November 4, 2020

Ms. Melinda Owens
Title V Operating Permits Program
New Mexico Environment Department
Air Quality Bureau
New Source Review Unit
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816

FEDERAL EXPRESSED

Re: Occidental Permian, Ltd.
South Hobbs Unit Reinjection Compression Facility
Title V Permit Renewal No. P268-M1 Application
Hobbs, Lea County

Dear Ms. Owens:

Enclosed is the Title V Permit Renewal No. P258-M1 application for Occidental Permian, Ltd.'s South Hobbs Unit Reinjection Compression Facility.

Please contact me at (512) 255-9999 or mcheatham@waid.com, or Ms. Shelby Schoepf at (713) 871-6485 or Shelby_Schoepf@oxy.com, if you have any questions.

Sincerely,

Miranda L. Cheatham, P.E.
Principal Engineer

MLC/tvp

Enclosure

cc: Air Permit Leader, NMED District 3 Office, Roswell, NM, w/enclosure
Ms. Shelby Schoepf, OXY USA Inc., Houston, TX, w/enclosure

November 06, 2020

Dear Customer,

The following is the proof-of-delivery for tracking number: 771991740942

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	R.ROMERO	**Delivery Location:**	525 CAMINO DE LOS MARQUE
Service type:	FedEx Standard Overnight		SANTA FE, NM, 87505
Special Handling:	Deliver Weekday	**Delivery date:**	Nov 5, 2020 09:39

Shipping Information:

Tracking number:	771991740942	**Ship Date:**	Nov 4, 2020
		Weight:	3.0 LB/1.36 KG

Recipient:
Ms. Melinda Owens, NMED
525 Camino de los Marquez, Suite 1
Title V Operating Permits Program
SANTA FE, NM, US, 87505

Shipper:
Tina Purington, WAID ENVIRONMENTAL
13785 N HIGHWAY 183
Ste 100
AUSTIN, TX, US, 78750

Reference OPL14312

Thank you for choosing FedEx

November 06, 2020

Dear Customer,

The following is the proof-of-delivery for tracking number: 771991791900

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	M.HOBBS	**Delivery Location:**	1914 W 2ND ST
Service type:	FedEx Standard Overnight		ROSWELL, NM, 88201
Special Handling:	Deliver Weekday	**Delivery date:**	Nov 6, 2020 09:39

Shipping Information:

Tracking number:	771991791900	**Ship Date:**	Nov 4, 2020
		Weight:	1.0 LB/0.45 KG

Recipient:
NMED District 3 Field Offiice, NMED District 3 Field Off (Roswell)
1914 W 2ND ST
Air Permits
ROSWELL, NM, US, 88201

Shipper:
Tina Purington, WAID ENVIRONMENTAL
13785 N HIGHWAY 183
Ste 100
AUSTIN, TX, US, 78750

Reference OPL41312

Thank you for choosing FedEx

New Mexico Environmental Department
Title V Permit Renewal No. P268-M1 Application

Occidental Permian, Ltd.
South Hobbs Unit Reinjection Compression Facility

Hobbs, Lea County

October 2020

Prepared by:

Miranda L. Cheatham, P.E.
Principal Engineer

Approved by:

Justin K. Mechell, P.E.
Senior Engineer

JUSTIN K. MECHELL
NEW MEXICO
22144
LICENSED PROFESSIONAL ENGINEER
11/4/2020

Document based on information provided by
Occidental Permian, Ltd.
Waid Project No. OPL14312

WAID ENVIRONMENTAL
www.waid.com

Austin Office
13785 Research Blvd., Suite 100, Austin, Texas 78750
512.255.9999 • 512.255.8780 FAX

Houston Office
1325 Space Park Dr., Suite D, Houston, Texas 77058
281.333.9990 • 512.255.8780 FAX

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

Universal Air Quality Permit Application

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

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

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

Acknowledgements:

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

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

☐ Check No.: in the amount of

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

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

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

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.70 NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): 33207	Updating Permit/NOI #: P268-M1
1	Facility Name: South Hobbs Unit Reinjection Compression Facility	Plant primary SIC Code (4 digits): 1311	
		Plant NAIC code (6 digits):211111	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): From intersection of N. Grimes and Hwy 62 in Hobbs, S on Grimes 0.6 miles then right on Stanolind Rd and drive 0.6 mi. Turn left on unnamed road 0.3 mile then left and 0.2 miles into site.		
2	Plant Operator Company Name: Occidental Permian, Ltd.	Phone/Fax:713-871-6485	
a	Plant Operator Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046		

b	Plant Operator's New Mexico Corporate ID or Tax ID: NM-CRS 02-345984-00-0	
3	Plant Owner(s) name(s): Occidental Permian, Ltd.	Phone/Fax: 713-871-6485
a	Plant Owner(s) Mailing Address(s): 5 Greenway Plaza, Suite 110, Houston, TX 77046	
4	Bill To (Company): Occidental Permian, Ltd.	Phone/Fax: 713-871-6485
a	Mailing Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046	E-mail: Shelby_Schoepf@oxy.com
5	■ Preparer: Justin K. Mechell, P.E. ■ Consultant: Justin K. Mechell, P.E.	Phone/Fax: 512-255-9999
a	Mailing Address: 13785 Research Blvd., Ste 100, Austin, TX 78750	E-mail: jmechell@waid.com
6	Plant Operator Contact: Shelby Schoepf	Phone/Fax: 713-871-6485
a	Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046	E-mail: Shelby_Schoepf@oxy.com
7	Air Permit Contact: Shelby Schoepf	Title: Lead Environmental
a	E-mail: Shelby_Schoepf@oxy.com	Phone/Fax: 713-871-6485
b	Mailing Address: 5 Greenway Plaza, Suite 110, Houston, TX 77046	
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):
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? □ Yes ■ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? □Yes □No ■N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ■ Yes □ No	If yes, the permit No. is: P- 268-M1
7	Has this facility been issued a No Permit Required (NPR)? □ Yes ■ No	If yes, the NPR No. is:
8	Has this facility been issued a Notice of Intent (NOI)? □ Yes ■ No	If yes, the NOI No. is:
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ■ Yes □ No	If yes, the permit No. is: 5418M1
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? □ Yes ■ No	If yes, the register No. is:

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 5.0 MMscfh	Daily: 120 MMscfd	Annually: 43,800 MMscf/yr
b	Proposed	Hourly: 5.0 MMscfh	Daily: 120 MMscfd	Annually: 43,800 MMscf/yr
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: 5.0 MMscfh	Daily: 120 MMscfd	Annually: 43,800 MMscf/yr
b	Proposed	Hourly: 5.0 MMscfh	Daily: 120 MMscfd	Annually: 43,800 MMscf/yr

Section 1-D: Facility Location Information

1	Section: 9	Range: 38E	Township: 19S	County: Lea	Elevation (ft): 3608
2	UTM Zone: ☐ 12 or ■ 13			Datum: ☐ NAD 27 ☐ NAD 83 ■ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 672540			UTM N (in meters, to nearest 10 meters): 3617090	
b	**AND** Latitude (deg., min., sec.): 32, 40, 40.890			Longitude (deg., min., sec.): 103, 9, 35.360	
3	Name and zip code of nearest New Mexico town: Hobbs, NM 88240				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From intersection of N. Grimes and Hwy 62 in Hobbs, S on Grimes 0.6 miles then right on Stanolind Rd and drive 0.6 mi. Turn left on unnamed road 0.3 mile then left and 0.2 miles into site.				
5	The facility is 1.5 (distance) miles SW (direction) of Hobbs, NM (nearest town).				
6	Status of land at facility (check one): ■ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: Hobbs, NM, Lea County NM, and Gaines County Texas.				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☐ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers:				
9	Name nearest Class I area: Carlsbad Caverns National Park				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 126.2 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: 750 m NE.				
12	Method(s) used to delineate the Restricted Area: Fence "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ■ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

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

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start:		☐AM ☐PM	End:		☐AM ☐PM
3	Month and year of anticipated start of construction:					
4	Month and year of anticipated construction completion:					
5	Month and year of anticipated startup of new or modified facility:					
6	Will this facility operate at this site for more than one year? ■ Yes ☐ No					

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ■ No If yes, specify:

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

Section 1-G: Streamline Application

(This section applies to 20.2.72.300 NMAC Streamline applications only)

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

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

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

1	Responsible Official (R.O.) Jim Richardson (20.2.70.300.D.2 NMAC):		Phone: 806-229-9727
a	R.O. Title: EOR Plant Director	R.O. e-mail: Jim_Richardson@oxy.com	
b	R. O. Address: P.O. Box 1140 Sundown, TX 79372		
2	Alternate Responsible Official: (20.2.70.300.D.2 NMAC):		Phone:
a	A. R.O. Title:	A. R.O. e-mail:	
b	A. R. O. Address:		
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.): **The general partner is Occidental Permian Manager LLC**		
a	Address of Parent Company: **5 Greenway Plaza, Suite 110, Houston, TX 77046**		
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: **Richard Alvarado 432-758-6808**		
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: **Texas, approximately 8 km from the site.**		

Section 1-I – Submittal Requirements

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

Hard Copy Submittal Requirements:

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

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

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

Electronic files sent by (check one):

☐ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

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

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

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

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

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

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

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

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible

format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

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

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

Table of Contents

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.
RCF-FLARE RCF-FLARE-SSM RCF-FLARE-MALF	RCF Flare-pilot and purge gas; SSM & malfunction	Zeeco	UFIGW-36/80	23562	120 (1) MMscfd	120 (1) MMscfd	/ 2/17/2015	RCF-FLARE / RCF-FLARE	30600999	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
REBOILER	Glycol dehydrator Reboiler	Flameco Industries	SB40/24-24	1403-20F	2.38 MM Btu/hr	2.38 MM Btu/hr	/ Oct-14	- / REBOILER	30190003	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
FUG	Fugitive Emissions	N/A	N/A	N/A	N/A	N/A	/ Nov-14	- / -	30600801	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
							/	/		□ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
DEHY (2)	Glycol Dehydrator	Dickson Process		2234	95 MMscfd	95 MMscfd	/ 2014	- / -		■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
RCF-ZZZ-2030 (2)	Injector Reciprocating Electric Compressor	Ariel	KBZ/6	F-46089	49.13 MMscfd	49.13 MMscfd	/ 2014	- / -		■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
RCF-ZZZ-2230 (2)	Injector Reciprocating Electric Compressor	Ariel	KBZ/6	F-46160	49.13 MMscfd	49.13 MMscfd	/ 2014	- / -		■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
RCF-ZZZ-2460 (2)	Injector Reciprocating Electric Compressor	Ariel	KBZ/6	F-55271	49.13 MMscfd	49.13 MMscfd	/ 3/28/2018	- / -		■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced	N/A	N/A
							/	/		□ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
(1) Flare design capacity is 120 MMscfd flare gas plus approximately 20% additional assist gas. The flare is authorized for SSM emissions based on 15 MMscfd gas flow rate and upset emissions based on 40 MMscfd flow rate. The actual flow rate may vary depending on the variable H2S/VOC content of hte gas; however, permit alowable emission rates will not be exceeded.												
(2) The 3 reciprocating electric compressors and the glycol dehydration unit were included in this table per NMED guidance as they have applicable regulations, I.E., NSPS OOOO/OOOOa and MACT HH, respectively.												
							/	/		□ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		
							/	/		□ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced		

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.
[2] Specify dates required to determine regulatory applicability.
[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.
[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

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

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at 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
Dexpro	Dehydration System	N/A	N/A N/A	120 MMscfd	20.2.72.202 B(5) -	 2018	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
T-MeOH*	Methanol Tank*	N/A	N/A N/A	500 bbl	20.2.72.202 B(5) -	 2018	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
RCF-ZZZ-1080	VRU screw type electric compressor	N/A	N/A N/A	N/A N/A	20.2.72.202B(5) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
RCF-ZZZ-1090	VRU screw type electric compressor	N/A	N/A N/A	N/A N/A	20.2.72.202B(5) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
T-WAT-1	500 bbl open drain water tank (rainwater/compressor skid wash water)	N/A	N/A N/A	500 bbl	20.2.72.202B(5) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
T-WAT-2	500 bbl open drain water tank (rainwater/compressor skid wash water)	N/A	N/A N/A	500 bbl	20.2.72.202B(5) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
T-LUBE-1	VRU Lube Oil Tank	N/A	N/A N/A	30 gallons	20.2.72.202B(2) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
T-LUBE-2	Crank Case Lube Oil Tank	N/A	N/A N/A	1000 gallons	20.2.72.202B(2) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
T-LUBE-3	Cylinder Lube Oil Tank	N/A	N/A N/A	1000 gallons	20.2.72.202B(2) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
T-TEG	TEG Make-up Tank	N/A	N/A N/A	1000 gallons	20.2.72.202B(2) IA List Item #1.a	 2014	■ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
							□ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
* T-MeOH, exempt methanol tank emissions provided in section 6 include tank hatch maintenane-related emissions (T-MeOH-SSM).							□ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced
							□ Existing (unchanged) □ To be Removed □ New/Additional □ Replacement Unit □ To Be Modified □ To be Replaced

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

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

Table 2-C: Emissions Control Equipment

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

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
RCF-FLARE-SSM RCF-FLARE-MALF	RCF Flare to control SSM and upset events	2015	VOC, H2S	RCF Facility SSM & Upset	98%	N/A
*	Condenser, recycle and reinject	2014	VOC, H2S	DEHY	100%	N/A

* The vapor recover units asociated with the flycol dehydration system (with redundant electric compressors VRU RCF-ZZZ-1080 and RCF-ZZZ-1090) are not considered control devices and thus not listed above. There are no emissions associated with the glycol dehydrator as the vapors are recycled back into the system and there are two VRU compressors, so that one is operating when the other is down.

[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
RCF-FLARE (pilot)	0.039	0.17	0.16	0.69	0.18	0.79	0.002	0.00082	-	-	-	-	-	-	2.13E-06	9.31E-06	-	-
FCF-FLARE (purge)	0.19	0.83	0.76	3.3	0.87	3.8	0.001	0.004	-	-	-	-	-	-	1.02E-05	4.49E-05	-	-
DEHY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REBOILER	0.23	1.0	0.19	0.85	0.013	0.056	0.035	0.15	0.018	0.077	0.018	0.077	0.018	0.077	-	-	-	-
FUG	-	-	-	-	4.06	17.79	-	-	-	-	-	-	-	-	0.25	1.08	-	-
MALF_UNCONTR*	-	-	-	-	15303.4	10	-	-	-	-	-	-	-	-	1943.71	10	-	-
SSM_UNCONTR*	-	-	-	-	5738.79	964.12	-	-	-	-	-	-	-	-	728.89	122.45	-	-
Totals	0.46	2.02	1.11	4.85	15307.7	996.55	0.036	0.16	0.018	0.077	0.018	0.077	0.018	0.077	1943.96	133.53	-	-

* The values included in this table include uncontrolled SSM and uncontrolled malfunction emissions. The emissions are shown with no RCF Flare Control. However, the flare pilot and purge emissions are shown assuming there is a flare at the site.

Uncontrolled SSM (SSM_UNCONTR) and Upset/MALF (MALF_UNCONTR) emissions are included above. The controlled emissions (RCF-FLARE-SSM and RCF-FLARE-MALF) are shown in tables E and F, respectively.

[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
RCF-FLARE	0.23	1.00	0.91	4.00	1.05	4.59	0.0012	0.0048	-	-	-	-	-	-	1.24E-05	5.42E-05	-	-
RCF-FLARE-MALF	79.31	10.00	448.62	10.00	520.32	10	3658.99	10.00	-	-	-	-	-	-	38.88	10.00	-	-
DEHY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REBOILER	0.23	1.02	0.2	0.86	0.13	0.056	0.035	0.15	0.018	0.078	0.018	0.078	0.018	0.078	-	-	-	-
FUG	-	-	-	-	4.06	17.79	-	-	-	-	-	-	-	-	0.25	1.08	-	-
Totals	79.77	12.03	449.73	14.86	525.44	32.44	3659.03	10.16	0.018	0.078	0.018	0.078	0.018	0.078	39.12	11.08	-	-

[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
RCF-FLARE-SSM	29.74	5.00	168.23	28.26	195.12	32.78	1372.12	230.52	-	-	-	-	-	-	14.58	2.45	-	-
Totals	29.74	5.00	168.23	28.26	195.12	32.78	1372.12	230.52	-	-	-	-	-	-	14.58	2.45	-	-

[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)			
RCR-FLARE	RCF-FLARE (pilots, purge) RCF-FLARE-SSM RCF-FLARE-MALF	V	No	200	1832	21808	-	0	65.617	20.5709 (Effective Diameter)
REBOILER	REBOILER	V	No	28	650	13	-	0	7.95	1.44

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

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

Stack No.	Unit No.(s)	Total HAPs		Benzene ■ HAP or □ TAP		Ethylbenzene ■ HAP or □ TAP		Toluene ■ HAP or □ TAP		Xylenes ■ HAP or □ TAP		n-Hexane ■ HAP or □ TAP		Formaldehyde ■ HAP or □ TAP		Methanol ■ HAP or □ TAP		All Other * ■ 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
RCF-FLARE	RCF-FLARE	0.0031	0.013	3.42E-06	1.50D-05	-	-	5.54E-06	2.43E-05	-	-	0.029	0.013	1.22E-04	5.35E-04	-	-	3.09E-06	1.35E-05
RCF-FLARE-SSM	RCF-FLARE-SSM	0.56	0.095	6.30E-04	1.06E-04	-	-	0.001	0.00017	-	-	0.54	0.091	0.023	0.0038	-	-	5.69E-04	9.56E-05
RCF-FLARE-MALF	RCF-FLARE-MALF	Same as SSM	0.029	Same as SSM	3.23E-05	-	-	Same as SSM	5.20E-05	-	-	Same as SSM	0.028	Same as SSM	0.0012	-	-	Same as SSM	2.92E-05
REBOILER	REBOILER	0.0045	0.02	5.01E-04	2.19E-05	-	-	8.11E-06	3.55E-05	-	-	0.0043	0.019	1.79E-04	7.83E-04	-	-	-	-
FUG	FUG	1.73	7.57	0.0091	0.04	0.01	0.045	0.012	0.052	0.0074	0.033	0.19	0.84	-	-	1.5	6.56	-	-
* Other HAPs include dichlorobenzene and naphthalene.																			
Totals:		2.3	7.72	0.01	0.04	0.01	0.045	0.013	0.052	0.0074	0.033	0.74	0.99	0.023	0.0063	1.5	6.56	5.70E-04	1.40E-04

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
RCF-FLARE	Natural Gas	Field Gas and Purchased Natural Gas	998	1.63 Mscfh	14.28 MMscf/yr	0.0004	0
REBOILER	Natural Gas	Field Gas and Purchased Natural Gas	998	2385 scfh	20.9 MMscf/yr	0.0004	0

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-WAT-1	N/A	500 bbl open drain water tank	Rain water & compressor skid wash water	8.34 (1)	18	ambient	ambient	ambient	N/A
T-WAT-2	N/A	500 bbl open drain water tank	Rain water & compressor skid wash water	8.34 (1)	18	ambient	ambient	ambient	N/A
T-LUBE-1	N/A	30 gallon VRU Lube oil tank	Lube oil	(1)	N/A	N/A	N/A	N/A	N/A
T-LUBE-2	N/A	1000 gallon crank case lube oil tank	Lube oil	(1)	N/A	N/A	N/A	N/A	N/A
T-LUBE-3	N/A	1000 gallon cylinder lube oil tank	Lube oil	(1)	N/A	N/A	N/A	N/A	N/A
T-TEG	N/A	1000 gallon TEG makeup tank	Triethylene glycol	(1)	N/A	N/A	N/A	N/A	N/A
T-MeOH	N/A	500 bbl methanol tank	Methanol	(1)	32.04	63.26	1.61	70.78	2.03
		* These tanks are exempt under 20.2.72.202B.2 NMAC or insignificant per IA List Item #1.a.							

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-WAT-1 *	2014	Rain water & compressor skid wash water	N/A	N/A	500	79	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T-WAT-2 *	2014	Rain water & compressor skid wash water	N/A	N/A	500	79	N/A	N/A	N/A	N/A	N/A	N/A	N/A
T-LUBE-1 *	2014	30 gallon VRU Lube oil tank	N/A	N/A	0.7		N/A	N/A	N/A	N/A	N/A	N/A	N/A
T-LUBE-2*	2014	1000 gallon crank case lube oil tank	N/A	N/A	23.8		N/A	N/A	N/A	N/A	N/A	N/A	N/A
T-LUBE-3 *	2014	1000 gallon cylinder lube oil tank	N/A	N/A	23.8		N/A	N/A	N/A	N/A	N/A	N/A	N/A
T-TEG *	2014	1000 gallon TEG makeup tank	N/A	N/A	23.8		N/A	N/A	N/A	N/A	N/A	N/A	N/A
T-MeOH *	2017	500 bbl methanol tank	N/A	N/A	500	79	4.72	2.49	WH	WH	Good	462,000	20.47
		* These tanks are exempt under 20.2.72.202B.2 NMAC or insignificant per IA List Item #1.a.											

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)**
Produced Gas	See Attached Design Analysis	G	120 MMscfd *	High CO2 Produced Gas	See Attached	G	120 MMscfd*
	* Design Production rates- no enforceable limits are requested as emissions are not based on throughputs.						

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
Table not applicable.									

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
Table not applicable.								

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**								
REBOILER	**mass GHG**	1245.9	0.0023	0.023									1245.9	
	CO_2e	1245.9	0.7	0.59										1247.2
RCF-FLARE RCF-FLARE-SSM RCF-FLARE-MALF	**mass GHG**	5570.3	0.01	5.87									5576.2	
	CO_2e	5570.3	3	146.8										5720.1
FUG	**mass GHG**	8.09	N/A	0.239									8.32	
	CO_2e	8.09	N/A	5.97										14.06
	mass GHG													
	CO_2e													
	mass GHG													
	CO_2e													
	mass GHG													
	CO_2e													
	mass GHG													
	CO_2e													
	mass GHG			Site is not major for GHG's as total CO2e emissions are less than 7,000 tpy, which is substantially lower than 75,0										
	CO_2e													
	mass GHG													
	CO_2e													
	mass GHG													
	CO_2e													
	mass GHG													
	CO_2e													
	mass GHG													
	CO_2e													
	mass GHG													
	CO_2e													
Total	**mass GHG**												6830.5	
	CO_2e													6981.4

[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.

The South Hobbs Unit Reinjection Compression Facility (SHU RCF) is a gas compression facility that supports the SHU CO_2 injection project. The primary objective is to utilize miscible CO_2 injection to increase the amount of recoverable oil reserves in the SHU reservoir. The site has a Title V Operating Permit No. P268-M1 and is a minor source with respect to the Federal New Source Review program. A detailed process description is provided in Section 10.

This application is a renewal for Title V Permit P268-M1.

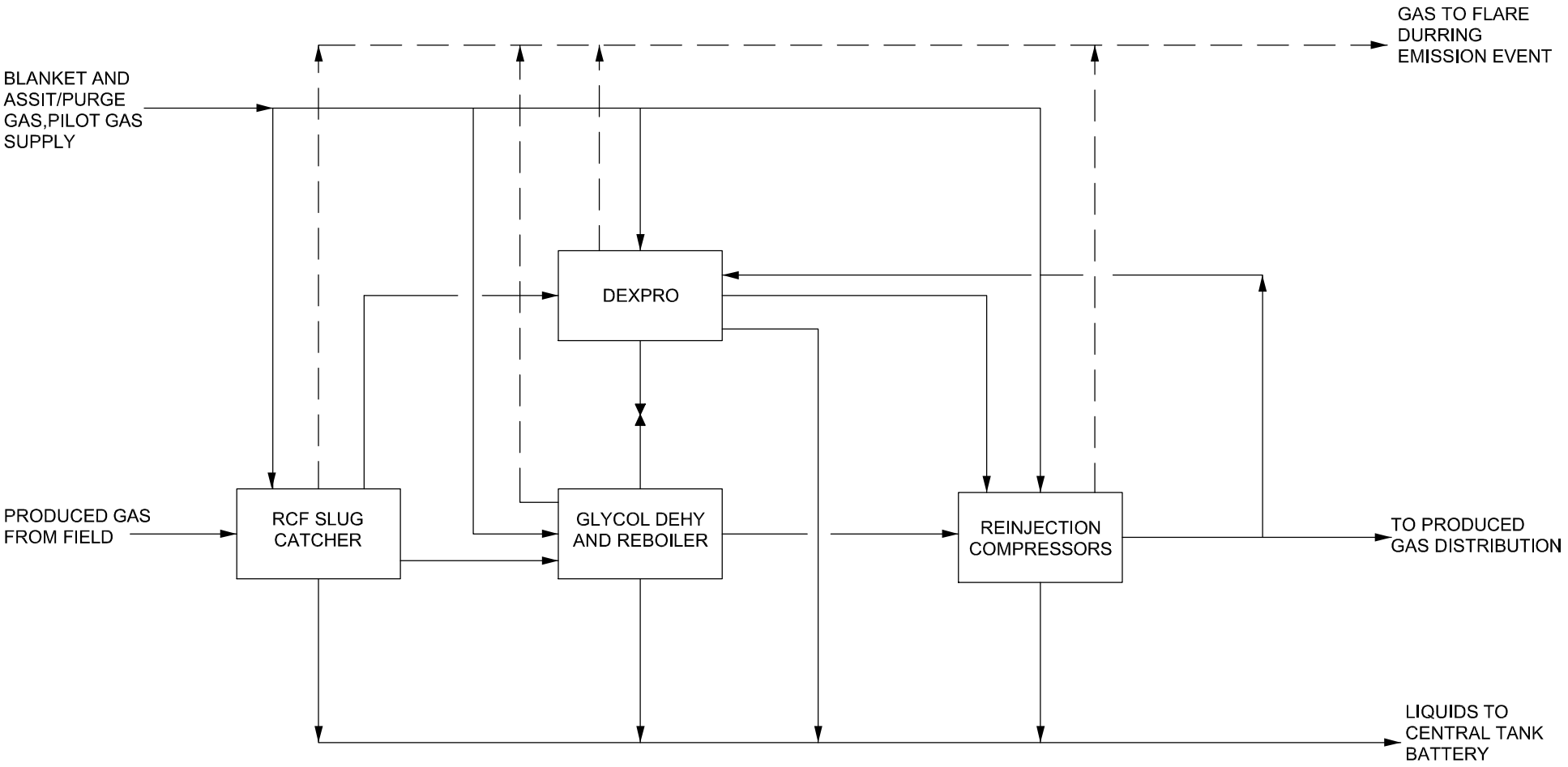
Section 4

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.

See attached.

SOUTH HOBBS UNIT REINJECTION COMPRESSION FACILITY
PROCESS FLOW DIAGRAM



WAID ENVIRONMENTAL

OCCIDENTAL PERMIAN, LTD.

SOUTH HOBBS UNIT REINJECTION COMPRESSION FACILITY

Drawn By	Start Date	Rev. Date	Drwg Name	Rev. No.
DWW	10/14/20	10/14/20	FLOW	1

H:\CLIENTS\OCCIDENTAL PERMIAN\OPL14312ACAD

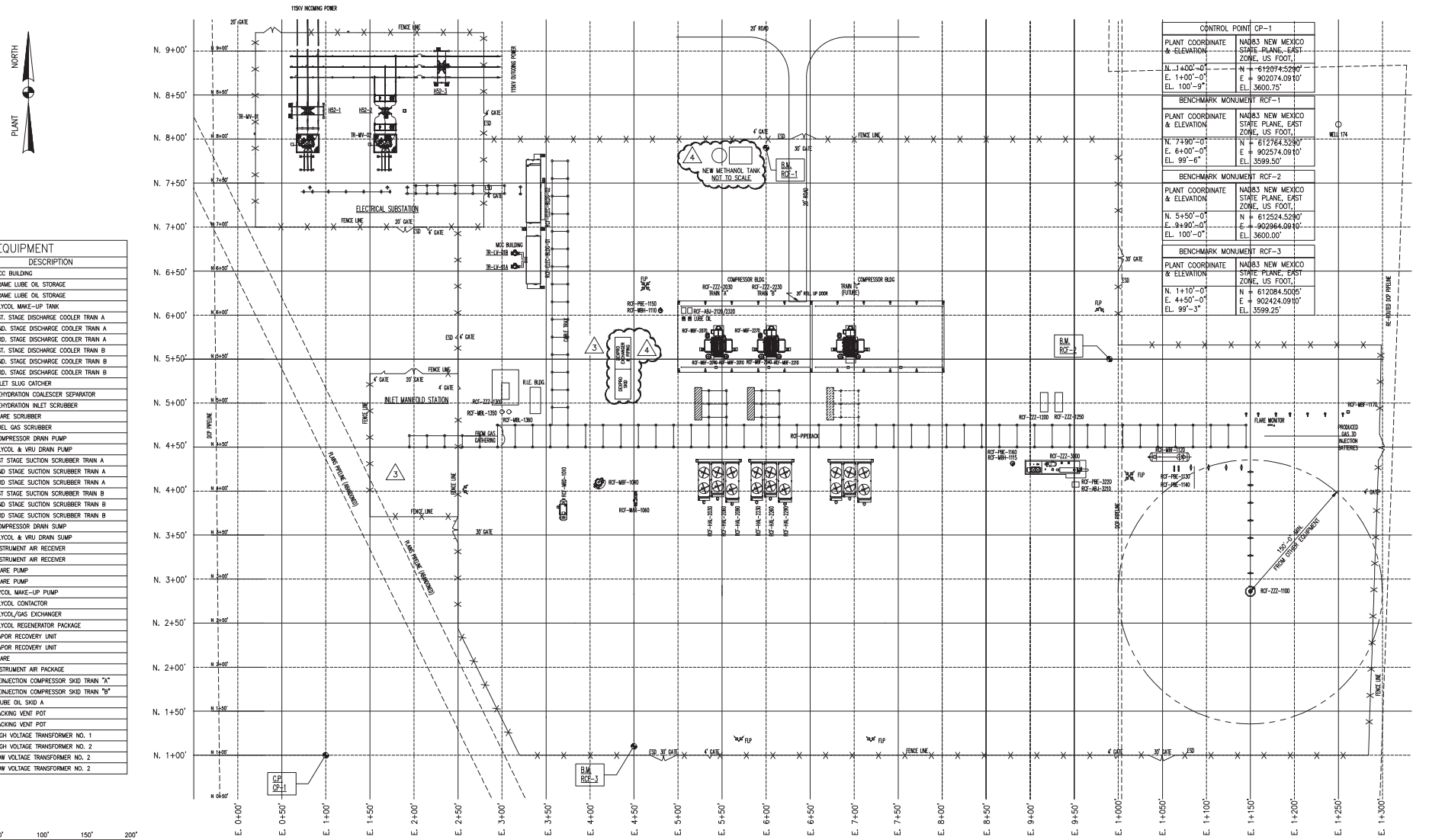
Section 5

Plot Plan Drawn To Scale

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

See attached.

