	-	94.76
NA	Rod Packing Emissions	76.17	-	897.22
NA	Isolation Valve Leakage	0.00	-	0.00
	Total	84.21	-	991.97

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

Unit Numbers	Description	Number of Compressors #	Gas Emissions, scf/hr	Operating Times, hr/yr	CO2 Mole Percents, %	CH4 Mole Percents, %	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Blowdown Valve Leakage	16	33.5	8,760	2.95	95.35	0.0526	0.0192
NA	Rod Packing Emissions	16	317.2	8,760	2.95	95.35	0.0526	0.0192
NA	Isolation Valve Leakage	16	10.5	0	2.95	95.35	0.0526	0.0192

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

Green House Gas Emissions Data and Calculations

Dehydrator Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
17a	Dehydrator (12 MMSCFD)	3.64	-	1.45
18a	Dehydrator (12 MMSCFD)	3.64	-	1.45
19a	Dehydrator (12 MMSCFD)	3.64	-	1.45
20a	Dehydrator (12 MMSCFD)	3.64	-	1.45
21a	Dehydrator (12 MMSCFD)	3.64	-	1.45
22a	Dehydrator (12 MMSCFD)	3.64	-	1.45
31a	Dehydrator (30 MMSCFD)	4.64	-	1.52
32a	Dehydrator (30 MMSCFD)	3.45	-	1.57
33a	Dehydrator (30 MMSCFD)	3.45	-	1.57
34a	Dehydrator (30 MMSCFD)	3.45	-	1.57
	Total	36.86	-	14.93

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

Reboiler Exhaust Emissions

Unit Numbers	Description	Emission Factors			Emission Rates		
		CO2, kg/MMBtu	N2O, kg/MMBtu	CH4, kg/MMBtu	CO2, tpy	N2O, tpy	CH4, tpy
17b	Reboiler (12 MMCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
18b	Reboiler (12 MMCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
19b	Reboiler (12 MMCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
20b	Reboiler (12 MMCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
21b	Reboiler (12 MMCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
22b	Reboiler (12 MMCFD)	53.06	1.00E-04	1.00E-03	219.34	4.13E-04	4.13E-03
31b	Reboiler (30 MMCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
32b	Reboiler (30 MMCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
33b	Reboiler (30 MMCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
34b	Reboiler (30 MMCFD)	53.06	1.00E-04	1.00E-03	315.29	5.94E-04	5.94E-03
	Total				2,577.22	4.86E-03	4.86E-02

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

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

Unit Numbers	Description	Fuel Types	Operating Times hr/yr	LHV			HHV	
				Fuel Usages, scf/hr	Fuel Heat Contents, Btu/scf	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/hr	Fuel Usages, MMBtu/yr
17b	Reboiler (12 MMCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
18b	Reboiler (12 MMCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
19b	Reboiler (12 MMCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
20b	Reboiler (12 MMCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
21b	Reboiler (12 MMCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
22b	Reboiler (12 MMCFD)	Nat. Gas	8,760	429	900	0.39	0.43	3,758
31b	Reboiler (30 MMCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402
32b	Reboiler (30 MMCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402
33b	Reboiler (30 MMCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402
34b	Reboiler (30 MMCFD)	Nat. Gas	8,760	617	900	0.56	0.62	5,402

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

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

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

Green House Gas Emissions Data and Calculations

Equipment Leaks Emissions

Unit Numbers	Description	Emission Rates		
		CO2, tpy	N2O, tpy	CH4, tpy
NA	Valves	2.5	-	29.5
NA	Connectors	0.4	-	4.6
NA	Open-Ended Lines	0.2	-	2.1
NA	Pressure Relief Valves	0.4	-	4.5
	Total	3.5	-	40.7

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

Unit Numbers	Description	Number of Components, #	Emission Factors, scf/hr /component	CO2 Contents, mole %	CH4 Contents, mole %	Operating Times, hr/yr	CO2 Density, kg/scf	CH4 Density, kg/scf
NA	Valves	1377	0.121	2.95	95.35	8,760	0.0526	0.0192
NA	Connectors	1527	0.017	2.95	95.35	8,760	0.0526	0.0192
NA	Open-Ended Lines	388	0.031	2.95	95.35	8,760	0.0526	0.0192
NA	Pressure Relief Valves	133	0.193	2.95	95.35	8,760	0.0526	0.0192

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

Natural Gas Pneumatic Device Venting Emissions

Unit Numbers	Description	Number of Devices, #	Emission Factors, scf/hr/device	Operating Times, hr/yr	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
NA	Continuous High Bleed Pneumatic Devices	0	37.3	8,760	0.00	-	0.00
NA	Intermittent Bleed Pneumatic Devices	80	13.5	8,760	16.21	-	190.53
NA	Continuous Low Bleed Pneumatic Devices	0	1.39	8,760	0.00	-	0.00
	Total				16.21	-	190.53

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

Unit Numbers	Description	CO2 Contents, mole %	CH4 Contents, mole %	CO2 Conversion Factors, tonne CO2e /scf	CH4 Conversion Factors, tonne CO2e /scf	CO2 Global Warming Potentials, tonne CO2e /tonne CO2	CH4 Global Warming Potentials, tonne CO2e /tonne CH4
NA	Continuous High Bleed Pneumatic Devices	2.95	95.35	5.262E-05	4.790E-04	1	25
NA	Continuous Low Bleed Pneumatic Devices	2.95	95.35	5.262E-05	4.790E-04	1	25
NA	Intermittent Bleed Pneumatic Devices	2.95	95.35	5.262E-05	4.790E-04	1	25

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

Green House Gas Emissions Data and Calculations

Natural Gas Driven Pneumatic Pump Venting Emissions

Emission Rates

Unit Number	Description	Number of Pumps, #	Emission Factor, scf/hr/pump	Operating Time, hr/yr	Emission Rates		
					CO2, tpy	N2O, tpy	CH4, tpy
NA	Pneumatic Pump Venting	10	13.3	8,760	2.00	-	23.46

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

Unit Number	Description	CO2 Content, mole %	CH4 Content, mole %	CO2 Conversion Factor, tonne CO2e /scf	CH4 Conversion Factor, tonne CO2e /scf	CO2 Global Warming Potential, tonne CO2e /tonne CO2	CH4 Global Warming Potential, tonne CO2e /tonne CH4
NA	Pneumatic Pump Venting	2.95	95.35	5.262E-05	4.790E-04	1	25

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

Gas Stream Composition

Components	Mole Percents, %	Molecular Weights, lb/lb-mole	Component Weights, lb/lb-mole	Weight Percent of Total, %	Emission Factors, lb/scf
Carbon Dioxide	2.9547	44.01	1.30	7.5819	0.0034
Hydrogen Sulfide	0.0000	34.07	0.00	0.0000	0.0000
Nitrogen	0.3291	28.01	0.09	0.5374	0.0002
Methane	95.3540	16.04	15.29	89.1782	0.0403
Ethane	1.0902	30.07	0.33	1.9114	0.0009
Propane	0.1916	44.09	0.08	0.4925	0.0002
IsoButane	0.0332	58.12	0.02	0.1125	0.0001
Normal Butane	0.0248	58.12	0.01	0.0841	0.0000
IsoPentane	0.0109	72.15	0.01	0.0457	0.0000
Normal Pentane	0.0056	72.15	0.00	0.0237	0.0000
Cyclopentane	0.0001	70.14	0.00	0.0003	0.0000
n-Hexane	0.0007	86.17	0.00	0.0038	0.0000
Cyclohexane	0.0002	84.16	0.00	0.0012	0.0000
Other Hexanes	0.0014	86.18	0.00	0.0071	0.0000
Heptanes	0.0007	100.20	0.00	0.0044	0.0000
Methylcyclohexane	0.0007	98.19	0.00	0.0038	0.0000
2,2,4-Trimethylpentane	0.0000	100.21	0.00	0.0000	0.0000
Benzene	0.0002	78.11	0.00	0.0008	0.0000
Toluene	0.0004	92.14	0.00	0.0022	0.0000
Ethylbenzene	0.0000	106.17	0.00	0.0000	0.0000
Xylenes	0.0003	106.17	0.00	0.0021	0.0000
C8+ heavies	0.0011	110.00	0.00	0.0069	0.0000
Total	99.9999		17.15	100.0000	0.0452
VOC			0.14	--	0.0004

The gas stream composition is based on the blended 31-6 CDP & 31-6 Straddle Suction gas analyses sampled 12/26/2018.
Component Weights (lb/lb-mole) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole)
Weight Percent of Total (%) = 100 x Component Weights (lb/lb-mole) / Total Component Weight (lb/lb-mole)
Emission Factors (lb/scf) = [Mole Percents (%) / 100] x Molecular Weights (lb/lb-mole) / 379.4 scf/lb-mole

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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.

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.

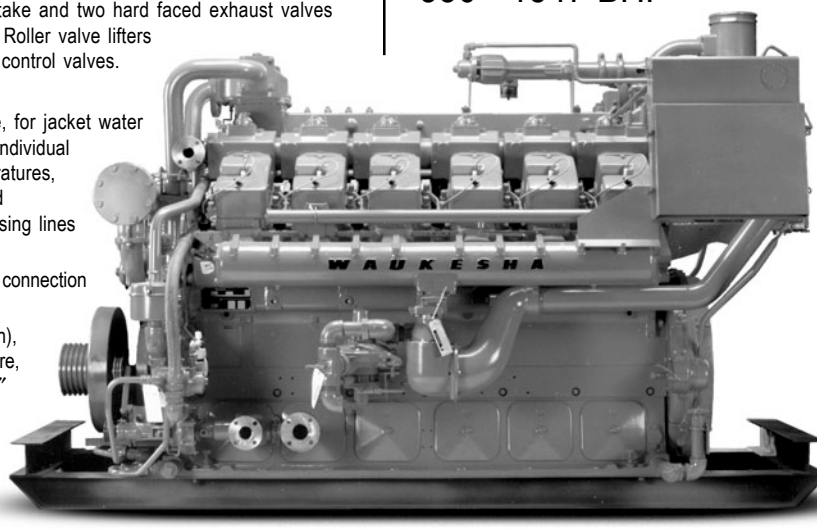
Engine Jacket – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4″ (102 mm) inlets and (1) 5″ (127 mm) outlet.

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.

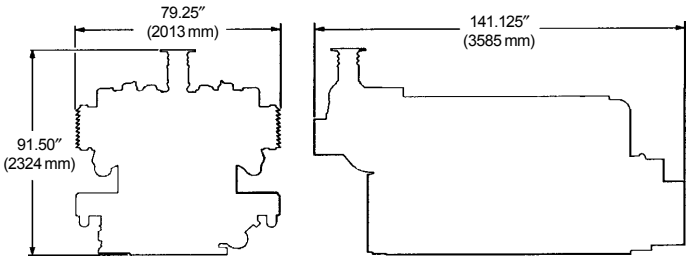
PERFORMANCE: L7042GL VHP SERIES GAS ENGINES

	English	130° F ICW		85° F ICW	
	RPM	1200	1000	1200	1000
Low NO_x Settings	Power (Bhp)	1478	1232	1547	1289
	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
Low NO_x Settings	Power (kWb)	1103	919	1154	962
	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

DCL International Inc.

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

RE: EMISSIONS GUARANTEE

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

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

and sized for the following engine:

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

will perform as follows:

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

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

Best regards,

Paul Cook
DCL International, Inc.

