eog resources

EOG Resources, Inc.
600 Seventeenth Street
Suite 1000N
Denver, CO 80202
Main: 303-572-9000
Fax: 303-824-5400

Reviewer Bno
cc:
Modeler
D.E.
File A0000307
IMP FID 26465

November 24, 2014

Attn: O&G Production Facilities
Wyoming Department of Environmental Quality
Air Quality Division
Herschler Building, 2-E
122 West 25th Street
Cheyenne, Wyoming 82002

RE: EOG Resources, Inc.
Air Permit Application – Jubilee 153-1034H, Jubilee 154-1034H, Jubilee 554-1034H, & Jubilee 555-1034H Facility
Laramie County, Wyoming

Dear WDEQ:

EOG Resources, Inc. (EOG) is submitting the enclosed Chapter 6 Section 2 (C6 S2) air permit application using the IMPACT Data System Forms. The air permit application is being submitted for Jubilee 151-1034H, Jubilee 152-1034H, and Jubilee 553-1034H which is a facility with three new wells located on it.

Well Name	API Number	First Date of Production	Natural Gas Rate[1] (MMSCFD)	Crude Oil Rate[1] (BPD)
Jubilee 153-1034H	49-021-21082	08/29/2014	0.231	435
Jubilee 154-1034H	49-021-21086	08/27/2014	0.203	340
Jubilee 554-1034H	49-021-21084	09/01/2014	0.319	560
Jubilee 555-1034H	49-021-21085	08/27/2014	0.412	640

[1] Based on first 30 days production, after 0.6 decline factor.

The four wells produce both crude oil and natural gas. The four wells produce to processing equipment that is both stand-alone independent and shared. The Site Facility Diagram illustrates this. The four well pad consists of the following sources of emissions:

- Six (6) Crude Oil Storage Tanks (500 bbl capacity each) shared between Jubilee 153-1034H & 154-1034H;
- One (1) Produced Water/Emergency Combination (Combo) Storage Tank (500 bbl capacity) shared between Jubilee 153-1034H & 154-1034H;
- Six (6) Crude Oil Storage Tanks (500 bbl capacity each) shared between Jubilee 554-1034H & 555-1034H;
- One (1) Produced Water/Emergency Combination (Combo) Storage Tank (500 bbl capacity) shared between Jubilee 554-1034H & 555-1034H;
- One (1) Vapor Recovery Tower (VRT) shared between Jubilee 153-1034H & 154-1034H;
- One (1) Vapor Recovery Tower (VRT) shared between Jubilee 554-1034H & 555-1034H;
- One (1) Smokeless Enclosed Cimarron Combustor (COM) shared between Jubilee 153-1034H, 154-1034H, 554-1034H, and 555-1034H Tanks and TLO Operations;

- One (1) Smokeless Steffes Tri-Tip Flare (FlareVRT) shared between Jubilee 153-1034H, 154-1034H, 554-1034H, and 555-1034H VRTs;
- One (1) Smokeless Steffes Tri-Tip Emergency Treater Gas Flare (Flare) shared between Jubilee 153-1034H, 154-1034H, 554-1034H, and 555-1034H heater treaters;
- Truck Loading Operation with vapors routed and vented to COM;
- Four (4) Heater/Treaters (1.0 MMBtu/hr burner capacity each);
- One (1) Trace Line Heater (0.50 MMBtu/hr burner capacity);
- Two (2) Receycle Treaters (0.50 MMBtu/hr burner capacity each); and
- Fugitive Components.

The crude oil is produced in twelve storage tanks and hauled away by truck as necessary. The produced water is produced in two storage tanks and also hauled away as necessary. The tank vapors from the wells' crude and produced water tanks are controlled and routed to an enclosed smokeless combustor (COM) that has a vendor guaranteed destruction efficiency of 98%. The truck loading vapor emissions are controlled and routed to the enclosed combustor (COM).

Production from the wells flows to the heater treaters where liquids are separated and the water is sent to the produced water tanks and the oil is sent to the vapor recovery towers (VRT). Oil from the VRTs is sent to the twelve (12) production oil tanks, and the flashed gas from the VRT is sent to the Tri-Tip Flare and flashed gas from the tanks is sent to the enclosed combustor. All of the controllers are non-bleed.

The facility is located in an area where there is currently no gas pipeline infrastructure available; therefore, the associated natural gas of the production stream from the wells is currently being flared with the Steffes emergency treater gas flare (guaranteed destruction efficiency of 98%).

Once the gas stream is tied into a pipeline, in the event the pipeline is shut-in and there is a need to vent the gas rather than put it into the pipeline, the gas from the fuel gas scrubbers and the liquids off the treaters will be sent into the produced water/emergency tank (Comb Tank) and then to the Flare for control, instead of venting to atmosphere uncontrolled. An orifice plate has been installed to limit or slow the volume of gas flowing to the Flare in the event of an upset. In addition, the tank has a high level controller to shut the well in and prevent tank overflows. This is a highly unlikely event and would strictly be an emergency situation.

The signed original copy of the IMPACT permit application is included as Attachment A. Attachments B and C contain a flow diagram/plot plan of the emissions unit and facility process description, while Attachment D contains the current production rates for the well. Gas/oil analyses are contained in Attachment E, and detailed emission calculations and supporting documentation are provided in Attachment F.

We trust the attached permit application package will meet your expectations and that you will not hesitate to call me at (303) 262-9914 or Jamie Christopher of SLR at (970) 999-3969 if you have any questions or need additional information. We appreciate your prompt attention to this most important project.