FILE: G:\18528\0.1 1852801 SHU RCF\5.0 ENGINEERING\5.26 ENGINEERING AND DESIGN BOOKS\2 DRAWINGS\2.3 PIPING\(A) PLOT PLAN, PIPING PLAN, ELEVATIONS & SECTIONS\NATIVE FILES (DWG)\18528-MUS-PIP-DR-RCF-5101.DWG – 18528-MUS-PIP-DR-RCF-5101 – PLOT DATE: 9/28/2015 10:35 AM BY: YEH, GEORGE – LAST SAVED DATE: 1:49:47 PM



CONTROL POINT CP-1	
PLANT COORDINATE & ELEVATION	NAD83 NEW MEXICO STATE PLANE, EAST ZONE, US FOOT,
N. 1+00'-0" E. 1+00'-0" EL. 100'-9"	N = 612074.5290' E = 902074.0910' EL. 3600.75'
BENCHMARK MONUMENT RCF-1	
PLANT COORDINATE & ELEVATION	NAD83 NEW MEXICO STATE PLANE, EAST ZONE, US FOOT,
N. 7+90'-0" E. 6+00'-0" EL. 99'-6"	N = 612764.5290' E = 902574.0910' EL. 3599.50'
BENCHMARK MONUMENT RCF-2	
PLANT COORDINATE & ELEVATION	NAD83 NEW MEXICO STATE PLANE, EAST ZONE, US FOOT,
N. 5+50'-0" E. 9+90'-0" EL. 100'-0"	N = 612524.5290' E = 902964.0910' EL. 3600.00'
BENCHMARK MONUMENT RCF-3	
PLANT COORDINATE & ELEVATION	NAD83 NEW MEXICO STATE PLANE, EAST ZONE, US FOOT,
N. 1+10'-0" E. 4+50'-0" EL. 99'-3"	N = 612084.5005' E = 902424.0910' EL. 3599.25'

EQUIPMENT	
EQUIP. NO.	DESCRIPTION
	MCC BUILDING
RCF-ABJ-2120	FRAME LUBE OIL STORAGE
RCF-ABJ-2320	FRAME LUBE OIL STORAGE
RCF-ABJ-3210	GLYCOL MAKE-UP TANK
RCF-HAL-2030	1ST. STAGE DISCHARGE COOLER TRAIN A
RCF-HAL-2060	2ND. STAGE DISCHARGE COOLER TRAIN A
RCF-HAL-2090	3RD. STAGE DISCHARGE COOLER TRAIN A
RCF-HAL-2230	1ST. STAGE DISCHARGE COOLER TRAIN B
RCF-HAL-2260	2ND. STAGE DISCHARGE COOLER TRAIN B
RCF-HAL-2290	3RD. STAGE DISCHARGE COOLER TRAIN B
RCF-MBD-1010	INLET SLUG CATCHER
RCF-MAK-1060	DEHYDRATION COALESCER SEPARATOR
RCF-MBF-1030	DEHYDRATION INLET SCRUBBER
RCF-MBF-1120	FLARE SCRUBBER
RCF-MBF-1170	FUEL GAS SCRUBBER
RCF-PBE-1150	COMPRESSOR DRAIN PUMP
RCF-PBE-1160	GLYCOL & VRU DRAIN PUMP
RCF-MBF-2010	1ST STAGE SUCTION SCRUBBER TRAIN A
RCF-MBF-2040	2ND STAGE SUCTION SCRUBBER TRAIN A
RCF-MBF-2070	3RD STAGE SUCTION SCRUBBER TRAIN A
RCF-MBF-2210	1ST STAGE SUCTION SCRUBBER TRAIN B
RCF-MBF-2240	2ND STAGE SUCTION SCRUBBER TRAIN B
RCF-MBF-2270	3RD STAGE SUCTION SCRUBBER TRAIN B
RCF-MBH-1110	COMPRESSOR DRAIN SUMP
RCF-MBH-1115	GLYCOL & VRU DRAIN SUMP
RCF-MBL-1350	INSTRUMENT AIR RECEIVER
RCF-MBL-1360	INSTRUMENT AIR RECEIVER
RCF-PBE-1130	FLARE PUMP
RCF-PBE-1140	FLARE PUMP
RCF-PBE-3220	GYCOL MAKE-UP PUMP
RCF-MBF-1040	GLYCOL CONTACTOR
RCF-HBG-1050	GLYCOL/GAS EXCHANGER
RCF-ZZZ-3000	GLYCOL REGENERATOR PACKAGE
RCF-ZZZ-1200	VAPOR RECOVERY UNIT
RCF-ZZZ-1250	VAPOR RECOVERY UNIT
RCF-ZZZ-1100	FLARE
RCF-ZZZ-1300	INSTRUMENT AIR PACKAGE
RCF-ZZZ-2030	REINJECTION COMPRESSOR SKID TRAIN "A"
RCF-ZZZ-2230	REINJECTION COMPRESSOR SKID TRAIN "B"
	LUBE OIL SKID A
RCF-MBF-2140	PACKING VENT POT
RCF-MBF-2340	PACKING VENT POT
TR-MV-01	HIGH VOLTAGE TRANSFORMER NO. 1
TR-MV-02	HIGH VOLTAGE TRANSFORMER NO. 2
TR-LV-01A	LOW VOLTAGE TRANSFORMER NO. 2
TR-LV-02A	LOW VOLTAGE TRANSFORMER NO. 2

NOTES:

1. DENOTES NEW SCOPE OF WORK FOR PROJECT 241816.02 NHU/SHU GAS P/L

FOR APPROVAL:
( ) APPROVED
( ) APPROVED AS NOTED
( ) RESUBMIT/NOT APPROVED

SIGNATURE DATE

REFERENCE DRAWINGS

NO.	TITLE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK.	APP.	APP.
0	13JUN14	ISSUED FOR CONSTRUCTION	GS	B.G.	N.W.	
1	08AUG14	REISSUED FOR CONSTRUCTION	GS	BG	NW	
2	06MAR15	REISSUED FOR CONSTRUCTION	RB	BHG	NW	
3	02MAY17	FOR PERMIT	DMW	JDW		
4	22MAY17	ISSUED FOR APPROVAL, HPF #17045	TPL	SJM	JDW	

ENGINEERING CONSULTANT:
HPF CONSULTANTS INC.
TBPE FIRM REG. # 4098

	BY	DATE
DESIGNED	D. NEEL	01MAY13
DRAWN	D. NEEL	01MAY13
CHECKED	B. GOODWIN	01MAY13
APPROVED	N. WONG	01MAY13

OXY Permian

FACILITY NAME: SOUTH HOBBS UNIT (SHU) CO2 PROJECT

DRAWING TITLE: PLOT PLAN
REINJECTION COMPRESSOR FACILITY (RCF)

SCALE	OXY PERMIAN DOCUMENT NUMBER							
	PROJ. NO.	DISC.	DISCIP.	TYPE	FACILITY	DWG. NO.	SEQ.	REV.
1"=50'-0"	18528	MUS	PIP	DR	RCF	5101		3

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.

Emission calculations for the site are not changing with this Title V renewal package. A copy of the previously-submitted calculations is attached.

Occidental Permian, Ltd. - South Hobbs Unit Reinjection Compression Facility (SHU RCF)
Emissions Summary Table

Equipment/Process	Stack ID	NOx		CO		VOC		SO_2		H_2S		PM/PM_{10}		HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
RCF Flare - Pilot & Purge Gas	RCF-FLARE	0.23	1.00	0.91	4.00	1.05	4.59	0.0012	0.0048	1.24E-05	5.42E-05	-	-	0.0031	0.013
RCF Flare - Flare Gas/SSM + Assist Gas	RCF-FLARE-SSM	29.74	5.00	168.23	28.26	195.12	32.78	1372.12	230.52	14.58	2.45	-	-	0.56	0.095
Subtotal - (pilot, purge, flare gas + assist)		29.97	6.00	169.1	32.27	196.17	37.37	1372.12	230.52	14.58	2.45	-	-	0.57	0.11
RCF Flare - Upset/Malfunction (1)	RCF-FLARE-MALF	79.31	10.00	448.62	10.00	520.32	10.00	3658.99	10.00	38.88	10.00	-	-	0.57	0.029
Total RCF Flare (pilot, purge, SSM, upset)	lb/hr -SSM	29.97	16.00	169.15	42.27	196.2	47.37	1372.12	240.52	14.58	12.45	-	-	0.57	0.14
	lb/hr -upset	79.31	10.00	448.62	10.00	520.3	10.00	3658.99	10.00	38.88	10.00	-	-	0.57	0.029
Glycol Dehydration System	DEHY	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glycol dehydration system reboiler	REBOILER	0.23	1.02	0.20	0.86	0.013	0.056	0.035	0.15	-	-	0.018	0.078	0.0045	0.020
Fugitive Emissions *	FUG	-	-	-	-	4.06	17.79	-	-	0.25	1.08	-	-	1.73	7.57
Exempt Source (20.2.72.202.B(5):															
Methanol Tank (Includes tank hatch SSM) *	T-MEOH (exempt)	-	-	-	-	8.76	0.47	-	-	-	-	-	-	8.76	0.47
TOTAL		30.20	17.02	169.34	43.12	209.01	65.68	1,372.16	240.67	14.83	13.53	0.018	0.078	**11.06**	**8.19**
TOTAL (excluding exempt MeOH tank) (2)		**30.20**	**17.02**	**169.34**	**43.12**	**200.24**	**65.22**	**1372.16**	**240.67**	**14.83**	**13.53**	**0.018**	**0.078**	**2.30**	**7.72**
	Alternate lb/hr -upset	79.31	"	448.62	"	520.3	"	3658.99	"	38.88	"	-	-	0.57	"

* Revised fugitive emissions and the addition of a new exempt methanol tank are the changes proposed with this permit revision application.

(1) Upset /Malfunction emissions (RCF-FLARE-MALF) include up tp 10 tpy of each pollutant per NMED guidance.
The maximum lb/hr emission rate for upset/malfunctions is based on higher gas flow rate of 40 MMscfd vs. the SSM flow rate of 15 MMscfd.

(2) The total flare emissions including upsets and malfunctions must not double count the lb/hr emission rates for SSM events and upset events, which do not occur simultaneously.

5/23/2017 2:37 PM

Liaise

Occidental Permian, Ltd. - South Hobbs Unit Reinjection Compression Facility (SHU RCF)
HAP Summation Worksheet

UNIT ID	Benzene		Ethylbenzene		Toluene		Xylenes		n-Hexane		Formaldehyde		Methanol		Other HAPs *		**Total**	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	**lb/hr**	**tpy**
RCF-FLARE	3.4E-06	1.50E-05	-	-	5.5E-06	2.4E-05	-	-	0.0029	0.0129	1.2E-04	5.4E-04	-	-	3.1E-06	1.4E-05	**0.0031**	**0.013**
RCF-FLARE-SSM	6.3E-04	1.06E-04	-	-	1.0E-03	1.7E-04	-	-	0.54	0.091	0.0225	0.0038	-	-	5.7E-04	9.6E-05	**0.6**	**0.09**
RCF-FLARE MALF	same as SSM	3.23E-05	-	-	same as SSM	5.2E-05	-	-	same as SSM	0.028	same as SSM	0.0012	-	-	same as SSM	2.9E-05	same as SSM	**0.029**
REBOILER	5.01E-06	2.19E-05	-	-	8.1E-06	3.6E-05	-	-	0.0043	0.019	1.8E-04	7.8E-04	-	-	-	-	**0.0045**	**0.020**
FUG	0.0091	0.040	0.0103	0.045	0.0118	0.052	0.0074	0.033	0.1910	0.84	-	-	1.50	6.56	-	-	**1.73**	**7.57**
TOTAL	0.010	0.040	0.010	0.045	0.013	0.052	0.0074	0.033	0.74	0.99	0.0228	0.0063	1.50	6.56	5.7E-04	1.4E-04	**2.30**	**7.72**

RCF-FLARE (pilot/purge)

	lb/hr	tpy
Benzene	3.42E-06	1.50E-05
Dichlorobenzene	1.96E-06	8.57E-06
Formaldehyde	1.22E-04	5.35E-04
n-Hexane	2.93E-03	1.29E-02
Toluene	5.54E-06	2.43E-05
Naphthalene	9.94E-07	4.36E-06
Other	1.41E-07	6.17E-07

Total	**Total**
lb/hr	**tpy**
0.0031	**0.013**

RCF-FLARE-SSM

	lb/hr	tpy
Benzene	6.30E-04	1.06E-04
Dichlorobenzene	3.60E-04	6.05E-05
Formaldehyde	2.25E-02	3.78E-03
n-Hexane	5.40E-01	9.07E-02
Toluene	1.02E-03	1.71E-04
Naphthalene	1.83E-04	3.08E-05
Other	2.59E-05	4.36E-06

lb/hr	tpy
0.56	**0.09**

RCF-FLARE-MALF

	lb/hr	tpy
Benzene	same as SSM	3.23E-05
Dichlorobenzene	same as SSM	1.85E-05
Formaldehyde	same as SSM	1.15E-03
n-Hexane	same as SSM	2.77E-02
Toluene	same as SSM	5.23E-05
Naphthalene	same as SSM	9.38E-06
Other	same as SSM	1.33E-06

lb/hr	tpy
NA	**0.029**

REBOILER

	lb/hr	tpy
n-Hexane	4.29E-03	1.88E-02
Benzene	5.01E-06	2.19E-05
Toluene	8.11E-06	3.55E-05
Formaldehyde	1.79E-04	7.83E-04

lb/hr	tpy
0.0045	**0.020**

FUG

	lb/hr	tpy
Benzene	9.1E-03	3.99E-02
Toluene	1.18E-02	5.16E-02
Ethylbenzene	1.03E-02	4.50E-02
Xylene	7.45E-03	3.26E-02
n-Hexane	1.91E-01	8.37E-01
Methanol	1.50E+00	6.56E+00

lb/hr	tpy
1.73	**7.57**

TOTAL	**2.30**	**7.72**

* Other HAPs Include methanol, dichlorobenzene, naphthalene & minor other

TOTAL

	lb/hr	tpy
Benzene	0.010	0.040
Dichlorobenzene	3.6E-04	8.8E-05
Formaldehyde	0.0228	0.0063
n-Hexane	0.74	0.99
Toluene	0.01	0.05
Naphthalene	1.8E-04	4.4E-05
Xylene	0.01	0.03
Ethylbenzene	0.01	0.05
Methanol	1.50	6.56
Other	2.6E-05	6.3E-06
	2.30	**7.72**

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Liaise

Occidental Permian, Ltd. - South Hobbs Unit Reinjection Compression Facility (SHU RCF) **Unit /Stack ID: RCF-FLARE; RCF-FLARE-SSM; RCF-FLARE-MALF**

RCF Flare Emissions - Pilot, Purge, SSM and Malfunction

Emission Factors & Concentraions for Flare Gas, Pilot, Purge and Assist Gas

	NOx	CO	VOC	H_2S	98% D.E. - VOC & H2S
Source: NOx & CO Emission Factors [1]	(lb/MMBtu)	(lb/MMBtu)			
(a) Ref: AP-42, Fifth Edition, 13.5-1, 9/91 (1/95)	**0.068**	0.37	21.0%	0.25	
(b) Ref: TCEQ RG-109 (High Btu is > 1000 Btu/scf)	**0.138**	0.2755	Mole %	gr S/100scf	
(c) Ref: TCEQ RG-109 (Low Btu is < 1000 Btu/scf)	0.0641	**0.5496**	(fuel gas)	(fuel gas)	
Flare gas - (Mole %) [2]			6.0%	1.3% [2]	
Molecular weight - (lb/lb-mole)			58.0	34.0	

Calculations Basis:

Gas Flow Rates to Flare

15 MMscfd - SSM/ flare gas flow rate [2]

3 MMscfd - Assist gas flow rate

Btu/scf

998 - 1020 Pilot, Purge & Assist Gas

285.8 Flare Gas

408.1 Flare Gas + Assist Gas

Hours/yr

336 SSM Flare Gas & Assist

8760 hr/yr - Pilot & Purge

	MMscfh	MMscf/yr	MMBtu/hr	MMBtu/yr	Air Emissions - lb/hr [1,2,3,4] NOx	CO	VOC	SO_2	H_2S	Air Emissions - ton/yr [1,2,3,4] NOx	CO	VOC	SO_2	H_2S
RCF-FLARE														
Flare Pilots (four @ 70scfh)	0.00028	2.45	0.29	2501.9	0.039	0.16	0.18	2.0E-04	2.13E-06	0.17	0.69	0.79	8.2E-04	9.3E-06
Flare Purges (1350 scfh)	0.00135	11.83	1.38	12062.5	0.190	0.76	0.87	9.6E-04	1.0E-05	0.83	3.31	3.80	0.0040	4.5E-05
Subtotal	0.00163	14.28	1.66	14564.4	**0.23**	**0.91**	**1.0**	**0.0012**	**1.2E-05**	**1.00**	**4.0**	**4.6**	**0.0048**	**5.4E-05**
RCF-FLARE-SSM														
Flare Gas	**0.63**	210.0	178.6	60009.5	12.14	98.16	114.78	1372.03	14.58	2.04	16.49	19.28	230.5	2.45
Assist Gas	0.13	42.0	127.5	42840.0	17.60	70.07	80.34	0.089	0.0009	2.96	11.77	13.50	0.015	1.5E-04
Subtotal	0.75	252.0	306.1	102849.5	29.7	168.2	195.1	1372.1	14.6	5.00	28.3	32.8	230.5	2.45
Subtotal - Excluding Upsets	0.75	266.3	307.8	117413.9	**30.0**	**169.1**	**196.2**	**1372.1**	**14.6**	**6.0**	**32.3**	**37.4**	**230.5** [5]	**2.4**
RCF-FLARE-MALF [4]					**79.3**	**448.6**	**520.3**	**3659.0**	**38.9**	**10.0**	**10.0**	**10.0**	**10.0** [4]	**10.0**
Total - Including Upsets & Malfunctions [5]				Max lb/hr SSM	**30.0**	**169.1**	**196.2**	**1372.1**	**14.6**	**16.0**	**42.3**	**47.4**	**240.5**	**12.4**
				Max lb/hr Upsets	**79.3**	**448.6**	**520.3**	**3659.0**	**38.9**					

(1) Conservative NOx and CO emission factors for flare combustion were used as follows:
NOx - 0.138 lb/MMBtu (High Btu) factor is used for fuel gas and 0.068 lb/MMBtu was used for flare/SSM gas stream, which is a low Btu stream.
CO - 0.5496 lb/MMBtu for Low Btu gas was used for flare gas, pilot, purge and assist gas streams.

(2) The flare gas H_2S content and flow rate may vary, e.g., H_2S % may be lower and flare gas flow rate may be higher; however, the total permitted emissions will not be exceeded.

(3) The lb/hr and tpy emission rates are derived independently. The lb/hr rate is calculated from a maximum flare gas flow rate of 15MMscfd. The tpy rate is based on projected annual SSM downtime.

(4) Upset /Malfunction emissions (RCF-FLARE-MALF) include up tp 10 tpy of each pollutant per NMED guidance. The maximum lb/hr for upset/malfunctions is the same as for flare gas (RCF-FLARE SSM).

(5) Total flare emissions including upsets and malfunctions must not double count the lb/hr emission rates for SSM and upsets, which do not occur simultaneously.
The total SSM flare emissions are slightly overstated because purge gas is included; however, there is no purge gas flared when assist gas is flared.

Example Calculations

NOx & CO	lb/hr = MMscf gas/hr x Btu/scf x EF (lb/MMBtu) tpy = MMscf gas/yr x Btu/scf x EF (lb/MMBtu) x 1 ton/2000 lb
SO_2 - Fuel Gas [pilot, purge, assist]	lb/hr = MMscf gas/hr x gr S/100scf gas x 1lb S/7000 gr S x 1lb-mole SO_2/lb-mole S x 64 lb SO_2/lb-mole SO_2 x 1 lb-mole S/32 lb S x 10^6/MM tpy = MMscf gas/yr x gr S/100scf gas x 1 lb S/7000 gr S x 1 lb-mole SO_2/lb-mole S x 64 lb SO2/lb-mole SO_2 x 1 lb-mole S/32 lb S x 10^6/MM x 1 ton/2000 lb
SO_2 - Flared Gas	lb/hr = MMscf gas/hr gas x mole % H_2S (scf H_2S/scf gas) x 1 lb-mole H_2S/379scf H_2S x 1 lb-mole SO_2/lb-mole H_2S x 64 lb SO_2/lb-mole SO_2 x 10^6/MM tpy = MMscf gas/yr x mol% H_2S (scf H_2S/scf gas) x 1 lb-mol H_2S/379scf H_2S x 1 lb-mol SO_2/lb-mol H2S x 64 lb SO_2/lb-mol SO_2 x 10^6/MM x 1 ton/2000 lb
VOC - Flared Gas and Fuel gas	lb/hr = MMscf /hr flare gas x mole % VOC (scf VOC/scf gas) x 1 lb-mole VOC/379scf VOC x 51 lb VOC/lb-mole VOC x 10^6/MM x (1-0.98 D.E.) tpy = MMscf gas/yr x mole % VOC (scf VOC/scf gas) x 1 lb-mole VOC/379scf VOC x 58 lb VOC/lb-mole VOC x 10^6/MM x 1 ton/2000 lb x (1-0.98 D.E.)
H_2S - Fuel Gas	lb/hr = MMscf gas/hr x gr S/100cf x 1 lb S/7000 gr S x 34 lb-mole H_2S/32 lb-mole S x 10^6/MM x (1-0.98 D.E.) tpy = MMscf gas/yr x gr S/100cf x 1 lb/7000 gr x 34 lb-mole H_2S/32 lb-moleS x 10^6/MM x 1 ton/2000 lb x (1-0.98 D.E.)
H_2S - Flared Gas	lb/hr = MMcf gas/hr x mole % H_2S (scf H_2S/scf gas) x 1 lb-mole H_2S/379scf H_2S x 34 lb H_2S/lb-mole H_2S x 10^6/MM x (1-0.98 D.E.) tpy = MMscf gas/yr x mole % H_2S (scf H_2S/scf gas) x 1 lb-mole H_2S/379scf H_2S x 34 lb H_2S/lb-mole H_2S x 10^6/MM x 1 ton/2000lb x (1-0.98 D.E.)

Liaise

Occidental Permian, Ltd. - South Hobbs Unit Reinjection Compression Facility (SHU RCF) **Unit /Stack ID: RCF-FLARE; RCF-FLARE-SSM; RCF-FLARE-MALF**
RCF Flare - Upset/Malfunction Emissions - Pilot and Malfunction

	Emission Factors & Concentraions for Flare Gas, Pilot, Purge and Assist Gas				
	NOx	CO	VOC	H_2S	98% D.E. - VOC & H2S
Source: NOx & CO Emission Factors [1]	(lb/MMBtu)	(lb/MMBtu)			
(a) Ref: AP-42, Fifth Edition, 13.5-1, 9/91 (1/95)	**0.068**	0.37	21.0%	0.25	
(b) Ref: TCEQ RG-109 (High Btu is > 1000 Btu/scf)	**0.138**	0.2755	Mole %	gr S/100scf	
(c) Ref: TCEQ RG-109 (Low Btu is < 1000 Btu/scf)	0.0641	**0.5496**	(fuel gas)	(fuel gas)	
Flare gas - (Mole %) [2]			6.0%	1.3% [2]	
Molecular weight - (lb/lb-mole)			58.0	34.0	

Calculations Basis:
Gas Flow Rates to Flare
40 MMscfd - SSM/ flare gas flow rate [2]
8 MMscfd - Assist gas flow rate

Btu/scf	
998 - 1020	Pilot, Purge & Assist Gas
285.8	Flare Gas
408.1	Flare Gas + Assist Gas

	MMscfh	MMscf/yr	MMBtu/hr	MMBtu/yr	Upset /Malfunction Air Emissions - lb/hr				
RCF-FLARE					NOx	CO	VOC	SO_2	H_2S
Flare Pilots (four @ 70scfh)	0.00028	2.45	0.29	2501.9	0.039	0.16	0.18	2.0E-04	2.13E-06
RCF-FLARE-MALF									
Flare Gas	**1.7**	223.2	476.3	63778.7	32.39	261.76	306.07	3658.75	38.87
Assist Gas	0.3	44.6	340.0	45530.8	46.92	186.86	214.25	0.24	0.0024
Subtotal	2.0	267.8	816.3	109309.5	79.3	448.6	520.3	3659.0	38.9
Total - Malfunctions					**79.3**	**448.8**	**520.5**	**3659.0**	**38.9**

(1) Conservative NOx and CO emission factors for flare combustion were used as follows:
NOx - 0.138 lb/MMBtu (High Btu) factor is used for fuel gas and 0.068 lb/MMBtu was used for flare/SSM gas stream, which is a low Btu stream.
CO - 0.5496 lb/MMBtu for Low Btu gas was used for flare gas, pilot, purge and assist gas streams.
(2) The flare gas H_2S /VOC content and flow rate may vary, however, the total permitted emissions will not be exceeded.
(3) The lb/hr rate is calculated from a maximum flare gas flow rate of 40MMscfd which is the modeled flow rate for upset/malfunction emissions.
(4) Upset /Malfunction emissions (RCF-FLARE-MALF) include up tp 10 tpy of each pollutant per NMED guidance.

Example Calculations

NOx & CO	lb/hr = MMscf gas/hr x Btu/scf x EF (lb/MMBtu) tpy = MMscf gas/yr x Btu/scf x EF (lb/MMBtu) x 1 ton/2000 lb
SO_2 - Fuel Gas [pilot, purge, assist]	lb/hr = MMscf gas/hr x gr S/100scf gas x 1lb S/7000 gr S x 1lb-mole SO_2/lb-mole S x 64 lb SO_2/lb-mole SO_2 x 1 lb-mole S/32 lb S x 10^6/MM tpy = MMscf gas/yr x gr S/100scf gas x 1 lb S/7000 gr S x 1 lb-mole SO_2/lb-mole S x 64 lb SO2/lb-mole SO_2 x 1 lb-mole S/32 lb S x 10^6/MM x 1 ton/2000 lb
SO_2 - Flared Gas	lb/hr = MMscf gas/hr gas x mole % H_2S (scf H_2S/scf gas) x 1 lb-mole H_2S/379scf H_2S x 1 lb-mole SO_2/lb-mole H_2S x 64 lb SO_2/lb-mole SO_2 x 10^6/MM tpy = MMscf gas/yr x mol% H_2S (scf H_2S/scf gas) x 1 lb-mol H_2S/379scf H_2S x 1 lb-mol SO_2/lb-mol H2S x 64 lb SO_2/lb-mol SO_2 x 10^6/MM x 1 ton/2000 lb
VOC - Flared Gas and Fuel gas	lb/hr = MMscf /hr flare gas x mole % VOC (scf VOC/scf gas) x 1 lb-mole VOC/379scf VOC x 51 lb VOC/lb-mole VOC x 10^6/MM x (1-0.98 D.E.) tpy = MMscf gas/yr x mole % VOC (scf VOC/scf gas) x 1 lb-mole VOC/379scf VOC x 58 lb VOC/lb-mole VOC x 10^6/MM x 1 ton/2000 lb x (1-0.98 D.E.)
H_2S - Fuel Gas	lb/hr = MMscf gas/hr x gr S/100cf x 1 lb S/7000 gr S x 34 lb-mole H_2S/32 lb-mole S x 10^6/MM x (1-0.98 D.E.) tpy = MMscf gas/yr x gr S/100cf x 1 lb/7000 gr x 34 lb-mole H_2S/32 lb-moleS x 10^6/MM x 1 ton/2000 lb x (1-0.98 D.E.)
H_2S - Flared Gas	lb/hr = MMcf gas/hr x mole % H_2S (scf H_2S/scf gas) x 1 lb-mole H_2S/379scf H_2S x 34 lb H_2S/lb-mole H_2S x 10^6/MM x (1-0.98 D.E.) tpy = MMscf gas/yr x mole % H_2S (scf H_2S/scf gas) x 1 lb-mole H_2S/379scf H_2S x 34 lb H_2S/lb-mole H_2S x 10^6/MM x 1 ton/2000lb x (1-0.98 D.E.)