REF: 6-1001

DRESSER Waukesha

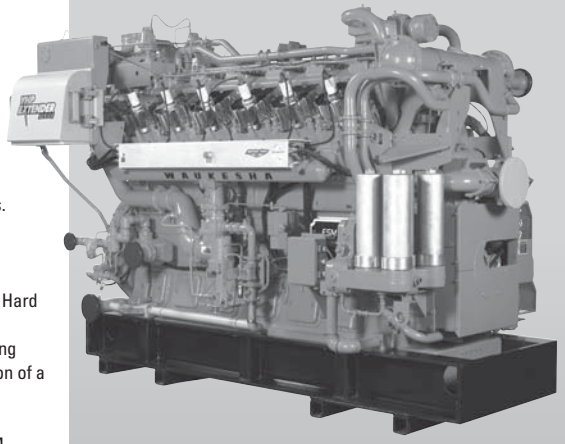
L7042GSI

STANDARD EQUIPMENT

AIR CLEANER – Two, 3" dry type filter with hinged rain shield and service indicator.
AIR FUEL RATIO CONTROL (AFR) – Integrated ESM® - AFR catalyst rich-burn control, main fuel gas regulator actuators, exhaust O_2 sensor(s), and post turbocharger exhaust thermocouple. Factory mounted and tested. AFR maintains emissions through load and speed changes. The ESM AFR meets Canadian Standards Association Class 1, Division 2, Group D hazardous location requirements. Note: For dual fuel applications, ESM AFR system will control the primary fuel source only.
BARRING DEVICE – Manual.
BATTERY BOX – Ship loose battery box designed to accommodate two Series 31 12 VDC batteries. Includes power disconnect switch and 20 foot (6.1 m) cable for connection to ESM® Power Distribution Box.
BEARINGS – Heavy duty, replaceable, precision type.
BREATHER – Self regulating, closed system.
CONNECTING RODS – Drop forged steel, rifle drilled.
CONTROL SYSTEM – Waukesha Engine System Manager (ESM®) integrates spark timing control, speed governing, detonation detection, start-stop control, diagnostic tools, fault logging and engine safeties. Engine Control Unit (ECU) is central brain of the control system and main customer interface. Interface with ESM is through 25 foot (7.6 m) harness to local panel, through MODBUS RTU slave connection RS-485 multidrop hardware, and through the Electronic Service Program (ESP). Customer connections are only required to the local panel, fuel valve, and 24V DC power supply. Compatible with Woodward load sharing module. ESM meets Canadian Standards Association Class I, Division 2, Group D, hazardous location requirements.
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 bainitic cast iron cylinder liners, chrome plated on outer diameter.
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.
ELECTRONIC SERVICE PROGRAM (ESP) – Microsoft® Windows-based program provided on CD-ROM for programming and interface to ESM. Includes E-Help for troubleshooting any ESM faults. Serial harness is provided for connection of a customer supplied laptop to the ECU RS-232 port.
ENGINE MONITORING DEVICES – Factory mounted and wired sensors for lube oil pressure and temperature; intake manifold temperature and pressure; overspeed; and jacket water temperature; all accessible through ESM®. ESM continually monitors combustion performance through accelerometers to provide detonation protection. Dual magnetic pick-ups are used for accurate engine speed monitoring. ESM provides predictive spark plug diagnostics as well as advanced diagnostics of engine and all ESM sensors and logs any faults into non-volatile flash memory.
ENGINE ROTATION – Counterclockwise when facing flywheel.
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 – Single 3" ANSI flange fuel inlet connection. Two natural gas, 4" (102 mm) updraft carburetors and two mounted Mooney Flowgrid 250, 2" (51 mm) gas regulators, 30 – 60 psi (207 – 414 kPa) fuel inlet pressure required. 10 foot (3 m) harness provided for ESM control of customer supplied fuel shutoff valve
GOVERNOR – Electric throttle actuator controlled by ESM with throttle position feedback. Governor tuning is performed using ESP. ESM includes option of a load-coming feature to improve engine response to step loads.
IGNITION – Ignition Power Module (IPM) controlled by ESM, with spark timing. Dual voltage energy levels automatically controlled by ESM to maximize spark plug life.
INTERCOOLER – Air–to–water.
LEVELING BOLTS
LIFTING EYES – Requires 9.5 ton Working Load Limit (W.L.L.) anchor shackles.
LUBRICATION – Full pressure, gear type pump. Engine mounted full flow lube oil micro-fiberglass filters. MICROSPIN® bypass filter, engine mounted. Air/gas motor driven prelube pump, requires final piping.
MANIFOLDS – Exhaust, (2) water cooled.
OIL COOLER – Shell and tube type, with thermostatic temperature controller and pressure regulating valve. Factory mounted.
OIL PAN – Deep sump type. 190 gallon (719 L) capacity including filter and cooler.
PAINT – Oilfield orange primer.
PISTONS – Aluminum with floating pin. Oil cooled.
SHIPPING SKID – For domestic truck or rail.
TURBOCHARGERS – Two dry type. Wastegate controlled.
VIBRATION DAMPER – Viscous type. Guard included with remote mounted radiator or no radiator.
WATER CIRCULATING SYSTEM, AUXILIARY CIRCUIT – Belt driven water circulating high capacity pump for intercooler and lube oil cooler. See S6543-36 performance curve for use with standard 10 diameter crankshaft pulley.
WATER CIRCULATING SYSTEM, ENGINE JACKET – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4" (102 mm) inlets and (1) 5" (127 mm) outlet.

VHP® Series Gas Engine Extender Series®

987 - 1547 BHP
(736 - 1154 kWb)



Engine shown with options.

Model L7042GSI with ESM

Turbocharged and Intercooled, Twelve Cylinder, Four-Cycle Gas Fueled 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
8:1
Jacket Water System Capacity
107 gal. (405 L)
Lube Oil Capacity
190 gal. (719 L)
Starting System
125 - 150 psi air/gas
24 V electric
Dry Weight
21,000 lb. (9525 kg)

POWER RATINGS: L7042GSI VHP® GAS ENGINE

Model	I.C. Water Inlet Temp. °F (°C) (Tcra)	C.R.	Brake Horsepower (kWb Output) 800 rpm	900 rpm	1000 rpm	1200 rpm
L7042GSI	85° (29°)	8:1	1031 (769)	1160 (865)	1289 (961)	1547 (1154)
	130° (54°)	8:1	987 (736)	1110 (828)	1233 (920)	1480 (1104)

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, with a 91 WKI®.

For conditions or fuels other than standard, contact the Dresser Waukesha Application Engineering Department.

PERFORMANCE: L7042GSI VHP® GAS ENGINE

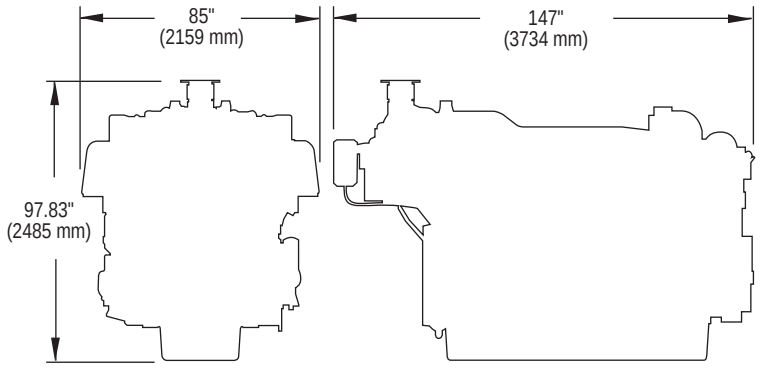
	English 130° F I.C. Water Temperature		
Catalyst Settings	RPM	1200	1000
	Power (Bhp)	1480	1233
	BSFC (Btu/bhp-hr)	7675	7440
	NOx (grams/bhp-hr)	16.0	16.0
	CO (grams/bhp-hr)	13.0	13.0
	NMHC (grams/bhp-hr)	0.25	0.25

	Metric 54° C I.C. Water Temperature		
Catalyst Settings	RPM	1200	1000
	Power (kWb)	1104	920
	BSFC (kJ/kW-hr)	10860	10525
	NOx (g/nm^3)	5.9	5.9
	CO (g/nm^3)	4.8	4.8
	NMHC (g/nm^3)	0.1	0.1

NOTES:

1) Fuel consumption and exhaust emissions are based on ISO 3046/1-1995 standard reference conditions and commercial quality natural gas of 900 Btu/ft^3 (35.38 MJ/m^3 [25, V(0; 101.325)]) saturated lower heat value, Waukesha Knock Index® of 91 and 93% methane content by volume. ISO 3046/1-1995 standard reference conditions are 77°F (25°C) ambient temperature, 29.54 inches Hg (100 kPa) barometric pressure, 30% relative humidity (1kPa/0.3 inches Hg water vapor pressure).
2) S.I. exhaust emissions are corrected to 5% O_2 (0°C and 101.325 kPa).
3) Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Dresser Waukesha Application Engineering Department.
4) Fuel consumption based on ISO 3046/1-1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft^3 saturated low heat valve

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 7011 1008

Dresser Waukesha
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DRESSER® Waukesha

www.dresser.com

VHP EMISSION LEVELS

MODEL	CARBURETOR SETTING	GRAMS/BHP-HR				% OBSERVED DRY		MASS AFR (2)	VOLUME AFR (2)	EXCESS AIR RATIO
		NOx (1)	CO	NMHC (4)	THC	CO	O_2			
G, GSI	Lowest Manifold (Best Power)	8.5	32.0	0.35	2.3	1.15	0.30	15.5:1	9.3:1	0.97
	Equal NOx & CO	12.0	12.0	0.35	2.3	0.45	0.30	15.9:1	9.6:1	0.99
	Catalytic Conv. Input (3-way(3))	13.0	9.0	0.30	2.0	0.38	0.30	15.95:1	9.6:1	0.99
	Standard (Best Economy)	22.0	1.5	0.25	1.5	0.02	1.35	17.0:1	10.2:1	1.06
F3514GSI F3524GSI L7044GSI	Equal NOx & CO	14.0	14.0	0.25	1.1	0.45	0.30	15.85:1	9.5:1	0.99
	Catalytic Conv. Input (3-way(3))	15.0	13.0	0.20	1.0	0.38	0.30	15.95:1	9.6:1	0.99
L5794GSI	Equal NOx & CO	13.5	13.5	0.45	3.0	0.45	0.30	15.85:1	9.5:1	0.99
	Catalytic Conv. Input (3-way(3))	14.5	11.0	0.45	2.9	0.38	0.30	15.95:1	9.6:1	0.99
GL	Standard	1.5	2.65	1.0	5.5	0.06	9.8	28.0:1	16.8:1	1.74
L5774LT#	Standard	2.6	2.0	0.60	4.0	0.04	7.8	24.5:1	14.7:1	1.52
L5794LT#	Standard	2.6	2.0	0.60	4.0	0.04	7.8	24.5:1	14.7:1	1.52

L5774LT and L5794LT emission levels are based on 1000 – 1200 rpm operation. For information at all other speeds contact Waukesha's Application Engineering Department.

NOTE: The above table indicates emission levels that are valid for new engines for the duration of the standard warranty period and are attainable by an engine in good operating condition running on commercial quality natural gas of 900 BTU/ft^3 (35.38 MJ/m^3 [25, V(0; 101.325)]) SLHV, Waukesha Knock Index® of 91 or higher, 93% methane content by volume, and at ISO standard conditions. Emissions are based on standard engine timing at 91 WKI® with an absolute humidity of 42 grains/lb. Refer to engine specific WKI® Power & Timing curves for standard timing. Unless otherwise noted these emission levels can be achieved across the continuous duty speed range and from 75% to 110% of the ISO Standard Power (continuous duty) rating. ***Contact your local Waukesha representative or Waukesha's Application Engineering Department for emission values which can be obtained on a case-by-case basis for specific ratings, fuels, and site conditions.***

Prepared For:
Tom Ellis
Harvest Midstream

Date: February 2, 2023

APPLICATION INFORMATION

DRIVER

Make:	WAUKESHA
Model:	L7042GSI
Horsepower:	1,480
RPM:	1,200
Compression Ratio:	8
Exhaust Flow Rate:	7,056
Exhaust Temperature:	1,126
Fuel:	WAUK Natural Gas
Annual Operating Hours:	8,760

UNCONTROLLED EMISSIONS DATA

	g/bhp-hr	lb/hr	Tons/Year
NO_x:	13.00	42.42	185.79
CO:	9.00	29.37	128.62
THC:	2.00	6.53	28.58
NMHC:	0.30	0.98	4.29
NMNEHC:	0.15	0.49	2.14
HCHO:	0.05	0.16	0.71
Oxygen:	0.30%		

CATALYST ELEMENT

Model:	RT-2415-T
Catalyst Type:	NSCR, Standard Precious Metals Group
Substrate Type:	Brazed
Element Size:	Rectangle, 24 x 15 x 3.5
Element Quantity:	3

POST CATALYST EMISSIONS DATA

		g/bhp-hr	lb/hr	Tons/Year
NO_x:	<	0.38	1.24	5.43
CO	<	0.36	1.17	5.14
VOC	<	0.05	0.16	0.71
HCHO	<	0.01	0.03	0.14

Catalyst Temperature: 976 °F

****POST CATALYST EMISSIONS ARE ONLY GUARANTEED FOR CATALYST ELEMENTS SUPPLIED BY EMIT**

WARRANTY

EMIT Technologies,Inc. warrants that the goods supplied will be free from defects in workmanship by EMIT Technologies, Inc. for a period of one (1) year from date of shipment. EMIT Technologies, Inc. will not be responsible for any defects which result from improper use, neglect, failure to properly maintain or which are attributable to defects, errors or omissions in any drawings, specifications, plans or descriptions, whether written or oral, supplied to EMIT Technologies, Inc. by Buyer.