Sincerely,

Jason Rauen
EOG Environmental – Denver Division

cc: File – Well

Jamie Christopher, SLR

Attachments: As stated

SLR

Attachment A -Wyoming IMPACT Permit Application Forms

Cover Sheet

Specific Emission Unit Attribute Forms

Control Equipment Forms

Emission Unit Emissions Information Forms

Release Point Information

Department of Environmental Quality, Air Quality Division

Permit Application Form

Is this a revision to an existing application?			
Yes		No	X
Previous Application #:	N/A		

Date of Application: N/A

COMPANY INFORMATION:

Company Name: EOG Resources, Inc.
Address: 600 17th Street, Suite 1000N
City: Denver State: Colorado Zip Code: 80202
Country: USA Phone Number: (303) 262-9914

FACILITY INFORMATION:

Facility Name: Jubilee 1531034H, 154-1034H, 554-1034H, 555-1034H
New Facility or Existing Facility: New
Facility Description:
Facility Class: Minor Operating Status: Operating
Facility Type: Production Site

For Oil & Gas Production Sites ONLY:
First Date of Production (FDOP)/Date of Modification: Prior to 9/1/2014
Does production at this facility contain H2S?* No
If yes, contact the Division.
API Number(s): 49-021-21082 49-021-21086 49-021-21084 49-021-21085

NAICS Code: 2111 Oil and Gas Extraction

FACILITY LOCATION:

Enter the facility location in either the latitude/longitude area or section/township/range area. Both are not required.
Physical Address:
City: Zip Code:
State: WY County: Laramie

OR

Latitude: 41.115306 Longitude: 104.644744 County: Laramie
Quarter Quarter: NW/NE Quarter:
Section: 10 Township: 13N Range: 65W
For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)

CONTACT INFORMATION:

Note that an Environmental AND NSR Permitting Contact is required for your application to be deemed complete by the agency.
Title: Mr. First Name: Jason
Last Name: Rauen
Company Name: EOG Resources, Inc.
Job Title: Senior Environmental Specialist
Address: 600 17th Street, Suite 1000N
City: Denver State: Colorado
Zip Code: 80202
Primary Phone No.: (303) 262-9914 E-mail: Jason_Rauen@eogresources.com
Mobile Phone No.: (303) 270-8733 Fax No.: (303) 262-9449
Contact Type: Environmental Contact Start Date:

Additional Contact Type (if needed):
Title: First Name:
Last Name:
Company Name:
Job Title:
Address:
City: State:
Zip Code:
Primary Phone No.: E-mail:
Mobile Phone No.: Fax No.:
Contact Type: Start Date:

FACILITY APPLICATION INFORMATION:

General Info:

Has the facility changed location or is it a new/ greenfield facility?	Yes	New
Has a Land Use Planning document been included in this application?	No	
Is the facility located in a sage grouse core area?*	No	
If the facility is in a sage grouse core area, what is the WER number?	No	

** For questions about sage grouse core area, contact WY Game & Fish Department.*

Federal Rules Applicability - Facility Level:

Prevention of Significant Deterioration (PSD):	No	N/A
Non-Attainment New Source Review:	No	N/A

Modeling Section:

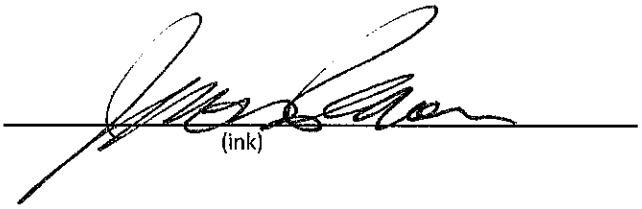
Has the Air Quality Division been contacted to determine if modeling is required?	No	N/A
Is a modeling analysis part of this application?	No	N/A
Is the proposed project subject to Prevention of Significant Deterioration (PSD) requirements?	No	N/A
Has the Air Quality Division been notified to schedule a pre-application meeting?	No	N/A
Has a modeling protocol been submitted to and approved by the Air Quality Division?	No	N/A
Has the Air Quality Division received a Q/D analysis to submit to the respective FLMs to determine the need for an AQRV analysis?	No	N/A

Required Attachments:

Facility Map	☑	
Process Flow Diagram	☑	
Modeling Analysis (if applicable)	☐	**Not Applicable**
Land Use Planning Document	☐	**Not Applicable**
Detailed Project Description	☑	
Emissions Calculations	☑	

I, **Jason Rauen** (Responsible Official (Printed Name)) **Senior Environmental Specialist** (Title)

an Official Representative of the Company, state that I have knowledge of the facts herein set forth and that the same are true and correct to the best of my knowledge and belief. I further certify that the operational information provided and emission rates listed on this application reflect the anticipated emissions due to the operation of this facility. The facility will operate in compliance with all applicable Wyoming Air Quality Standards and Regulations.

Signature:  (ink) Date: 11/24/14

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T1 (6398)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 153 & 154-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **775** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T2 (6399)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 153 & 154-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **775** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T3 (6400)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 153 & 154-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **775** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T4 (6401)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 153 & 154-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **775** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T5 (6402)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 153 & 154-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **775** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T6 (6403)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 153 & 154-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **775** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T7 (PW/ET)**
Company Equipment Description: **500 bbl Produced Water Storage Tank**
Servicing Jubilee 153 & 154-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Produced Water**

Capacity: **500** Units: **barrels**
Maximum Throughput: **990** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T8 (6404)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 554 & 555-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **1200** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T9 (6405)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 554 & 555-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **1200** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T10 (6406)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 554 & 555-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **1200** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T11 (6407)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 554 & 555-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **1200** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T12 (6408)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 554 & 555-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **1200** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T13 (6409)**
Company Equipment Description: **500 bbl Crude Oil Storage Tank**
Servicing Jubilee 554 & 555-1304H Wells
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**
Description of Material Stored: **Crude Oil**