UNIT IDs: RCF-FLR, RCF-FLR-SSM, RCF-FLR-MALF
STACK IDs: RCF-FLR, RCF-FLR-SSM, RCF-FLR-MALF

Stack Parameters For Modeling - SHU RCF Flare

15 MMcfd + 3 MMscd (assist gas)

1000 °C	Exhaust temperature	Per NMED guidelines (5.2.3 October 2010- Draft)	
20 m/sec	Exhaust velocity	Per NMED guidelines (5.2.3 October 2010- Draft)	
0.75 x 408.1 =		(Flare gas + assist gas)MMscfh x Btu/scf	
306 MMBtu/hr	Flare Stream (incl assist gas)	Design - See Calculations Table	

Effective Diameter

42.41 g/mol	Flare gas molecular weight	Composite (Flare + Assist gas)		
2.14E+07 cal/sec	Heat release (q)	MMBtu/hr * 10^6 * 252 cal/Btu ÷ 3600 sec/hr	= 21,426,979	cal/sec Heat release (q)
1.47E+07	q_n	$q_n = q(1\text{-}0.048(MW)^{1/2})$		
3.84 m	Effective stack diameter (D)	$D = (10^{-6}q_n)^{1/2}$		

Occidental Permian, Ltd. - South Hobbs Unit RCF
RCF Flare Emissions - Pilot, Purge and SSM

UNIT ID: RCF-FLARE, RCF-FLARE-SSM
STACK ID: RCF-FLARE, RCF-FLARE-SSM

Hazardous Air Pollutants

	Emission Factors [1]
HAPs	lb/MMBtu
Benzene	2.06E-06
Dichlorobenzene	1.18E-06
Formaldehyde	7.35E-05
Hexane	1.76E-03
Toluene	3.33E-06
Naphthalene	5.98E-07
Other	8.48E-08
	1.85E-03

Pilot & Purge
1.66 MMBtu/hr
14564 MMBtu/yr

Flare & Assist Gas
306.1 MMBtu/hr
102849.5 MMBtu/yr

HAP Emissions

	RCF-FLARE - Pilot & Purge		RCF-FLARE-SSM (Flare & Assist)		RCF-FLARE-MALF		TOTAL	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
HAPs								
Benzene	3.42E-06	1.50E-05	6.30E-04	1.06E-04	lb/hr is	3.2E-05	0.0006	1.5E-04
Dichlorobenzene	1.96E-06	8.57E-06	3.60E-04	6.05E-05	the same	1.8E-05	0.0004	8.8E-05
Formaldehyde	1.22E-04	5.35E-04	2.25E-02	3.78E-03	as	1.2E-03	0.0226	5.5E-03
Hexane	2.93E-03	1.29E-02	5.40E-01	9.07E-02	RCF-	2.8E-02	0.5431	1.3E-01
Toluene	5.54E-06	2.43E-05	1.02E-03	1.71E-04	FLARE-	5.2E-05	0.0010	2.5E-04
Naphthalene	9.94E-07	4.36E-06	1.83E-04	3.08E-05	SSM.	9.4E-06	0.0002	4.4E-05
Other	1.41E-07	6.17E-07	2.59E-05	4.36E-06	- Not to be double counted	1.3E-06	0.0000	6.3E-06
Total HAPs	0.0031	0.013	0.56	0.095		0.029	**0.57**	**0.14**

RCF-FLARE-MALF

HAPs % of VOC	0.29%	
	tpy	
	10	tpy Upsets
	0.029	tpy HAPs

	Emission Factors [1]	
HAPs	lb/MMBtu	
Benzene	2.06E-06	0.11%
Dichlorobenzen	1.18E-06	0.06%
Formaldehyde	7.35E-05	3.98%
Hexane	1.76E-03	95.62%
Toluene	3.33E-06	0.18%
Naphthalene	5.98E-07	0.03%
Other	8.48E-08	0.00%
	0.0018	100%

Example - RCF Flare & Assist
7.35E-5 lb formaldehyde/MMBtu x 0.66 MMBtu/hr = 4.84E-5 lb/hr formaldehyde

(1) EPA AP-42, Fifth Edition Table 1.4-3 Emission Factors for Speciated Organic Compounds, from Natural Gas Combustion, July 1998. Converted from lb/MMscf to lb/MMBtu based on 1020 Btu/scf - footnote a

Liaise

Occidental Permian, Ltd. - South Hobbs Unit RCF
RCF Flare Emissions - Pilot, Purge and SSM

UNIT ID: RCF-FLARE, RCF-FLARE-SSM
STACK ID: RCF-FLARE, RCF-FLARE-SSM

Hazardous Air Pollutants

[Breakdown of Pilot and Purge]

Pilot		Purge	
0.29	MMBtu/hr	1.38	MMBtu/hr
2501.86	MMBtu/yr	12062.52	MMBtu/yr

RCF-FLARE - Pilot		RCF-FLARE - Purge		Total Pilot & Purge		Total Flare Gas, Assist & Pilot	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
5.88E-07	2.58E-06	2.84E-06	1.24E-05	3.42E-06	1.50E-05	6.31E-04	1.08E-04
3.36E-07	1.47E-06	1.62E-06	7.10E-06	1.96E-06	8.57E-06	3.60E-04	6.20E-05
2.10E-05	9.20E-05	1.01E-04	4.43E-04	1.22E-04	5.35E-04	2.25E-02	3.87E-03
5.04E-04	2.21E-03	2.43E-03	1.06E-02	2.93E-03	1.29E-02	5.41E-01	9.30E-02
9.52E-07	4.17E-06	4.59E-06	2.01E-05	5.54E-06	2.43E-05	1.02E-03	1.76E-04
1.71E-07	7.48E-07	8.24E-07	3.61E-06	9.94E-07	4.36E-06	1.83E-04	3.15E-05
2.42E-08	1.06E-07	1.17E-07	5.11E-07	1.41E-07	6.17E-07	2.60E-05	4.47E-06
5.27E-04	0.0023	0.0025	0.011	**0.0031**	**0.013**	**0.57**	**0.10**

Occidental Permian, Ltd. - South Hobbs Unit RCF
Dehy Reboiler Emissions (Natural Gas-fired Heater Associated with Glycol Dehydrator)

UNIT ID: **REBOILER**
STACK ID: **REBOILER**

DEHY-REBOIL		Natural Gas Fuel		
2.35	MMBtu/hr Heat Input Rating	Btu content:	1020	[998-1020 range]
8760	Operating Hours			
		Fuel usage (calculated)	DEHY-REBOIL	
			20.2	MMcf /yr
			2307	scf/hr

Emission Factors [1],[2]

	NOx	CO	VOC	SO_2 [3]	PM/PM_{10}
lb/MMscf	100	84	5.5	15.0	7.6
lb/MMBtu	**0.098**	**0.082**	**0.0054**	**0.015**	**0.0075**

	Emissions - Pounds per hour (lb/hr)					Emissions - Tons per Year (tpy)				
	NOx	CO	VOC	SO_2	PM/PM_{10}	NOx	CO	VOC	SO_2	PM/PM_{10}
DEHY-REBOIL	**0.23**	**0.19**	**0.013**	**0.035**	**0.018**	**1.01**	**0.85**	**0.056**	**0.15**	**0.077**

Example Calculation
100 lb NOx/MMscf/1020 Btu/scf (EPA ref) = 0.098 lb/MMBtu; 0.098 lb/MMBtu x 2.35MMBtu/hr = 0.23 lb/hr NOx
0.23 lb/hr NOx x 8760 hr/yr x 1 ton/2000 lb =1.01 tpy

(1) US Environmental Protection Agency AP-42, Emission Factors for Nitrogen Oxides and Carbon Monoxide from Natural Gas Combustion, Table 1.4-1, 7/1998. Units of lb/MMscf are divided by 1020 to convert to lb/MMBtu per Table 1.4-1 footnote a.

(2) US Environmental Protection Agency AP-42, Emission Factors for Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion, Table 1.4-2, 7/1998. Units of lb/MMscf are divided by 1020 to convert to lb/MMBtu per Table 1.4-2 footnote a.

(3) US Environmental Protection Agency AP-42, Table 1.4-2 ->0.6 lb/MMscf based on 2000 gr/10^6 scf. S content of fuel is actually a maximum of 5 gr/100scf, or 50,000 gr/10^6scf. To Adjust, multiply EPA factor 0.6 lb/10^6scf by 50,000/2000 (=25) for max. S content of fuel gas. 0.6 x 25 = 15 lb/MMscf. 15 lb/MMscf is converted to lb/MMBtu (15/1020=0.0147 lb/MMBtu).

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Occidental Permian, Ltd. - South Hobbs Unit RCF
Dehy Reboiler - Hazardous Air Pollutant (HAP) Emissions

UNIT ID: **REBOILER**
STACK ID: **REBOILER**

HAPs	EPA AP-42* Emission Factors lb/MMscf
Isomers Hexane (assumed n-Hexane)	1.8
Formaldehyde	0.075
Benzene	0.0021
Toluene	0.0034

	Gas Fuel Used MMscf /yr			
Reboiler	20.21	- Calculated based on	2.35	MMBtu/hr Heat Input Rating

HAPs	**DEHY-REBOIL**	
	lb/hr	**tpy**
n-Hexane	0.0042	0.018
Benzene	4.84E-06	2.12E-05
Toluene	7.84E-06	3.44E-05
Formaldehyde	1.73E-04	7.58E-04
Total	**0.0043**	**0.019**

Example Calculation (hexane)
1.8 lb hexane/MMscf x 20.21MMscf x 1 ton/2000 lbs = 0.019 tpy hexane

* AP-42, 5th Edition, Table 1.4-3; 7/98

Liaise

Occidental Permian, Ltd. - South Hobbs Unit RCF

Project Emissions Increases - Permit 5418-R4 Allowable Emission Rates and Exempt Methanol Tank Emission Rate

Unit ID	NOx		CO		VOC		SO_2		H_2S		$PM/PM_{10/2.5}$		HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Fugitive Emissions:														
FUG - Proposed	-	-	-	-	4.06	17.79	-	-	0.246	1.08	-	-	1.73	7.57
FUG - Current	-	-	-	-	2.16	9.47	-	-	0.201	0.87	-	-	0.167	0.73
Increase					**1.90**	**8.32**			**0.045**	**0.21**			**1.73**	**7.57**
Methanol Tank:														
T-MeOH - Proposed	-	-	-	-	**8.76**	**0.47**	-	-	-	-	-	-	**8.76**	**0.47**
Exempt 20.2.72.205.B.(5) NMAC														
Total Increase	-	-	-	-	**10.66**	**8.79**	-	-	**0.045**	**0.213**	**-**	**-**	**10.49**	**8.03**

Occidental Permian, Ltd. - South Hobbs Unit RCF **Unit/Stack ID: FUG**
Fugitive Emissions from Components

Emission Factors (lb/comp./hr)[1]

	Valves	Connectors	Flanges	Pumps	Other[5]	Open-ended Lines
Gas	0.00992	0.00044	0.00086	0.00529	0.0194	0.00441
Light Oil	0.0055	0.000463	0.000243	0.02866	0.0165	0.00309
Heavy Oil	0.0000185	0.0000165	0.00000086	0.001130	0.000071	0.000309
Water/Oil	0.000216	0.000243	0.00000639	0.0000529	0.0309	0.000551

Component Count[2]

		Valves	Connectors	Flanges	Pumps	Other[5]	Lines	
RCF General	Gas	80	264	160	0	28	0	
CO_2 Inlet Gas	Gas	127	116	281	0	136	0	
Methanol	Gas	114		28	6	16	0	
Light Oil	Light Oil	80	200	160	15	0	0	
DexPro Condensate	Light Oil	12	0	11	0	1	0	
Heavy Oil	Heavy Oil	0	0	0	0	0	0	
Water/Oil	Water/Oil	104	260	200	2	0	0	
		517	840	840	23	181	0	2401

Highlighted values are revised with this Permit Revision Application

Total Emissions

Tons per Year (tpy)

		Valves	Connectors	Flanges	Pumps	Other[5]	Open-ended Lines	Total	
RCF General	Gas	3.4760	0.5088	0.6027	-	2.379	-	6.9667	
CO_2 Inlet Gas	Gas	5.5181	0.2236	1.0585	-	11.556	-	18.3563	
Methanol	Gas	4.9533	0.0000	0.1055	0.1390	1.3596	-	6.5573	
Light Oil	Light Oil	1.9272	0.4056	0.170	1.883	-	-	4.3860	
DexPro Condensate	Light Oil	0.2891	-	0.012	-	0.072	-	0.3731	
Heavy Oil	Heavy Oil	-	-	-	-	-	-	0.0000	
Water/Oil	Water/Oil	0.0984	0.2767	0.0056	0.00046	-	-	0.3812	
								37.02	Total Stream

Pounds per Hour (lbs/hr)

		Valves	Connectors	Flanges	Pumps	Other[5]	Lines	Total	
RCF General	Gas	0.794	0.1162	0.138	-	0.5432	-	1.5906	
CO_2 Inlet Gas	Gas	1.260	0.0510	0.242	-	2.6384	-	4.1909	
Methanol	Gas	1.131	0.0000	0.024	0.032	0.3104	-	1.4971	
Light Oil	Light Oil	0.4400	0.0926	0.039	0.430	-	-	1.0014	
DexPro Condensate	Light Oil	0.0660	-	0.003	-	0.017	-	0.0852	
Heavy Oil	Heavy Oil	-	-	-	-	-	-	0.0000	
Water/Oil	Water/Oil	0.0225	0.0632	0.00128	0.00011	-	-	0.0870	
								8.45	Total Stream

Weight Fractions[(3)]

	Gas $_{General}$	Gas $_{CO2\ Inlet}$	MeOH	Light Oil	DexPro Cond	Heavy Oil	Water/Oil
VOC	0.688	0.0800	1.00	1.000	0.5500	-	1.000
H_2S	0.0936	0.0104	-	0.049	0.0080	-	0.049
Benzene	1.3E-04	1.43E-05	-	0.0081	0.000091	-	0.0081
Toluene	3.8E-04	4.22E-05	-	0.010	0.00042	-	0.010
Ethyl Benzene	1.3E-04	1.44E-05	-	0.0092	0.00033	-	0.0092
Xylene	4.2E-04	4.66E-05	-	0.0060	0.0012	-	0.0060
n-Hexane	0.0188	0.0130	-	0.093	0.0588	-	0.093
Methanol	-	-	1.00	-	0.0118	-	-
Subtotal HAPS[4]	0.020	0.013	1.00	0.13	0.073	-	0.13

Speciated Emissions - VOC and HAPs

	lbs/hr	tpy	
VOC	4.06	17.79	[VOC]
H_2S	0.25	1.08	[H2S]
Benzene	0.0091	0.0399	[HAPs]
Toluene	0.0118	0.0516	
Ethyl Benzene	0.0103	0.0450	
Xylene	0.0074	0.0326	
n-Hexane	0.1910	0.8367	
Methanol	1.4981	6.5617	
Subtotal HAPS[4]	1.73	7.57	

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Notes:

[1] EPA Guidance - Protocol for Equipment Leak Emission Estimates, EPA 453/R-95-017, November, 1995.
[2] Component counts are estimations using best available information.
[3] VOC and H_2S wt. fractions are based on representative analyses, except Light oil is assumed to be 100% VOC; and Water/Oil is assumed to be the same as light oil.
[4] Hazardous Air Pollutant (HAP) speciation is based on the following: (1) gas streams are based on NHU RCF/WIB extended gas analysis; (2) light oil/water streams are based on the SHU CTB extended oil analysis; and (3) DexPro stream HAP speciation is based on the NHU RCF/WIB extended DexPro stream simulation analysis.
[5] Other equipment typically includes compressors to account for seals, diaphragms, dump arms, hatches, instruments, meters, polished rods, emergency relief valves and vents.

Occidental Permian, Ltd. - South Hobbs Unit RCF
Fugitive Emissions from Components

New Components Only

Unit/Stack ID: FUG

Emission Factors (lb/comp./hr)[1]

	Valves	Connectors	Flanges	Pumps	Other[5]	Open-ended Lines
Gas	0.00992	0.00044	0.00086	0.00529	0.0194	0.00441
Light Oil	0.0055	0.000463	0.000243	0.02866	0.0165	0.00309
Heavy Oil	0.0000185	0.0000165	0.00000086	0.001130	0.000071	0.000309
Water/Oil	0.000216	0.000243	0.00000639	0.0000529	0.0309	0.000551

Component Count[2]

		Valves	Connectors	Flanges	Pumps	Other[5]	Lines	
RCF General	Gas							
CO_2 Inlet Gas	Gas	127	116	281	0	136	0	
Methanol	Gas	114	0	28	6	16	0	
Light Oil	Light Oil							
DexPro Condensate	Light Oil	12	0	11	0	1	0	
Heavy Oil	Heavy Oil	0	0	0	0	0	0	
Water/Oil	Water/Oil	24	60	40	2	0	0	
		277	176	360	8	153	0	974

Changes Only -

Represents new components added with this Permit Revision

Total Emissions

Tons per Year (tpy)

		Valves	Connectors	Flanges	Pumps	Other[5]	Open-ended Lines	Total	
RCF General	Gas	-	-	-	-	-	-	-	
CO_2 Inlet Gas	Gas	5.5181	0.2236	1.0585	-	11.5562	-	18.3563	
Methanol	Gas	4.9533	-	0.1055	0.1390	1.3596	-	6.5573	
Light Oil	Light Oil	-	-	-	-	-	-	-	
DexPro Condensate	Light Oil	0.2891	-	0.012	-	0.0723	-	0.3731	
Heavy Oil	Heavy Oil	-	-	-	-	-	-	-	
Water/Oil	Water/Oil	0.0227	0.0639	0.0011	0.00046	-	-	0.0881	
								25.37	Total Stream

Pounds per Hour (lbs/hr)

		Valves	Connectors	Flanges	Pumps	Other[5]	Lines	Total	
RCF General	Gas	-	-	-	-	-	-	-	
CO_2 Inlet Gas	Gas	1.260	0.0510	0.242	-	2.6384	-	4.1909	
Methanol	Gas	1.131	-	0.024	0.032	0.3104	-	1.4971	
Light Oil	Light Oil	-	-	-	-	-	-	-	
DexPro Condensate	Light Oil	0.0660	-	0.003	-	0.0165	-	0.0852	
Heavy Oil	Heavy Oil	-	-	-	-	-	-	-	
Water/Oil	Water/Oil	0.0052	0.0146	0.00026	0.00011	-	-	0.0201	
								5.79	Total Stream

Weight Fractions [(3)]

	Gas $_{General}$	Gas $_{CO2\ Inlet}$	MeOH	Light Oil	DexPro Cond	Heavy Oil	Water/Oil
VOC	0.688	0.0800	1.00	1.000	0.5500	-	1.000
H_2S	0.0936	0.0104	-	0.049	0.0080	-	0.049
Benzene	1.3E-04	1.43E-05	-	0.0081	0.000091	-	0.0081
Toluene	3.8E-04	4.22E-05	-	0.010	0.00042	-	0.010
Ethyl Benzene	1.3E-04	1.44E-05	-	0.0092	0.00033	-	0.0092
Xylene	4.2E-04	4.66E-05	-	0.0060	0.0012	-	0.0060
n-Hexane	0.0188	0.0130	-	0.093	0.0588	-	0.093
Methanol	-	-	1.00	-	0.0118	-	-
Subtotal HAPS [4]	0.020	0.013	1.00	0.13	0.073	-	0.13

Speciated Emissions - VOC and HAPs

	lbs/hr	tpy	
VOC	1.90	8.32	[VOC]
H_2S	0.045	0.20	[H2S]
Benzene	0.0002	0.0010	**[HAPs]**
Toluene	0.0004	0.0018	
Ethyl Benzene	0.0003	0.0012	
Xylene	0.0004	0.0018	
n-Hexane	0.0613	0.2684	
Methanol	1.4981	6.5617	
Subtotal HAPS [4]	1.56	6.84	

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Notes:

[1] EPA Guidance - Protocol for Equipment Leak Emission Estimates, EPA 453/R-95-017, November, 1995.
[2] Component counts are estimations using best available information.
[3] VOC and H_2S wt. fractions are based on representative analyses, except Light oil is assumed to be 100% VOC; and Water/Oil is assumed to be the same as light oil.
[4] Hazardous Air Pollutant (HAP) speciation is based on the following: (1) gas streams are based on NHU RCF/WIB extended gas analysis; (2) light oil/water streams are based on the SHU CTB extended oil analysis; and (3) DexPro stream HAP speciation is based on the NHU RCF/WIB extended DexPro stream simulation analysis.
[5] Other equipment typically includes compressors to account for seals, diaphragms, dump arms, hatches, instruments, meters, polished rods, emergency relief valves and vents.

Occidental Permian, Ltd. - South Hobbs Unit RCF

Unit/Stack ID: T-MEOH
(Includes T-MEOH-SSM)

**Methanol Storage Tank Emissions -
Normal Operations and Tank Hatch SSM**

Exempt per 20.2.72.202B.(5) NMAC

Methanol Tank Emissions Summary

	Total Emissions *	
	lb/hr	**tpy**
Normal Operations	8.76	0.47
Tank Hatch Maintenace (SSM)	0.042	0.000042
	8.76	**0.47**

* Calculations attached

Occidental Permian, Ltd. - South Hobbs Unit RCF **T-MEOH**
Methanol Storage Tank - Standing and Working Losses

Exempt per 20.2.72.202B.(5) NMAC

Material	Reference: *	**Methanol**
Tank ID	Fixed roof (cone-type) storage tanks	T-METH
Atmospheric pressure (Pa, psia)	Avg. Atmospheric Pressure *[Roswell-Tank4.09]*	12.73
Max Ambient Temp (Tax, F)	*AP-42 Table 7.1-7 [Roswell-Tank4.09]*	75.73
Min Ambient Temp (Tan, F)	*AP-42 Table 7.1-7 [Roswell-Tank4.09]*	45.90
Daily Average Amb. Temp (Taa, R)	Taa = (Tan + Tax)/2 + 459.67	520.49
Daily Ambient Temp Range (dTa)	Delta Ta = Tax - Tan	29.83
Solar Paint Absorptance Factor (alpha, α)	*AP-42 Table 7.1-6 (White)*	0.17
Solar Insolation Factor (I, Btu/ft^2*day)	*AP-42 Table 7.1-7*	1810
Daily vapor temp. range (dTv, R)	*Delta Tv = 0.72 x Delta Ta + 0.028 x alpha x I*	30.09
Liquid Bulk Temp (Tb, R)	*Tb = Taa + 6 x alpha - 1*	520.51
Daily Avg Liq surf temp (Tla, R)	*Tla = (0.44 x Taa) + (0.56 x Tb) + (0.0079 x alpha x I)*	522.93
Daily Max Liq surf temp (Tlx, R)	*Tlx = Tla + (0.25 x Delta Tv)*	530.45
Daily Min Liq surf temp (Tln, R)	*Tln = Tla - (0.25 x Delta Tv)*	515.40
	Heated or Insulated?	No
ANNUAL EMISSION RATE		VERTICAL
Vapor Molecular Weight, (Mv)	EPA AP-42 and Tanks 4.0 Program	32.04
Annual net throughput (Q, bbl/yr)		11000.0
Tank Maximum Liquid Volume, (V_{lx},ft^3)	V_{LX} = (3.14 / 4) x (D^2) x Hs	3017.54
Turnover per year (N)	N = (5.614 x Q) / V_{LX}	20.47
Turnover factor (Kn)	AP-42 Fig. 7.1-18, Kn = (180 + N) / (6 x N) if N>36 **or 1**	1.00
Working loss product factor (Kp)	AP-42 Page 7.1-18 [0.75 for crude oils / all other, 1]	1.00
Tank Shell Height (Hs, ft) (or Length, L if horiz.)		16.00
Liquid Height (Hl, ft)		8.00
Diameter (ft) or Effective Diameter D_E		15.50
Roof Outage (Hro, ft)	cone-1/3 x Hr & Hr =tank radius x .0625	0.161
Vapor Space Outage (Hvo, ft)	Hvo = Hs - Hl + Hro	8.16
Vapor Space Volume (Vv, ft^3)	Vv = (3.14 / 4) x (D^2) x Hvo	1540.00
Vapor Density (Wv, lb/ft^3)	Wv = (Mv x Pva) / (R x Tla); [R = 10.731 (psia x ft^3) / (lb-mole^{0}R)]	0.0092
VP @daily max liq surf temp (Pvx, psia)		2.0300
VP @daily min liq surf temp (Pvn, psia)		1.2700
Daily Vapor Pressure Range (dPv,psia)	Delta Pv = Pvx - Pvn	0.7600
VP @ daily avg liq surf temp (Pva, psia)		1.6100
Vapor Space Expansion Factor (Ke)	Ke = (Delta Tv / Tla) + (Delta Pv - 0.06) / (Pa - Pva); AP42 7.1-17	0.12
Vented Vapor Saturation factor (Ks)	Ks = 1 / (1 + (0.053 x Pva x Hvo))	0.59
Standing Storage Loss (Ls, lb/yr)	Ls = 365 x Vv x Wv x Ke x Ks	367.01
Working Loss (Lw, lb/yr)	Lw = 0.0010 x Mv x Pva x Q x Kn x Kp	567.43
Total Losses (Lt, lb/yr)	Lt = Ls + Lw	934.44
Total Losses (Lt", tpy)	*Lt" = Lt / 2000*	0.4672
VOC vapor weight fraction		1.00
H2S vapor weight fraction		0.00

CALCULATED EMISSION RATES - SUMMARY

	Control Efficiency-- C.E.	0%
ANNUAL EMISSION RATE (TPY)[1]	Lt" (tpy) = Lt" x VOC wt. frac.	**0.47**
MAXIMUM HOURLY EMISSION RATE (LB/HR)[2]	MV (lb/lbmol) = vapor MW of the material =	32.04
	P_{VA} (psia) = vapor pressure at max. liquid temp.	2.03
	FR_M (gal/hr) = maximum filling rate	6000
	R ((psia x gal)/lbmol xR)) = ideal gas constant =	80.273
	T (Rankine) - max liquid surface temp or 95F (554.67R), which ever is higher.	554.67
	L_{MAX} (lb/hr) = (M_V x PV_A)/(R x T) x FR_M	**8.76**

(1) U.S. Environmental Protection Agency (EPA) Compilation Of Air Pollutant Emission Factors (AP-42), Organic Liquid Storage Tanks, Chapter 7, Section 7.1, 11/2006. EPA TANKS 4.09 program is based on the emission estimation procedures from Chapter 7 of AP-42.

(2) TCEQ – APDG 6250v1, Released 09/14, "Estimating Short Term Emission Rates from Fixed Roof Tanks."