Catalyst performance using an EMIT Air/Fuel ratio controller is dependent upon properly defined set-points, variable with engine and fuel gas composition. Air/fuel ratio controller performance is guaranteed, but not limited, to fuel gas with an HHV content of 1400 BTU/SCF.

Catalyst performance will be guaranteed for a period of 2 years from installation, or 17,000 operating hours, whichever comes first. The catalyst shall be operated with an automatic air/fuel ratio controller. The performance guarantee shall not cover the effects of excessive ash masking due to operation at low load, improper engine maintenance, or inappropriate lubrication oil. The performance guarantee shall not cover the effects of continuous engine misfires (cylinder or ignition) exposing the catalyst to excessive exothermic reaction temperatures.

Unless otherwise stated the exhaust temperature operating range at the converter inlet is 600°F minimum for oxidation catalyst and 750°F for NSCR catalyst and 1250°F maximum.

If a high temperature shut down switch is not installed, thermal deactivation of catalyst at temperatures above 1300 °F is not covered.

The catalyst conversion efficiencies (% reduction) will be guaranteed for engine loads of 50 to 100 percent.

Engine lubrication oil shall contain less than 0.6% ash (by weight) with a maximum allowable specific oil consumption of 0.01 gal/bhp-hr. The maximum ash loading on the catalyst shall be limited to 350 g/m3. Phosphorous and zinc additives are limited to 0.03% (by weight).

The catalyst must not be exposed to the following known poisoning agents, including: iron, nickel, sodium, chromium, arsenic, zinc, lead, phosphorous, silicon, potassium, magnesium, copper, tin, and mercury. Total poison concentrations in the gas are limited to 0.3 ppm.

Shipment - Promised shipping dates are approximate and are not guaranteed and are from the point of manufacture. EMIT Technologies,Inc. will not be liable for any loss, damage or delay in manufacture or delivery resulting from any cause beyond its control including, but not limited to a period equal to the time lost by reason of that delay. All products will be crated as per best practice to prevent any damage during shipment. Unless otherwise specified, Buyer will pay for any special packing and shipping requirements. Acceptance of goods by common carrier constitutes delivery to Buyer. EMIT Technologies,Inc. shall not be responsible for goods damaged or lost in transit.

PAYMENT TERMS AND ADVANCE PAYMENT REQUIREMENT

Terms: Credit is extended to purchaser for net 30 time period. If payment is not received in the net 30 timeframe, interest on the unpaid balance will accrue at a rate of 1.5% per month from the invoice date.

Advance Payment Requirement: Proposals with a project value of $100,000 or greater, and 60 days or greater time to completion, will require an advance payment of 30% of the total value. The advance payment will be invoiced to the customer upon receipt of the customer's purchase order. Advance payment is due 30 days after the date of the invoice. If payment is not received in the net 30 timeframe, interest on the unpaid balance will accrue at teh rate of 1.5% per month from the invoice date. Failure to pay this invoice may delay completion of the project outlined in this proposal.

Order Cancellation Terms: Upon cancellation of an order once submittal of a Purchase Order has occurred, the customer will pay a 25% restocking fee for Catalyst Housings, Catalyst Elements, and Air/Fuel Ratio Controllers; 50% restocking fee for Cooler Top Solutions,Exhaust System Accessories, and other Custom Built Products; 100% of all associated shipping costs incurred by EMIT; 100% of all project expenses incurred by EMIT for Field Services.

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.

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

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

Table 3.2-3. UNCONTROLLED EMISSION FACTORS FOR 4-STROKE RICH-BURN ENGINES[a]
(SCC 2-02-002-53)

Pollutant	Emission Factor (lb/MMBtu)[b] (fuel input)	Emission Factor Rating
Criteria Pollutants and Greenhouse Gases		
NO_x[c] 90 - 105% Load	2.21 E+00	A
NO_x[c] <90% Load	2.27 E+00	C
CO[c] 90 - 105% Load	3.72 E+00	A
CO[c] <90% Load	3.51 E+00	C
CO_2[d]	1.10 E+02	A
SO_2[e]	5.88 E-04	A
TOC[f]	3.58 E-01	C
Methane[g]	2.30 E-01	C
VOC[h]	2.96 E-02	C
PM10 (filterable)[i,j]	9.50 E-03	E
PM2.5 (filterable)[j]	9.50 E-03	E
PM Condensable[k]	9.91 E-03	E
Trace Organic Compounds		
1,1,2,2-Tetrachloroethane[l]	2.53 E-05	C
1,1,2-Trichloroethane[l]	<1.53 E-05	E
1,1-Dichloroethane	<1.13 E-05	E
1,2-Dichloroethane	<1.13 E-05	E
1,2-Dichloropropane	<1.30 E-05	E
1,3-Butadiene[l]	6.63 E-04	D
1,3-Dichloropropene[l]	<1.27 E-05	E
Acetaldehyde[l,m]	2.79 E-03	C
Acrolein[l,m]	2.63 E-03	C
Benzene[l]	1.58 E-03	B
Butyr/isobutyraldehyde	4.86 E-05	D
Carbon Tetrachloride[l]	<1.77 E-05	E

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

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

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

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

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

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

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

where:

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

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

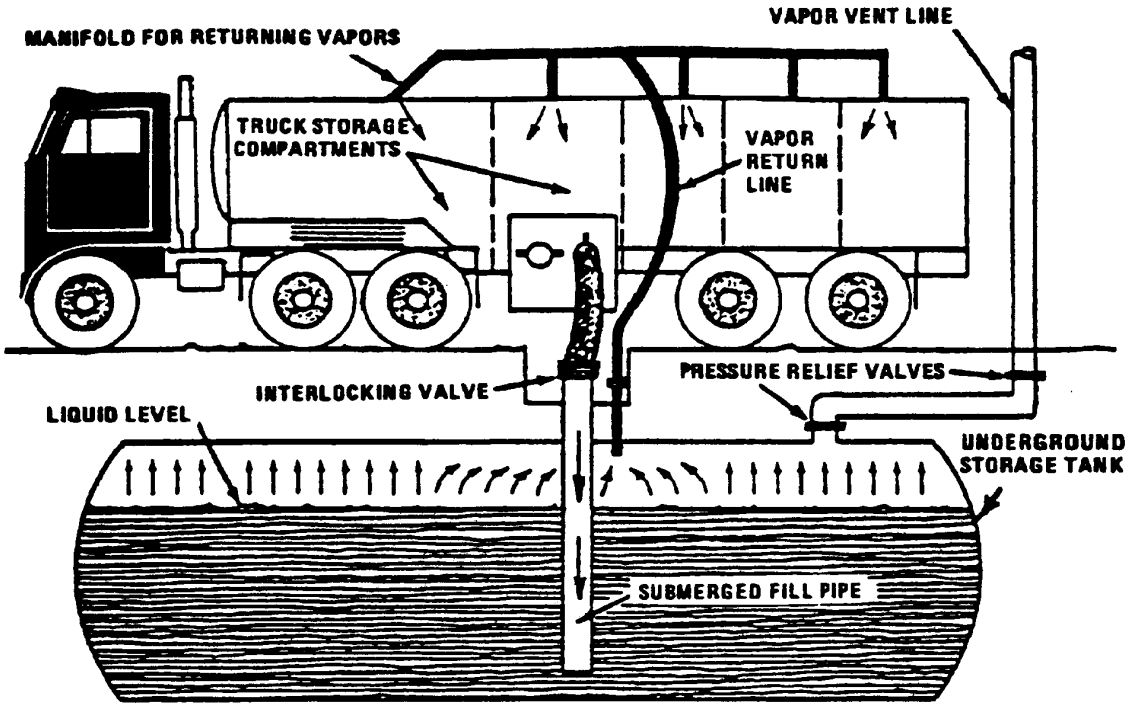

Figure 5.2-5. Tank truck unloading into a service station underground storage tank and practicing "vapor balance" form of emission control.

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

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

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

The saturation factor, S, represents the expelled vapor's fractional approach to saturation, and it accounts for the variations observed in emission rates from the different unloading and loading methods. Table 5.2-1 lists suggested saturation factors.

Emissions from controlled loading operations can be calculated by multiplying the uncontrolled emission rate calculated in Equation 1 by an overall reduction efficiency term:

$$\left(1 - \frac{\text{eff}}{100}\right)$$

The overall reduction efficiency should account for the capture efficiency of the collection system as well as both the control efficiency and any downtime of the control device. Measures to reduce loading emissions include selection of alternate loading methods and application of vapor recovery equipment. The latter captures organic vapors displaced during loading operations and recovers the vapors by the use of refrigeration, absorption, adsorption, and/or compression. The recovered product is piped back to storage. Vapors can also be controlled through combustion in a thermal oxidation unit, with no product recovery. Figure 5.2-6 demonstrates the recovery of gasoline vapors from tank trucks during loading operations at bulk terminals. Control efficiencies for the recovery units range from 90 to over 99 percent, depending on both the nature of the vapors and the type of control equipment used.[5-6] However, not all of the displaced vapors reach the control device, because of leakage from both the tank truck and collection system. The collection efficiency should be assumed to be 99.2 percent for tanker trucks passing the MACT-level annual leak test (not more than 1 inch water column pressure change in 5 minutes after pressurizing to 18 inches water followed by pulling a vacuum of 6 inches water).[7] A collection efficiency of 98.7 percent (a 1.3 percent leakage rate) should be assumed for trucks passing the NSPS-level annual test (3 inches pressure change) A collection efficiency of 70 percent should be assumed for trucks not passing one of these annual leak tests[6].

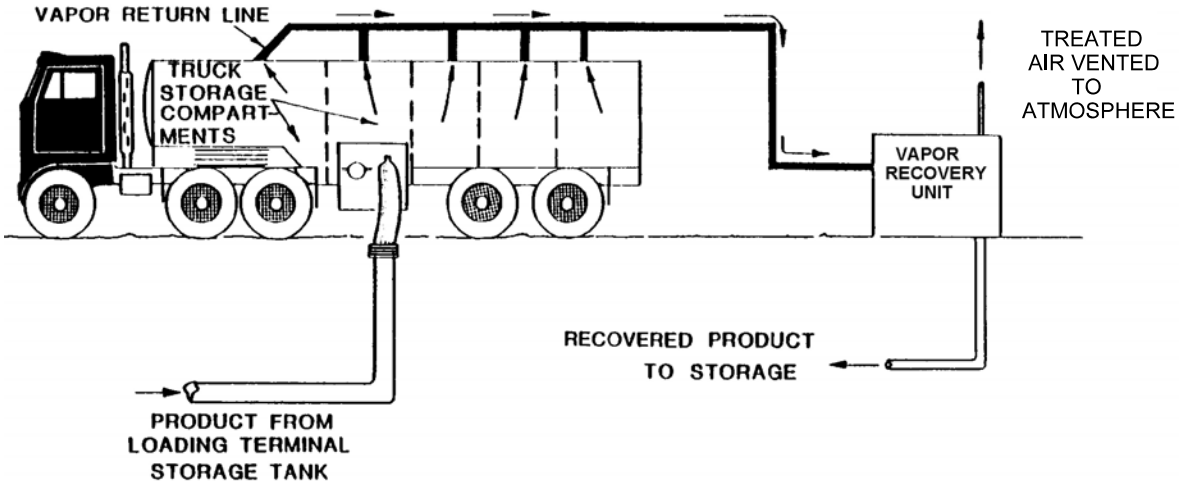

Figure 5.2-6. Tank truck loading with vapor recovery.