Capacity: **500** Units: **barrels**
Maximum Throughput: **1200** Units: **barrels/day**
Maximum Hourly Throughput: **N/A** Units:
Operating Pressure (psig): **Atmospheric**
Vapor Pressure of Material Stored (psig):
Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: **T14 (PW2/ET2)**

Company Equipment Description: **500 bbl Produced Water Storage Tank Servicing Jubilee 554 & 555-1304H Wells**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: **Liquid**

Description of Material Stored: **Produced Water**

Capacity: **500** Units: **barrels**

Maximum Throughput: **1555** Units: **barrels/day**

Maximum Hourly Throughput: **N/A** Units:

Operating Pressure (psig): **Atmospheric**

Vapor Pressure of Material Stored (psig):

Is Tank Heated?: **No**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: Yes

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Combustor

Company Equipment ID: **COM**

Company Equipment Description: **Enclosed Combustor**

Controlling Tanks (T1 - T14) for Jubilee 153&154&554&555-1034H

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Maximum Design Capacity (MMSCF/hr): **N/A**

Minimum Design Capacity (MMSCF/hr): **N/A**

Pilot Gas Volume (scf/min): **0.28**

Emergency Flare Only: **No** Ignition Device Type: **Pilot**

Btu Content (Btu/scf): **2,624** Smokeless Design: **Yes**

Assist Gas Utilized? **No** Continuously Monitored? **Yes** Pilot only

Waste Gas Volume: **361** Units: **scf/hr**

Installation Date: **Prior to 9/1/2014**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-05

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: YES

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Process Vent

Company Equipment ID: **VRT 153&154**

Company Equipment Description: **Vapor Recover Tower**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Flow Rate or Throughput: **775** Units: **barrels/day**

VOC Concentration (%): **68.93** HAPs Concentration (%): **2.20**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: Yes - Tri-Tip Flare

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Process Vent

Company Equipment ID: **VRT 554&555**

Company Equipment Description: **Vapor Recover Tower**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Flow Rate or Throughput: **1200** Units: **barrels/day**

VOC Concentration (%): **65.53** HAPs Concentration (%): **1.17**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: Yes - Tri-Tip Flare

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed LAER:

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart:

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart:

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart:

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Combustor

Company Equipment ID: **Flare-VRT**
Company Equipment Description: **Elevated Flare (Tri-Tip)**
Controlling VRT for Jubilee 153&154&554&555-1034H
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Maximum Design Capacity (MMSCF/hr): **N/A**
Minimum Design Capacity (MMSCF/hr): **N/A**
Pilot Gas Volume (scf/min): **0.28**
Emergency Flare Only: **No** Ignition Device Type: **Pilot**
Btu Content (Btu/scf): **2,509** Smokeless Design: **Yes**
Assist Gas Utilized? **No** Continuously Monitored? **Yes** Pilot only
Waste Gas Volume: **3,937** Units: **scf/hr**
Installation Date: **Prior to 9/1/2014**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-05

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: YES

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID: **LH**

Company Equipment Description: **Trace Line Heater @ 0.50 MMBTU/hr**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Firing Type: **Indirect**

Heat Input Rating: **0.5** Units: **MMBtu/hr**

Primary Fuel Type: **Field Gas**

Secondary Fuel Type: **N/A**

Heat Content of Fuel: **1575** Units: **BTU/scf**

Fuel Sulfur Content: **0** Units: **%**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-004-04

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID: **RT1**

Company Equipment Description: **Recycle Treater @ 0.50 MMBTU/hr**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Firing Type: **Indirect**

Heat Input Rating: **0.5** Units: **MMBtu/hr**

Primary Fuel Type: **Field Gas**

Secondary Fuel Type: **N/A**

Heat Content of Fuel: **1575** Units: **BTU/scf**

Fuel Sulfur Content: **0** Units: **%**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-004-04

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID: **HT-153**

Company Equipment Description: **Heater Treater @1.0 MMBTU/hr**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Firing Type: **Indirect**

Heat Input Rating: **1** Units: **MMBtu/hr**

Primary Fuel Type: **Field Gas**

Secondary Fuel Type: **N/A**

Heat Content of Fuel: **1575** Units: **BTU/scf**

Fuel Sulfur Content: **0** Units: **%**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-004-04

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID: **HT-154**
Company Equipment Description: **Heater Treater @1.0 MMBTU/hr**

Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**
Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Firing Type: **Indirect**
Heat Input Rating: **1** Units: **MMBtu/hr**
Primary Fuel Type: **Field Gas**
Secondary Fuel Type: **N/A**
Heat Content of Fuel: **1597** Units: **BTU/scf**
Fuel Sulfur Content: **0** Units: **%**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-004-04

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID: **RT2**

Company Equipment Description: **Recycle Treater @ 0.50 MMBTU/hr**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Firing Type: **Indirect**

Heat Input Rating: **0.5** Units: **MMBtu/hr**

Primary Fuel Type: **Field Gas**

Secondary Fuel Type: **N/A**

Heat Content of Fuel: **1884** Units: **BTU/scf**

Fuel Sulfur Content: **0** Units: **%**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-004-04

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID:	**HT-554**
Company Equipment Description:	**Heater Treater @1.0 MMBTU/hr**