Occidental Permian, Ltd. - North Hobbs Unit RCF and WIB T-MEOH
Methanol - Standing Losses During Tank Hatch Maintenance (T-MEOH -SSM Included in T-MEOH)

Exempt per 20.2.72.202B.(5) NMAC

Standing Loss Equations	Fixed roof (cone-type) storage tanks	
Atmospheric pressure (Pa, psia)	Avg. Atmospheric Pressure *[Roswell-Tanks 4.09]*	12.73
Max Ambient Temp (Tax, F)	*US EPA, AP-42 Table 7.1-7 [Roswell-Tanks 4.09]*	75.73
Min Ambient Temp (Tan, F)	*US EPA, AP-42 Table 7.1-7 [Roswell-Tanks 4.09]*	45.90
Daily Average Amb. Temp (Taa, R)	*Taa = (Tan + Tax)/2 + 459.67*	520.49
Daily Ambient Temp Range (dTa)	*Delta Ta = Tax - Tan*	29.83
Solar Paint Absorptance Factor (alpha, α)	*AP-42 Table 7.1-6 (white)*	0.17
Solar Insolation Factor (I, Btu/ft^2*day)	*AP-42 Table 7.1-7, [Roswell-Tanks 4.09]*	1810.00
Daily vapor temp. range (dTv, R)	*Delta Tv = 0.72 x Delta Ta + 0.028 x alpha x I*	30.09
Liquid Bulk Temp (Tb, R)	*Tb = Taa + 6 x alpha - 1*	520.51
Daily Avg Liq surf temp (Tla, R)	*Tla = (0.44 x Taa) + (0.56 x Tb) + (0.0079 x alpha x I)*	522.93
Daily Max Liq surf temp (Tlx, R)	*Tlx = Tla + (0.25 x Delta Tv)*	530.45
Daily Min Liq surf temp (Tln, R)	*Tln = Tla - (0.25 x Delta Tv)*	515.40
Vapor Molecular Weight, (Mv)		32.04
Tank Shell Height (Hs, ft)	T-METH	16.00
Liquid Height (Hl, ft)	T-METH	8.00
Diameter, D (ft)	T-METH	15.50
Roof Outage (Hro, ft)	cone-1/3 x Hr & Hr =tank radius x .0625	0.161
Vapor Space Outage (Hvo, ft)	Hvo = Hs - Hl + Hro	8.16
Vapor Space Volume (Vv, ft^3)	Vv = (3.14 / 4) x (D^2) x Hvo	1540.00
Vapor Density (Wv, lb/ft^3)	Wv = (Mv x Pva) / (R x Tla); [R = 10.731 (psia x ft^3) / (lb-mole^{0}R)]	0.009193
VP @daily max liq surf temp (Pvx, psia)		2.0300
VP @daily min liq surf temp (Pvn, psia)		1.2700
Daily Vapor Pressure Range (dPv,psia)	Delta Pv = Pvx - Pvn	0.7600
VP @ daily avg liq surf temp (Pva, psia)		1.6100
Vapor Space Expansion Factor (Ke)	Ke = (Delta Tv / Tla) + (Delta Pv - 0.06) / (Pa - Pva); AP-42 p. 7.1-17	0.12
Vented Vapor Saturation factor (Ks)	Ks = 1 / (1 + (0.053 x Pva x Hvo))	0.59
Standing Loss Emissions	US EPA, AP-42 Section 7.1.3.1.1 (equation 1-2)	
VOC		
Standing Storage Loss (Ls, lb/yr)	Ls = 365 x Vv x Wv x Ke x Ks	**367.0**
Standing Storage Loss (Ls, **lb/hr**)	Ls /8760 hr/yr	**0.042**

Events per year :
2

Emissions Summary

	lb/hr	**tpy**
VOC	0.042	4.19E-05

(2 x 0.042)/2000 = 4.19E-5 tpy
Based on 2 events/year

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)

Emission calculations for the site are not changing with this Title V renewal package. A copy of the previously-submitted calculations is attached.

South Hobbs Unit RCF - Greenhouse Gas Summary Tables

	GHG Potential
CH_4	25
N_2O	298

Emission Totals (metric tonnes)

Emission Type	GHG Emissions Unit	CH_4[1] tonnes / yr	CO_2 tonnes / yr	N_2O[2] tonnes / yr	CO_2e tonnes / yr
Glycol dehydrator reboiler	REBOILER	0.021	1,130.3	0.0021	1,131.4
RCF Flare	RCF-FLARE	5.33	5,053.3	0.0091	5,189.2
Fugitive	FUG	0.2168	7.33	N/A	12.75
Total		**5.6**	**6,190.9**	**0.011**	**6,333.4**

1 warming potential of CH_4 is 25 times greater than CO_2

2 warming potential of N_2O is 298 times greater than CO_2

Emission Totals (short tons)

Emission Type	GHG Emissions Unit	CH_4[1] ton / yr	CO_2 ton / yr	N_2O[2] ton / yr	CO_2e ton / yr
Glycol dehydrator reboiler	REBOILER	0.023	1245.9	0.0023	1247.2
RCF Flare	RCF-FLARE	5.87	5570.3	0.010	5720.1
Fugitive	FUG	0.2390	8.09	NA	14.06
Total		**6.1**	**6824.3**	**0.012**	**6981.4**

1 warming potential of CH_4 is 25 times greater than CO_2

2 warming potential of N_2O is 298 times greater than CO_2

NMED UA2 - Table 2-P

Emission Totals (short tons)

Emission Type	GHG Emissions Unit		CO_2e ton / yr	CO_2 ton / yr	N_2O ton / yr	CH_4 ton / yr
Glycol dehydrator reboiler	REBOILER	Mass GHG		1245.9	0.0023	0.023
		CO2e	1247.2	1245.9	0.70	0.59
RCF Flare	RCF-FLARE	Mass GHG		5,570.3	0.010	5.9
		CO2e	5,720.1	5,570.3	3.0	146.8
Fugitives	FUG	Mass GHG		8.09	NA	0.2390
		CO2e	14.06	8.09	NA	5.97

Dehy Unit Reboiler (Heater)

40 CFR 98 Subpart C

Emission unit(s): REBOILER
Source description: Glycol dehydrator reboiler
Manufacturer:
Model:

CO_2 Calculation[1] (Eq C-1)

Click here to view Table C-1 to Subpart C of Part 98.

$$CO_2 = 1 \times 10^{-3} \times \frac{20.90 \text{ MMscf}}{\text{yr}} \times \frac{1020 \text{ MMbtu}}{\text{MMscf}} \times \frac{53 \text{ kg CO2}}{\text{MMbtu}}$$

CO_2 = 1130 tonnes CO_2 / yr

Fuel usage and heat value carried forward from heater calculations in previous permit application.

CH_4 Calculation[2] (Eq C-8)

Click here to view Table C-1 to Subpart C of Part 98
Click here to view Table C-2 to Subpart C of Part 98

$$CH_4 = 1 \times 10^{-3} \times \frac{20.90 \text{ MMscf}}{\text{yr}} \times \frac{1020 \text{ MMbtu}}{\text{MMscf}} \times \frac{1 \times 10^{-3} \text{ kg } CH_4}{\text{MMbtu}}$$

CH_4 = 0.021 tonnes CH_4 / yr

Fuel usage and heat value carried forward from heater calculations in previous permit application.

Dehy Unit Reboiler (Heater)

40 CFR 98 Subpart C

Emission unit(s): REBOILER
Source description: Glycol dehydrator reboiler
Manufacturer:
Model:

N_2O Calculation[3] (Eq C-8)

Click here to view Table C-1 to Subpart C of Part 98
Click here to view Table C-2 to Subpart C of Part 98

$$N_2O = 1 \times 10^{-3} \times \frac{20.90 \text{ MMscf}}{\text{yr}} \times \frac{1020 \text{ MMbtu}}{\text{MMscf}} \times \frac{1 \times 10^{-4} \text{ kg } N_2O}{\text{MMbtu}}$$

N_2O = 0.0021 tonnes N_2O / yr

RCF Flare GHG Calculations

40 CFR 98 Subpart W

Emission uni RCF-FLARE

Source Description: RCF Flare

CH_4 Calculation

Inlet - SSM or Upset Gas Stream

CH_4 Emissions at actual conditions per 98.233(n) (Eq. W-19)[1]

$$E_{a,CH4\ (Un\text{-}Combusted)} = \frac{267.83 \times 10^{6}\ \text{scf gas}}{\text{yr}} \times \frac{0.0007\ \text{scf } CH_4}{\text{scf gas}} \times \frac{1 - 0.98\ \text{scf noncombusted } CH_4}{\text{scf } CH_4 \text{ total}} = \#\#\#\#\#\ \textbf{scf } CH_4 \textbf{ / yr}$$

CH_4 Mass Emissions per 98.233(v) (Eq. W-36)

The Green House Gas Potential factor will be applied in the summary table.

$$E_{s,CH4\ (Un\text{-}Combusted)} = \frac{0.0036 \times 10^{6}\ \text{scf } CH_4}{\text{yr}} \times 0.0192\ \frac{\text{kg}}{\text{scf}} \times 10^{-3}\ \frac{\text{tonnes}}{\text{kg}} = \textbf{0.070}\ \textbf{tonnes } CH_4 \textbf{ / yr}$$

Flare Pilot and Purge gas

CH_4 Emissions at actual conditions per 98.233(n) (Eq. W-19)[1]

$$E_{a,CH4\ (Un\text{-}Combusted)} = \frac{14.28 \times 10^{6}\ \text{scf gas}}{\text{yr}} \times \frac{0.96\ \text{scf } CH_4}{\text{scf gas}} \times \frac{1 - 0.98\ \text{scf noncombusted } CH_4}{\text{scf } CH_4 \text{ total}} = \#\#\#\#\#\ \textbf{scf } CH_4 \textbf{ / yr}$$

CH_4 Mass Emissions per 98.233(v) (Eq. W-36)

The Green House Gas Potential factor will be applied in the summary table.

$$E_{s,CH4\ (Un\text{-}Combusted)} = \frac{0.274 \times 10^{6}\ \text{scf } CH_4}{\text{yr}} \times 0.019\ \frac{\text{kg}}{\text{scf}} \times 10^{-3}\ \frac{\text{tonnes}}{\text{kg}} = \textbf{5.26}\ \textbf{tonnes } CH_4 \textbf{ / yr}$$

CO_2 Calculation

Inlet Gas Stream

CO_2 Un-Combusted Emissions at actual conditions per 98.233(n) (Eq. W-20)[1]

$$E_{a,CO2\ (Un\ -\ Combusted)} = \frac{267.83 \times 10^{6}\ \text{scf gas}}{\text{yr}} \times \frac{0.00836\ \text{scf } CO_2}{\text{scf gas}} = \mathbf{2{,}239{,}580.12}\ \mathbf{\text{scf } CO_2 / \text{yr}}$$

CO_2 Un-Combusted Mass Emissions per 98.233(v) (Eq. W-36)

$$E_{s,CO2\ (Un\ -\ Combusted)} = \frac{2.240 \times 10^{6}\ \text{scf } CO_2}{\text{yr}} \times 0.0526\ \frac{\text{kg}}{\text{scf}} \times 10^{-3}\ \frac{\text{tonnes}}{\text{kg}} = \mathbf{117.80}\ \mathbf{\text{tonnes } CO_2 /}$$

CO_2 Combusted Emissions at actual conditions per 98.233(n) (Eq. W-21)[1]

$$E_{a,CO2\ (Combusted)} = \frac{267.83 \times 10^{6}\ \text{scf gas}}{\text{yr}} \times 0.98 \times \left(\begin{array}{l} \frac{0.0678\ \text{lbmole } CH_4}{\text{lbmole gas}} \times \frac{1\ \text{lbmole}}{\text{lbmole } CH_4} \\ + \frac{0.013\ \text{lbmole } C_2H_6}{\text{lbmole gas}} \times \frac{2\ \text{lbmole}}{\text{lbmole } C_2H_6} \\ + \frac{0.0239\ \text{lbmole } C_3H_8}{\text{lbmole gas}} \times \frac{3\ \text{lbmole}}{\text{lbmole } C_3H_8} \\ + \frac{0.0169\ \text{lbmole } C_4H_{10}}{\text{lbmole gas}} \times \frac{4\ \text{lbmole}}{\text{lbmole } C_4H_{10}} \\ + \frac{0.014\ \text{lbmole } C_5H_{12}}{\text{lbmole gas}} \times \frac{5\ \text{lbmole}}{\text{lbmole } C_5H_{12}} \end{array} \right) = \mathbf{79{,}555{,}178}\ \mathbf{\text{scf } CO_2 / \text{yr}}$$

CO_2 Combusted Mass Emissions per 98.233(v) (Eq. W-36)

$$E_{s,CO2\ (Un\ -\ Combusted)} = \frac{79.56 \times 10^{6}\ \text{scf } CH_4}{\text{yr}} \times 0.0526\ \frac{\text{kg}}{\text{scf}} \times 10^{-3}\ \frac{\text{tonnes}}{\text{kg}} = \mathbf{4184.60}\ \mathbf{\text{tonnes } CO_2 / \text{yr}}$$

Flare Pilot and Purge gas

CO_2 Un-Combusted Emissions at actual conditions per 98.233(n) (Eq. W-20)[1]

$$E_{a,CO2\ (Un\text{-}Combusted)} = \frac{14.28 \times 10^{6}\ \text{scf gas}}{\text{yr}} \times \frac{0.01089\ \text{scf } CO_2}{\text{scf gas}} = \mathbf{155{,}524.69}\ \mathbf{\text{scf } CO_2 / \text{yr}}$$

CO_2 Un-Combusted Mass Emissions per 98.233(v) (Eq. W-36)

$$E_{s,CO2\ (Un\text{-}Combusted)} = \frac{0.156 \times 10^{6}\ \text{scf } CO_2}{\text{yr}} \times 0.0526\ \frac{\text{kg}}{\text{scf}} \times 10^{-3}\ \frac{\text{tonnes}}{\text{kg}} = \mathbf{8.18}\ \mathbf{\text{tonnes } CO_2 /}$$

CO_2 Combusted Emissions at actual conditions per 98.233(n) (Eq. W-21)[1]

$$E_{a,CO2\ (Combusted)} = \frac{14.28 \times 10^{6}\ \text{scf gas}}{\text{yr}} \times 0.98 \times \left(\begin{array}{l} \frac{0.9588\ \text{lbmole } CH_4}{\text{lbmole gas}} \times \frac{1\ \text{lbmole}}{\text{lbmole } CH_4} \\ + \frac{0.0217\ \text{lbmole } C_2H_6}{\text{lbmole gas}} \times \frac{2\ \text{lbmole}}{\text{lbmole } C_2H_6} \\ + \frac{0.0015\ \text{lbmole } C_3H_8}{\text{lbmole gas}} \times \frac{3\ \text{lbmole}}{\text{lbmole } C_3H_8} \\ + \frac{0.0004\ \text{lbmole } C_4H_{10}}{\text{lbmole gas}} \times \frac{4\ \text{lbmole}}{\text{lbmole } C_4H_{10}} \\ + \frac{0.0002\ \text{lbmole } C_5H_{12}}{\text{lbmole gas}} \times \frac{5\ \text{lbmole}}{\text{lbmole } C_5H_{12}} \end{array} \right) = \mathbf{14{,}120{,}213}\ \mathbf{\text{scf } CO_2 / \text{yr}}$$

CO_2 Combusted Mass Emissions per 98.233(v) (Eq. W-36)

$$E_{s,CO2\ (Un\text{-}Combusted)} = \frac{14.120 \times 10^{6}\ \text{scf } CH_4}{\text{yr}} \times 0.0526\ \frac{\text{kg}}{\text{scf}} \times 10^{-3}\ \frac{\text{tonnes}}{\text{kg}} = \mathbf{742.72}\ \mathbf{\text{tonnes } CO_2 / \text{yr}}$$

N_2O Calculation

Inlet Gas Stream

N_2O Mass Emissions per 98.233(z) (Eq. W-40)

The Green House Gas Potential factor will be applied in the summary table.

$$E_{s,N2O} = \frac{267.83 \times 10^{6} \text{ scf gas}}{\text{yr}} \times \frac{0.00029 \text{ MMBtu}}{\text{scf}} \times \frac{\#^{-4} \text{ kg } N_2O}{\text{MMBtu}} \times \frac{10^{-3} \text{ tonnes}}{\text{kg}} = \mathbf{0.0077} \text{ tonnes } N_2O \text{ / yr}$$

Flare Pilot and Purge gas

N_2O Mass Emissions per 98.233(z) (Eq. W-40)

The Green House Gas Potential factor will be applied in the summary table.

$$E_{s,N2O} = \frac{14.279 \times 10^{6} \text{ scf gas}}{\text{yr}} \times \frac{0.00102 \text{ MMBtu}}{\text{scf}} \times \frac{\#^{-4} \text{ kg } N_2O}{\text{MMBtu}} \times \frac{10^{-3} \text{ tonnes}}{\text{kg}} = \mathbf{0.0015} \text{ tonnes } N_2O \text{ / yr}$$

Note:

[1] $$E_{a,CH4}(un-combusted) = V_a * (1-\eta) * X_{CH4} \quad \text{(Eq. W-19)}$$

$$E_{a,CO2}(un-combusted) = V_a * X_{CO2} \quad \text{(Eq. W-20)}$$

$$E_{a,CO2}(combusted) = \sum_{j=1}^{5} (\eta * V_a * Y_j * R_j) \quad \text{(Eq. W-21)}$$

$E_{a,CH4\ (un\text{-}combusted)}$ = Contribution of annual un-combusted CH_4 emissions from flare stack in cubic feet, under actual conditions.

$E_{a,CO\ 2\ (un\text{-}combusted)}$ = Contribution of annual un-combusted CO2 emissions from flare stack in cubic feet, under actual conditions.

$E_{a,CO\ 2\ (combusted)}$ = Contribution of annual combusted CO_2 emissions from flare stack in cubic feet, under actual conditions.

V_a = Volume of gas sent to flare in cubic feet, during the year.

η = Fraction of gas combusted by a burning flare (default is 0.98). For gas sent to an unlit flare, η is zero.

X_{CH4} = Mole fraction of CH_4 in gas to the flare.

X_{CO2} = Mole fraction of CO_2 in gas to the flare.

Y_j = Mole fraction of gas hydrocarbon constituents j (such as methane, ethane, propane, butane, and pentanes-plus).

R_j = Number of carbon atoms in the gas hydrocarbon constituent j: 1 for methane, 2 for ethane, 3 for propane, 4 for butane, and 5 for pen

Equipment Leak GHG Calculation

Facility-Level Average Emission Factors Approach

THC Emissions Calculation

E_{THC} = (See FUG Calc Sheet)

lb/yr	x	840	Connections
lb/yr	x	840	Flanges
lb/yr	x	0	Open-Ended Lines
lb/yr	x	23	Pump Seals
lb/yr	x	517	Valves
lb/yr	x	181	Other
		2,401	components

x 45.36 x 10^{-5} tonnes/lb = 8.45 tonnes THC/yr

CH_4 Emissions

E_{CH4} = 8.45 tonnes THC/yr x 0.026 tonnes CH_4/tonnes THC = **0.2168 tonnes CH_4/yr**

CO_2 Emissions

E_{CO2} = 8.45 tonnes THC/yr x 0.87 tonnes CO_2/tonnes THC = **7.33 tonnes CO_2/yr**

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.

Emission calculations for the site are not changing with this Title V renewal package. A copy of the previously-submitted information is attached.

El Paso Natural Gas Company, L.L.C.
a Kinder Morgan company

July 22, 2013

Occidental Permian

File: Gas Quality Data Request

Please find below gas composition representative of the anticipated delivery for the Interconnect E1082, Project Occidental Permian – South Hobbs, located in Lea County, NM near MP 235 on line 1102. The sources of natural gas transported on EPNG's system do vary on a daily basis. The changes in supplies may reflect a different composition depending on the sources.

Gross Heating Value (Btu)	Specific Gravity	Wobbe	Cricondentherm (°F)	C6+ GPM (Ext.)	Carbon Dioxide (mol %)	Nitrogen (mol %)	Methane (mol %)	Ethane (mol %)	Propane (mol %)	N Butane (mol %)	Iso Butane (mol %)	Pentane (mol %)	Iso Pentane (mol %)	Neo Pentane (mol %)	C6+ (mol %)
1017.01	0.5810	1334.22	-61.9577	0.0025	1.0892	0.6600	95.8774	2.1650	0.1527	0.0201	0.0164	0.0058	0.0076	0.0000	0.0058

Please contact me at 713-420-4073 if you require any more information or assistance.

Thank you,

Alex Cassady
Gas Quality Representative
EPNG, L.L.C.

Fuel gas

Assist Gas, Purge Gas & Fuel Gas Analysis		El Paso Natural Gas Analysis									
		Mole %	Mol Wt.	MWi	Wt %						
Nitrogen		0.6600	28.02	0.18	1.10						
Carbon dioxide		1.0892	44.01	0.48	2.85						
Hydrogen Sulfide		0.0000	34.08	0.00	NA						
Methane		95.8774	16.04	15.38	91.56	VOC Mole %		VOC			
Ethane		2.1650	30.07	0.65	3.88	Normalized	Mol Wt.	MWi	Wt %		
Propane		0.1527	44.09	0.07	0.40	0.73	44.09	32.31	65.24		
Isobutane		0.0164	58.12	0.01	0.06	0.08	58.12	4.57	9.24		
n-Butane	VOC	0.0201	58.12	0.01	0.07	0.10	58.12	5.61	11.32		
Isopentane		0.0076	72.15	0.01	0.03	0.04	72.15	2.63	5.31		
n-pentane		0.0058	72.15	0.00	0.02	0.03	72.15	2.01	4.05		
Hexanes +		0.0058	86.17	0.00	0.03	0.03	86.17	2.40	4.84		
		100.0000		16.80	100.0000	1.00		**49.53** *	100.00		
H2S		-			NA						
VOC (C3+)		**0.21**			0.61			7.65	scf/lb	VOC	

* Use VOC MW of 50, or process gas MW (conservative @ approx. 58) for calcs.

SHU RCF - INLET GAS STREAM COMPOSITION FROM SIMULATION FOR DESIGN

Analysis - SHU RCF Flare	Mole frac.	Mole frac.	Mol Wt.	Mole Frac x MW	Wt %	Wt frac.						
Nitrogen		0.015	28.02	0.43	1.00	0.010						
Carbon dioxide		0.836	44.01	36.80	86.78	0.87						
Hydrogen Sulfide		0.013	34.08	0.44	1.04	0.0104						
Methane		0.068	16.04	1.09	2.56	0.026	VOC Mole %		VOC			
Ethane		0.013	30.07	0.39	0.92	0.0092	Normalized	Mol Wt.	MWi	Wt %		
Propane		0.024	44.09	1.05	2.49	0.025	0.44	44.09	19.23	33.67		
Isobutane		0.005	58.12	0.29	0.69	0.0069	0.09	58.12	5.30	9.28		
n-Butane		0.012	58.12	0.69	1.63	0.016	0.22	58.12	12.62	22.09		
Isopentane		0.0040	72.15	0.29	0.68	0.0068	0.073	72.15	5.27	9.22		
n-Pentane		0.0040	72.15	0.29	0.68	0.0068	0.073	72.15	5.27	9.22		
Hexanes +	**0.0060**						0.109	86.17	9.43	16.52		
n-Hexane	C6+ fractions are based on NHU extended analysis	0.0010	86.17	0.089	0.21	0.0021	1.00		**57.12**	100.00		
Benzene		7.8E-06	78.11	6.1E-04	0.0014	1.4E-05			**58.00**	-increased for permitting		
Toluene		1.9E-05	92.14	1.8E-03	0.0042	4.2E-05				calcs		
Ethylbenzene		5.8E-06	106.17	6.1E-04	0.0014	1.4E-05			**6.53**	scf/lb - VOC		
Xylene		1.9E-05	106.17	2.0E-03	0.0047	4.7E-05						
Other /Non-HAPs		0.0049	112.00	0.55	1.30	0.0130						
[redacted]		[redacted]										
		1.0000		**42.41**	100.000	1.000						
VOC (C3+)		0.055			**7.7**	**0.077**						
VOC (C3+)		**0.060**	-increased for permitting		**8.0**	**0.080**	-increased for permitting					
H2S		0.013			**1.04**	**0.0104**						
Hexanes+		**0.0060**			1.52	0.015						

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South Hobbs Unit - RCF
INLET GAS STREAM COMPOSITION FROM SIMULATION FOR DESIGN

		Inlet Gas Compostion			THC (mol frac x mw)	Wt. frac. of THC
Composition		mole frac.	mole frac. x MW	wt. frac		
Nitrogen		0.015	0.426	0.010		
CO2		0.836	36.801	0.87		
H2S		0.013	0.443	0.0104		
H2O		-	-	-		
Methane		0.068	1.088	0.026	1.09	0.230
Ethane		0.013	0.390	0.009	0.39	0.082
Propane		0.024	1.052	0.025	1.05	0.222
i-Butane		0.0050	0.291	0.0069	0.29	0.061
n-Butane		0.012	0.692	0.016	0.69	0.146
i-Pentane		0.0040	0.289	0.0068	0.29	0.061
n-Pentane		0.0040	0.289	0.0068	0.29	0.061
Cyclopentane		-	-	-		
C6+ (listed below)	0.0060					
n-Hexane		0.0010	0.089	0.0021	0.09	0.019
Benzene		7.8E-06	6.1E-04	1.4E-05	6.1E-04	1.3E-04
Toluene		1.9E-05	0.0018	4.2E-05	1.8E-03	3.8E-04
E-Benzene		5.8E-06	6.1E-04	1.4E-05	6.1E-04	1.3E-04
Xylenes		1.9E-05	0.0020	4.7E-05	2.0E-03	4.2E-04
Other/non-HAPs		0.0049	0.5504	1.3E-02	5.5E-01	0.116
Total		**1.00**	**42.40**	**1.00**	4.733	1.00

Molecular weight & Btu value of SHU flare gas mixture

	(Ratio from NHU RCF) Volume %	MW	V x MW	Btu/scf	Combined Btu/scf
Flare gas	0.83	42.41	35.34	285.8	238.13
Assist gas	0.17	16.80	2.80	1020	170.00
	1.000		**38.1**		**408.13**

	MMscfd	
Max process gas	40.0	0.83
Max assist	8.0	0.17
	48.0	1.0

SHU RCF - Inlet Gas C6+ Speciation (based on NHU extended gas analysis)

Hexanes+	mole frac.
T=	**0.0060**

Speciation of C6+ applied to : **0.0060 mole frac C6+**

From NHU Gas Speciation of C6+

	mole frac. of C6+
n-hexane	0.17
Benzene	0.0013
Toluene	0.0032
Ethylbenzen	0.0010
Xylene	0.0031
non-HAPs	0.82

	Mole frac
n-Hexane	**0.0010**
Benzene	**7.8E-06**
Toluene	**1.9E-05**
Ethylbenzene	**5.8E-06**
Xylene	**1.9E-05**
non-HAPs	**0.0049**
	0.0060

FLARE INFORMATION

Flare Tip Specification Sheet

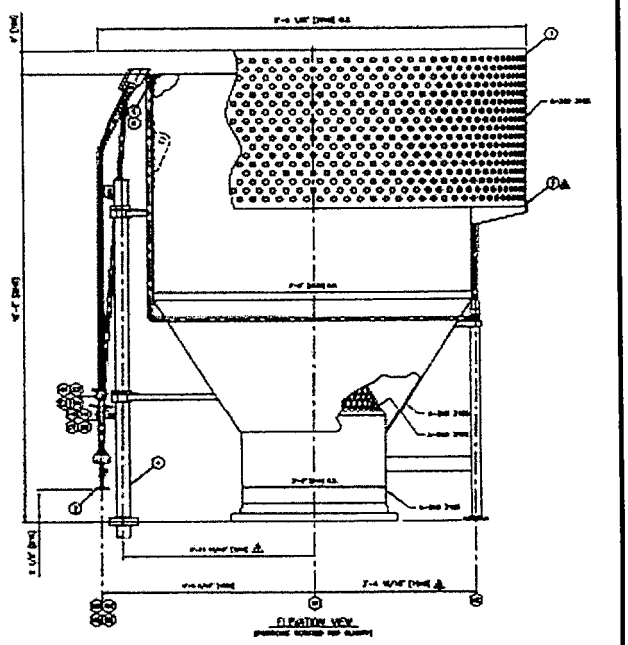
Client:	Wood Group Mustang. Inc	Zeeco Ref.:	T31696F	Date:	31-Oct-13
Location:	Hobbs, Lea County, New M	Client Ref.:	RFQ 1852801-1019-001	Rev.	3

General Information:

Tag No.:	ZZZ-1000	
Model:	UFGAW-80/36	Low BTU
Length:	10'- 0 "	
Weight:	5200 lbs	
No. of Pilots:	4	

Design Case:

Governing Case:	Case B + FG	
Molecular Weight:	39.0	
L. H. V. :	300	BTU/SCF
Temperature:	95	Deg. F
Available Static Pressure:	2	psig
Design Flow Rate:	600,295	lbs/hr
Approximate Exit Velocity:	59	ft/s
Mach No.:	0.06	
Approx. Tip Press. Drop:	0.03	psig



(Typical drawing only)

Construction:

Upper Section:	310 SS	Windshield:	YES
Lower Section:	310 SS	Flame Retention Ring:	310 SS
Refractory:	None	Lifting Lugs:	YES - S.S. Type
Refractory Thk:	N/A		

Surface Finish (Carbon Steel Surfaces):

Surface Preparation:	Per Oxy Specification	Primer:	Per Oxy Specification
Paint:	Per Oxy Specification		

Connections:

	Qty.	Size	Type	Material
N1 - Flare Gas Inlet:	1	36 "	150# RFWN 'A'	A-105 NACE
N2 - Pilot Gas:	4	1/2"	150# RFSW	304 SS
N3 - Ignition Line:	0	n/a	n/a	n/a

Miscellaneous Notes:

1. Includes Integral 310 SS Purge Reducing Velocity Seal.
2. Required Fuel Gas Purge Rate = 1,350 SCFH.
3. Three (3) 310 SS lifting lugs are included.
4. Flare tip includes a 2" gas injection ring. Gas required is: 1,700 scfh @ 1 PSIG.
5. Case B requires 44,300 #/hr of AG to be enriched at flare header for stable combustion.