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

Analysis No: HM20230254
Cust No: 33700-10430

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	N/A
Well Name:	31-6 CDP	Well Flowing:	Y
County/State:	Rio Arriba NM	Pressure:	351 PSIG
Location:		Flow Temp:	71 DEG. F
Lease/PA/CA:		Ambient Temp:	78 DEG. F
Formation:		Flow Rate:	22 MCF/D
Cust. Stn. No.:	62205	Sample Method:	Purge & Fill
		Sample Date:	10/20/2023
		Sample Time:	1.00 PM
		Sampled By:	Andy Price
Heat Trace:	N	Sampled by (CO):	Harvest Mid
Remarks:	Calculated Molecular Weight - 16.7059		

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.0754	0.0762	0.0080	0.00	0.0007
CO2	2.1802	2.2037	0.3730	0.00	0.0331
Methane	97.4382	98.4895	16.5490	984.13	0.5397
Ethane	0.2979	0.3011	0.0800	5.27	0.0031
Propane	0.0083	0.0084	0.0020	0.21	0.0001
Iso-Butane	0.0000	0.0000	0.0000	0.00	0.0000
N-Butane	0.0000	0.0000	0.0000	0.00	0.0000
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
N-Pentane	0.0000	0.0000	0.0000	0.00	0.0000
Neohexane	0.0000	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0000	N/R	0.0000	0.00	0.0000
Cyclopentane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylpentane	0.0000	N/R	0.0000	0.00	0.0000
C6	0.0000	0.0000	0.0000	0.00	0.0000
Methylcyclopentane	0.0000	N/R	0.0000	0.00	0.0000
Benzene	0.0000	N/R	0.0000	0.00	0.0000
Cyclohexane	0.0000	N/R	0.0000	0.00	0.0000
2-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
3-Methylhexane	0.0000	N/R	0.0000	0.00	0.0000
2-2-4-Trimethylpentane	0.0000	N/R	0.0000	0.00	0.0000
i-heptanes	0.0000	N/R	0.0000	0.00	0.0000
Heptane	0.0000	N/R	0.0000	0.00	0.0000

Methylcyclohexane	0.0000	N/R	0.0000	0.00	0.0000
Toluene	0.0000	N/R	0.0000	0.00	0.0000
2-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
4-Methylheptane	0.0000	N/R	0.0000	0.00	0.0000
i-Octanes	0.0000	N/R	0.0000	0.00	0.0000
Octane	0.0000	N/R	0.0000	0.00	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0000	N/R	0.0000	0.00	0.0000
o Xylene (& 2,2,4 tmc7)	0.0000	N/R	0.0000	0.00	0.0000
i-C9	0.0000	N/R	0.0000	0.00	0.0000
C9	0.0000	N/R	0.0000	0.00	0.0000
i-C10	0.0000	N/R	0.0000	0.00	0.0000
C10	0.0000	N/R	0.0000	0.00	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	101.079	17.012	989.61	0.5768

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

COMPRESSIBLITY FACTOR (1/Z):	1.0021	CYLINDER #:	18
BTU/CU.FT IDEAL:	991.9	CYLINDER PRESSURE:	21 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	994.0	ANALYSIS DATE:	10/23/2023
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	976.7	ANALYIS TIME:	11:28:09 AM
DRY BTU @ 15.025:	1013.9	ANALYSIS RUN BY:	ELAINE MORRISON
REAL SPECIFIC GRAVITY:	0.5778		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA 2286-14
GC: SRI Instruments 8610 **Last Cal/Verify: 10/23/2023**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

Lease: 31-6 CDP N/A 10/23/2023

Stn. No.: 62205 33700-10430

Mtr. No.:

Smpl Date:	10/20/2023	11/30/2022	10/06/2021	10/02/2020	02/06/2020
Test Date:	10/23/2023	12/08/2022	10/07/2021	10/06/2020	02/12/2020
Run No:	HM20230254	HM20220115	HM2021085	HM200089	HM200010
Nitrogen:	0.0754	0.0204	0.0680	0.0403	0.1060
CO2:	2.1802	18.2213	18.3564	17.2942	4.6174
Methane:	97.4382	81.1912	81.0431	82.1076	93.6294
Ethane:	0.2979	0.4912	0.4578	0.4827	1.2577
Propane:	0.0083	0.0661	0.0670	0.0659	0.2628
I-Butane:	0.0000	0.0030	0.0021	0.0039	0.0524
N-Butane:	0.0000	0.0067	0.0057	0.0035	0.0427
2,2 dmc3:	0.0000	0.0000	0.0000	0.0000	0.0000
I-Pentane:	0.0000	0.0000	0.0000	0.0000	0.0095
N-Pentane:	0.0000	0.0000	0.0000	0.0000	0.0054
Neohexane:	0.0000	0.0000	0.0000	0.0000	0.0004
2-3-Cyclopentane:	0.0000	0.0000	0.0000	0.0000	0.0003
2-Methylpentane:	0.0000	0.0000	0.0000	0.0000	0.0003
3-Methylpentane:	0.0000	0.0000	0.0000	0.0002	0.0020
C6:	0.0000	0.0000	0.0000	0.0001	0.0008
Methylcyclopentane:	0.0000	0.0000	0.0000	0.0001	0.0021
Benzene:	0.0000	0.0000	0.0000	0.0001	0.0015
Cyclohexane:	0.0000	0.0000	0.0000	0.0000	0.0006
2-Methylhexane:	0.0000	0.0000	0.0000	0.0000	0.0010
3-Methylhexane:	0.0000	0.0000	0.0000	0.0000	0.0003
2-2-4-i-heptanes:	0.0000	0.0000	0.0000	0.0000	0.0000
Heptane:	0.0000	0.0000	0.0000	0.0000	0.0001
Methylcyclohexane:	0.0000	0.0000	0.0000	0.0000	0.0003
Toluene:	0.0000	0.0000	0.0000	0.0002	0.0010
2-Methylheptane:	0.0000	0.0000	0.0000	0.0002	0.0024
4-Methylheptane:	0.0000	0.0000	0.0000	0.0002	0.0012
i-Octanes:	0.0000	0.0000	0.0000	0.0000	0.0004
Octane:	0.0000	0.0000	0.0000	0.0000	0.0002
Ethylbenzene:	0.0000	0.0000	0.0000	0.0000	0.0002
m, p Xylene:	0.0000	0.0000	0.0000	0.0001	0.0006
o Xylene (& 2,2,4	0.0000	0.0000	0.0000	0.0000	0.0000
i-C9:	0.0000	0.0000	0.0000	0.0002	0.0005
C9:	0.0000	0.0000	0.0000	0.0001	0.0001
i-C10:	0.0000	0.0000	0.0000	0.0004	0.0001
C10:	0.0000	0.0000	0.0000	0.0000	0.0002
i-C11:	0.0000	0.0000	0.0000	0.0001	0.0000
C11:	0.0000	0.0000	0.0000	0.0000	0.0000
C12P:	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000
BTU:	994.0	834.7	832.6	843.9	983.5
GPM:	17.0120	17.0670	17.0610	17.0630	17.1580
SPG:	0.5778	0.7346	0.7360	0.7257	0.6108

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

Analysis No: HM20240076
Cust No: 33700-10430

Well/Lease Information

Customer Name:	HARVEST MIDSTREAM	Source:	Inlet To Station
Well Name:	31-6 CDP	Well Flowing:	Y
County/State:	Rio Arriba NM	Pressure:	98 PSIG
Location:		Flow Temp:	85 DEG. F
Lease/PA/CA:		Ambient Temp:	65 DEG. F
Formation:		Flow Rate:	34 MCF/D
Cust. Stn. No.:	62205	Sample Method:	Purge & Fill
		Sample Date:	09/20/2024
		Sample Time:	8.45 AM
		Sampled By:	Clint Reynolds
Heat Trace:	N	Sampled by (CO):	Harvest Mid

Remarks: Source: Pipe Rack Disc
Calculated Molecular Weight: 17.2457

Analysis

Component:	Mole%:	Unormalized %:	**GPM:	*BTU:	*SP Gravity:
Nitrogen	0.3810	0.3821	0.0420	0.00	0.0037
CO2	3.1133	3.1224	0.5320	0.00	0.0473
Methane	94.9272	95.2034	16.1230	958.76	0.5258
Ethane	1.2524	1.2560	0.3360	22.16	0.0130
Propane	0.2291	0.2298	0.0630	5.77	0.0035
Iso-Butane	0.0400	0.0401	0.0130	1.30	0.0008
N-Butane	0.0299	0.0300	0.0090	0.98	0.0006
Neopentane 2,2 dmc3	0.0000	0.0000	0.0000	0.00	0.0000
I-Pentane	0.0131	0.0131	0.0050	0.52	0.0003
N-Pentane	0.0068	0.0068	0.0020	0.27	0.0002
Neohexane	0.0001	N/R	0.0000	0.00	0.0000
2-3-Dimethylbutane	0.0001	N/R	0.0000	0.00	0.0000
Cyclopentane	0.0001	N/R	0.0000	0.00	0.0000
2-Methylpentane	0.0007	N/R	0.0000	0.03	0.0000
3-Methylpentane	0.0003	N/R	0.0000	0.01	0.0000
C6	0.0009	0.0073	0.0000	0.04	0.0000
Methylcyclopentane	0.0005	N/R	0.0000	0.02	0.0000
Benzene	0.0002	N/R	0.0000	0.01	0.0000
Cyclohexane	0.0003	N/R	0.0000	0.01	0.0000
2-Methylhexane	0.0001	N/R	0.0000	0.01	0.0000
3-Methylhexane	0.0001	N/R	0.0000	0.01	0.0000
2-2-4-Trimethylpentane	0.0000	N/R	0.0000	0.00	0.0000
i-heptanes	0.0001	N/R	0.0000	0.01	0.0000
Heptane	0.0006	N/R	0.0000	0.03	0.0000

Methylcyclohexane	0.0008	N/R	0.0000	0.04	0.0000
Toluene	0.0005	N/R	0.0000	0.02	0.0000
2-Methylheptane	0.0001	N/R	0.0000	0.01	0.0000
4-Methylheptane	0.0001	N/R	0.0000	0.01	0.0000
i-Octanes	0.0001	N/R	0.0000	0.01	0.0000
Octane	0.0003	N/R	0.0000	0.02	0.0000
Ethylbenzene	0.0000	N/R	0.0000	0.00	0.0000
m, p Xylene	0.0003	N/R	0.0000	0.02	0.0000
o Xylene (& 2,2,4 tmc7)	0.0001	N/R	0.0000	0.01	0.0000
i-C9	0.0003	N/R	0.0000	0.02	0.0000
C9	0.0001	N/R	0.0000	0.01	0.0000
i-C10	0.0002	N/R	0.0000	0.01	0.0000
C10	0.0001	N/R	0.0000	0.01	0.0000
i-C11	0.0000	N/R	0.0000	0.00	0.0000
C11	0.0000	N/R	0.0000	0.00	0.0000
C12P	0.0000	N/R	0.0000	0.00	0.0000
Total	100.00	100.291	17.125	990.13	0.5954

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

COMPRESSIBLITY FACTOR (1/Z):	1.0021	CYLINDER #:	0460
BTU/CU.FT IDEAL:	992.4	CYLINDER PRESSURE:	93 PSIG
BTU/CU.FT (DRY) CORRECTED FOR (1/Z):	994.5	ANALYSIS DATE:	10/01/2024
BTU/CU.FT (WET) CORRECTED FOR (1/Z):	977.2	ANALYIS TIME:	03:05:15 AM
DRY BTU @ 15.025:	1014.4	ANALYSIS RUN BY:	ELAINE MORRISON
REAL SPECIFIC GRAVITY:	0.5964		