Operating Status:	**Operating**
Initial Construction Commencement Date:	**Prior to 9/1/2014**
Initial Operation Commencement Date:	**Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date:	**NA**
Most Recent Operation Commencement Date:	**NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Firing Type:	**Indirect**		
Heat Input Rating:	**1**	Units:	**MMBtu/hr**
Primary Fuel Type:	**Field Gas**		
Secondary Fuel Type:	**N/A**		
Heat Content of Fuel:	**1884**	Units:	**BTU/scf**
Fuel Sulfur Content:	**0**	Units:	**%**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-004-04

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day:	**24**
Hours/year:	**8760**

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Loading/Unloading/Dump

Company Equipment ID: **TLO-154**

Company Equipment Description: **Condensate Truck Loading from storage tanks**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Material: **Liquid**

Material Description: **Natural Gas Condensate**

Maximum Annual Throughput: **124,100** Units: **barrels/yr**

Maximum Hourly Throughput: **N/A** Units:

Detailed Description of Loading/Unloading/Dump Source:

Submerged loading: dedicated normal service & routed to enclosed combustor that is also controlling tanks and VRTs

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: YES

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive - routed to enclosed combustor controlling tanks and VRT**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Heater/Chiller

Company Equipment ID: **HT-555**

Company Equipment Description: **Heater Treater @1.0 MMBTU/hr**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Firing Type: **Indirect**

Heat Input Rating: **1** Units: **MMBtu/hr**

Primary Fuel Type: **Field Gas**

Secondary Fuel Type: **N/A**

Heat Content of Fuel: **1651** Units: **BTU/scf**

Fuel Sulfur Content: **0** Units: **%**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-004-04

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Loading/Unloading/Dump

Company Equipment ID: **TLO-555**

Company Equipment Description: **Condensate Truck Loading from storage tanks**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Material: **Liquid**

Material Description: **Natural Gas Condensate**

Maximum Annual Throughput: **204,400** Units: **barrels/yr**

Maximum Hourly Throughput: **N/A** Units:

Detailed Description of Loading/Unloading/Dump Source:

Submerged loading: dedicated normal service & routed to enclosed combustor that is also controlling tanks and VRTs

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: YES

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive - routed to enclosed combustor controlling tanks and VRT**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Loading/Unloading/Dump

Company Equipment ID: **TLO-153**
Company Equipment Description: **Crude oil Truck Loading from storage tanks**

Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Material: **Liquid**
Material Description: **Natural Gas Condensate**

Maximum Annual Throughput: **158,775** Units: **barrels/yr**
Maximum Hourly Throughput: **N/A** Units:
Detailed Description of Loading/Unloading/Dump Source:
Submerged loading: dedicated normal service & routed to enclosed combustor that is also controlling tanks and VRTs

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **8760**

Control Equipment: YES

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive - routed to enclosed combustor controlling tanks and VRT**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Loading/Unloading/Dump

Company Equipment ID: **TLO-554**

Company Equipment Description: **Condensate Truck Loading from storage tanks**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Material: **Liquid**

Material Description: **Natural Gas Condensate**

Maximum Annual Throughput: **204,400** Units: **barrels/yr**

Maximum Hourly Throughput: **N/A** Units:

Detailed Description of Loading/Unloading/Dump Source:

Submerged loading: dedicated normal service & routed to enclosed combustor that is also controlling tanks and VRTs

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-99

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: YES

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive - routed to enclosed combustor controlling tanks and VRT**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Fugitives

Company Equipment ID: **FUG-153**
Company Equipment Description: **All Fugitives (Valves, Flanges, Connections, Seals, Drains)**

Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Fugitive Emission: **Fugitive Leaks at O&G**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-20

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**
Hours/year: **8760**

Control Equipment: NO

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Fugitives

Company Equipment ID: **FUG-154**

Company Equipment Description: **All Fugitives (Valves, Flanges, Connections, Seals, Drains)**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Fugitive Emission: **Fugitive Leaks at O&G**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-20

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: NO

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Fugitives

Company Equipment ID: **FUG-554**

Company Equipment Description: **All Fugitives (Valves, Flanges, Connections, Seals, Drains)**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Fugitive Emission: **Fugitive Leaks at O&G**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-20

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: NO

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Fugitives

Company Equipment ID: **FUG-555**

Company Equipment Description: **All Fugitives (Valves, Flanges, Connections, Seals, Drains)**

Operating Status: **Operating**

Initial Construction Commencement Date: **Prior to 9/1/2014**

Initial Operation Commencement Date: **Prior to 9/1/2014**

Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Fugitive Emission: **Fugitive Leaks at O&G**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-20

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: **24**

Hours/year: **8760**

Control Equipment: NO

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60- Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Flare

Company Equipment ID: **Flare**
Company Equipment Description: **Elevated Flare**
Treater Gas when pipeline shut in
Operating Status: **Operating**
Initial Construction Commencement Date: **Prior to 9/1/2014**
Initial Operation Commencement Date: **Prior to 9/1/2014**
Most Recent Construction/ Modification Commencement Date: **NA**

Most Recent Operation Commencement Date: **NA**
Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):
Reason: **New Application**

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Maximum Design Capacity (MMSCF/hr): **N/A**
Minimum Design Capacity (MMSCF/hr): **N/A**
Pilot Gas Volume (scf/min): **0.28**
Emergency Flare Only: **No** Ignition Device Type: **Pilot**
Btu Content (Btu/scf): **1,677** Smokeless Design: **Yes**
Assist Gas Utilized? **Yes** Continuously Monitored? **Yes** Pilot only
Waste Gas Volume: **54,157** Units: **scf/hr**
Installation Date: **Prior to 9/1/2014**

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

3-10-002-05

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: **24**
Hours/year: **2000**

Control Equipment: YES

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: **Presumptive**

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): **Not Affected**

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): **Not Affected**

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): **Not Affected**

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): **Not Affected**

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: **Not Affected**

These rules are found under WAQSR Chapter 6, Section 13.