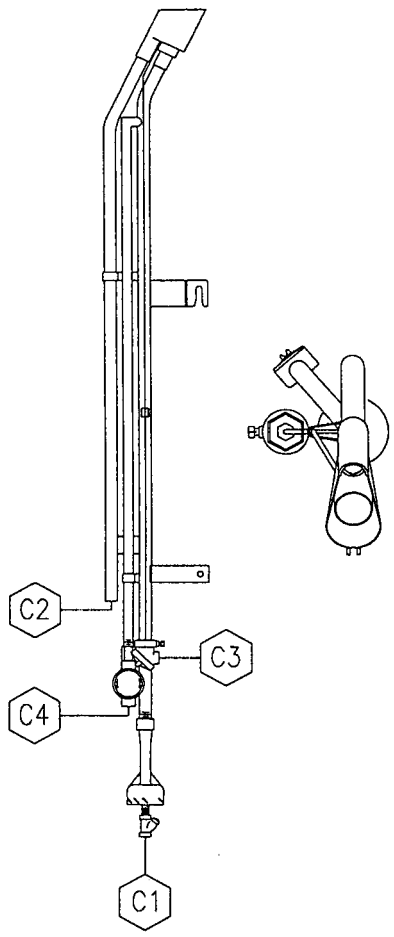
Pre-Mix Flare Pilot Assembly Specification Sheet

Client:	Wood Group Mustang. I	Zeeco Ref.:	T31696F	Date:	31-Oct-13
Location:	Hobbs, Lea County, Nev	Client Ref.:	RFQ 1852801-1019-001	Rev.	3

General Information:		
Tag No.:	ZZZ-1000	
Model:	HSLF	
Length:	9.135	feet
Weight:	68	lbs.
Pilot Type:	Pre-Mix	High Stability
Ignition Type:	High Energy Spark	

Process Design Data:		
Design Heat Release:	65,000	BTU/hr
Fuel Gas MW:	17.73	
Fuel Gas LHV:	932	BTU/SCF
Fuel Gas Temperature:	90	Deg. F
Fuel Gas Inlet Pressure:	15.00	psig
Fuel Gas Flow rate:	69.7	SCFH
Design Wind Velocity:	150	mph
Design Rainfall:	10.00	inches/hr
Mounting Position:	Vertical	
Thermocouple Type:	K	Ungrounded

Construction:	
Pilot Firing Tip:	HK
Windshield Assembly:	HK
Integral Thermowell:	HK
FFG Ignition Line:	N/A
Mounting Brackets:	HK
Premix Fuel Line:	310 SS
Thermocouple Sheath:	310 SS
Thermocouple Head:	Cast Iron w/ Ceramic Term.
Fuel Mixer / Spud Assembly:	CF-3M / 18-8
Fuel Strainer Assembly:	CF-8M
HEI Probe and Support:	310 SS
HEI Junction Head:	Cast Iron w/ Ceramic Term.



Connections:	**Qty.**	**Size**	**Type**	**Material**
C1 - Fuel Gas Inlet:	1	1/2"	150# RFSW	304 SS
C2 - FFG Ignition Inlet:	0	n/a	n/a	n/a
C3 - Thermocouple:	1	3/4"	Conduit	Cast Iron
C4 - HEI Ignition:	1	3/4"	FNPT	CF 3M

Misc. Notes: (see ignition system datasheet for type applicable to this quote)

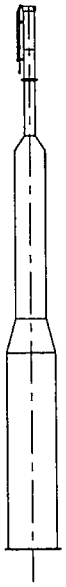
1. Upper mounting bracket is reinforced hook type for pilot removal from platform.
2. Pilot mounting brackets and thermocouple mounting brackets are investment cast assemblies.
3. Pilot mixer assembly is investment cast, high efficiency computer modeled venturi section.
4. Thermocouples are simplex type and retractable to grade.

Self-supported Flare Stack Specification Sheet

Client:	Wood Group Mustang. Inc.	Zeeco Ref.:	T31696F	Date:	31-Oct-13
Location:	Hobbs, Lea County, New Mexic	Client Ref.:	RFQ 1852801-1019-001	Rev.:	3

General Information:

Tag No.:	ZZZ-1000
Overall Height:	200'- 0 "
Inlet Flange:	36", 150# RFWN 'A'



(Typical drawing only)

Design Criteria:

Wind Design Code:	IBC 2006 Exp. C
Seismic Design Code:	IBC 2006
Importance Factor:	1.00
Structural Design Code:	AISC
Wind Speed (Structural):	100 mph
Site Class:	"D"
Max. Design Temperature:	150 Deg. F
Min. Design Temperature:	-20 Deg. F
Design Pressure:	100 psig
Riser Corrosion Allow.:	0.125 in.

Construction:

Riser Material:	A516-70 NACE	Ladders & Step-offs:	None
Upper Diameter (approx.):	3'- 0 "	Platform at Tip:	None
Middle Diameter (approx.):	7'- 0 "	Additional Platforms:	None
Base Diameter (approx.):	10'- 0 "	ACWL:	None

Surface Finish (Carbon Steel Surfaces):

Surface Preparation:	Per Oxy Specification	Primer:	Per Oxy Specification
Int. Coat:	Per Oxy Specification	Finish Paint:	Per Oxy Specification

Utility Piping:

Per Attached Utility Piping Scope of Supply

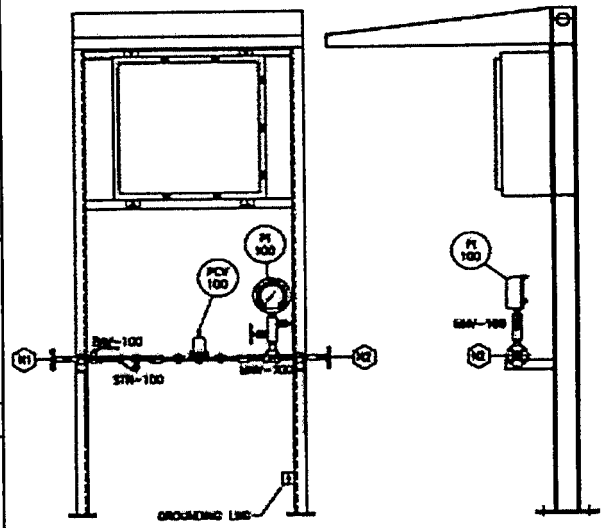
Miscellaneous Notes:

1. Skirt access is provided for inspection only.
2. Stack will be designed with 2 field welds.
3. We have included for an additional 12" connection to flare riser for low pressure vent.

High Energy Electronic Ignition Generator Specification Sheet

Client:	Wood Group Mustang. Inc.	Zeeco Ref.:	T31696F	Date:	31-Oct-13
Location:	Hobbs, Lea County, New Me	Client Ref.:	RFQ 1852801-1019-001	Rev.	3

General Information:	
Tag No.:	ZZZ-1000
Model No.:	HEIC-4-T/S
Operation:	Manual/Automatic
No. of Pilots Ignited:	4
Area Classification:	Non-Hazardous
Spark Intensity:	Approx. 1,000 Volts
Fuel Gas Data:	
Molecular Weight:	17.7
L. H. V.:	932 BTU/SCF
Temperature:	90 Deg. F
Pressure:	15 psig
Utility Consumption:	
Pilot Gas (Per Pilot):	70 SCFH
Pilot Gas (Total):	279 SCFH
Power Available:	120 Volt, 1 Phase, 60 Hertz



(Typical drawing only)

Construction:			
Fuel Gas Piping:	n/a	Ignition Probe Mat'l:	310 SS
Mounting Rack:	Carbon Steel	No. Thermocouples/Pilot:	1
Enclosure:	NEMA 4X (304 SS)	Thermocouple Type:	K
Sun / Rain Shield:	Yes	Ignition Probes per Pilot:	1
Surface Finish (Carbon Steel Surfaces):			
Surface Preparation:	Per Oxy Specification	Primer:	Per Oxy Specification
Paint (c. s. surfaces):	Per Oxy Specification	Enclosure:	Manufacturer Std.

Connections:

	Qty.	Size	Type	Material
Pilot Gas Inlet:	0	n/a	n/a	n/a
Ignition Probe Inlet (On Pilot):	1	3/4"	FNPT	310SS
Pilot Gas Outlet:	0	n/a	n/a	n/a

Miscellaneous Notes:

1. Ignition system is capable of manual operation or fully automatic operation.
2. Rack has type 304 SS sun and rain shield for operator protection.
3. Each pilot has 1 dedicated type K simplex thermocouple in a 310 SS sheath.
4. Ignition System is fully shop assembled to a free standing rack & shop FAT tested.

Utility Piping Scope of Supply

Client:	Wood Group Mustang. Inc.	Zeeco Ref.: T31696F	Date: 31-Oct-13
Location:	Hobbs, Lea County, New Mexico	Client Ref.: RFQ 1852801-1019-001	Rev. 3

Flare Tag No.	Description	Qty	Pipe Size	Pipe Sch.	Pipe Material	Origination Point	Termination Point	Termination Rating	Termination Type	Termination Material	Paint	Insulation
ZZZ-1000	Pilot Gas Line	4	1/2"	Std.	Carbon Steel	Base of Stack	Flare Tip	150#	RFSW	304 SS	Inorganic Zinc	n/a
ZZZ-1000	Ignition Gas Line	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	A106-B NACE	n/a	n/a
ZZZ-1000	Support Pipe	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ZZZ-1000	Lower Steam	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ZZZ-1000	Center Steam	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
ZZZ-1000	HEI Conduit	1	1"	Std.	Carbon Steel	Near Grade	Flare Tip	n/a	Coupling	Carbon Steel	Galvanized	n/a
ZZZ-1000	Ret. T/C Tubing	4	1/2"	0.049"	Stainless Steel	Near Grade	Base of Stack	n/a	Hub	Stainless Steel	n/a	n/a

Notes:
1. All utility piping larger than 2" will be supplied in pre-fabricated spools.
2. Piping 2" and smaller will be supplied in random lengths for field fabrication and installation by others.
3. Base of Stack = Approximate Flare Stack Inlet Elevation.

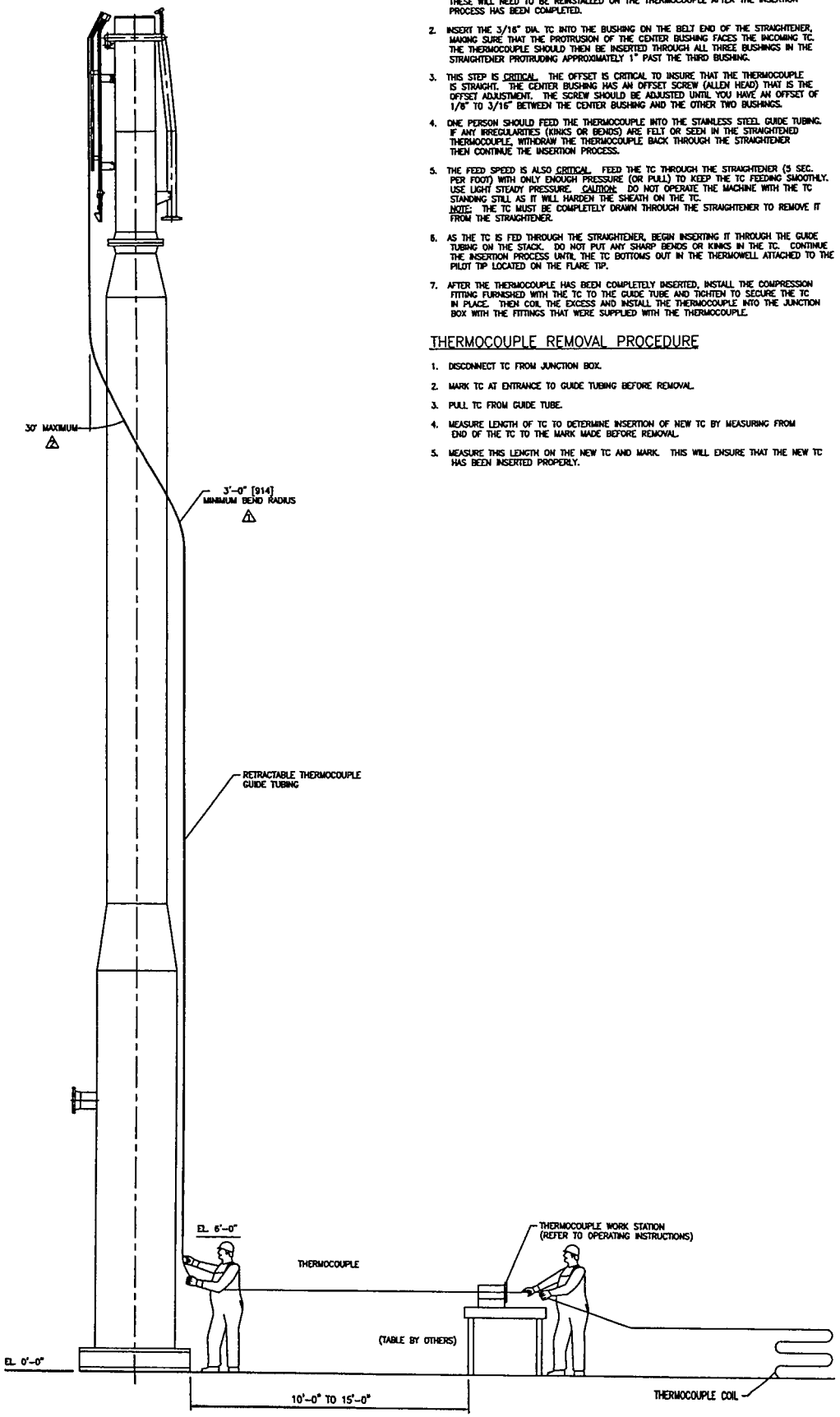
Q:\DRAFT\FLARE DEPARTMENT\Flare Pilots\RETRACTABLE THERMOCOUPLE DESIGN\PA-859-S1R0.dwg, 11/2/2006 10:48:01 AM

RETRACTABLE FLARE PILOT THERMOCOUPLE INSTALLATION PROCEDURE

1. LOCATE THE TC STRAIGHTENER AND SET IT ON A TABLE (TABLE BY OTHERS) 10–15 FEET FROM THE GUIDE TUBE (110V POWER REQ'D). PRIOR TO INSERTING THE THERMOCOUPLE INTO THE STRAIGHTENER, REMOVE THE FITTINGS THAT ARE ON THE THERMOCOUPLE. THESE WILL NEED TO BE REINSTALLED ON THE THERMOCOUPLE AFTER THE INSERTION PROCESS HAS BEEN COMPLETED.
2. INSERT THE 3/16" DIA. TC INTO THE BUSHING ON THE BELT END OF THE STRAIGHTENER, MAKING SURE THAT THE PROTRUSION OF THE CENTER BUSHING FACES THE INCOMING TC. THE THERMOCOUPLE SHOULD THEN BE INSERTED THROUGH ALL THREE BUSHINGS IN THE STRAIGHTENER PROTRUDING APPROXIMATELY 1" PAST THE THIRD BUSHING.
3. THIS STEP IS CRITICAL. THE OFFSET IS CRITICAL TO INSURE THAT THE THERMOCOUPLE IS STRAIGHT. THE CENTER BUSHING HAS AN OFFSET SCREW (ALLEN HEAD) THAT IS THE OFFSET ADJUSTMENT. THE SCREW SHOULD BE ADJUSTED UNTIL YOU HAVE AN OFFSET OF 1/8" TO 3/16" BETWEEN THE CENTER BUSHING AND THE OTHER TWO BUSHINGS.
4. ONE PERSON SHOULD FEED THE THERMOCOUPLE INTO THE STAINLESS STEEL GUIDE TUBING. IF ANY IRREGULARITIES (KINKS OR BENDS) ARE FELT OR SEEN IN THE STRAIGHTENED THERMOCOUPLE, WITHDRAW THE THERMOCOUPLE BACK THROUGH THE STRAIGHTENER THEN CONTINUE THE INSERTION PROCESS.
5. THE FEED SPEED IS ALSO CRITICAL. FEED THE TC THROUGH THE STRAIGHTENER (5 SEC. PER FOOT) WITH ONLY ENOUGH PRESSURE (OR PULL) TO KEEP THE TC FEEDING SMOOTHLY. USE LIGHT STEADY PRESSURE. CAUTION: DO NOT OPERATE THE MACHINE WITH THE TC STANDING STILL AS IT WILL HARDEN THE SHEATH ON THE TC.
   NOTE: THE TC MUST BE COMPLETELY DRAWN THROUGH THE STRAIGHTENER TO REMOVE IT FROM THE STRAIGHTENER.
6. AS THE TC IS FED THROUGH THE STRAIGHTENER, BEGIN INSERTING IT THROUGH THE GUIDE TUBING ON THE STACK. DO NOT PUT ANY SHARP BENDS OR KINKS IN THE TC. CONTINUE THE INSERTION PROCESS UNTIL THE TC BOTTOMS OUT IN THE THERMOWELL ATTACHED TO THE PILOT TIP LOCATED ON THE FLARE TIP.
7. AFTER THE THERMOCOUPLE HAS BEEN COMPLETELY INSERTED, INSTALL THE COMPRESSION FITTING FURNISHED WITH THE TC TO THE GUIDE TUBE AND TIGHTEN TO SECURE THE TC IN PLACE. THEN COIL THE EXCESS AND INSTALL THE THERMOCOUPLE INTO THE JUNCTION BOX WITH THE FITTINGS THAT WERE SUPPLIED WITH THE THERMOCOUPLE.

THERMOCOUPLE REMOVAL PROCEDURE

1. DISCONNECT TC FROM JUNCTION BOX.
2. MARK TC AT ENTRANCE TO GUIDE TUBING BEFORE REMOVAL.
3. PULL TC FROM GUIDE TUBE.
4. MEASURE LENGTH OF TC TO DETERMINE INSERTION OF NEW TC BY MEASURING FROM END OF THE TC TO THE MARK MADE BEFORE REMOVAL.
5. MEASURE THIS LENGTH ON THE NEW TC AND MARK. THIS WILL ENSURE THAT THE NEW TC HAS BEEN INSERTED PROPERLY.

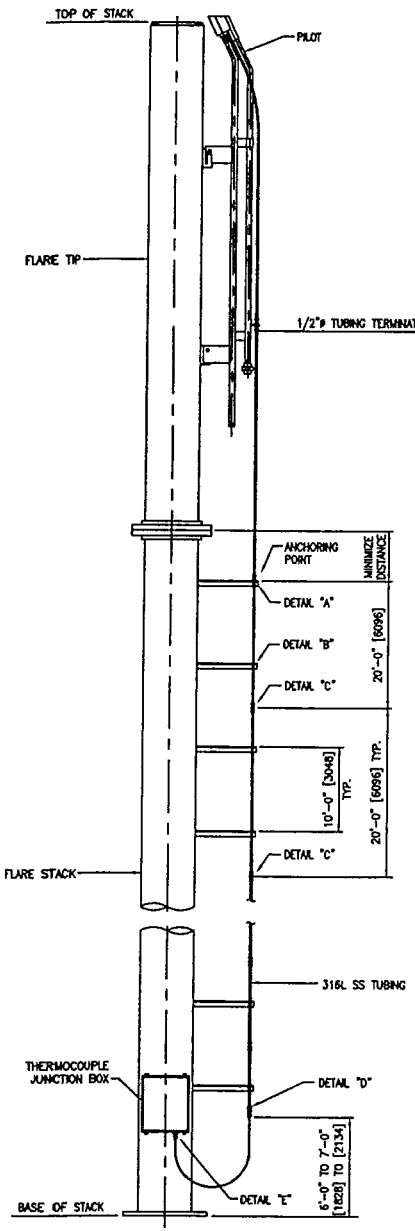


ELEVATION
(TYPICAL FOR EACH THERMOCOUPLE ASSEMBLY)

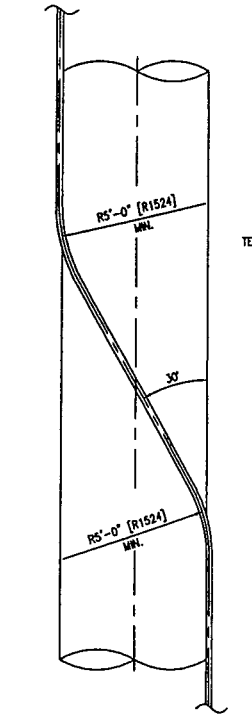
NO.	REVISION DESCRIPTION	BY	CHK	APP.	DATE

TITLE: RETRACTABLE T/C INSTALLATION PROCEDURE -STANDARD-

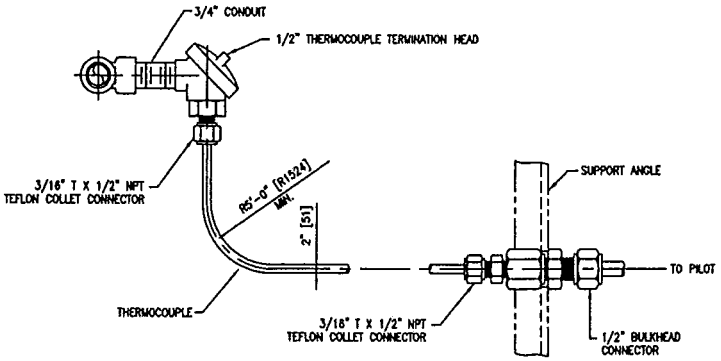
DRAWN: MKH 2/AUG/01
CHK: JWW
APP: BDA
REV: 0
SCALE: NTS
DRAWING NUMBER: B-PA-859
SHT. 1 OF 1



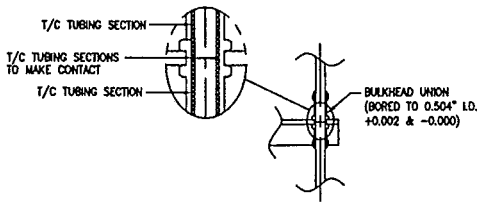
STACK ELEVATION
TYPICAL TUBING SUPPORT



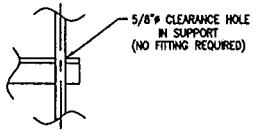
TYPICAL TUBING BEND DETAIL



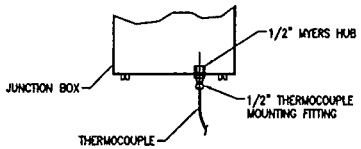
T/C TO JUNCTION BOX
(MULTIPOINT GROUND FLARE ONLY)



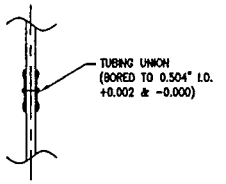
DETAIL "A"
(ANCHORING POINT)



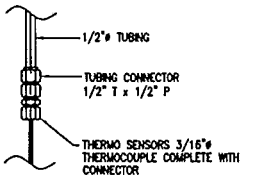
DETAIL "B"



DETAIL "E"



DETAIL "C"



DETAIL "D"

-T/C GUIDE TUBING NOTES -

1. TOP ANCHORING POINT TO BE ACCESSIBLE FROM UPPER WORK PLATFORM
2. TUBING UNION FITTINGS TO BE UNBROKEN
3. IT IS CRITICAL TO HAVE A MINIMUM OF A 5'-0" [1524] BEND RADIUS FOR ALL BENDS AND A MAXIMUM 30 DEGREE ANGLE FOR ALL BENDS. REFER TO DRAWING.
4. THERE SHALL BE NO MORE THAN TWO (2) BENDS PER 100 FEET [30480] OF LENGTH OF THERMOCOUPLE. THIS DEPENDS ON OVERALL ARRANGEMENT OF STACK
5. TUBING UNIONS ARE USED EVERY 20 FEET TO ATTACH THE TUBING SECTIONS.
6. THE TUBING IS GUIDED THROUGH GUIDE SUPPORTS EVERY 10 FEET
7. HOKE GYROLOX FITTINGS (NO EQUAL)

NO	DATE	REVISION DESCRIPTION	BY	CKD	APP.

RETRACTABLE T/C TUBING INSTALLATION

FOR: STANDARD

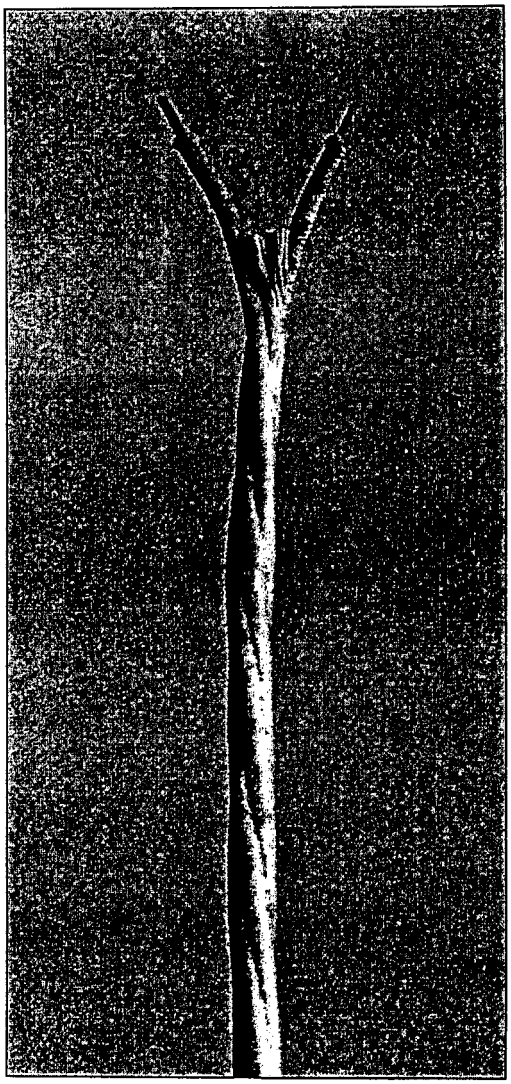
DRAWN	MKN	DATE	11NOV05
CHK	JKW	APP	SKS
SCALE	NONE	REV	0
DRAWING NUMBER	B-QA-200		
SHT. 1 OF 1			

ZEECO

Zeeco, Inc.
22151 East 91st Street
Broken Arrow, Oklahoma 74014
Tel: +1 918 258 8551
zeeco.com

Zeeco High Temperature HEI Ignition Wire

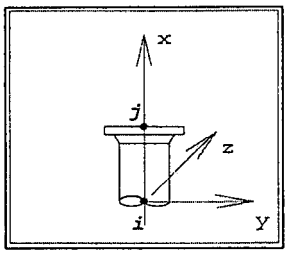
Part Number	MG122FEP600V
Conductors	
Number of Conductors:	2
Size:	12 AWG
Construction:	Stranded (65/30)
Material:	NPC27%
Insulation Material:	Fiberglass Braid
Insulation Thickness (nom):	0.025" / 0.006" [0.635mm / 0.152mm]
Conductor Color Code:	(1) Tan, (1) Tan with Black Stripe
Jacket Material	FEP Pulling Jacket
Jacket Thickness (nom)	0.010" [0.254mm]
Jacket Color	Clear
Finished Diameter (nom)	0.334" [8.484mm]
Maximum Operating Temp	840° F / 450° C
Agency Approvals	UL5107 / CSA Inner Conductors
Special Notes	Overall Mica Glass Tape Binder Over Cabled Core & Fillers for Added Insulation
Options	10 AWG (long distance applications)



Zeeco High Temperature HEI Ignition Wire

API 537 / API 560 Nozzle Loads

API Standard 537, Flare Details for General Refinery and Petrochemical Service, Table 2, lists allowable forces and moments for nozzle sizes through 60 inches. Those forces and moments are listed below along with extrapolated loads for intermediate pipe sizes. API Standard 560, Fired Heaters for General Refinery Services, Table 7, loadings are also listed.