GPM, BTU, and SPG calculations as shown above are based on current GPA constants.
GPA Standard: GPA 2286-14
GC: SRI Instruments 8610 **Last Cal/Verify: 10/04/2024**
GC Method: C12+BTEX Gas

HARVEST MIDSTREAM

WELL ANALYSIS COMPARISON

Lease: 31-6 CDP | Inlet To Station | 10/04/2024

Stn. No.: 62205 | 33700-10430

Mtr. No.:

Smpl Date:	09/20/2024	10/20/2023	11/30/2022	10/06/2021	10/02/2020	02/06/2020
Test Date:	10/01/2024	10/23/2023	12/08/2022	10/07/2021	10/06/2020	02/12/2020
Run No:	HM20240076	HM20230254	HM20220115	HM2021085	HM200089	HM200010
Nitrogen:	0.3810	0.0754	0.0204	0.0680	0.0403	0.1060
CO2:	3.1133	2.1802	18.2213	18.3564	17.2942	4.6174
Methane:	94.9272	97.4382	81.1912	81.0431	82.1076	93.6294
Ethane:	1.2524	0.2979	0.4912	0.4578	0.4827	1.2577
Propane:	0.2291	0.0083	0.0661	0.0670	0.0659	0.2628
I-Butane:	0.0400	0.0000	0.0030	0.0021	0.0039	0.0524
N-Butane:	0.0299	0.0000	0.0067	0.0057	0.0035	0.0427
2,2 dmc3:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-Pentane:	0.0131	0.0000	0.0000	0.0000	0.0000	0.0095
N-Pentane:	0.0068	0.0000	0.0000	0.0000	0.0000	0.0054
Neohexane:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0004
2-3-Cyclopentane:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0003
2-Methylpentane:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0003
3-Methylpentane:	0.0007	0.0000	0.0000	0.0000	0.0002	0.0020
C6:	0.0003	0.0000	0.0000	0.0000	0.0001	0.0008
Methylcyclopentane:	0.0009	0.0000	0.0000	0.0000	0.0001	0.0021
Benzene:	0.0005	0.0000	0.0000	0.0000	0.0001	0.0015
Cyclohexane:	0.0002	0.0000	0.0000	0.0000	0.0000	0.0006
2-Methylhexane:	0.0003	0.0000	0.0000	0.0000	0.0000	0.0010
3-Methylhexane:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0003
2-2-4-i-heptanes:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Heptane:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
Methylcyclohexane:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0003
Toluene:	0.0006	0.0000	0.0000	0.0000	0.0002	0.0010
2-Methylheptane:	0.0008	0.0000	0.0000	0.0000	0.0002	0.0024
4-Methylheptane:	0.0005	0.0000	0.0000	0.0000	0.0002	0.0012
i-Octanes:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0004
Octane:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002
Ethylbenzene:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002
m, p Xylene:	0.0003	0.0000	0.0000	0.0000	0.0001	0.0006
o Xylene (& 2,2,4 i-C9:	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C9:	0.0003	0.0000	0.0000	0.0000	0.0002	0.0005
i-C10:	0.0001	0.0000	0.0000	0.0000	0.0001	0.0001
C10:	0.0003	0.0000	0.0000	0.0000	0.0004	0.0001
i-C11:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002
C11:	0.0002	0.0000	0.0000	0.0000	0.0001	0.0000
C12P:	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BTU:	994.5	994.0	834.7	832.6	843.9	983.5
GPM:	17.1280	17.0120	17.0670	17.0610	17.0630	17.1580
SPG:	0.5964	0.5778	0.7346	0.7360	0.7257	0.6108

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

5928 U.S. Highway 64
Farmington, NM 87401

InFab
INDUSTRIAL FABRICATION

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

July 22, 1998

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

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

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

If you need any additional information please call me.

Sincerely,

Darby West
VP Engineering

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.

PS Memo 09-02

To: **Stationary Sources Program, Local Agencies, and Regulated Community**

From: **Chris Laplante and Roland C. Hea, Colorado Air Pollution Control Division**

Date: **February 8, 2010**

Subject: **Oil & Gas Produced Water Tank Batteries**
Regulatory Definitions and Permitting Guidance

This guidance document is intended to answer frequently asked questions concerning oil and gas industry produced water tank batteries. This document does not address any other equipment types that may be part of a common facility with a tank battery. Nothing in this guidance should be construed regarding Air Pollution Control Division (Division) permitting of evaporation ponds or water treatment facilities. Please consult with the Division for information regarding the permitting of evaporation ponds or water treatment facilities.

Revision History

October 1, 2009	Initial issuance.
February 8, 2010	First revision. This guidance document replaces the October 1, 2009 version. Revised language to clarify APEN fee structure, definition of modification, APEN submittals, and produced water exemption.

Topic **Page**

3. EMISSION FACTORS AND SITE SPECIFIC SAMPLING Q&A

3.1. ***What are the State approved default emission factors for produced water tanks?***

County	Produced Water Tank Default Emission Factors[1] (lb/bbl)[2]		
	VOC	Benzene	n-Hexane
Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, & Weld	0.262	0.007	0.022
Garfield, Mesa, Rio Blanco, & Moffat	0.178	0.004	0.010
Remainder of Colorado[3]	0.262	0.007	0.022

[1] Testing may be performed at any site to determine site-specific emissions factors. These default emission factors may be revised by the Division in the future, pending approved data and testing results.

[2] Units of lb/bbl means pounds of emissions per barrel of produced water throughput

[3] For counties not listed in this table, use the emissions factors listed as a conservative measure or perform testing to determine a site-specific emission factor

3.2. ***What type of emissions are included in the produced water tank state default emission factors?***

State default emission factors for produced water tanks include flash, working, and breathing losses.

3.3. ***Are there limits as to when produced water tank state default emission factors may be used?***

State default emission factors may be used at all oil and gas industry tank batteries. The Division intends to work with industry to refine emission factors and may develop separate emission factors for E&P and non-E&P sites.

3.4. ***When are site-specific emission factors required for tank batteries?***

Site-specific emission factors may be developed and used on a voluntary basis for any tank battery. The Division reserves the authority to require site-specific emission factors at any time. Site-specific emission factors may only be applied at the tank battery for which they were developed, unless otherwise approved by the Division.

3.5. ***How is a site-specific emission factor developed?***

A site-specific emission factor for tank batteries is developed by performing a Division approved stack test. A test protocol must be submitted and approved by the Division prior to performing the test. Once a test protocol has been approved by the Division, subsequent testing may be performed following the approved protocol without submittal to the Division.

The Division must be notified of the site specific testing at least 30-days prior to the actual test date.

Emission Factor Determination for Produced Water Storage Tanks

TCEQ Project 2010-29

Prepared for:
Texas Commission on Environmental Quality
Austin, Texas

Prepared by:
ENVIRON International Corporation
Novato, California

Date:
August 2010

ENVIRON Project Number:
06-17477T

Executive Summary

The overall purpose of this Study is to evaluate volatile organic compounds (VOC), speciated VOC and hazardous air pollutant (HAP) emissions from produced water and/or saltwater storage tanks servicing oil and gas wells and to develop appropriate VOC and HAP emission factors. The emission factors are to be used for emission inventory development purposes.

The primary source of information for this study was testing conducted by the Texas Commission on Environmental Quality (TCEQ) under Work Order 522-7-84005-FY10-25, *Upstream Oil & Gas Tank Measurements*, TCEQ Project 2010-39. As part of this referenced testing project, pressurized produced water samples were taken at seven different tank batteries located in Johnson, Wise and Tarrant Counties, Texas (all part of the Eastern Barnett Shale region) and analyzed for flash gas volume and composition. The sample collection and analysis conducted as part of TCEQ Project 2010-39 was done according to strict sampling and quality assurance procedures. In addition to TCEQ Project 2010-39 data, a thorough review of publically-available information sources identified a limited amount of data on produced water emissions. This was supplemented by data provided by two natural gas producers and one petroleum engineering services company. Other than TCEQ Project 2010-39 data, however, it could not be confirmed that any of the data had undergone a rigorous quality assurance process and therefore is considered secondary data, used to support conclusions drawn using the primary data but not used directly in deriving the produced water emission factors.

Emissions from produced water storage tanks consist of flash emissions, working losses and breathing losses. Flash emissions are determined using flash gas analysis. Working and breathing losses are estimated using EPA TANKS 4.09d software. Using this approach and the assumptions detailed within this report, it is determined that working and breathing losses associated with primary data source sites are very small compared to flash emissions and can be ignored without affecting the overall emission factor determination.

Table ES-1 presents the recommended emission factors for VOC and four HAPs – benzene, toluene, ethylbenzene and xylenes – derived from the primary data source sites. For comparative purposes, average emissions from Texas and non-Texas secondary sites are also presented in Table ES-1.

Table ES-1. Recommended Emission Factors and Comparative Data

Pollutant	Average Produced Water Emission Factor by Data Set (lb/bbl)		
	Recommended Emission Factor	Secondary Data – Texas	Secondary Data – Non-Texas
VOC	0.01	0.012	0.18
Benzene	0.0001	0.0012	0.004
Toluene	0.0003	0.0012	0.009
Ethylbenzene	0.000006	0.0001	0.0007
Xylenes	0.00006	0.0003	0.006

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

GLOBAL WARMING POTENTIALS

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124-38-9	CO_2	1
Methane	74-82-8	CH_4	[a]25
Nitrous oxide	10024-97-2	N_2O	[a]298
HFC-23	75-46-7	CHF_3	[a]14,800
HFC-32	75-10-5	CH_2F_2	[a]675
HFC-41	593-53-3	CH_3F	[a]92
HFC-125	354-33-6	C_2HF_5	[a]3,500
HFC-134	359-35-3	$C_2H_2F_4$	[a]1,100
HFC-134a	811-97-2	CH_2FCF_3	[a]1,430
HFC-143	430-66-0	$C_2H_3F_3$	[a]353
HFC-143a	420-46-2	$C_2H_3F_3$	[a]4,470
HFC-152	624-72-6	CH_2FCH_2F	53
HFC-152a	75-37-6	CH_3CHF_2	[a]124
HFC-161	353-36-6	CH_3CH_2F	12
HFC-227ea	431-89-0	C_3HF_7	[a]3,220
HFC-236cb	677-56-5	$CH_2FCF_2CF_3$	1,340
HFC-236ea	431-63-0	CHF_2CHFCF_3	1,370
HFC-236fa	690-39-1	$C_3H_2F_6$	[a]9,810
HFC-245ca	679-86-7	$C_3H_3F_5$	[a]693
HFC-245fa	460-73-1	$CHF_2CH_2CF_3$	1,030
HFC-365mfc	406-58-6	$CH_3CF_2CH_2CF_3$	794
HFC-43-10mee	138495-42-8	$CF_3CFHCFHCF_2CF_3$	[a]1,640
Sulfur hexafluoride	2551-62-4	SF_6	[a]22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	SF_5CF_3	17,700
Nitrogen trifluoride	7783-54-2	NF_3	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF_4	[a]7,390
PFC-116 (Perfluoroethane)	76-16-4	C_2F_6	[a]12,200
PFC-218 (Perfluoropropane)	76-19-7	C_3F_8	[a]8,830
Perfluorocyclopropane	931-91-9	$C\text{-}C_3F_6$	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C_4F_{10}	[a]8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	$C\text{-}C_4F_8$	[a]10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C_5F_{12}	[a]9,160
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C_6F_{14}	[a]9,300
PFC-9-1-18	306-94-5	$C_{10}F_{18}$	7,500
HCFE-235da2 (Isoflurane)	26675-46-7	$CHF_2OCHClCF_3$	350
HFE-43-10pccc (H-Galden 1040x, HG-11)	E1730133	$CHF_2OCF_2OC_2F_4OCHF_2$	1,870