Control Equipment:

Flare/Combustor

Manufacturer: **Cimarron**
Model Name and Number:
Company Control Equipment Description: **Enclosed Smokeless Combustor - Controlling Crude & PW Tanks and TLO operations**

Date Installed: **Prior to 9/1/2014**
Company Control Equipment ID: **COM**

Pollutant(s) Controlled:

☐ CO	☐ NOx	☐ Pb	☐ SO2	☑ VOC	☐ PM			
☐ PM (FIL)	☐ PM Condensible	☐ PM 10 (FIL)	☐ PM 2.5 (FIL)	☐ PM 10	☐ PM 2.5			
☐ Other								

NOTE: The following fields require numeric values unless otherwise denoted with an asterisk*

Maximum Design Capacity (MMSCF/hr):
Minimum Design Capacity (MMSCF/hr):
Design Control Efficiency (%): **98**
Capture Efficiency (%): **100**
Operating Control Efficiency (%): **98+**
Flare Type:* **Enclosed**
Elevated Flare Type:*
Ignition Device:* **Yes**
Flame Presence Sensor:* **Yes**
Inlet Gas Temp (F):
Flame Presence Type:* **Thermocouple**
Gas Flow Rate (acfm): **4,719.67**
Outlet Gas Temp (F): 1400

☑ This is the only control equipment on this air contaminant source

If not, this control equipment is: ☑ Primary ☐ Secondary ☐ Parallel

List all other emission units that are also vented to this control equipment:* **T1 - T14, & TLO Operations**

List all release point IDs associated with this control equipment:* **COM**

Control Equipment:

Flare/Combustor

Manufacturer:	**Steffes**	Date Installed:	**Prior to 9/1/2014**
Model Name and Number:		Company Control Equipment ID:	**FlareVRT**
Company Control Equipment Description:	**Flare for controlling emissions from the VRTs**		

Pollutant(s) Controlled:	☐ CO	☐ NOx	☐ Pb	☐ SO2	☑ VOC	☐ PM
☐ PM (FIL)	☐ PM Condensible	☐ PM 10 (FIL)	☐ PM 2.5 (FIL)	☐ PM 10	☐ PM 2.5	
☐ Other						

NOTE: The following fields require numeric values unless otherwise denoted with an asterisk*

Maximum Design Capacity (MMSCF/hr):			
Minimum Design Capacity (MMSCF/hr):			
Design Control Efficiency (%):	**98**	Capture Efficiency (%):	**100**
Operating Control Efficiency (%):	**98+**		
Flare Type:*	**Elevated- Open**	**Elevated Flare Type:***	**Air-Assisted**
Ignition Device:*	**Yes**	**Flame Presence Sensor:***	**Yes**
Inlet Gas Temp (F):		**Flame Presence Type:***	**Thermocouple**
Gas Flow Rate (acfm):	**68,026.21**	Outlet Gas Temp (F):	1400

☑ This is the only control equipment on this air contaminant source

If not, this control equipment is: ☑ Primary ☐ Secondary ☐ Parallel

List all other emission units that are also vented to this control equipment:* **VRTs**

List all release point IDs associated with this control equipment:* **Flare**

Control Equipment:

Flare/Combustor

Manufacturer: **Steffes**
Date Installed: **Prior to 9/1/2014**
Model Name and Number:
Company Control Equipment ID: **Flare**
Company Control Equipment Description: **Flare for controlling emissions from heater treaters until facility is tied into pipeline**

Pollutant(s) Controlled:

☐ CO	☐ NOx	☐ Pb	☐ SO2	☑ VOC	☐ PM	
☐ PM (FIL)	☐ PM Condensible	☐ PM 10 (FIL)	☐ PM 2.5 (FIL)	☐ PM 10	☐ PM 2.5	
☐ Other						

NOTE: The following fields require numeric values unless otherwise denoted with an asterisk*

Maximum Design Capacity (MMSCF/hr):
Minimum Design Capacity (MMSCF/hr):
Design Control Efficiency (%): **98**
Capture Efficiency (%): **100**
Operating Control Efficiency (%): **98+**
Flare Type:* **Elevated- Open**
Elevated Flare Type:* **Air-Assisted**
Ignition Device:* **Yes**
Flame Presence Sensor:* **Yes**
Inlet Gas Temp (F):
Flame Presence Type:* **Thermocouple**
Gas Flow Rate (acfm):
Outlet Gas Temp (F):

☑ This is the only control equipment on this air contaminant source

If not, this control equipment is: ☑ Primary ☐ Secondary ☐ Parallel

List all other emission units that are also vented to this control equipment:* **Treater Gas**

List all release point IDs associated with this control equipment:* **Flare**

Emission Unit: **Crude Oil Tanks (T1 - T6)**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**39.32 tpy**				**0.79 tpy**	**ProMax**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**1.64 tpy**				**0.03 tpy**	**ProMax**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

	Pollutants:	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.1247 tpy**				**0.0025 tpy**	**ProMax**
2.)	Toluene	**0.2639 tpy**				**0.0053 tpy**	**ProMax**
3.)	Ethylbenzene	**0.0075 tpy**				**0.0001 tpy**	**ProMax**
4.)	Xylenes	**0.0863 tpy**				**0.0017 tpy**	**ProMax**
5.)	n-Hexane	**0.9656 tpy**				**0.0193 tpy**	**ProMax**
6.)	224-TMP	**0.1919 tpy**				**0.0038 tpy**	**ProMax**
7.)							
8.)							