API 537, Table 2 / API 560, Table 7														
Pipe Size		Fx		Fy		Fz		Mx		My		Mz		
NPS	DN	lbs.	N	lbs.	N	lbs.	N	ft-lbs.	N-m	ft-lbs.	N-m	ft-lbs.	N-m	
2	50	100	445	200	890	200	890	350	475	250	339	250	339	*
3	76.2	150	667	300	1334	300	1334	450	610	350	475	350	475	*
4	100	200	890	400	1779	400	1779	600	813	450	610	450	610	**
5	125	225	1001	450	2002	450	2002	660	895	500	678	500	678	***
6	150	250	1112	500	2224	500	2224	730	990	550	746	550	746	
8	200	300	1334	600	2669	600	2669	860	1166	650	881	650	881	
10	250	350	1557	650	2891	650	2891	930	1261	700	949	700	949	
12	300	400	1779	700	3114	700	3114	1000	1356	750	1017	750	1017	
API 537 / Extrapolated														
14	350	450	2002	750	3336	750	3336	1070	1451	800	1085	800	1085	
16	400	500	2224	800	3559	800	3559	1140	1546	850	1152	850	1152	
18	450	550	2447	850	3781	850	3781	1210	1641	900	1220	900	1220	
20	500	600	2669	900	4003	900	4003	1280	1735	950	1288	950	1288	
22	558.8	650	2891	950	4226	950	4226	1350	1830	1000	1356	1000	1356	
24	600	700	3114	1000	4448	1000	4448	1420	1925	1050	1424	1050	1424	
26	660.4	750	3336	1050	4671	1050	4671	1490	2020	1100	1491	1100	1491	
28	700	800	3559	1100	4893	1100	4893	1560	2115	1150	1559	1150	1559	
30	750	850	3781	1150	5115	1150	5115	1630	2210	1200	1627	1200	1627	
32	800	900	4003	1200	5338	1200	5338	1700	2305	1250	1695	1250	1695	
34	863.6	950	4226	1250	5560	1250	5560	1770	2400	1300	1763	1300	1763	
36	900	1000	4448	1300	5783	1300	5783	1840	2495	1350	1830	1350	1830	
38	965.2	1050	4671	1350	6005	1350	6005	1910	2590	1400	1898	1400	1898	
40	1000	1100	4893	1400	6228	1400	6228	1980	2685	1450	1966	1450	1966	
42	1066.8	1150	5115	1450	6450	1450	6450	2050	2779	1500	2034	1500	2034	
44	1100	1200	5338	1500	6672	1500	6672	2120	2874	1550	2102	1550	2102	
46	1168.4	1250	5560	1550	6895	1550	6895	2190	2969	1600	2169	1600	2169	
48	1200	1300	5783	1600	7117	1600	7117	2260	3064	1650	2237	1650	2237	
50	1270	1350	6005	1650	7340	1650	7340	2330	3159	1700	2305	1700	2305	
52	1300	1400	6228	1700	7562	1700	7562	2400	3254	1750	2373	1750	2373	
54	1371.6	1450	6450	1750	7784	1750	7784	2470	3349	1800	2440	1800	2440	
56	1400	1500	6672	1800	8007	1800	8007	2540	3444	1850	2508	1850	2508	
58	1473.2	1550	6895	1850	8229	1850	8229	2610	3539	1900	2576	1900	2576	
60	1500	1600	7117	1900	8452	1900	8452	2680	3634	1950	2644	1950	2644	
62	1574.8	1650	7340	1950	8674	1950	8674	2750	3729	2000	2712	2000	2712	
64	1625.6	1700	7562	2000	8896	2000	8896	2820	3823	2050	2779	2050	2779	
66	1676.4	1750	7784	2050	9119	2050	9119	2890	3918	2100	2847	2100	2847	
68	1727.2	1800	8007	2100	9341	2100	9341	2960	4013	2150	2915	2150	2915	
70	1778	1850	8229	2150	9564	2150	9564	3030	4108	2200	2983	2200	2983	
72	1828.8	1900	8452	2200	9786	2200	9786	3100	4203	2250	3051	2250	3051	
78	1981.2	1950	8674	2250	10008	2250	10008	3170	4298	2300	3118	2300	3118	
84	2133.6	2000	8896	2300	10231	2300	10231	3240	4393	2350	3186	2350	3186	

Note: According to API 537 these nozzle loads are applicable for the flare header to the gas riser but not applicable for auxiliary service piping, e.g. steam, pilot fuel,etc.

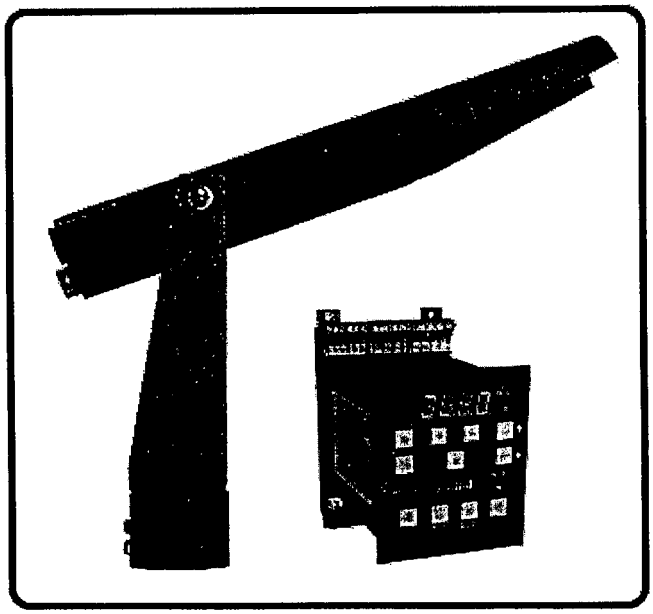
These loads may be used, as a basis for analysis, for any piping system as long as the purchaser agrees to them.

*	If the service pressure is 150psig and API 537 loads are applied - requires 300# Flange .
**	If API 537 loads are applied to a 150# flange - the maximum allowed service pressure is 34.4 psig.
***	If API 537 loads are applied to a 150# flange - the maximum allowed service pressure is 125.4 psig. (These values are based on metal temperature of 100 deg. F. If higher temperature is expected loads and pressure must be reduced.)

IRIS WATCHDOG III

FLARE STACK PILOT MONITOR

MODEL P222 SIGNAL PROCESSOR and S256B UV VIEWING HEAD



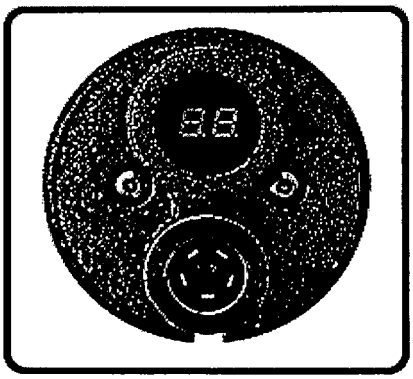
GENERAL DESCRIPTION:

The IRIS Watchdog III **UV Flare Stack Pilot Monitor** is an effective replacement or supplement to thermocouples or optical IR systems. It can be connected to an existing ignition system making the replacement of burned out thermocouples effortless. This can be done without plant shut down or flare interruption, saving you valuable time and money.

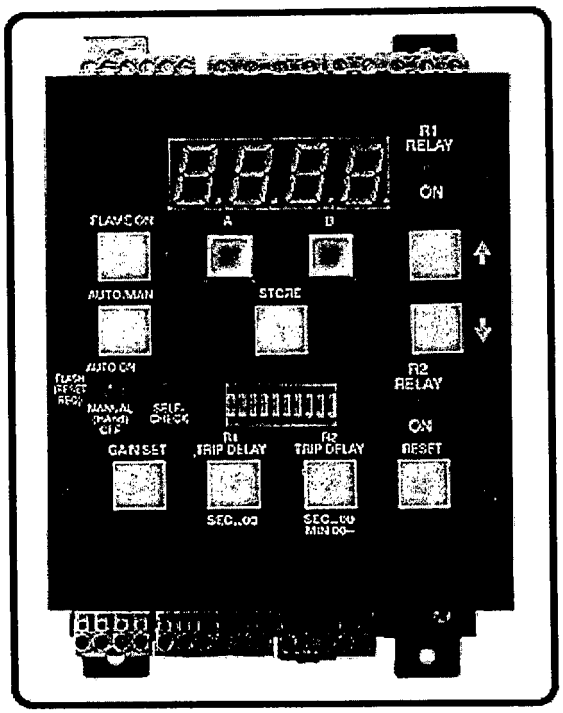
The IRIS Watchdog electro-optically monitors pilot and flare stack activity using an ultraviolet sensor. It provides continuous burner surveillance indicating the presence or absence of a flame at the flame tip. The Ultraviolet sensor is not affected by sunlight and therefore provides reliable flame sensing under a wide range of atmospheric conditions.

S256B VIEWING HEAD

The model S256B viewing head is ground mounted up to 1000 feet from the flare stack tip. The rugged, light weight, all weather aluminum mounting yoke is designed for easy and accurate adjustment of the viewing head. Both vertical and horizontal aiming can be performed, and securely locked once achieved.
Signal strength can be monitored and adjusted at the viewing head location by using the display on the rear of the viewing head.
The electronics are designed with no moving parts to ensure continuous and maintenance-free operation.



P222 SIGNAL PROCESSOR



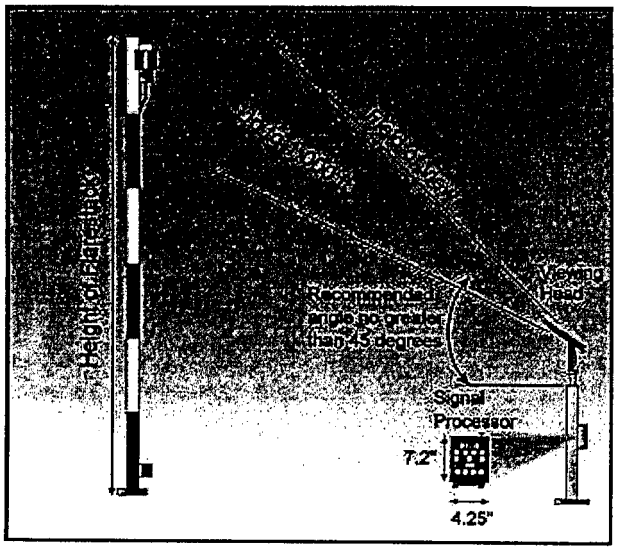
Based upon our flagship flame monitoring system, the IRIS model P522, the model P222 signal processor uses advanced microprocessor technology for detection and monitoring of Flare Stacks.

All setup functions and status displays are available from the front panel. The P222 can be powered from 85 to 264 VAC line voltage, or from a DC supply of 22 to 26VDC.

Two independent relays are provided, one giving an early response (adjustable between one and sixty seconds) to a "flame loss" and the other giving a time-delayed response, (adjustable between the early response time and 60 minutes), for a "flame-out" alarm.

The P222 is also compatible with FlameTools software for remote setup and monitoring from a desktop computer system, or a handheld PDA.

Primarily used for monitoring flare stacks in the petrochemical industry, or other applications where distance and/or accessibility is a factor.



A typical application for the IRIS Watchdog flare stack monitor is shown above.

The Viewing head can be placed at a distance of up to 1,000 ft from the flare stack being monitored, as shown in the diagram on the left.

Aircraft Warning Light Specification Sheet

Client:	Wood Group Mustang. I	Zeeco Ref.:	T31696F	Date:	31-Oct-13
Location:	Hobbs, Lea County, Nev	Client Ref.:	RFQ 1852801-1019-001	Rev.	3

General Information:

Tag No.:	ZZZ-1000 (Optional)
Applicable Lighting Code:	FAA
Stack Height:	200 Feet
Type of Lights:	Medium Intensity - White
Number of Lighting Levels:	1
Number of Lights per Level:	2
Single or Dual Lights:	Single

Controls:

Junction Box Provided:	Yes
Type of Junction Box:	NEMA 4X
Location of Junction Box:	Stack Base
Control Panel Provided:	Yes
Type of Control Panel:	NEMA 4X (304 SS)
Location of Control Panel:	Ignition Skid

Construction and Mounting:

Light Framework Material:	
Lens Material:	Glass
Radiation Shield Provided:	Yes
Type of Mounting:	Fixed

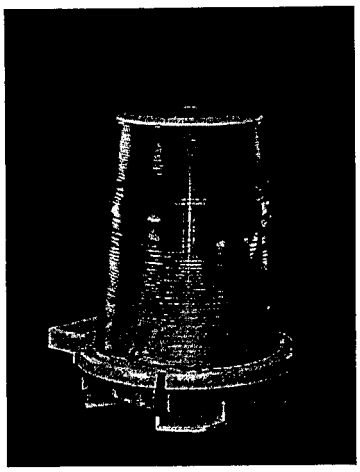
Connections:	Qty.	Size	Type	Material
C1 - ACWL Conduit:	1	1"	3000#	Carbon Steel

Misc. Notes:

1. Number and quantity of lights included are as noted on this datasheet.
2. Zeeco follows the FAA or ICAO general recommendations, however, we cannot guarantee local authority appr
3. Submittal of light arrangement to local authority for approval is by others.
4. Lights will be fixed unless noted above as retractable. Retractable lights are replaceable from grade.

L303-865 MEDIUM INTENSITY FLASHING WHITE STROBE OBSTRUCTION LIGHT

DATASHEET



Key features

- High reliability with long life time, low cost of ownership and low power consumption
- 110 - 240 V_{AC} (±10%) 50/60 Hz operating voltage
- Intensity 20,000 cd white day mode and 2,000 cd white night mode
- Uses Orga special technology for the ignition of xenon lamps control for long lamp life and very low UV and ozone generation
- Orga Strobeline™ cable wiring system configuration combines power and control wires into a single protected cable
- Lightweight and easy to install

Specifications

Certified to :

- Federal Aviation Authority AC 150 5345/43E Type L865 and L866
- ICAO Annex 14 Volume 1. third edition July 1999 Chapter 6, Medium Intensity, Type A obstacle light
- DGAC of Mexico

Optical characteristics

- 40 flashes per minute in day and night mode (factory set)
- Automatic intensity change control
- Horizontal beam pattern 360°
- Vertical beam pattern 3°
- High accuracy Fresnel lens

Electrical characteristics

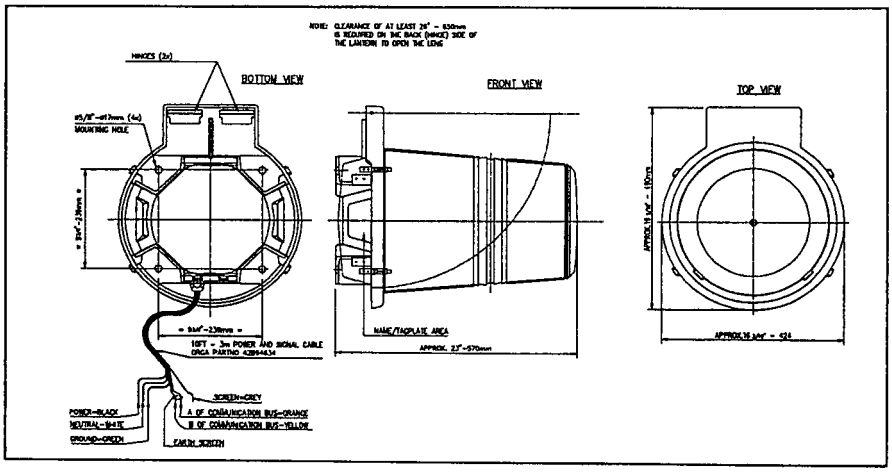
- Power consumption 95VA in 40 fpm 20,000 cd day mode and 40VA in 20 fpm night mode
- Integral photocells
- Safety switches to disconnect power and discharge capacitors when unit opened with external high voltage warning LED
- Supplied with integral Strobeline™ pigtail cable
- Two stage over voltage protection

Mechanical characteristics

- Polyurethane body
- IP67 Degree of Ingress Protection (design)
- Operating temperature range –55...+55 °C
- Height 585 mm, diameter 432 mm
- Mounting holes at 240 x 240 mm
- Weight 12 kg

System Design, Control and Monitoring

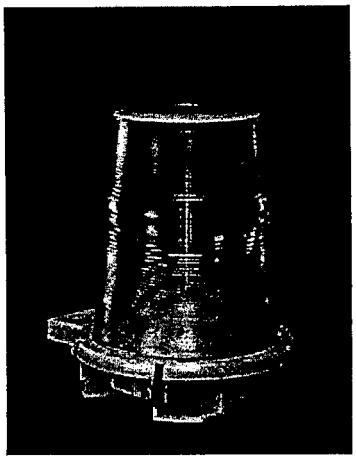
- Combine L303-864 and L303-865 medium intensity lights with L1000 high intensity lights or L810 low intensity lights for optimum system design
- Connect up to 89 L1000 high intensity, L303 medium intensity and L810 low intensity lights to a single CIP200 control unit.
- Local and remote monitoring facilities provided by CIP200
- No-Wire multiple system flash character synchronisation option
- Catenary crossing system configuration options



11 DATASHEET - L303-865 & L303-866 MEDIUM INTENSITY WHITE FLASHING STROBE OBSTACLE LIGHT

Key features

- High reliability with long life time, low cost of ownership and low power consumption
- Uses Orga/TWR Lighting, Inc. special technology for the ignition of xenon lamps, control for long lamp life and very low UV and ozone emission
- Universal input voltage range. Product can be used on world standards of mains voltages without adjustments
- Internal photocells for automatic day/night intensity control
- Orga/TWR Lighting, Inc. Strobeline™ cable wiring system configuration combines power and control wires into a single protected cable
- Lightweight and easy to install
- Non metallic housing
- Level indicators provided to help with correct installation



Standards

- *Standard*: ICAO Annex 14 Volume 1, Fourth edition, July 2004, Chapter 6, Medium Intensity, Type A obstacle light
- *Certified to:* FAA AC150-5345/43E Type L865 & L866 obstacle light
- *Approved by:* STNA of France (L865), DGAC of Mexico (L865), Civil Aviation of Germany (L865), Civil Aviation of The Netherlands (L865)

Optical characteristics

- Effective Intensity 20.000 candela white day mode and 2.000 candela white night mode
- 40 (L865) flashes per minute (factory set as per table)
- 60 (L866) flashes per minute (factory set as per table)
- Lens colour: clear
- Horizontal beam pattern 360°
- Vertical beam pattern 3°
- High accuracy Fresnel lens

Electrical characteristics

- 110-240 V_{AC} (±10 %), 50-60 Hz operating voltage
- Power consumption (see table)
- Safety switches to disconnect power and discharge capacitors when unit opened
- A high voltage warning LED is provided
- Light "fail" remote monitoring output
- Failure indication LED
- Supplied with an Orga/TWR Lighting, Inc. Strobeline™ combined power and data connection cable
- Class D overvoltage protection

10 DATA SHEET - CIP200

Key features

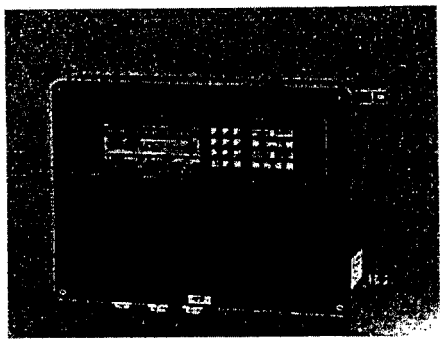
- Comprehensive system control and monitoring device in an easy to install compact unit
- Connect Orga/TWR Lighting, Inc. L1000-xxx high intensity lights, L303-8xx & L350-xxx medium intensity lights and MLM26 marker light monitoring units (for use with appropriate type of low intensity lights) to a single CIP200 control unit for optimum system design
- Low power consumption
- Orga/TWR Lighting, Inc. Strobeline™ cable wiring system configuration combines power and control wires into a single protected cable
- Interaction with clients system using optional IOM2409 I/O interface module
- Remote support and service from Orga/TWR Lighting, Inc. by special request
- LCD Information screen and keyboard
- Reduced light intensity steps options available

System including CIP200 meets:

- FAA AC70/7460-1K and AC-150-5345/43F
- ICAO Annex 14 Volume 1, Fourth Edition - July 2004, Chapter 6

Function

- System controller and monitor for Orga/TWR Lighting, Inc. High, Medium and Low Intensity Obstacle Lights
- System wide intensity step control (day/twilight/night)
- System wide flash character synchronisation
- Remote monitoring outputs for system status (light fail, marker alarm, photocell status, external horn connection, power supply status)
- Optional remote monitoring output for system status (general system alarm)
- Remote (client) system input for remote fail/alarm accept signal
- LCD information screen giving system status and details of all fault and alarm conditions
- System status indication multi colour LED (green-normal; yellow–alarm; red–fail)
- Optional no-wire multiple system flash character synchronisation using the optional GPS020
- Multiple software options for use in complex systems



Electrical characteristics

- Wide input voltage range 100-240 V_{AC} (±10 %), 50-60 Hz
- Power consumption <10 W, excluding additional external devices
- Class D overvoltage protection
- Complies with generic EMI (NEN-EN-IEC 61000-6-2) and EMC (NEN-EN-IEC 61000-6-4) RF immunity and emission standards.

Physical characteristics

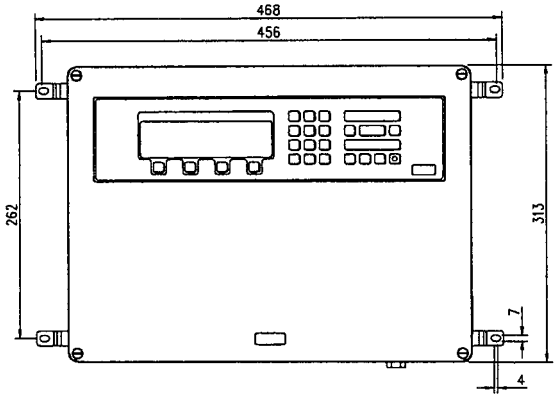
- AlSi12 alloy painted body
- IP65 degree of ingress protection (by design)
- EMC type of cable glands
- Breather on the bottom side of the enclosure
- Approved operating temperature range -55 to +55 °C (-67 to +130 °F)
- Screen display readable in temperature range -20 to +55 °C (-4 to +130 °F)
- Enclosure with heater for a readable display from -55 to -55 °C (-67 to +130 °F) on special request
- Size: 404 x 313 x 119 mm (16 x 12½ x 4¾ ")
- Mounting holes at 456 x 262 mm (18 x 10¼ ")
- Weight (excluding packaging) 8,5 kg (18,8 lb)
- Shipping dimensions: 500 x 450 x 200 mm (19¾ x 17¾ x 8 ") – 10,5 kg (23,15 lb)

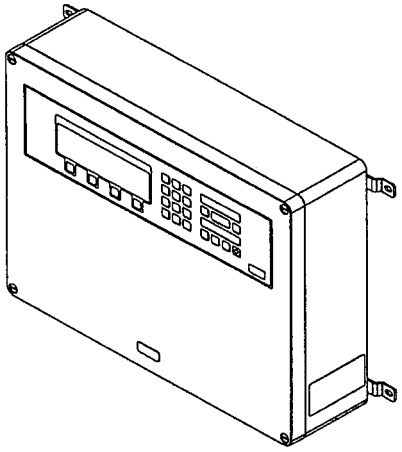
System Design

Use the CIP200 controller in obstacle light systems with:

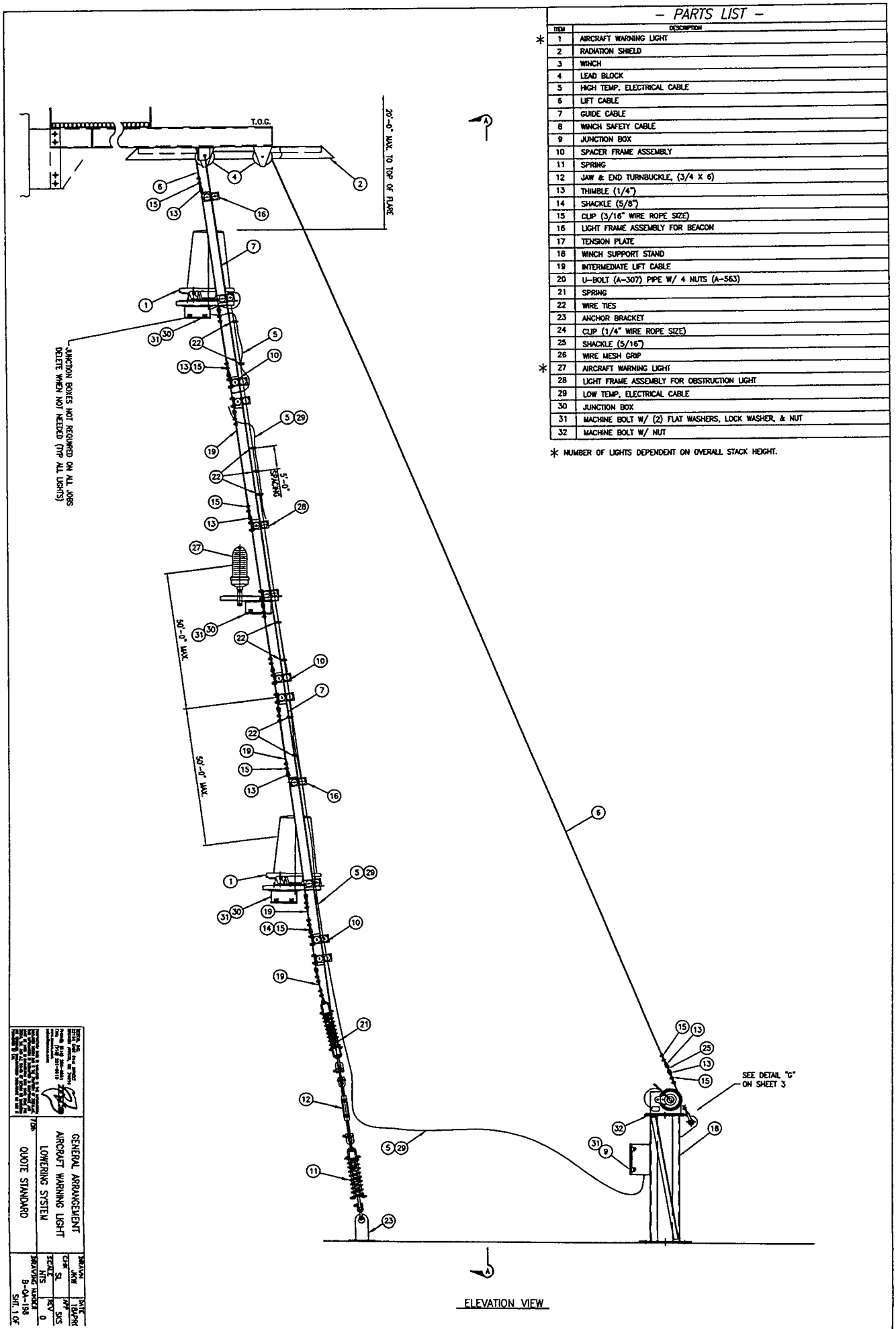
- Orga/TWR Lighting, Inc. L1000-xxx high intensity lights
- Orga/TWR Lighting, Inc. L303-8xx and L350-xxx medium intensity lights
- Orga/TWR Lighting, Inc. MLM26 marker light monitoring unit (for control and monitoring of appropriate type of low intensity lights)
- Orga/TWR Lighting, Inc. Strobeline™ cable
- Orga/TWR Lighting, Inc. GPS020 multiple system synchronisers

Type numbering		Additional information	
CIP200	Extension	Power consumption (W)	Comment
CIP200		<10W (continuous)	Standard configuration
CIP200	G	<10W (continuous)	Standard configuration including GPS synchronization facility (requires Orga/TWR Lighting, Inc. GPS020 synchronizer)
CIP200	I	<10W (continuous)	Standard configuration including I/O board for additional input (6) / output (6) contacts
CIP200	IG	<10W (continuous)	Standard configuration including I/O board for additional input (6) / output (6) contacts and GPS synchronization facility (requires Orga/TWR Lighting, Inc. GPS020 synchronizer)





NOTE: CLEARANCE OF AT LEAST 10" – 250mm IS REQUIRED ON THE RIGHT SIDE OF THE ENCLOSURE TO OPEN THE DOOR



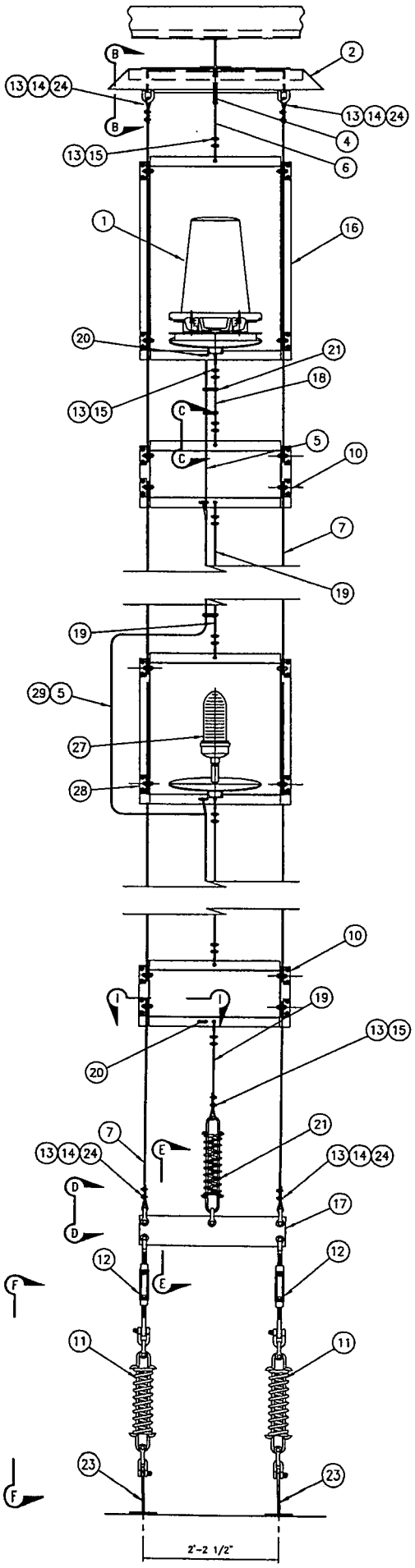
– PARTS LIST –

ITEM	DESCRIPTION
* 1	AIRCRAFT WARNING LIGHT
2	RADIATION SHIELD
3	WINCH
4	LEAD BLOCK
5	HIGH TEMP. ELECTRICAL CABLE
6	LIFT CABLE
7	GUIDE CABLE
8	WINCH SAFETY CABLE
9	JUNCTION BOX
10	SPACER FRAME ASSEMBLY
11	SPRING
12	JAW & END TURNBUCKLE, (3/4 X 6)
13	THIMBLE (1/4")
14	SHACKLE (5/8")
15	CLIP (3/16" WIRE ROPE SIZE)
16	LIGHT FRAME ASSEMBLY FOR BEACON
17	TENSION PLATE
18	WINCH SUPPORT STAND
19	INTERMEDIATE LIFT CABLE
20	U-BOLT (A-307) PIPE W/ 4 NUTS (A-563)
21	SPRING
22	WIRE TIES
23	ANCHOR BRACKET
24	CLIP (1/4" WIRE ROPE SIZE)
25	SHACKLE (5/16")
26	WIRE MESH GRIP
* 27	AIRCRAFT WARNING LIGHT
28	LIGHT FRAME ASSEMBLY FOR OBSTRUCTION LIGHT
29	LOW TEMP. ELECTRICAL CABLE
30	JUNCTION BOX
31	MACHINE BOLT W/ (2) FLAT WASHERS, LOCK WASHER, & NUT
32	MACHINE BOLT W/ NUT

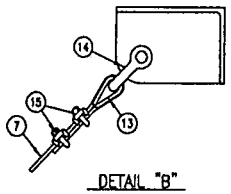
* NUMBER OF LIGHTS DEPENDENT ON OVERALL STACK HEIGHT.