HFE-125	3822-68-2	CHF_2OCF_3	14,900
HFE-134 (HG-00)	1691-17-4	CHF_2OCHF_2	6,320
HFE-143a	421-14-7	CH_3OCF_3	756
HFE-227ea	2356-62-9	$CF_3CHFOCF_3$	1,540
HFE-236ca12 (HG-10)	78522-47-1	$CHF_2OCF_2OCHF_2$	2,800
HFE-236ea2 (Desflurane)	57041-67-5	$CHF_2OCHFCF_3$	989
HFE-236fa	20193-67-3	$CF_3CH_2OCF_3$	487
HFE-245cb2	22410-44-2	$CH_3OCF_2CF_3$	708
HFE-245fa1	84011-15-4	$CHF_2CH_2OCF_3$	286
HFE-245fa2	1885-48-9	$CHF_2OCH_2CF_3$	659
HFE-254cb2	425-88-7	$CH_3OCF_2CHF_2$	359
HFE-263fb2	460-43-5	$CF_3CH_2OCH_3$	11
HFE-329mcc2	134769-21-4	$CF_3CF_2OCF_2CHF_2$	919
HFE-338mcf2	156053-88-2	$CF_3CF_2OCH_2CF_3$	552
HFE-338pcc13 (HG-01)	188690-78-0	$CHF_2OCF_2CF_2OCHF_2$	1,500
HFE-347mcc3 (HFE-7000)	375-03-1	$CH_3OCF_2CF_2CF_3$	575
HFE-347mcf2	171182-95-9	$CF_3CF_2OCH_2CHF_2$	374
HFE-347pcf2	406-78-0	$CHF_2CF_2OCH_2CF_3$	580
HFE-356mec3	382-34-3	$CH_3OCF_2CHFCF_3$	101
HFE-356pcc3	160620-20-2	$CH_3OCF_2CF_2CHF_2$	110
HFE-356pcf2	50807-77-7	$CHF_2CH_2OCF_2CHF_2$	265
HFE-356pcf3	35042-99-0	$CHF_2OCH_2CF_2CHF_2$	502
HFE-365mcf3	378-16-5	$CF_3CF_2CH_2OCH_3$	11
HFE-374pc2	512-51-6	$CH_3CH_2OCF_2CHF_2$	557
HFE-449s1 (HFE-7100)	163702-07-6	$C_4F_9OCH_3$	297
Chemical blend	163702-08-7	$(CF_3)_2CFCF_2OCH_3$	
HFE-569sf2 (HFE-7200)	163702-05-4	$C_4F_9OC_2H_5$	59
Chemical blend	163702-06-5	$(CF_3)_2CFCF_2OC_2H_5$	
Sevoflurane (HFE-347mmz1)	28523-86-6	$CH_2FOCH(CF_3)_2$	345
HFE-356mm1	13171-18-1	$(CF_3)_2CHOCH_3$	27
HFE-338mmz1	26103-08-2	$CHF_2OCH(CF_3)_2$	380
(Octafluorotetramethy-lene) hydroxymethyl group	NA	$X\text{-}(CF_2)_4CH(OH)\text{-}X$	73
HFE-347mmy1	22052-84-2	$CH_3OCF(CF_3)_2$	343
Bis(trifluoromethyl)-methanol	920-66-1	$(CF_3)_2CHOH$	195
2,2,3,3,3-pentafluoropropanol	422-05-9	$CF_3CF_2CH_2OH$	42
PFPMIE (HT-70)	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	10,300

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

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

DEFAULT CO_2 EMISSION FACTORS AND HIGH HEAT VALUES FOR VARIOUS TYPES OF FUEL

Fuel type	Default high heat value	Default CO_2 emission factor
Coal and coke	mmBtu/short ton	kg CO_2/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO_2/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO_2/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG)[1]	0.092	61.71
Propane[1]	0.091	62.87
Propylene[2]	0.091	67.77
Ethane[1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene[2]	0.058	65.96
Isobutane[1]	0.099	64.94
Isobutylene[1]	0.103	68.86
Butane[1]	0.103	64.77
Butylene[1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02

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

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

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

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

[4]Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO_2 emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5]Use the following formula to calculate a wet basis HHV for use in Equation C-1: $HHV_w = ((100 - M)/100)*HHV_d$where HHV_w = wet basis HHV, M = moisture content (percent) and HHV_d = dry basis HHV from Table C-1.

[78 FR 71950, Nov. 29, 2013]

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

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/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}
Fuel Gas	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, except wood and wood residuals)	3.2×10^{-02}	4.2×10^{-03}
Wood and wood residuals	7.2×10^{-03}	3.6×10^{-03}
Biomass Fuels—Gaseous (All fuel types in Table C-1)	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_4/mmBtu.

Table W-1A of Subpart W of Part 98—Default Whole Gas Emission Factors for Onshore Petroleum and Natural Gas Production

Onshore petroleum and natural gas production	Emission factor (scf/hour/ component)
Eastern U.S.	
Population Emission Factors—All Components, Gas Service[1]	
Valve	0.027
Connector	0.003
Open-ended Line	0.061
Pressure Relief Valve	0.040
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors—All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003
Connector	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors—All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003
Western U.S.	
Population Emission Factors—All Components, Gas Service[1]	
Valve	0.121
Connector	0.017
Open-ended Line	0.031
Pressure Relief Valve	0.193
Low Continuous Bleed Pneumatic Device Vents[2]	1.39
High Continuous Bleed Pneumatic Device Vents[2]	37.3
Intermittent Bleed Pneumatic Device Vents[2]	13.5
Pneumatic Pumps[3]	13.3
Population Emission Factors—All Components, Light Crude Service[4]	
Valve	0.05
Flange	0.003

Connector (other)	0.007
Open-ended Line	0.05
Pump	0.01
Other[5]	0.30
Population Emission Factors—All Components, Heavy Crude Service[6]	
Valve	0.0005
Flange	0.0009
Connector (other)	0.0003
Open-ended Line	0.006
Other[5]	0.003

[1]For multi-phase flow that includes gas, use the gas service emissions factors.

[2]Emission Factor is in units of “scf/hour/device.”

[3]Emission Factor is in units of “scf/hour/pump.”

[4]Hydrocarbon liquids greater than or equal to 20°API are considered “light crude.”

[5]“Others” category includes instruments, loading arms, pressure relief valves, stuffing boxes, compressor seals, dump lever arms, and vents.

[6]Hydrocarbon liquids less than 20°API are considered “heavy crude.”

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Section 8

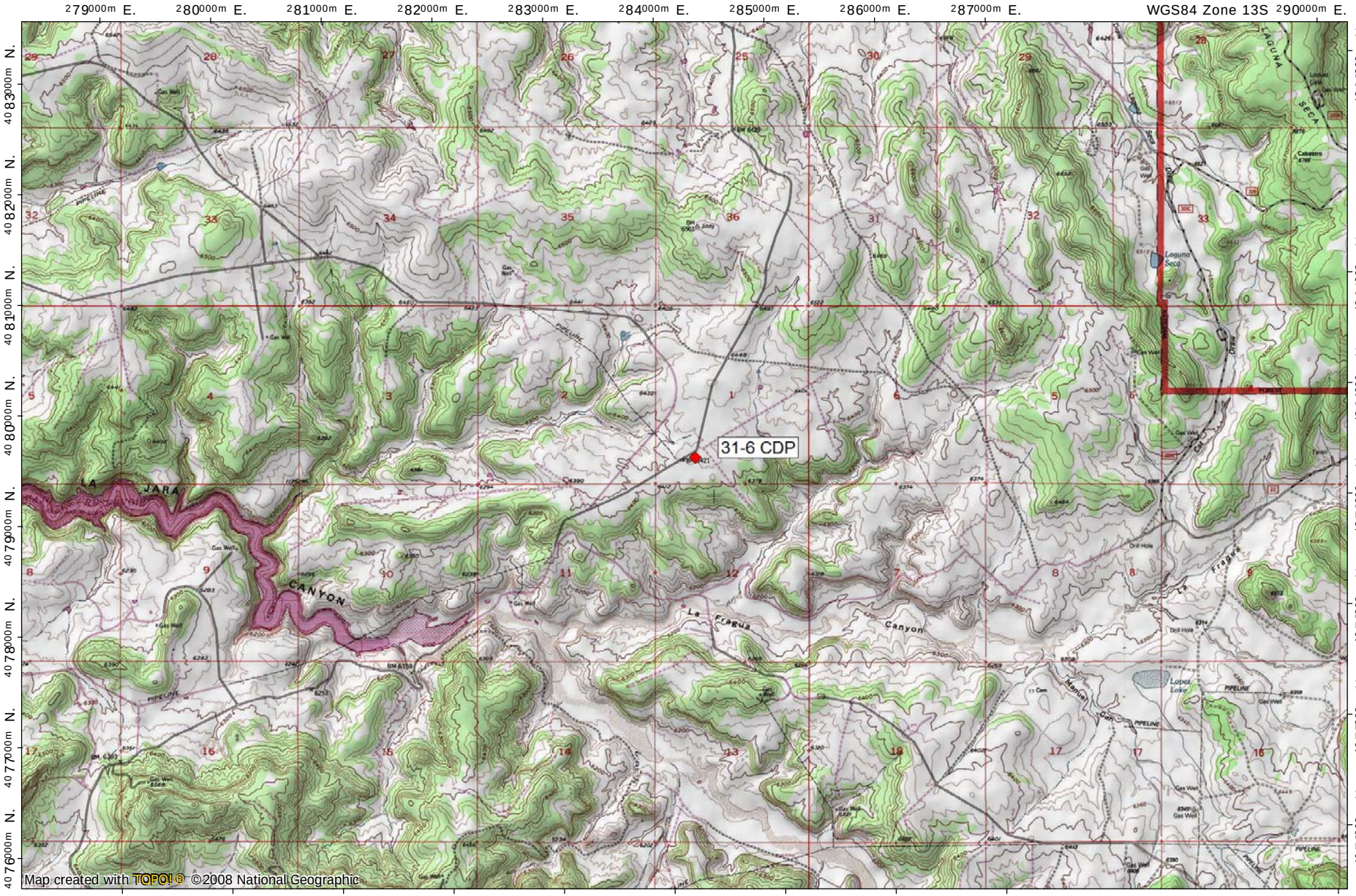
Map(s)

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	

A topographic map of the area around the facility is provided in this section. Please see the following page.

HARVEST FOUR CORNERS LLC - 31-6 CENTRAL DELIVERY POINT (CDP) - Rio Arriba County., NM T 30 N, R 06 W, Section 01



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0.0 0.5 1.0 1.5 2.0 2.5 km

TN MN
9°
10/05/17

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, since 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 31-6 CDP is a production field facility that receives natural gas collected in production gathering fields via pipeline. The facility compresses and dehydrates natural gas for midstream pipeline transmission (i.e., prior to entering a fractionating gas plant) using natural gas-fired reciprocating engines.

Natural gas from independent producers in production fields is piped to the facility inlet via gathering pipelines. The natural gas contains entrained produced water. The natural gas-produced water mixture passes through an inlet separator, where the produced water drops out from the natural gas and is piped to a storage tank where it is stored until it is transported offsite via a tank truck. The natural gas is routed to the compressors for pressurization, and then sent to TEG dehydrators before exiting the facility for transport via pipeline to a downstream gas processing facility. A portion of the natural gas is routed to the compressor engines for use as fuel. The TEG dehydrator still vent emissions are routed to a condenser, which functions as a knock-out drum for produced water.

A waste water storage tank collects storm water runoff and small amounts of heavy hydrocarbon residues resulting from any drips or spills that may occur from machinery, where it is stored until transport offsite via tank truck. The hydrocarbon residues are of low volatility. The lube oil and used lube oil tanks store heavy hydrocarbon machinery oils, also with low volatility. Similarly, the stored contents of the TEG, antifreeze tanks, corrosion inhibitor tank, and solvent tank also have low volatility. A storage tank containing methanol is also at the facility.

Other emission sources include: startups, shutdowns and routine maintenance (SSM) from the compressors and piping, and fugitive emissions from process piping (valves, flanges, seals, etc.).

The facility is authorized to operate continuously.

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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)**:**

31-6 CDP – natural gas compression and dehydration facility

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.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. **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, since this is a Title V application.