Greenhouse Gases (GHGs)

	Pollutants:	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Produced Water Tank (T7)**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**2.95 tpy**				**0.0591 tpy**	**ProMax**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.247 tpy**				**0.0049 tpy**	**ProMax**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.0624 tpy**				**0.0012 tpy**	**ProMax**
2.)	Toluene	**0.1256 tpy**				**0.0025 tpy**	**ProMax**
3.)	Ethylbenzene	**0.0034 tpy**				**0.0001 tpy**	**ProMax**
4.)	Xylenes	**0.0391 tpy**				**0.0008 tpy**	**ProMax**
5.)	n-Hexane	**0.0162 tpy**				**0.0003 tpy**	**ProMax**
6.)	224-TMP	**0.0006 tpy**				**0.0000 tpy**	**ProMax**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Crude Oil Tanks (T8 - T13)**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**78.26 tpy**				**1.57 tpy**	**ProMax**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**2.08 tpy**				**0.04 tpy**	**ProMax**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.1885 tpy**				**0.0038 tpy**	**ProMax**
2.)	Toluene	**0.2701 tpy**				**0.0054 tpy**	**ProMax**
3.)	Ethylbenzene	**0.0067 tpy**				**0.0001 tpy**	**ProMax**
4.)	Xylenes	**0.0866 tpy**				**0.0017 tpy**	**ProMax**
5.)	n-Hexane	**1.0441 tpy**				**0.0209 tpy**	**ProMax**
6.)	224-TMP	**0.4798 tpy**				**0.0096 tpy**	**ProMax**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Produced Water Tank (T14)**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**4.44 tpy**				**0.09 tpy**	**ProMax**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.15 tpy**				**0.00 tpy**	**ProMax**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.0464 tpy**				**0.0009 tpy**	**ProMax**
2.)	Toluene	**0.0651 tpy**				**0.0013 tpy**	**ProMax**
3.)	Ethylbenzene	**0.0016 tpy**				**0.0000 tpy**	**ProMax**
4.)	Xylenes	**0.0204 tpy**				**0.0004 tpy**	**ProMax**
5.)	n-Hexane	**0.0148 tpy**				**0.0003 tpy**	**ProMax**
6.)	224-TMP	**0.0010 tpy**				**0.0000 tpy**	**ProMax**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Enclosed Combustor**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.04 tpy**				**0.04 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.04 tpy**				**0.04 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.04 tpy**				**0.04 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.28 tpy**				**0.28 tpy**	
6.)	Carbon monoxide (CO)	**1.53 tpy**				**1.53 tpy**	
7.)	Volatile organic compounds (VOC)	**Note 1**				**Note 1**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**Note 1**				**Note 1**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Note 1 **The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks, VRT, and TLO Operations.**

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	See Note 1				Note 1	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Note 1 The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks, VRT, and TLO Operations.

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Vapor Recovery Tower** **151&152**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**824.68 tpy**				**16.49 tpy**	**ProMax**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**41.55 tpy**				**0.83 tpy**	**ProMax**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**3.21 tpy**				**0.064 tpy**	**ProMax**
2.)	Toluene	**6.73 tpy**				**0.135 tpy**	**ProMax**
3.)	Ethylbenzene	**0.19 tpy**				**0.004 tpy**	**ProMax**
4.)	Xylenes	**2.17 tpy**				**0.043 tpy**	**ProMax**
5.)	n-Hexane	**24.80 tpy**				**0.496 tpy**	**ProMax**
6.)	224-TMP	**4.44 tpy**				**0.089 tpy**	**ProMax**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Vapor Recovery Tower** **554&555**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**850.59 tpy**				**17.01 tpy**	**ProMax**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**26.10 tpy**				**0.52 tpy**	**ProMax**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**2.45 tpy**				**0.049 tpy**	**ProMax**
2.)	Toluene	**3.46 tpy**				**0.069 tpy**	**ProMax**
3.)	Ethylbenzene	**0.08 tpy**				**0.002 tpy**	**ProMax**
4.)	Xylenes	**1.09 tpy**				**0.022 tpy**	**ProMax**
5.)	n-Hexane	**13.52 tpy**				**0.270 tpy**	**ProMax**
6.)	224-TMP	**5.50 tpy**				**0.110 tpy**	**ProMax**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Tri-Tip Flare for VRTs**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.46 tpy**				**0.46 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.46 tpy**				**0.46 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.46 tpy**				**0.46 tpy**	
4.)	Sulfur dioxide (SO2)	**0.01 tpy**				**0.01 tpy**	
5.)	Nitrogen Oxides (NOx)	**2.96 tpy**				**2.96 tpy**	
6.)	Carbon monoxide (CO)	**16.11 tpy**				**16.11 tpy**	
7.)	Volatile organic compounds (VOC)	**Note 1**				**Note 1**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**Note 1**				**Note 1**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Note 1 **The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks, VRT, and TLO Operations.**

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	See Note 1				Note 1	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Note 1 The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks, VRT, and TLO Operations.