ELEVATION VIEW

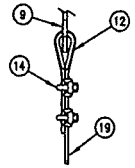
TITLE	GENERAL ARRANGEMENT AIRCRAFT WARNING LIGHT LOWERING SYSTEM
TYPE	QUOTE STANDARD
DRAWN BY	SKS
CHK'D	SL
SCALE	NTS
REV	0
DRAWING NUMBER	8-04-196
SHT. 1 OF	



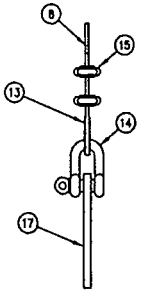
TITLE: QUOTE STANDARD	GENERAL ARRANGEMENT AIRCRAFT WARNING LIGHT LOWERING SYSTEM	DRAWN: JOK CHK'R: SL APP'R: SKS
	SCALE: NTS REV: 0 DRAWING NUMBER: 8-04-198 SHT. 2 OF	DATE: 10APR



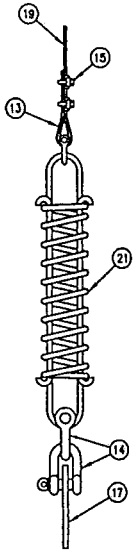
DETAIL "B"



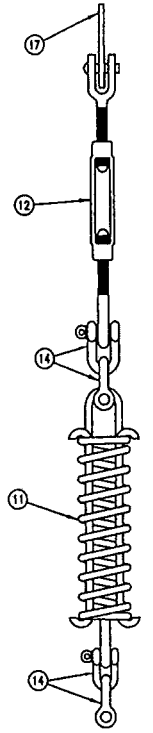
DETAIL "C"



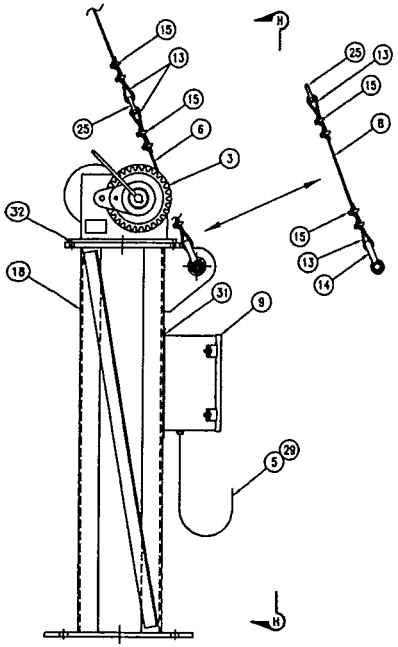
VIEW "D"–"D"



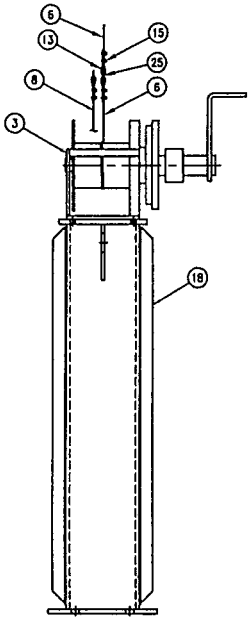
VIEW "E"–"E"



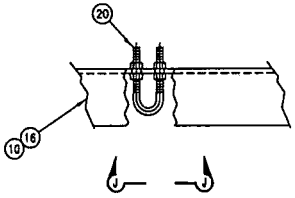
VIEW "F"–"F"



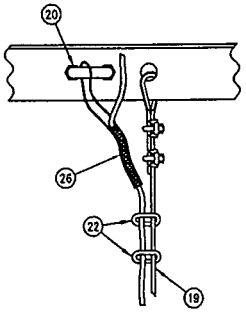
DETAIL "G"



VIEW "H"–"H"



VIEW "I"–"I"



VIEW "J"–"J"

	GENERAL ARRANGEMENT AIRCRAFT WARNING LIGHT LOWERING SYSTEM	DRAWN JKW	DATE 18APR
		CHK SL	APP SKS
		SCALE NTS	REV 0
	FOR QUOTE STANDARD	DRAWING NUMBER 8-0A-198 SHT. 3 O	

SHU RCF DexPro Stream Analysis - SIMULATION FOR DESIGN

	Mole Fraction	MW	Mole Frac X MW	Wt. Frac Total Stream	
Nitrogen	0.000843	28.02	0.024	0.000461	
Carbon Dioxide	0.5229	44.01	23.014	0.449684	
H_2S	0.0112	34.08	0.382	0.007466	
Methane	0.0070	16.04	0.113	0.002206	
Ethane	0.0082	30.07	0.245	0.004796	
Methanol	0.0189	32.04	6.05E-01	0.011819	
Propane	0.0450	44.09	1.98533	0.038793	
i-Butane	0.0298	58.12	1.72940	0.033792	
n-Butane	0.0968	58.12	5.62422	0.109896	
i-Pentane	0.0705	72.15	5.08500	0.099360	
n-Pentane	0.0528	72.15	3.80893	0.074426	
n-Hexane	0.0349	86.17	3.01116	0.058838	
n-Heptane	0.01072	100.21	1.07408	0.020987	
Benzene	6.0E-05	78.11	0.00466	0.000091	
Toluene	2.3E-04	92.14	0.02160	0.000422	
Ethylbenzene	1.6E-04	106.17	0.01680	0.000328	
Xylene	5.8E-04	106.17	0.06196	0.001211	
Other /Non-HAPs	2.9E-02	112.00	3.29100	0.064306	
Water	0.0600	18.00	1.08068	0.021116	
Total	1.0000		51.18	1.00	
					For Permitting:
VOC	**0.390**		**26.319**	**0.514**	**0.55**
H_2S	**0.0112**		**0.3821**	**0.0075**	**0.0080**
C6+	**0.0761**		**7.4812**	**0.1462**	

DexPro Stream

	Mole %
Nitrogen	0.0843
Carbon Dioxide	52.2919
H2S	1.1214
Methane	0.7037
Ethane	0.8163
Propane	4.5025
i-Butane	2.9756
n-Butane	9.6769
i-Pentane	7.0482
n-Pentane	5.2795
n-Hexane	3.4944
n-Heptane	1.0718
Methanol	1.8878
Water	6.0038
Black Oil @168.1 °F	1.1774
Black Oil @192.6 °F	0.7368
Black Oil @217.4 °F	0.4720
Black Oil @241.6 °F	0.2936
Black Oil @266.2 °F	0.1632
Black Oil @290.1 °F	0.0853
Black Oil @315.6 °F	0.0399
Black Oil @340.2 °F	0.0253
Black Oil @364.9 °F	0.0161
Black Oil @389.2 °F	0.0086
Black Oil @415.7 °F	0.0078
Black Oil @433.1 °F	0.0151
Black Oil @459.6 °F	6.14E-04
Black Oil @487.5 °F	1.92E-04
Black Oil @512.1 °F	1.01E-04
Black Oil @536.7 °F	5.42E-05
Black Oil @561.6 °F	2.97E-05
Black Oil @585.6 °F	1.44E-05
Black Oil @610.2 °F	6.32E-06
Black Oil @634.8 °F	2.75E-06
Black Oil @659.3 °F	1.18E-06
Black Oil @683.9 °F	5.23E-07
Black Oil @708.5 °F	2.19E-07
Black Oil @733.1 °F	9.49E-08
Black Oil @757.6 °F	4.61E-08
	100.0000
VOC	**38.9786**
H2S	1.1214
C6+	**7.6082**
$C6^+$ minus n-hexane and n-heptane	**3.042**

* **Hexanes +**

* **Hexanes +**

*** Total Hexanes +**
7.6082
Mole %

Total Hexanes+
minus n-hexane & n-heptane
3.0420
Mole %

SHU RCF - DexPro Stream C6$^+$ minus n-hexane and n-heptane - Speciation Based on NHU DexPro Extended Simulation Analysis

Mole Fraction C6$^+$ minus n-hexane and n-heptane **0.0304** - From SHU RCF Dexpro Stream Analysis - Simulation for Design

	NHU RCF/WIB mole frac. of C6$^+$ minus n-hexane & n-heptane		Speciation of SHU RCF DexPro Stream Hexanes$^+$ minus n-hexane & n-heptane	Calculated Mole frac	
Benzene	0.0020	Fractions based on NHU extended analysis →	**Benzene**	**6.0E-05**	(0.0304 x 0.0020)
Toluene	0.0077		**Toluene**	**2.3E-04**	(0.0304 x 0.0077)
Ethylbenzene	0.0052		**Ethylbenzene**	**1.6E-04**	(0.0304 x 0.0052)
Xylene	0.0192		**Xylene**	**5.8E-04**	(0.0304 x 0.0192)
non-HAPs	0.966		**non-HAPs**	**2.9E-02**	(0.0304 x 0.966)
	1.00			**0.0304**	

NHU RCF - DexPro Condensate /Water Stream - Used to speciate $C6^+$ minus n-hexane and n-heptane

	Mole %	MW	Mole Frac X MW	Wt. Frac Total Stream		Wt Frac of $C6^+$ minus n-hexane & n-heptane	(Normalized)
Nitrogen	0.0572765	28.02	0.0160	0.0003			
Carbon Dioxide	21.8477	44.01	9.6152	0.1818			
Hydrogen Sulfide	0.771879	34.08	0.2631	**0.0050**			
Oxygen	0.0014471	16	0.0002	0.0000			
Helium-4	0.00066998	4	0.0000	0.0000			
Methane	0.965253	16.04	0.1548	0.0029			
Ethane	0.893859	30	0.2682	0.0051			
Propane	3.79486	44	1.6697	0.0316			
i-Butane	1.26823	58.12	0.7371	0.0139			
n-Butane	4.11133	58.12	2.3895	0.0452			
i-Pentane	4.02746	72.15	2.9058	0.0549			
n-Pentane	4.60689	72.15	3.3239	0.0629			
2,2-Dimethylbutane	0.0825047	70	0.0578	0.0011		0.0027	
2-Methylpentane	2.75353	86	2.3680	0.0448		0.1126	
Cyclopentane	0.610394	70	0.4273	0.0081		0.0203	
3-Methylpentane	1.96153	86	1.6869	0.0319		0.0802	
n-Hexane	**4.04126**	**86**	**3.4755**	**0.06572**	**n-Hexane**		
Benzene	**0.0527997**	**78.11**	**0.0412**	**0.00078**	**Benzene**	0.0020	**0.0020**
Cyclohexane	1.89517	84	1.5919	0.0301		0.0757	
Methylcyclopentane	2.14359	98	2.1007	0.0397		0.0999	
3,3-Dimethylpentane	0.0396579	100.205	0.0397	0.0008		0.0019	
2-Methylhexane	0.772122	100.2	0.7737	0.0146		0.0368	
2,3-Dimethylpentane	0.451454	100.205	0.4524	0.0086		0.0215	
1,1-Dimethylcyclopentane	1.21127	98.189	1.1893	0.0225		0.0566	
1,t-3-Dimethylcyclopentane	0.522537	98.189	0.5131	0.0097		0.0244	
1,c-3-Dimethylcyclopentane	0.51079	98.189	0.5015	0.0095		0.0239	
1,t-2-Dimethylcyclopentane	0.485922	98.189	0.4771	0.0090		0.0227	
n-Heptane	**1.34236**	**100.21**	**1.3452**	**0.0254**	**n-Heptane**		
Methylcyclohexane	1.67561	98.186	1.6452	0.0311		0.0782	
Toluene	**0.175849**	**92.14**	**0.1620**	**0.0031**	**Toluene**	0.0077	**0.0077**
Cycloheptane	0.00882833	98.189	0.0087	0.0002		0.0004	
2,5-Dimethylhexane	0.0170906	114.23	0.0195	0.0004		0.0009	
2,4-Dimethylhexane	0.298234	114.23	0.3407	0.0064		0.0162	
3,3-Dimethylhexane	0.0765406	114.23	0.0874	0.0017		0.0042	
1,t-2,c-3-Trimethylcyclopentane	0.10684	112.216	0.1199	0.0023		0.0057	
1,c-2,t-4-Trimethylcyclopentane	0.259404	112.216	0.2911	0.0055		0.0138	
2-Methylheptane	3.10058	114.23	3.5418	0.0670		0.1684	
3,4-Dimethylhexane	0.0279432	114.23	0.0319	0.0006		0.0015	
1,trans-2-Dimethylcyclohexane	0.200264	112.21	0.2247	0.0042		0.0107	
1,c-2-Dimethylcyclohexane	0.331572	112.21	0.3721	0.0070		0.0177	
1-Methyl-1-Ethylcyclopentane	0.10351	112.21	0.1161	0.0022		0.0055	
n-Octane	0.300507	114	0.3426	0.0065		0.0163	
1,t-3-Dimethylcyclohexane	0.0352798	112.21	0.0396	0.0007		0.0019	
1,c-3-Dimethylcyclohexane	0.0503845	112.21	0.0565	0.0011		0.0027	
Ethylcyclohexane	0.142969	98.186	0.1404	0.0027		0.0067	
Ethylbenzene	**0.10301**	**106.17**	**0.1094**	**0.0021**	**Ethylbenzene**	0.0052	**0.0052**
m-Xylene	**0.337464**	**106.17**	**0.3583**	**0.0068**	**m-Xylene**	0.017	**0.0170**
o-Xylene	**0.0424846**	**106.17**	**0.0451**	**0.0009**	**o-Xylene**	0.0021	**0.0021**
Cyclooctane	0.00915406	112.21	0.0103	0.0002		0.0005	
n-Nonane	0.386754	128	0.4950	0.0094		0.0235	
n-Decane	0.145475	152	0.2211	0.0042		0.0105	
n-Undecane	0.00636556	152	0.0097	0.0002		0.0005	
n-Dodecane	0.00241245	152	0.0037	0.0001		0.0002	
n-Tridecane	0.00258625	152	0.0039	0.0001		0.0002	
n-Tetradecane	0.00224191	152	0.0034	0.0001		0.0002	
TEG	0	0	0.0000	0.0000			
Methanol	1.18875	30	0.3566	0.0067			
Water	29.6347	18	5.3342	0.1009			
Oil C7+	0.00348224	198	0.0069	0.0001		0.0003	
Total	100.00		52.88	1.00		1.0000	
VOC	45.83		37.23	0.70			
$C6^+$	26.83		25.85	0.49			
$C6^+$ less n-hexane & n-heptane	→		**21.03**			**0.034**	**$C6^+$ HAPS excluding hexane**
						0.9659	**Other $C6^+$ non-HAPs**
						1.000	

South Hobbs Unit - RCF
INLET GAS STREAM COMPOSITION FROM SIMULATION FOR DESIGN

		Inlet Gas Compostion			THC (mol frac x mw)	Wt. frac. of THC *
Composition		mole frac.	mole frac. x MW	wt. frac		
Nitrogen		0.015	0.426	0.010		
CO2		0.836	36.801	0.87		
H2S		0.013	0.443	0.0104		
H2O		-	-	-		
Methane		0.068	1.088	0.026	1.09	0.230
Ethane		0.013	0.390	0.009	0.39	0.082
Propane		0.024	1.052	0.025	1.05	0.222
i-Butane		0.0050	0.291	0.0069	0.29	0.061
n-Butane		0.012	0.692	0.016	0.69	0.146
i-Pentane		0.0040	0.289	0.0068	0.29	0.061
n-Pentane		0.0040	0.289	0.0068	0.29	0.061
Cyclopentane		-	-	-		
C6+ (listed below)	0.0060					
n-Hexane		0.0010	0.089	0.0021	0.09	0.019
Benzene		7.8E-06	6.1E-04	1.4E-05	6.1E-04	1.3E-04
Toluene		1.9E-05	0.0018	4.2E-05	1.8E-03	3.8E-04
E-Benzene		5.8E-06	6.1E-04	1.4E-05	6.1E-04	1.3E-04
Xylenes		1.9E-05	0.0020	4.7E-05	2.0E-03	4.2E-04
Other/non-HAPs		0.0049	0.5504	1.3E-02	5.5E-01	0.116
Total		**1.00**	**42.40**	**1.00**	4.733	1.00
VOC		0.055	3.26	0.077	3.26	**0.688**
H2S		0.013	0.44	0.0104	0.44	**0.0936**

* Using the weight fractions of total hydrocarbons vs. the weight fractions of the total inlet gas stream over-predicts VOC, H_2S and HAP constituents. Therefore, "general" fugitive emissions estimates for the SHU RCF are conservative.

SHU RCF - INLET GAS STREAM COMPOSITION FROM SIMULATION FOR DESIGN

Analysis - SHU RCF Flare	Mole frac.	Mole frac.	Mol Wt.	Mole Frac x MW	Wt %	Wt frac.
Nitrogen		0.015	28.02	0.43	1.00	0.010
Carbon dioxide		0.836	44.01	36.80	86.78	0.87
Hydrogen Sulfide		0.013	34.08	0.44	1.04	0.0104
Methane		0.068	16.04	1.09	2.56	0.026
Ethane		0.013	30.07	0.39	0.92	0.0092
Propane		0.024	44.09	1.05	2.49	0.025
Isobutane		0.005	58.12	0.29	0.69	0.0069
n-Butane		0.012	58.12	0.69	1.63	0.016
Isopentane		0.0040	72.15	0.29	0.68	0.0068
n-Pentane		0.0040	72.15	0.29	0.68	0.0068
Hexanes +	**0.0060**					
n-Hexane		0.0010	86.17	0.089	0.21	0.0021
Benzene	C6+ fractions are based on NHU extended analysis	7.8E-06	78.11	6.1E-04	0.0014	1.4E-05
Toluene		1.9E-05	92.14	1.8E-03	0.0042	4.2E-05
Ethylbenzene		5.8E-06	106.17	6.1E-04	0.0014	1.4E-05
Xylene		1.9E-05	106.17	2.0E-03	0.0047	4.7E-05
Other /Non-HAPs		0.0049	112.00	0.55	1.30	0.0130
[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
		1.0000		**42.41**	100.000	1.000
VOC (C3+)		0.055			**7.7**	**0.077**
VOC (C3+)		**0.060**	-increased for permitting		**8.0**	**0.080**
H2S		0.013			**1.04**	**0.0104**
Hexanes+		**0.0060**			1.52	0.015

VOC Mole % Normalized	Mol Wt.	VOC MWi	Wt %
0.44	44.09	19.23	33.67
0.09	58.12	5.30	9.28
0.22	58.12	12.62	22.09
0.073	72.15	5.27	9.22
0.073	72.15	5.27	9.22
0.109	86.17	9.43	16.52
1.00		**57.12**	100.00
		58.00	-increased for permitting calcs
		6.53	scf/lb - VOC

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OIL STREAM COMPOSITION FROM SIMULATION FOR DESIGN

Parameter/Stream Name	Oil to LACT Unit						
	mole frac.	MW	Mole frac. x MW	Wt. Frac. of Total Stream	THC mol frac x MW	**Wt. Frac. of THC ***
Nitrogen	6.1E-08	28	0.0	0.00		
CO2	0.010	44	0.4	0.00		
H2S	0.0014	34	0.049	3.0E-04		**0.049**
H2O	5.2E-04	18	0.009	5.7E-05		
Methane	1.3E-06	16	2.1E-05	1.3E-07	1.3E-07	
Ethane	3.4E-05	30	0.001	6.2E-06	6.2E-06	
Propane	1.9E-03	44	0.1	5.2E-04	5.2E-04	
i-Butane	3.7E-03	58	0.2	0.0013	0.0013	
n-Butane	0.018	58	1.1	0.0064	0.0064	
i-Pentane	0.030	72	2.1	0.013	0.013	
n-Pentane	0.046	72	3.3	0.020	0.020	
Cyclopentane	0.002	70	0.1	8.0E-04	8.0E-04	
n-Hexane	0.178	86	15.3	0.093	0.093	**0.093**
2-Mpentane	0.0064	86	0.5	0.00	0.00	
3-Mpentane	0.0049	86	0.4	0.00	0.00	
Mcyclopentan	0.0084	84	0.7	0.00	0.00	
Benzene	0.017	78	1.3	0.0081	0.0081	**0.0081**
Cyclohexane	0.009	84	0.7	0.0045	0.0045	
2-Mhexane	0.004	86	0.4	0.0023	0.0023	
3-Mhexane	0.006	86	0.5	0.0032	0.0032	
n-Heptane	0.019	86	1.6	0.0099	0.0099	
Mcyclohexane	0.017	98	1.6	0.0099	0.0099	
Toluene	0.018	92	1.7	0.010	0.010	**0.010**
n-Octane	0.061	114	7.0	0.04	0.04	
E-Benzene	0.014	106	1.5	0.0091	0.0091	**0.0092**
o-Xylene	0.0092	106	1.0	0.0059	0.0059	**0.0060**
n-Nonane	0.052	128	6.7	0.0407	0.0407	
n-Decane	0.046	152	7.0	0.0425	0.0425	
n-C11	0.029	170	4.9	0.0298	0.0298	
n-C12	0.023	156	3.6	0.0221	0.0221	
n-C13	0.024	184	4.4	0.0265	0.0265	
n-C14	0.021	198	4.2	0.0254	0.0254	
n-C15	0.017	198	3.4	0.0210	0.0210	
n-C16	0.010	210	2.1	0.0131	0.0131	
n-C17	0.0072	223	1.6	0.0098	0.0098	
n-C18	0.0059	236	1.4	0.0085	0.0085	
n-C19	0.0048	249	1.2	0.0072	0.0072	
n-C20	0.0031	262	0.8	0.0049	0.0049	
n-C21	-	300	0.0	0.0000	0.0000	
Produced Oil @ 663.3F*	0.027	300	8.2	0.0499	0.0499	
Produced Oil @ 687.7*	0.036	300	10.7	0.0651	0.0651	
Produced Oil @ 712.3 F*	0.042	300	12.6	0.0766	0.0766	
Produced Oil @ 741.1 F*	0.166	300	49.8	0.3031	0.3031	
	1.000		164.4	1.00	1.00	

Total HAPs
0.13

* Using the weight fraction of total hydrocarbons vs. weight fraction of the total stream is conservate (over-estimates) stream constituents.

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

Equipment Type	Service[a]	Emission Factor (kg/hr/source)[b]	conversion lb/hr/source
Valves	Gas	4.5E-03	9.92×10^{-3}
	Heavy Oil	8.4E-06	18.5×10^{-6}
	Light Oil	2.5E-03	5.5×10^{-3}
	Water/Oil	9.8E-05	2.16×10^{-4}
Pump seals[c]	Gas	2.4E-03	5.29×10^{-3}
	Heavy Oil	NA	
	Light Oil	1.3E-02	2.866×10^{-2}
	Water/Oil	2.4E-05	5.29×10^{-5}
Others[c]	Gas	8.8E-03	19.4×10^{-3}
	Heavy Oil	3.2E-05	7.1×10^{-5}
	Light Oil	7.5E-03	1.65×10^{-2}
	Water/Oil	1.4E-02	3.09×10^{-2}
Connectors	Gas	2.0E-04	4.4×10^{-4}
	Heavy Oil	7.5E-06	1.65×10^{-5}
	Light Oil	2.1E-04	4.63×10^{-4}
	Water/Oil	1.1E-04	2.43×10^{-4}
Flanges	Gas	3.9E-04	8.6×10^{-4}
	Heavy Oil	3.9E-07	8.6×10^{-7}
	Light Oil	1.1E-04	2.43×10^{-4}
	Water/Oil	2.9E-06	6.39×10^{-6}
Open-ended lines	Gas	2.0E-03	4.41×10^{-3}
	Heavy Oil	1.4E-04	3.09×10^{-4}
	Light Oil	1.4E-03	3.09×10^{-3}
	Water/Oil	2.5E-04	5.51×10^{-4}

[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.

Source: US EPA Document 453/R-95-017, "Protocol for Equipment Leak Emission Estimates," Table 2-4, 11/1995.

Fabricated Equipment - Tanks

Data Sheet - Page 1

Company:	Oxy Permian
Location:	Hobbs, New Mexico
Facility:	NHU Dexpro
Service:	Methanol Storage

Date		Operations Mgr:		Approval ☑	Item No.:
Revision	1	Facility Engr:		Review ☐	Serial No.:
Pages	2	Project Engr:		Information ☐	Manuf.:

Tank Type: ☑ API 12F (90-1000 bbls.) ☐ API 12D (500-10,000 bbls.) ☐ API 12P (Fiberglass)

Tank Size: Diameter: 15'-6" Height: 16'-0" Capacity: 500 No. Req'd: 2

Bottom Type: API 12D: ☑ Flat ☐ Type A (cone)
API 12F: ☐ Flat ☐ Type A (w/o skirt) ☐ Type B (w/skirt)
API 12P: ☐ Flat ☐ Type A (cone)

Plate Thickness: Bottom: ☑ 1/4" ☐ 5/16" ☐ 3/8"
Shell: ☐ 3/16" ☑ 1/4" ☐ 5/16"
Roof: ☐ 3/16" ☑ 1/4" ☐ 5/16" For API 12D: Frangible Deck: ☐ YES ☐ NO

Rafters (If required): ☐ Internal ☐ External Seal Weld Rafters: ☐ YES ☐ NO

Downcomer Pipe: ☐ YES ☑ NO Size:

Platform Lugs: ☑ YES ☐ NO

Platform Required: ☐ YES ☑ NO Length: ft. in.

Stairway Required: ☐ YES ☑ NO Ladder Required ☐ YES ☑ NO

Lift Lugs: ☑ YES ☐ NO

Thief Hatch Required: ☑ YES ☐ NO Mfr. Model No.

Operating Settings: Pressure (oz./sq. in.): 3.5 Vacuum (oz/sq in.): 1

Plastic Trim: ☐ YES ☑ NO

Cleanout Cover Plate: ☑ 1 Piece ☐ 2 Piece Handles on Cover Plate: ☑ YES ☐ NO

Std. API Connections: ☐ YES ☑ NO Other Connections (Use Page 2)

Nozzle Type: ☑ Flanged ☐ Grooved ☐ Other

Viscous Oil Option: ☐ YES ☑ NO

Heating Coils: ☐ YES ☑ NO

Cooling Coils: ☐ YES ☑ NO

Insulation Rings: ☐ YES ☑ NO

Insulation Clips: ☐ YES ☑ NO

NOTE: NOZZLE LOCATIONS TO FOLLOW API 12F STANDARDS

Seal Weld & Grind Smooth Internal Welds: ☐ YES ☑ NO

Coatings (Applied By): ☑ Supplier ☐ Others

Coating System: ☐ Manufacturer's Std. ☑ Other Oxy Std.

	Interior	Exterior	Underside of Bottom
Bottom	SPEC	SPEC	
Shell	SPEC	SPEC	
Roof	SPEC	SPEC	
Roof Framing	SPEC	SPEC	

Platform, Stairs, Ladder (if Req'd)

For API 12D Tanks: Erection on: ☐ Permanent Foundation ☐ Temporary Pad

Walkway/Stairway/Ladder Arrangement Drawing

Plot Plan

NO.	DATE	REVISION	BY	APP.
0	4/6/17	ISSUED FOR QUOTATION	RTG	JDB

Yawe's Vapor Pressure Data
Organic Compounds

A, B, C, D, and E - regression coefficients for chemical compound
T - temperature, K
TMIN - minimum temperature, K
TMAX - maximum temperature, K

$$\log_{10} P = A + B/T + C \log_{10} T + D T + E T^2 \qquad \text{(P - mm Hg, T - K)}$$

Compound	CAS	Temp F	Temp (K)	VP (mmHg)	VP (psia)	Tmin	Tmax	A	B	C	D	E
Methanol (CAS 67-56-1)												
METHANOL (MAXIUM LIQ TEMP)	**530.45 R**	**70.78**	**294.69**	**104.86**	**2.03E+00**	**175.47**	**512.58**	**45.6171**	**-3.2447E+03**	**-1.3988E+01**	**6.6365E-03**	**##########**
METHANOL (MINIMUM LIQ TEMP)	**515.40 R**	**55.73**	**286.33**	**65.84**	**1.27E+00**	**175.47**	**512.58**	**45.6171**	**-3.2447E+03**	**-1.3988E+01**	**6.6365E-03**	**##########**
METHANOL (AVG LIQ TEMP)	**522.93 R**	**63.26**	**290.52**	**83.46**	**1.61E+00**	**175.47**	**512.58**	**45.6171**	**-3.2447E+03**	**-1.3988E+01**	**6.6365E-03**	**##########**

Alternate Method Onlne resource: Antoine Equation Used:
http://ddbonline.ddbst.com/AntoineCalculation/AntoineCalculationCGI.exe

Input 294.6944 K; vapor pressure = 14.0997 kPA = 2.04 psi

Reference Conversions

1 kPA = 0.145038 psi
1 psi = 6.894744825 kPa

	kPA	PSI
NSPS Kb threshold	15.0	**2.18**

Methanol Tank - Liquid Surface Temperatures - Temperature conversion worksheet

	R	C	K	F	Kel to Rankin K	Kel to Rankin R
Max	**530.45**	21.54	**294.69444**	70.78	**294.6944**	**530.45**
Min	**515.40**	13.18	**286.33333**	55.73	**286.3333**	**515.40**
Avg	**522.93**	17.37	**290.51667**	63.26	**290.5167**	**522.93**

Air Permit Reviewer Reference Guide

APDG 6250

Estimating Short Term Emission Rates from Tanks

Air Permits Division
Texas Commission on Environmental Quality

Estimating Short Term Emission Rates from Fixed Roof Tanks

Scope

The goal of this document is to provide a methodology to calculate the worst case short term emissions from a vertical fixed roof tank (VFR tank). All calculations and derivations for short term emissions also apply to horizontal tanks. However, this calculation methodology does not apply to pressure vessels capable of handling 29.72 psia or greater, constant level or "surge" tanks (i.e., tanks that have inflow and outflow at the same time), and certain cases where a tank contains mixed phase materials (i.e., water with dense non aqueous phase liquid or crude with dissolved methane) or may otherwise have flash emissions.