Section 12.B

Special Requirements for a PSD Application

(Submitting under 20.2.74 NMAC)

Prior *to Submitting a PSD application*, the permittee shall:

- ☐ Submit the BACT analysis for review prior to submittal of the application. No application will be ruled complete until the final determination regarding BACT is made, as this determination can ultimately affect information to be provided in the application. A pre-application meeting is recommended to discuss the requirements of the BACT analysis.
- ☐ Submit a modeling protocol prior to submitting the permit application. **[Except for GHG]**
- ☐ Submit the monitoring exemption analysis protocol prior to submitting the application. **[Except for GHG]**

For PSD applications, the permittee shall also include the following:

- ☐ Documentation containing an analysis on the impact on visibility. **[Except for GHG]**
- ☐ Documentation containing an analysis on the impact on soil. **[Except for GHG]**
- ☐ Documentation containing an analysis on the impact on vegetation, including state and federal threatened and endangered species. **[Except for GHG]**
- ☐ Documentation containing an analysis on the impact on water consumption and quality. **[Except for GHG]**
- ☐ Documentation that the federal land manager of a Class I area within 100 km of the site has been notified and provided a copy of the application, including the BACT and modeling results. The name of any Class I Federal area located within one hundred (100) kilometers of the facility.

Not applicable, since this is a Title V application.

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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 Regulation 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	This regulation is applicable because it establishes procedures for protecting confidential information, procedures for seeking a variance, NMAQB's authority to require sampling equipment, severability, and the effective date for conformance with the NMACs, and prohibits the violation of other requirements in attempting to comply with the NMACs. Although this regulation is applicable, it does not impose any specific requirements.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	This is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentrations of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation is applicable because it prohibits excess emissions unless proper notification procedures are followed.
20.2.8 NMAC	Emissions Leaving New Mexico	No	N/A	20.2.8 NMAC, *Emissions Leaving New Mexico*, establishes prohibitions on the release of pollutants that cross New Mexico State boundaries. Although this regulation may apply to the facility, it does not impose any specific requirements on the operation of the facility as described in the permit. Therefore, the regulation is considered not applicable.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This regulation is not applicable because the facility is not equipped with external gas burning equipment which have heat input rates exceeding the trigger level (one million MMBtu/year) established by the regulation (see 20.2.33.108 NMAC).
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	N/A	This regulation is not applicable because the facility is not a natural gas processing plant (see 20.2.35.6 NMAC).
20.2.38 NMAC	Hydrocarbon Storage Facility	No	N/A	This regulation is not applicable because the facility does not store hydrocarbons containing hydrogen sulfide, nor is there a tank battery storing hydrocarbon liquids with a capacity greater than or equal to 65,000 gallons (see 20.2.38.112 NMAC).
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	This regulation is not applicable because the facility is not equipped with a sulfur recovery plant (see 20.2.39.6 NMAC).
20.2.50 NMAC	Oil and Gas Sector – Ozone Precursor Pollutants	Yes	See Adjacent List	This regulation is applicable. It establishes emission standards for volatile organic compounds (VOC) and oxides of nitrogen (NOx) for oil and gas production, processing, compression, and transmission sources. Check the box for the subparts that are applicable: ☒113 – Engines and Turbines ☒114 – Compressor Seals ☒115 – Control Devices and Closed Vent Systems ☒116 – Equipment Leaks and Fugitive Emissions ☐ 117 – Natural Gas Well Liquid Unloading ☒ 118 – Glycol Dehydrators ☐ 119 – Heaters ☐ 120 – Hydrocarbon Liquid Transfers ☒121 – Pig Launching and Receiving ☒122 – Pneumatic Controllers and Pumps ☐ 123 – Storage Vessels ☐124 – Well Workovers ☐ 125 – Small Business Facilities

State Regulation 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.)
				☐126 – Produced Water Management Unit ☐127 – Flowback Vessels and Preproduction Operations
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	Units 1, 3-16, 17b-22b, 31b, 32b, 33, 33b & 34b	This regulation is applicable because the facility is equipped with stationary combustion sources. Emissions from these combustion sources are limited to less than 20% opacity (see 20.2.61.109 NMAC). The regulation is not applicable to Title V insignificant heaters (see 20.2.61.111.D NMAC).
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation is applicable because the facility is a major source of NO2 & VOC emissions (see 20.2.70.200 NMAC).
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.70 NMAC (see 20.2.71.6 NMAC).
20.2.72 NMAC	Construction Permits	Yes	Facility	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	This regulation is applicable because the facility has potential emission rates (PER) greater than 10 pph or 25 tpy for pollutants subject to a state or federal ambient air quality standards (does not include VOCs or HAPs).
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	This regulation is not applicable because the facility is not a PSD major source.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation is applicable because the facility is subject to 20.2.72 NMAC and it establishes the fee schedule associated with the filing of construction permits (see 20.2.75.6 NMAC).
20.2.77 NMAC	New Source Performance	No	N/A	This regulation is not applicable because it adopts by reference the federal NSPS codified in 40 CFR 60 (see 20.2.77.6 NMAC).
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	This regulation is not applicable because it incorporates by reference the NESHAPs codified under 40 CFR 61 (see 20.2.78.6 NMAC). The facility is not subject to 40 CFR 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	This regulation is not applicable because the facility is neither located in nor has a significant impact on a nonattainment area (see 20.2.79.6 NMAC).
20.2.80 NMAC	Stack Heights	No	N/A	This regulation is not applicable because it establishes guidelines for the selection of an appropriate stack height for the purpose of atmospheric dispersion modeling (see 20.2.80.6 NMAC); however, it only imposes those requirements when modeling is required as a part of the application. This application does not require modeling.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	Units 1-16, 17b-22b, 31a, 32a, 33, 33a & 34a	This regulation is applicable because it adopts by reference the federal MACT Standards for source categories codified in 40 CFR 63 (see 20.2.82.6 NMAC). The facility is subject to 40 CFR 63.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
40 CFR 50	NAAQS	Yes	Facility	This regulation is applicable because it applies to all sources in the state of New Mexico.
40 CFR 52	Approval and Promulgation of	No	N/A	40 CFR 52.21 *Prevention of Significant Deterioration of Air Quality* is not applicable because the facility is not a major Prevention of Significant Deterioration source.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Implementation Plans			The remainder of 40 CFR 52 is not applicable because it addresses approval and promulgation of implementation plans.
NSPS 40 CFR 60, Subpart A	General Provisions	No	N/A	This regulation is not applicable because 40 CFR Part 60 does not apply.
NSPS 40 CFR 60, Subpart K	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	No	N/A	This regulation is not applicable because the petroleum liquids storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110(a)).
NSPS 40 CFR 60, Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	No	N/A	This regulation is not applicable because the storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 40,000 gallons (see §60.110a(a)).
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 Modification Commenced After July 23, 1984	No	N/A	This regulation is not applicable because all storage tanks at the facility have capacities less than the minimum applicability threshold capacity of 75 cubic meters (19,812 gallons) or they have a capacity between 75 and 151 cubic meters (40,000 gallons) and store a liquid with a maximum true vapor pressure less than 15.0 kPa (2.2 psi) (see §60.110b(a) & §60.110b(b))).
NSPS 40 CFR 60.330 Subpart GG	Standards of Performance for Stationary Gas Turbines	No	N/A	This regulation is not applicable because there are no turbines at the facility.
NSPS 40 CFR 60, Subpart KKK	Standards of Performance for Equipment Leaks of VOC from Onshore Gas Plants	No	N/A	This regulation is not applicable because the facility is not an onshore natural gas processing plant as defined by the subpart (see §60.630(a)(1)). Natural gas processing plant (gas plant) means any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both (see §60.631).
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural	No	N/A	This regulation is not applicable because the facility is not a natural gas processing plant as defined by the subpart. It is not equipped with a sweetening unit (see §60.640(a)).

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	Gas Processing: SO_2 Emissions			
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No	N/A	This regulation is not applicable because the facility is not equipped with stationary compression ignition (CI) internal combustion engines (ICE)
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Potentially applicable	Units 4, 6, 13 & 14	This regulation applies to facilities equipped with spark ignition (SI) internal combustion engines (ICE) constructed, modified, or reconstructed after June 12, 2006. Units 1, 3, 5, 7-12, 15, 16, and 33 were constructed prior to the applicability date and have not been modified or reconstructed. Therefore, these engines are not subject to the regulation. Units 4, 6, 13 and 14 are not installed. The applicability of the subpart will be evaluated upon their installation. See the definitions of construction, modification, and reconstruction referenced in Subpart OOOO below.
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines	No	N/A	This regulation is not applicable because the facility is not equipped with turbines.
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	N/A	This regulation is not applicable because the facility is not equipped with "affected" sources that commenced construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015: gas wells, centrifugal or reciprocating compressors, pneumatic controllers, and storage vessels (see §60.5365). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430). Commenced construction means a continuous program of fabrication, erection or installation (see §60.2). Modification means any physical change in or change in the method of operation of an existing facility which increases emissions or results in new emissions (see §60.2). The following, by themselves, are not modifications: routine maintenance, repair or replacement, production increase without capital expenditure, increase in hours of operation, addition of emission controls, or the relocation or change in ownership of an existing facility (see §60.14). Reconstruction means the replacement of components of an existing facility such that the fixed capital cost of the new components exceeds 50 % of the fixed capital cost required to construct a comparable entirely new facility. Fixed capital cost means the capital needed to provide all the depreciable components (see §60.15).
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	Potentially applicable	Fugitive emissions components	This regulation is applicable because the facility is equipped with "affected" sources that commenced construction, modification or reconstruction after September 18, 2015. It applies to gas wells, centrifugal or reciprocating compressors, pneumatic controllers, storage vessels, sweetening units, pneumatic pumps, and equipment leaks (see §60.5365a). In general, this regulation may apply if existing affected equipment is replaced or new affected equipment is installed.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
	September 18, 2015			In particular, this regulation will apply to fugitive emissions components at the facility if any engines and compressors are installed. Fugitive components monitoring is required if a compressor station is modified. For the purpose of fugitive components monitoring as required by this subpart, modification of a compressor station is the addition of a compressor or replacement of a compressor with a larger unit (greater total horsepower) (see §60.5365a(j)). Note that the facility is not a natural gas processing plant as defined by the subpart (see §60.5430a). See the definitions of construction, modification, and reconstruction referenced in Subpart OOOO above.
NESHAP 40 CFR 61 Subpart A	General Provisions	No	N/A	This regulation is not applicable because no other 40 CFR Part 61 subparts apply (see §61.01(c)).
NESHAP 40 CFR 61 Subpart V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	No	N/A	This regulation is not applicable because none of the listed equipment at the facility is in VHAP service. The provisions of this subpart apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices or systems required by this subpart (see §61.240(a)). VHAP service means a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight of VHAP. VHAP means a substance regulated under this subpart for which a standard for equipment leaks of the substance has been promulgated (see §61.241).
MACT 40 CFR 63, Subpart A	General Provisions	Yes	Units 1, 3-16, 33, 17a-22a & 31a-34a	This regulation is applicable because 40 CFR 63 Subpart ZZZZ applies (see §63.1(b)).
MACT 40 CFR 63.760 Subpart HH	National Emission Standards for Hazardous Air Pollutants For Oil and Natural Gas Production Facilities	Yes	Units 17a-22a & 31a-34a	This regulation is applicable because the facility is equipped with affected equipment. The facility is an area HAP source. Note that since it is a production field facility (located prior to the point of custody transfer), only HAP emissions from glycol dehydration units and storage vessels are aggregated for a major source determination. Storage vessels include crude oil tanks, condensate tanks, intermediate hydrocarbon liquid tanks, and produced water tanks (see §63.761). At area HAP facilities, the regulation is only applicable to dehydrators (see §63.760(b)(2)). The TEG dehydrators are located in an area that is not within an UA plus offset and UC boundary (as defined in §63.761). Under §63.764(e)(1)(ii), the owner or operator of an affected area source [TEG dehydrator] with actual average benzene emissions from the process vent to the atmosphere of less than 0.90 megagrams per year (~1 tpy) is exempt from the operational, recordkeeping and notification requirements in §63.764(d), provided that documentation of the exemption determination is maintained as required in §63.774(d)(1). The calculated benzene PTE for each of the new dehydrator units 32, 33 and 34 indicates that the actual emissions of benzene will be well below the 1 tpy exemption threshold of §63.764(e)(1)(ii); therefore, Harvest will comply with the operational, recordkeeping and reporting requirements for these units as well.