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Trace Line Heater**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.01 tpy**				**0.01 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.01 tpy**				**0.01 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.01 tpy**				**0.01 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.13 tpy**				**0.13 tpy**	
6.)	Carbon monoxide (CO)	**0.06 tpy**				**0.06 tpy**	
7.)	Volatile organic compounds (VOC)	**0.01 tpy**				**0.01 tpy**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.00 tpy**				**0.00 tpy**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	Negligible				Negligible	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Recycle Treater**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.01 tpy**				**0.01 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.01 tpy**				**0.01 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.01 tpy**				**0.01 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.13 tpy**				**0.13 tpy**	
6.)	Carbon monoxide (CO)	**0.06 tpy**				**0.06 tpy**	
7.)	Volatile organic compounds (VOC)	**0.01 tpy**				**0.01 tpy**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.00 tpy**				**0.00 tpy**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	Negligible				Negligible	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Jubilee 153-1034H Heater Treater**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.02 tpy**				**0.02 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.02 tpy**				**0.02 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.02 tpy**				**0.02 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.26 tpy**				**0.26 tpy**	
6.)	Carbon monoxide (CO)	**0.11 tpy**				**0.11 tpy**	
7.)	Volatile organic compounds (VOC)	**0.02 tpy**				**0.02 tpy**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.00 tpy**				**0.00 tpy**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	Negligible				Negligible	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Jubilee 154-1034H Heater Treater**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.02 tpy**				**0.02 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.02 tpy**				**0.02 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.02 tpy**				**0.02 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.26 tpy**				**0.26 tpy**	
6.)	Carbon monoxide (CO)	**0.11 tpy**				**0.11 tpy**	
7.)	Volatile organic compounds (VOC)	**0.02 tpy**				**0.02 tpy**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.00 tpy**				**0.00 tpy**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	Negligible				Negligible	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Recycle Treater**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.01 tpy**				**0.01 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.01 tpy**				**0.01 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.01 tpy**				**0.01 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.11 tpy**				**0.11 tpy**	
6.)	Carbon monoxide (CO)	**0.05 tpy**				**0.05 tpy**	
7.)	Volatile organic compounds (VOC)	**0.01 tpy**				**0.01 tpy**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.00 tpy**				**0.00 tpy**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	Negligible				Negligible	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Jubilee 554-1034H Heater Treater**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.02 tpy**				**0.02 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.02 tpy**				**0.02 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.02 tpy**				**0.02 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.22 tpy**				**0.22 tpy**	
6.)	Carbon monoxide (CO)	**0.09 tpy**				**0.09 tpy**	
7.)	Volatile organic compounds (VOC)	**0.01 tpy**				**0.01 tpy**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.00 tpy**				**0.00 tpy**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**Negligible**				**Negligible**	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Jubilee 555-1034H Heater Treater**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**0.02 tpy**				**0.02 tpy**	
2.)	PM #10 microns in diameter (PE/PM10)	**0.02 tpy**				**0.02 tpy**	
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**0.02 tpy**				**0.02 tpy**	
4.)	Sulfur dioxide (SO2)	**0.00 tpy**				**0.00 tpy**	
5.)	Nitrogen Oxides (NOx)	**0.25 tpy**				**0.25 tpy**	
6.)	Carbon monoxide (CO)	**0.11 tpy**				**0.11 tpy**	
7.)	Volatile organic compounds (VOC)	**0.01 tpy**				**0.01 tpy**	
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.00 tpy**				**0.00 tpy**	
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	Negligible				Negligible	
2.)	Toluene						
3.)	Ethylbenzene						
4.)	Xylenes						
5.)	n-Hexane						
6.)	224-TMP						
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Truck Loading - Jubilee 153-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**3.65 tpy**				**1.15 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.11 tpy**				**0.04 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

			Efficiency Standards					
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Pollutants:							
1.)	Benzene	**0.031 tpy**				**0.010 tpy**	**See Calculations**
2.)	Toluene	**0.028 tpy**				**0.009 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.043 tpy**				**0.013 tpy**	**See Calculations**
4.)	Xylenes	**0.006 tpy**				**0.002 tpy**	**See Calculations**
5.)	n-Hexane	**0.005 tpy**				**0.001 tpy**	**See Calculations**
6.)	224-TMP	**0.002 tpy**				**0.001 tpy**	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Pollutants:							
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Truck Loading - Jubilee 154-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards					
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**1.89 tpy**				**0.59 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.08 tpy**				**0.02 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

	Pollutants:	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.019 tpy**				**0.006 tpy**	**See Calculations**
2.)	Toluene	**0.017 tpy**				**0.005 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.019 tpy**				**0.006 tpy**	**See Calculations**
4.)	Xylenes	**0.017 tpy**				**0.005 tpy**	**See Calculations**
5.)	n-Hexane	**0.003 tpy**				**0.001 tpy**	**See Calculations**
6.)	224-TMP	**0.002 tpy**				**0.000 tpy**	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