Calculation Procedure

Emission from loading a VFR tank should be calculated using Equation 1:

Equation 1

$$L_{MAX} = \frac{M_V \times P_{VA}}{R \times T} \times FR_M$$ **Equation 1**

- MV (lb/lbmol) is the vapor molecular weight of the VOC
- PVA (psia) is the vapor pressure of the tank contents at the worst case temperature
- FRM (gal/hr) is the maximum filling rate
- R ((Psia × gal)/(lbmol × °R)) is the ideal gas constant (80.273 for the selected units)
- T (Rankine) is the worst case liquid surface temperature. It is TCEQ practice to use either 95°F (554.67°R) or the actual temperature, whichever is higher

Using these units in Equation 1 gives emissions as a lb/hr rate.

Engineering Derivation

This section derives and explains Equation 1 listed above. Working losses are emissions of VOC that occur during the filling of a VFR tank. In an atmospheric vessel with fixed volume, a rising liquid level causes the displacement of vapors between the liquid surface and the vessel roof (the "headspace"). Emissions can be calculated by taking note of the fact that the total tank volume (liquid volume plus headspace) is a constant, and writing down its derivative, as is done in Equation 3.

$$V_{LIQUID} + V_{HEADSPACE} = Constant$$ **Equation 2**

$$\frac{d}{dt}V_{LIQUID} + \frac{d}{dt}V_{HEADSPACE} = 0$$ **Equation 3**

The rate at which the tank liquid volume increases (the derivative of VLIQUID with respect to time) is equal to its filling rate, FR, and the rate at which the headspace volume decreases (the derivative of VHEADSPACE with respect to time) is equal to the volumetric emission rate, ERVOL. Substituting and rearranging Equation 3, we have:

Equation 4

$$FR = ER_{VOL}$$

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	

See attached.

32°40'40.89" N, 103°09'35.36" W WGS84 1979 Hobbs West, NM

670000m E. 671000m E. 672000m E. 673000m E. 674000m E. WGS84 Zone 13S 675000m E.

36 21000m N. 36 20000m N. 36 19000m N. 36 18000m N. 36 17000m N. 36 16000m N. 36 15000m N. 36 14000m N. 36 13000m N.

COUNTY ROAD 65
COUNTY ROAD 65 WEST
COUNTY ROAD BYP
W CAIN ST
W BERRY DR
W MACKENZIE DR
N PENNINGTON DR
N GULF ST
W LEA ST
N COLEMAN ST
N BURK ST
N CECIL ST
Bensing Park
Humble Park
E PERMIAN DR
E GREEN ACRES DR
E YUCCA DR
COUNTY HWY 65
N COCHRAN ST
N HOUSTON ST
N DAL PASO ST
E LEA ST
W SCHARBAUER ST
N LEECH ST
N THORP ST
N LINAM ST
N SHIPP ST
N DALMONT ST
N FOWLER ST
N MCKINLEY ST
N SELMAN ST
N MORRIS ST
E CAIN ST
W TAYLOR ST
Houston Jr High
W BROADWAY PL
W BROADWAY ST
E BROADWAY ST
W DUNNAM ST
E DUNNAM ST
W WHITE ST
E WHITE ST
W BYERS ST
E BYERS ST
W MARLAND ST
E MARLAND ST
62
Trailer Park
Oil Well
Faith Chapel
Bender Park
Gravel Pit
SOUTHWEST COUNTY RD
S ASHER RD
S GIBBS ST
W HUMBLE ST
S RASH ST
COUNTY ROAD 57
WT
Refinery
W MIDWEST ST
W TEXAS ST
Radio Towers
Gravel Pits
S COLEMAN ST
S CECIL ST
COUNTY HWY 61
W MAIN ST
S LEECH ST
S COCHRAN ST
S THORP ST
S LINAM ST
S SHIPP ST
S TURNER ST
S DALMONT ST
S FOWLER ST
S MCKINLEY ST
S HOUSTON ST
S MORRIS ST
S DAL PASO ST
S 1ST ST
S FARQUHAR ST
S JEFFERSON ST
S AVENUE A
S AVENUE B
S HANNAH RD
W TEXAS ST
E TEXAS ST
Southern Heights Sch
S PERRY DR
E TEMPLE AVE
W PALACE AVE
W CASTLE AVE
E PALACE AVE
18
Heizer
COUNTY HWY 62
Substa
Heizer Jr High Sch
E WOOLSEY LN
Well
Gravel Pit
1/2 MILE RADIUS
OCCIDENTAL PERMIAN, LTD.
SOUTH HOBBS UNIT REINJECTION COMPRESSION FACILITY
SOUTHWEST BYP
SOUTH BYP
PIPELINE
Drill Hole
Wells
Pumping Sta
COUNTY ROAD 61
CODY ST
S EUNICE HWY
TEXAS-NEW MEXICO
WRIGHT W
DR
Map created with TOPO! ©2008 National Geographic; ©2007 Tele Atlas; Rel. 1/2007

NATIONAL GEOGRAPHIC

0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km

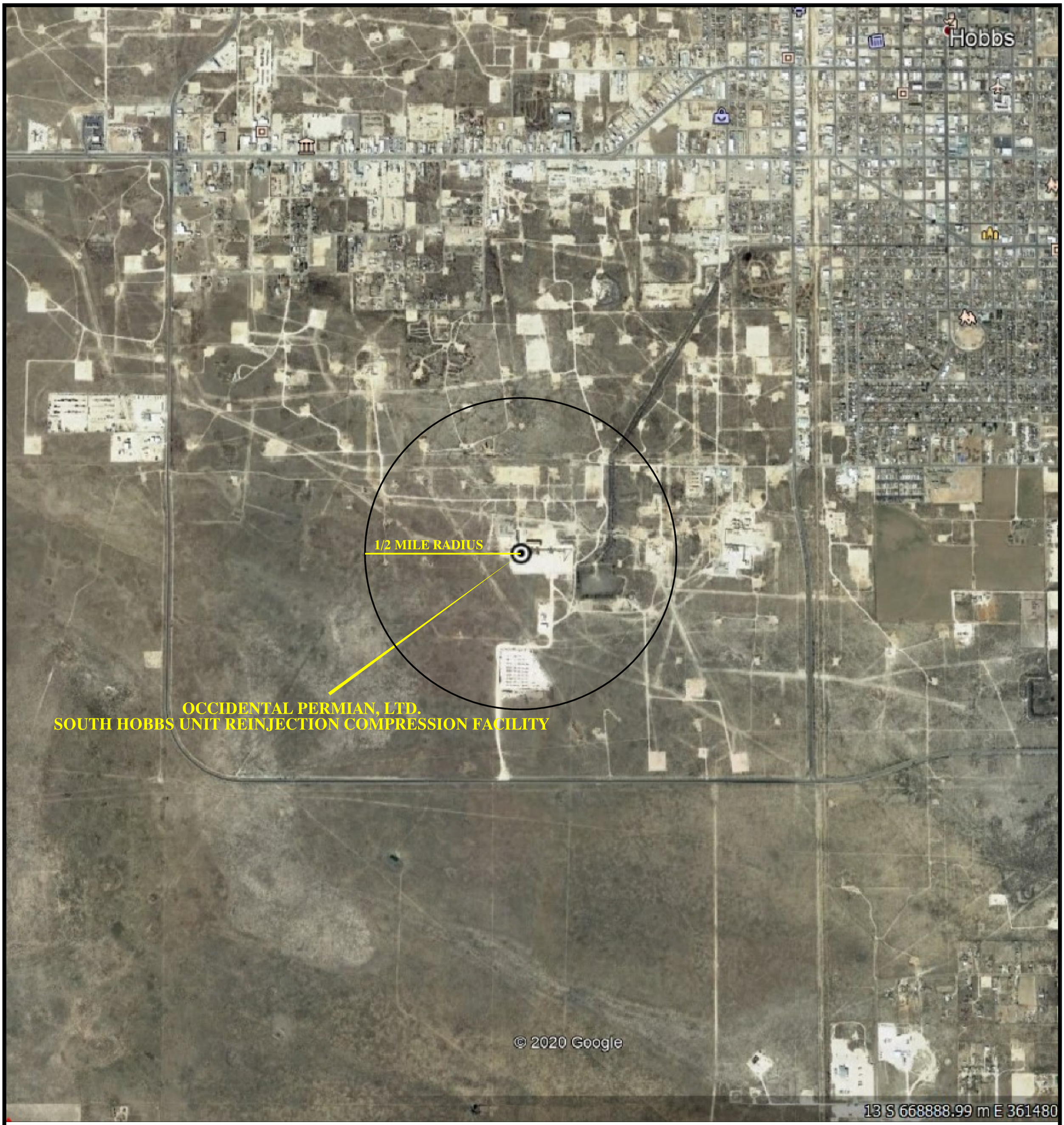
NEW MEXICO

WAID ENVIROMENTAL

OPL14312\AREAMAP.DWG

TN MN 6½°

10/13/20



TRUE NORTH

32°40'40.89" N 103°9'35.36" W WGS84
QUADRANGLE Hobbs West, NM
NEW MEXICOE - HOBBS

0 1000 FT. 2000 FT.

1 1/2 0 1 MILE

NEW MEXICO

WAID ENVIROMENTAL

OPL14312\AERIALAREAMAP.DWG

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 South Hobbs Unit Reinjection Compression Facility (SHU RCF) is a gas compression facility that supports the SHU CO_2 injection project. The primary objective is to utilize miscible CO_2 injection to increase the amount of recoverable oil reserves in the SHU reservoir. The SHU RCF will receive CO_2 gas from the field for processing. The gas will flow through an inlet slug catcher to separate free water and hydrocarbon. Then the gas flows to a glycol dehydration unit (DEHY) to remove water or to the DexPro™ system to remove water and hydrocarbon condensate, which will flow to the Central Tank Battery. The Dehy unit is enclosed and all vapors will be recovered with a vapor recovery unit (VRU) and directed back to the Central Tank Battery. A second (back-up) VRU will be utilized during VRU maintenance related activities and if both VRUs are down, emissions will be routed to the RCF Flare. A natural gas-fired Dehy re-boiler unit is a minor source of combustion product emissions.

Gas that enters the DexPro™ dehydration skid, is first cooled by a gas/liquid shell and tube heat exchanger, then cooled further by a gas/gas heat exchanger. The gas then enters a static mixer where it mixes with dry high pressure CO_2 that flows off the final stage of compression through a Joule-Thompson (JT) valve. This cools the gas down causing water and hydrocarbon condensate to drop out in the Low Temperature Separator (LTS). The condensate/water mixture flows to the Central Tank Battery for separation. The dry cold gas off the top of the low temperature separator exchanges with the inlet gas in the gas/gas heat exchanger and then travels to the first stage suction scrubber.

Methanol is injected just upstream of the DexPro™ mixer in order to prevent hydrate formation when the high pressure gas is expanded over the JT-valve from approximately 1500 psig to approximately 300 psig. Several pumps are used to boost pressure in the system and to provide the pressure needed for injection. There are no air emissions from the DexPro™ dehydration process other than fugitive emissions from piping components and upset events.

From the glycol dehydrator and DexPro™, gases are brought into the first stage, second stage, and eventually third stage suction scrubbers, three (3) electric compressors and discharge coolers. The compressors will be equipped with an upset bypass that diverts the gases to the flare knockout and then to the flare if necessary. The processed and compressed CO_2 gas will be transported from the SHU RCF to the SHU field via pipeline. Liquids collected from the flare knockout drum and/or scrubber liquids will be pumped to the SHU Central Tank Battery

Rain water and compressor skid wash water will be collected and stored in two 500-bbl open drain tanks.

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)**:**
- See Table 2.A

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

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

■ **Yes** □ **No**

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

■ **Yes** □ **No**

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

□ **Yes** ■ **No**

C. Make a determination:

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

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

Section 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/

Table for STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	No		Applicable requirements were met under NSR 5418-M1.
20.2.7 NMAC	Excess Emissions	Yes	Facility	If subject, this would normally apply to the entire facility. If your entire facility or individual pieces of equipment are subject to emissions limits in a permit or numerical emissions standards in a federal or state regulation, this applies. This would not apply to Notices of Intent since these are not permits.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No		This regulation does not apply. This facility has new gas burning equipment having a heat input of less than 1,000,000 million British Thermal Units per year per unit. Note: "New gas burning equipment" means gas burning equipment, the construction or modification of which is commenced after February 17, 1972.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No		This regulation does not apply.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No		This regulation does not apply. A Sulfur Recovery Unit is not used to reduce sulfur emissions.
20.2.37 and 20.2.36 NMAC	Petroleum Processing Facilities and Petroleum Refineries	N/A	N/A	**These regulations were repealed by the Environmental Improvement Board. If you had equipment subject to 20.2.37 NMAC before the repeal, your combustion emission sources are now subject to 20.2.61 NMAC.**
20.2.38 NMAC	Hydrocarbon Storage Facility	No		This regulation does not apply.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No		This regulation does not apply.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	REBOILER RCF-FLARE	This regulation that limits opacity to 20% applies to Stationary Combustion Equipment, such as engines, boilers, heaters, and flares unless your equipment is subject to another state regulation that limits particulate matter such as 20.2.19 NMAC (see 20.2.61.109 NMAC). **If equipment at your facility was subject to the repealed regulation 20.2.37 NMAC it is now subject to 20.2.61 NMAC.**
20.2.70 NMAC	Operating Permits	Yes	Facility	Applies if your facility's potential to emit (PTE) is 100 tpy or more of any regulated air pollutant other than HAPs; and/or a HAPs PTE of 10 tpy or more for a single HAP or 25 or more tpy for combined HAPs; is subject to a 20.2.79 NMAC nonattainment permit; or is a facility subject to a federal regulation that requires you to obtain a Title V permit such as landfills or air curtain incinerators. Include both stack and fugitive emissions to determine the HAP's PTE regardless of the facility type. If your facility is one of those listed at 20.2.70.7(2)(a) through (aa) state which source type your facility is and count both fugitive and stack emissions to determine your PTE. If your facility is not in this (a) through (aa) list, count only stack emissions to determine your PTE.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	If subject to 20.2.70 NMAC and your permit includes numerical ton per year emission limits, you are subject to 20.2.71 NMAC and normally applies to the entire facility.
20.2.72 NMAC	Construction Permits	Yes	Facility	Could apply if your facility's potential emission rate (PER) is greater than 10 pph or greater than 25 tpy for any pollutant subject to a state or federal ambient air quality standard (does not include VOCs or HAPs); if the PER of lead is 5 tpy or more; if your facility is subject to 20.2.72.400 NMAC; or if you have equipment subject to 40 CFR 60 Subparts I and OOO, 40 CFR 61 Subparts C and D. Include both stack and fugitive emissions to determine PER.

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION: (You may delete instructions or statements that do not apply in the justification column to shorten the document.)
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	**A Notice of Intent application 20.2.73.200 NMAC** could apply if your facility's PER of any regulated air pollutant, including VOCs and HAPs, is 10 tpy or more or if you have lead emissions of 1 tpy or more. Include both fugitive and stack emissions to determine your PER. You could be required to submit **Emissions Inventory Reporting per** 20.2.73.300 NMAC if your facility is subject to 20.2.73.200, 20.2.72, or emits more than 1 ton of lead or 10 tons of PM10, PM2.5, SOx, NOx CO, or VOCs in any calendar year. All facilities that are a Title V Major Source as defined at 20.2.70.7.R NMAC, are subject to Emissions Inventory Reporting.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	Facility	This regulation does not apply.
20.2.75 NMAC	Construction Permit Fees	No	Facility	This regulation does not apply.
20.2.77 NMAC	New Source Performance	Yes	Units subject to 40 CFR 60	This is a stationary source which is subject to the requirements of 40 CFR Part 60.
20.2.78 NMAC	Emission Standards for HAPS	No		This facility does not emits hazardous air pollutants which are subject to the requirements of 40 CFR Part 61.
20.2.79 NMAC	Permits – Nonattainment Areas	No	Facility	This regulation does not apply.
20.2.80 NMAC	Stack Heights	No		This facility is constructed and has commenced operation in October 2015 per requirements designated under NSR 5418 and NSR 5418-M1.
20.2.82 NMAC	MACT Standards for source categories of HAPS	Yes	Units Subject to 40 CFR 63	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63.

Table for Applicable FEDERAL REGULATIONS

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	If subject, this would normally apply to the entire facility. This applies if you are subject to 20.2.70, 20.2.72, 20.2.74, and/or 20.2.79 NMAC.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Units subject to 40 CFR 60	Applies if any other Subpart in 40 CFR 60 applies.
NSPS 40 CFR60.40a, Subpart Da	Subpart Da, Performance Standards for **Electric Utility Steam Generating Units**	No		This regulation is not applicable.
NSPS 40 CFR60.40b Subpart Db	**Electric Utility Steam Generating Units**	No		This regulation is not applicable.
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	No		This regulation is not applicable.
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		This regulation is not applicable.
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	No		This regulation is not applicable. The new 500-bbl methanol tank is greater than or equal to 75 cubic meters (m^3) / [or 471.7 bbl] and is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. However, the vapor pressure of the methanol at its maximum liquid surface temperature is less than 15 KPa [or 2.18 psi] and thus the tank is exempt from NSPS Kb per §60.110b. §60.110b (b) This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m3 storing a liquid with a maximum true vapor pressure less than 3.5

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
	Commenced **After** July 23, 1984			kilopascals (kPa) or with a capacity greater than or equal to 75 m3 but less than 151 m3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa..
NSPS 40 CFR 60.330 Subpart GG	**Stationary Gas Turbines**	No		This regulation is not applicable.
NSPS 40 CFR 60, Subpart KKK	Leaks of VOC from **Onshore Gas Plants**	No		This regulation is not applicable.
NSPS 40 CFR Part 60 Subpart LLL	Standards of Performance for **Onshore Natural Gas Processing**: SO_2 Emissions	No		This regulation is not applicable.
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	Yes	2 Electric Reciprocating Compressors: RCF-ZZZ-2030 RCF-ZZZ-2230	Applies to two electric reciprocating injection compressors. Does not apply to VRU compressors RCF-ZZZ-1080 and RCF-ZZZ-1090 because they are screw compressors.
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Yes	1 Electric Reciprocating Compressors: RCF-ZZZ-2460	Applicable to new electric reciprocating injection compressor. Not applicable to DexPro Process The DexPro process does not include any equipment listed in 60.5365a, nor does it contain equipment within a **process unit** [60.5365a(f)] as defined below. Therefore, the DexPro process equipment including fugitive components is not an affected facility. To further clarify, the DexPro dehydration process does not utilize a dehydrator as defined in 60.5430a. The hydrocarbon condensate removed in the low temperature separator is the result of dry high pressure CO_2 that flows off the discharge of 2nd stage of compression through a Joule-Thompson (JT) valve. This cools the gas down causing water and hydrocarbon condensate to drop out in the low temperature separator. **Definitions - 60.5430a** **Process unit** means components assembled for the extraction of natural gas liquids from field gas, the fractionation of the liquids into natural gas products, or operations associated with processing of natural gas products. A process unit can operate independently if supplied with sufficient feed or raw material and sufficient storage facilities for the products.] **Dehydrator** means a device in which an absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column. **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. A Joule-Thompson valve, a dew point

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
				depression valve, or an isolated or standalone Joule-Thompson skid is not a natural gas processing plant.
NSPS 40 CFR 60 Subpart IIII	Standards of performance for Stationary Compression Ignition Internal Combustion Engines	No.		This regulation does not apply.
NSPS 40 CFR Part 60 Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	No		This regulation does not apply.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	No		See 60.5508
NSPS 40 CFR 60 Subpart UUUU	Emissions Guidelines for Greenhouse Gas Emissions and Compliance Times for Electric Utility Generating Units	No		See 60.5700
NSPS 40 CFR 60, Subparts WWW, XXX, Cc, and Cf	Standards of performance for Municipal Solid Waste (MSW) Landfills	No		See 60.30c, 60.30f, 60.750, and/or 60.760
NESHAP 40 CFR 61 Subpart A	General Provisions	No	Units Subject to 40 CFR 61	There are no applicable Subparts in 40 CFR 61 for this facility.
NESHAP 40 CFR 61 Subpart E	National Emission Standards for **Mercury**	No		The provisions of this subpart are applicable to those stationary sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge
NESHAP 40 CFR 61 Subpart V	National Emission Standards for **Equipment Leaks** (Fugitive Emission Sources)	**No**		There are no VHAPs regulated under this subpart at this facility.
MACT 40 CFR 63, Subpart A	General Provisions	Yes	DEHY	Applies if any other Subpart in 40 CFR 63 applies.
MACT 40 CFR 63.760 Subpart HH	**Oil and Natural Gas Production Facilities**	**Yes**	DEHY	The glycol dehydration unit (DEHY) does not have emissions to the atmosphere, however, the unit is an area source of HAPs subject to MACT HH, per 40 CFR 63.760(b)(2). There are no regulatory requirements under subpart HH except for recordkeeping per the exemption outlined in 40 CFR 63.764(e)(1)(ii). Actual emissions of benzene to the atmosphere are less than 0.9 megagram/year (~ 1 tpy). Records will be kept consistent with 63.772 (b)(2) to demonstrate there are zero emissions of benzene to the atmosphere due to 100% collection by redundant VRU's.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
MACT 40 CFR 63 Subpart HHH		No		This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271. **See link below** 40 CFR 63 Subpart HHH
MACT 40 CFR 63 Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Industrial, Commercial, and Institutional Boilers & Process Heaters	No		See 63.7480 EPA Guidance Page: https://www.epa.gov/boilers
MACT 40 CFR 63 Subpart UUUUU	National Emission Standards for Hazardous Air Pollutants Coal & Oil Fire Electric Utility Steam Generating Unit	No		See 63.9980 (known as the MATs rule) EPA Guidance Page: https://www.epa.gov/boilers
MACT 40 CFR 63 Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (**RICE MACT**)	No		See 63.6580 and EPA Region 1's Reciprocating Internal Combustion Guidance website.
40 CFR 64	**Compliance Assurance Monitoring**	Yes	RCF-FLARE	**Applies only to Title V Major Sources**
40 CFR 68	**Chemical Accident Prevention**	No		If subject, this would normally apply to the entire facility. An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under §68.115, See 40 CFR 68
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	No		See 40 CFR 72.6. This may apply if your facility generates commercial electric power or electric power for sale.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	No		See 40 CFR 73.2. This may apply if your facility generates commercial electric power or electric power for sale.
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	No		See 40 CFR 75.2. This may apply if your facility generates commercial electric power or electric power for sale.
Title IV – Acid Rain 40 CFR 76	**Acid Rain** Nitrogen Oxides **Emission Reduction Program**	No		See 40 CFR 76.1. This may apply if your facility generates commercial electric power or electric power for sale.
Title VI – 40 CFR 82	Protection of **Stratospheric Ozone**	No	N/A	EPA Guidance Page for 40 CFR 82: https://www.epa.gov/section608 40 CFR 82 may apply if you: **(40 CFR 82.1 and 82.100)** produce, transform, destroy, import or export a controlled substance or import or export a controlled product; **(40 CFR 82.30)** if you perform service on a motor vehicle for consideration when this service involves the refrigerant in the motor vehicle air conditioner; **(40 CFR 82.80)** if you are a department, agency, and instrumentality of the United States subject to Federal procurement requirements; **(82.150)** if you service, maintain, or repair appliances, dispose of appliances, refrigerant reclaimers, **if you are an owner or operator of an appliance**, if you are a manufacturer of appliances or of recycling and recovery equipment, if you are an approved recycling and recovery equipment testing organization, and/or if you sell or offer for sell or purchase class I or class I refrigerants. **Note:** Owners and operators of appliances subject to 40 CFR 82.150 Recycling and Emissions Reduction have recordkeeping and reporting requirements even if the owner/operator is not performing the actual work. **Note:** Disposal definition in 82.152: Disposal means the process leading to and including: (1) The discharge, deposit, dumping or placing of any discarded appliance into or on any land or water; (2) The disassembly of any appliance for discharge, deposit, dumping or placing of its discarded component parts into or on any land or water; or (3) The disassembly of any appliance for reuse of its component parts. “Major maintenance, service, or repair means” any maintenance, service, or repair that involves the removal of any or all of the following appliance components: compressor, condenser, evaporator, or auxiliary heat exchange coil; or any maintenance, service, or repair that involves uncovering an opening of more than four (4) square inches of “flow area” for more than 15 minutes.

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.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

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

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

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

There are no alternative operating scenarios to represent here.

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.

Not applicable.

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 http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are encouraged to submit both applications simultaneously.
* Any source in a source category designated by the EPA Administrator ("Administrator"), in whole or in part, by regulation, after notice and comment.

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

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

Compliance assurance monitoring (CAM) for the RCF flare will be conducted by monitoring total volume flared and applying the most recent inlet gas analyses. Permit P268-M1 includes provisions to accomplish this CAM at A800 and A801.

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 most recent Title V semi-annual report for the period ending April 30, 2020 detailed deviations from Permit 5418M1 or P268. Documentation of compliance status and a description of the methods used for determining compliance were included in the report. There have been no new requirements since that report was certified to change the compliance status.

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.

SHU RCF will continue to be in compliance with all permit requirements.

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.

Oxy will continue to provide annual compliance certifications.

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).

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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.) N/A

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.- **See 19.2 above.**

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. – **N/A**

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. – **N/A**

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. – **N/A**

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. – **N/A**

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

N/A

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.

N/A

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

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

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

Yes, Texas is located approximately 8 km from the site.

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC: Jim Richardson is the RO and his information is provided in section 1-H of form UA-1.

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.

There is no information to include here.

Section 22: Certification

Company Name: Occidental Permian, Ltd.

I, Jim Richardson, 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 30 day of October, 2020, upon my oath or affirmation, before a notary of the State of Texas.

Jim Richardson
*Signature

10/30/2020
Date

Jim Richardson
Printed Name

EOR Plant Director
Title

Scribed and sworn before me on this 30 day of October, 2020.

My authorization as a notary of the State of Texas expires on the 15 day of January, 2023.

Ashley L Chaney
Notary's Signature

10/30/2020
Date

Shelby Schoepf
Notary's Printed Name

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

NOTARY PUBLIC STATE OF TEXAS
SHELBY DIANE SCHOEPF
Notary Public, State of Texas
Comm. Expires 01-15-2023
Notary ID 131855045

Title V Report Certification Form

I. Report Type

☐ **Annual Compliance Certification**
☐ **Semi-Annual Monitoring Report**
☒ **Other Specify: Title V Permit Renewal**

II. Identifying Information

Facility Name: South Hobbs Unit Reinjection Compression Facility		
Facility Address: From intersection of N. Grimes and Hwy 62 in Hobbs, S on Grimes 0.6 miles then right on Stanolind Rd and drive 0.6 mi. Turn left on unnamed road 0.3 mile then left and 0.2 miles into site.	State: NM	Zip: 88240
Responsible Official (RO): Jim Richardson	Phone:806-229-9727	Fax:
RO Title: EOR Plant Director	RO e-mail: Jim_Richardson@oxy.com	
Permit No. P268-M1	Date Permit Issued: 01/17/2020	
Report Due Date (as required by the permit): 11/10/2020	Permit AI number: 33207	
Time period covered by this Report: From: N/A	To: N/A	

III. Certification of Truth, Accuracy, and Completeness

I am the Responsible Official indicated above. I, (name of Responsible Official) certify that I meet the requirements of 20.2.70.7.AD NMAC. I certify that, based on information and belief formed after reasonable inquiry, the statements and information contained in the attached Title V report are true, accurate, and complete.

Signature: Jim Richardson Date: 10/30/2020