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
MACT 40 CFR 63 Subpart HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	No	N/A	This regulation is not applicable because the facility is not a natural gas transmission and storage facility as defined by the subpart. A compressor station that transports natural gas prior to the point of custody transfer or to a natural gas processing plant (if present) are not considered a part of the natural gas transmission and storage source category (see §63.1270(a)).
MACT 40 CFR 63, Subpart YYYY	National Emission Standards for Hazardous Air Pollutants From Stationary Combustion Turbines	No	N/A	This regulation is not applicable because the facility is not equipped with turbines.
MACT 40 CFR 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Yes	Units 1, 3-16 & 33	This regulation is applicable because the facility is equipped with affected sources. The station is an area HAP source as defined by the subpart. For production field facilities, only HAP emissions from engines, turbines, dehydrators, and storage vessels with the potential for flash emissions are aggregated for the HAP major source determination (see §63.6675). Units 1, 3, 5, 7-12, 15, 16, and 33 are existing 4-stroke, lean burn (4SLB) spark ignition (SI) RICE, site-rated at more than 500 hp, constructed prior to December 19, 2002. As such, they must comply with this subpart. Units 4, 6, 13 and 14 are not yet installed. Applicability will be determined upon installation.
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No	N/A	This regulation is not applicable both because the facility is an area HAP source as defined by the subpart (see §63.7480) and is not equipped with boilers and process heaters.
40 CFR 64	Compliance Assurance Monitoring	Yes	Units 4, 6, 13 & 14	This regulation is applicable because equipment at the facility requires a control device to achieve compliance with emission limits or standards where pre control emissions equal or exceed the major source threshold (100 tons per year). (see §64.2(a)).
40 CFR 68	Chemical Accident Prevention	No	N/A	This regulation is not applicable because the facility does not store any of the identified toxic and flammable substances in quantities exceeding the applicability thresholds (see §68.10(a), §68.115(a), and §68.130 Tables 1-4).
40 CFR 82	Protection of Stratospheric Ozone	No	N/A	This regulation is not applicable because the facility does not produce, transform, destroy, import, or export ozone-depleting substances (see §82.1(b),); does not service motor vehicle air conditioning units (see §82.30(b)); and does not sell, distribute, or offer for sale or distribution any product that contains ozone-depleting substances (see §82.64).
40 CFR 98	Mandatory Greenhouse Gas Reporting	Yes	Facility	40 CFR 98, *Mandatory Greenhouse Gas Reporting*, is a federal requirement that is applicable to facilities that include source categories listed in Subpart A, Table A-3, or to facilities with annual emissions of 25,000 metric tons (mt) of CO_2 equivalent (CO_2e) or more in combined emissions from stationary fuel combustion units, miscellaneous uses of carbonate, and all applicable source categories listed in Table A–3 and Table A–4 of Subpart A. The regulation applies because the annual CO2e of the facility exceeds the major source threshold as defined in Subpart A, General Provision, Subpart C, General

Federal Regulation Citation	Title	Applies? Enter Yes or No	Unit(s) or Facility	Justification:
				Stationary Fuel Combustion Sources, and, as applicable, Subpart W, Petroleum Oil and Natural Gas Systems. The GHG emissions inventory is reported annually.

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: www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/. 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.

Not applicable, as there are no alternative operating scenarios at this facility.

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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.	**X**
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

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.

Modeling was last conducted in 2023 for permit number 1033-M10.

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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.

Compliance Test History Table

Unit No.	Test Description	Test Date
1	NOX and CO testing in accordance with Condition 201.A	7/17/24
3	NOX and CO testing in accordance with Condition 201.A	7/15/24
4	NOX and CO testing in accordance with Condition 201.A	Not Installed
5	NOX and CO testing in accordance with Condition 201.A	7/9/24
6	NOX and CO testing in accordance with Condition 201.A	Not Installed
7	NOX and CO testing in accordance with Condition 201.A	7/15/24
8	NOX and CO testing in accordance with Condition 201.A	Did Not Operate
9	NOX and CO testing in accordance with Condition 201.A	7/15/24
10	NOX and CO testing in accordance with Condition 201.A	7/9/24
11	NOX and CO testing in accordance with Condition 201.A	7/16/24
12	NOX and CO testing in accordance with Condition 201.A	7/16/24
13	NOX and CO testing in accordance with Condition 201.A	Not Installed
14	NOX and CO testing in accordance with Condition 201.A	Not Installed
15	NOX and CO testing in accordance with Condition 201.A	7/18/24
16	NOX and CO testing in accordance with Condition 201.A	7/18/24
33	NOX and CO testing in accordance with Condition 201.A	7/17/24

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Section 18

Addendum for Streamline Applications

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 a Title V application.

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Section 19

Requirements for Title V Program

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 www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. 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.

A Compliance Assurance Monitoring (CAM) plan is provided in Section 20 of 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 facility is in compliance with all applicable requirements, as has been demonstrated by the most recent semi-annual monitoring reports and annual compliance certification. 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 facility will continue to be in compliance with applicable requirements for which it is in compliance at the time of this permit application. In addition, Harvest will, in a timely manner or consistent with such schedule expressly required by the applicable requirement, comply with other applicable requirements as they come into effect during the permit term.

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

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

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

19.5 - Stratospheric Ozone and Climate Protection

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

---

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

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs?

   ☐ **Yes** ☒ **No**

   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

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

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

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

Harevst 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 www.env.nm.gov/air-quality/air-quality-title-v-operating-permits-guidance-page/. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

The facility 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 facility 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 facility 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.)

The facility is located within 80 kilometers of the following states, local pollution control programs, Indian tribes and pueblos:

Colorado (≈ 18.2 km)
Navajo Indian Reservation (≈ 34.1 km)
Jicarilla Apache Indian Reservation (≈ 19.9 km)
Southern Ute Indian Reservation (≈ 18.2 km)
Ute Mountain Ute Indian Reservation (≈ 74.1 km)

19.9 - Responsible Official

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

The responsible official is Michelle McCracken.

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.

Attached are a Compliance History Disclosure Form and CAM plan.

Air Permit Application
Compliance History Disclosure Form

Pursuant to Subsection 74-2-7(S) of the New Mexico Air Quality Control Act ("AQCA"), NMSA §§ 74-2-1 to -17, the New Mexico Environment Department ("Department") may deny any permit application or revoke any permit issued pursuant to the AQCA if, within ten years immediately preceding the date of submission of the permit application, the applicant met any one of the criteria outlined below. In order for the Department to deem an air permit application administratively complete, or issue an air permit for those permits without an administrative completeness determination process, the applicant must complete this Compliance History Disclosure Form as specified in Subsection 74-2-7(P). An existing permit holder (permit issued prior to June 18, 2021) shall provide this Compliance History Disclosure Form to the Department upon request.

Permittee/Applicant Company Name		**Expected Application Submittal Date**
Harvest Four Corners, LLC		October 18, 2024
Permittee/Company Contact	**Phone**	**Email**
Jennifer Nygren	505-324-5128	JDeal@harvestmidstream.com

	Within the 10 years preceding the expected date of submittal of the application, has the permittee or applicant:	
1	Knowingly misrepresented a material fact in an application for a permit?	☐ Yes ☒ No
2	Refused to disclose information required by the provisions of the New Mexico Air Quality Control Act?	☐ Yes ☒ No
3	Been convicted of a felony related to environmental crime in any court of any state or the United States?	☐ Yes ☒ No
4	Been convicted of a crime defined by state or federal statute as involving or being in restraint of trade, price fixing, bribery, or fraud in any court of any state or the United States?	☐ Yes ☒ No
5a	Constructed or operated any facility for which a permit was sought, including the current facility, without the required air quality permit(s) under 20.2.70 NMAC, 20.2.72 NMAC, 20.2.74 NMAC, 20.2.79 NMAC, or 20.2.84 NMAC?	☐ Yes ☒ No
5b	If "No" to question 5a, go to question 6. If "Yes" to question 5a, state whether each facility that was constructed or operated without the required air quality permit met at least one of the following exceptions: a. The unpermitted facility was discovered after acquisition during a timely environmental audit that was authorized by the Department; or b. The operator of the facility estimated that the facility's emissions would not require an air permit, **and** the operator applied for an air permit within 30 calendar days of discovering that an air permit was required for the facility.	☐ Yes ☐ No
6	Had any permit revoked or permanently suspended for cause under the environmental laws of any state or the United States?	☐ Yes ☒ No
7	For each "yes" answer, please provide an explanation and documentation.	

COMPLIANCE ASSURANCE MONITORING PLAN
HARVEST FOUR CORNERS, LLC
31-6 CENTRAL DELIVERY POINT
CATALYTIC CONVERTER FOR CONTROL OF NO_X AND CO

I. Introduction

The rich burn engines (Units 4, 6, 13 & 14) at the 31-6 Central Delivery Point must be equipped with catalysts to control nitrogen oxide (NOx) and carbon monoxide (CO) emissions. As this facility is a major source required to obtain a Part 70 permit, the requirements of 40 CFR 64, Compliance Assurance Monitoring (CAM) are applicable as per §64.2(a):

(1) The engines are subject to emission limitations established in the NSR and Part 70 permits;

(2) The engines use control devices to achieve compliance with these emission limitations; and

(3) As seen in the table below, the uncontrolled NOx and CO emissions from the engines are in excess of 100 tons per year.

II. Emissions

Source Description	Unit Number	Pollutant	Uncontrolled Emissions		Controlled Emissions	
			pph	tpy	pph	tpy
Waukesha 7042GSI	4, 6, 13 & 14	NOX	42.07	184.26	1.62	7.09
		CO	29.12	127.57	1.94	8.50

Harvest Four Corners, LLC has elected to install non-selective catalytic converters on the engines. The controlled emissions in this table are the emissions limits established in the permits.

III. Monitoring

The monitoring requirements of this CAM plan are identified in the table at the end of this plan.

IV. Response to Excursions

Excursions beyond the allowable indictor ranges will trigger an inspection, corrective action, and reporting. Maintenance personnel will inspect the units within 24 hours of receiving notification and make needed repairs as soon as practicable.

V. Justification

The monitoring requirements of this plan apply to the non-selective catalytic converters used on rich burn engines at the plant. The catalyst systems are passive units and do not have mechanical componentsQuarterly testing will verify compliance with the emission limits.

Rationale for Selection of Performance Indicators

- Quarterly NO_X and CO emissions testing will demonstrate continued compliance with emission limits.

Rationale for Selection of Indicator Ranges

- The emission rates are established in the construction and Title V operating permit.

MONITORING REQUIREMENTS

	Indicator No. 3
I. Indicator	NO_X and CO measurement.
Measurement Approach	NO_X and CO are measured using portable analyzers.
II. Indicator Range	NO_X and CO emissions shall be maintained within the limits identified by the permits.
III. Performance Criteria A. Data Representativeness	Gases are measured at the exhaust of the catalyst under normal operating conditions.
B. QA/QC Practices and Criteria	Testing is conducted as required by the permit.
C. Monitoring Frequency	Quarterly testing is conducted to verify compliance with permit limits.
Data Collection Procedures	Data is collected as required by the permit.
Averaging Period	Not applicable.

Section 21

Addendum for Landfill Applications

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: www.epa.gov/stationary-sources-air-pollution/clean-air-act-guidelines-and-standards-waste-management

NM Solid Waste Bureau Website: www.env.nm.gov/solid-waste/

Not applicable, as the facility is not a landfill.

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Section 22

Certification

Company Name: Harvest Four Corners, LLC

I, Nathan Work, 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 16 day of October, 2024, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature

10/16/2024
Date

Nathan Work
Printed Name

Operations Manager
Title

Scribed and sworn before me on this 16 day of October, 2024.

My authorization as a notary of the State of New Mexico expires on the 23 day of November, 2025.

Notary's Signature

10/16/2024
Date

Jennifer Deal
Notary's Printed Name

STATE OF NEW MEXICO
NOTARY PUBLIC
JENNIFER DEAL
COMMISSION # 1136075
COMMISSION EXPIRES 11/23/2025

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

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