	Pollutants:	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Truck Loading - Jubilee 554-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**12.70 tpy**				**3.99 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.63 tpy**				**0.20 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Pollutants:							
1.)	Benzene	**0.126 tpy**				**0.040 tpy**	**See Calculations**
2.)	Toluene	**0.118 tpy**				**0.037 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.151 tpy**				**0.048 tpy**	**See Calculations**
4.)	Xylenes	**0.203 tpy**				**0.064 tpy**	**See Calculations**
5.)	n-Hexane	**0.031 tpy**				**0.010 tpy**	**See Calculations**
6.)	224-TMP	**0.004 tpy**				**0.001 tpy**	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Pollutants:							
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Truck Loading - Jubilee 555-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**4.09 tpy**				**1.29 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.17 tpy**				**0.05 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.040 tpy**				**0.013 tpy**	**See Calculations**
2.)	Toluene	**0.043 tpy**				**0.013 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.040 tpy**				**0.013 tpy**	**See Calculations**
4.)	Xylenes	**0.039 tpy**				**0.012 tpy**	**See Calculations**
5.)	n-Hexane	**0.007 tpy**				**0.002 tpy**	**See Calculations**
6.)	224-TMP	**0.004 tpy**				**0.001 tpy**	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Fugitive Components 153-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**1.78 tpy**				**1.78 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.09 tpy**				**0.09 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.003 tpy**				**0.003 tpy**	**See Calculations**
2.)	Toluene	**0.004 tpy**				**0.004 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.001 tpy**				**0.001 tpy**	**See Calculations**
4.)	Xylenes	**0.001 tpy**				**0.001 tpy**	**See Calculations**
5.)	n-Hexane	**0.076 tpy**				**0.076 tpy**	**See Calculations**
6.)	224-TMP	--				--	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Fugitive Components 154-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**1.78 tpy**				**1.78 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.09 tpy**				**0.09 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.003 tpy**				**0.003 tpy**	**See Calculations**
2.)	Toluene	**0.004 tpy**				**0.004 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.001 tpy**				**0.001 tpy**	**See Calculations**
4.)	Xylenes	**0.001 tpy**				**0.001 tpy**	**See Calculations**
5.)	n-Hexane	**0.076 tpy**				**0.076 tpy**	**See Calculations**
6.)	224-TMP	--				--	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Fugitive Components 554-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**1.78 tpy**				**1.78 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.09 tpy**				**0.09 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.003 tpy**				**0.003 tpy**	**See Calculations**
2.)	Toluene	**0.004 tpy**				**0.004 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.001 tpy**				**0.001 tpy**	**See Calculations**
4.)	Xylenes	**0.001 tpy**				**0.001 tpy**	**See Calculations**
5.)	n-Hexane	**0.076 tpy**				**0.076 tpy**	**See Calculations**
6.)	224-TMP	--				--	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Fugitive Components 555-1034H**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	**1.78 tpy**				**1.78 tpy**	**See Calculations**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**0.09 tpy**				**0.09 tpy**	**See Calculations**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**0.003 tpy**				**0.003 tpy**	**See Calculations**
2.)	Toluene	**0.004 tpy**				**0.004 tpy**	**See Calculations**
3.)	Ethylbenzene	**0.001 tpy**				**0.001 tpy**	**See Calculations**
4.)	Xylenes	**0.001 tpy**				**0.001 tpy**	**See Calculations**
5.)	n-Hexane	**0.076 tpy**				**0.076 tpy**	**See Calculations**
6.)	224-TMP	--				--	**See Calculations**
7.)							
8.)							

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Emission Unit: **Treater Gas Flare Emissions all 4 wells**

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)	**1.43 tpy**				**1.43 tpy**	**AP42 13.5**
2.)	PM #10 microns in diameter (PE/PM10)	**1.43 tpy**				**1.43 tpy**	**AP42 13.5**
3.)	PM #2.5 microns in diameter (PE/PM2.5)	**1.43 tpy**				**1.43 tpy**	**AP42 13.5**
4.)	Sulfur dioxide (SO2)	**0.03 tpy**				**0.03 tpy**	**AP42 13.5**
5.)	Nitrogen Oxides (NOx)	**6.17 tpy**				**6.17 tpy**	**AP42 13.5**
6.)	Carbon monoxide (CO)	**33.59 tpy**				**33.59 tpy**	**AP42 13.5**
7.)	Volatile organic compounds (VOC)	**2,199.35 tpy**				**43.99 tpy**	**Eng. Calc**
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	**57.10 tpy**				**1.14 tpy**	**Eng. Calc**
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Note 1 **The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks, VRT, and dehydrator.**

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminents

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)	Benzene	**9.62 tpy**				**0.192 tpy**	**Eng. Calc**
2.)	Toluene	**2.86 tpy**				**0.057 tpy**	**Eng. Calc**
3.)	Ethylbenzene	**0.04 tpy**				**0.001 tpy**	**Eng. Calc**
4.)	Xylenes	**0.09 tpy**				**0.002 tpy**	**Eng. Calc**
5.)	n-Hexane	**44.47 tpy**				**0.889 tpy**	**Eng. Calc**
6.)	224-TMP	**0.01 tpy**				**0.000 tpy**	**Eng. Calc**
7.)							
8.)							

Note 1 **The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks, VRT, and dehydrator.**

Greenhouse Gases (GHGs)

Pollutants:		Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards: Potential to Emit (PTE)	Efficiency Standards: Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
1.)							
2.)							
3.)							
4.)							
5.)							
6.)							
7.)							
8.)							

Release Point Information:

Complete the table below for ***each*** release point. Please include release point information for each emission unit. Multiple attachments may be necessary. A release point is a point at which emissions from an emission unit are released into the ambient (outside)air. List each individual release point on a separate pair of lines (release point ID and description). ***For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)***

Stack Release Point Information		
Company Release Point ID:	Release Point Type:	Vertical
COM	Release Point Latitude:	**41.115306**
	Release Point Longitude:	**104.644744**
Company Release Point Description:	Base Elevation (ft):	**5858**
Enclosed Smokeless Combustor - Controlling Crude & PW Tanks and TLO operations	Stack Height (ft):	**25**
	Stack Diameter (ft):	**4**
	Exit Gas Velocity (ft/s):	**6.26**
	Exit Gas Temp (F):	**1,400**
	Exit Gas Flow Rate (acfm):	**4,719.67**
Company Release Point ID:	Release Point Type:	Vertical
FlareVRT	Release Point Latitude:	**41.115306**
	Release Point Longitude:	**104.644744**
Company Release Point Description:	Base Elevation (ft):	**5858**
Flare for controlling emissions from the VRTs	Stack Height (ft):	
	Stack Diameter (ft):	
	Exit Gas Velocity (ft/s):	
	Exit Gas Temp (F):	
	Exit Gas Flow Rate (acfm):	
Company Release Point ID:	Release Point Type:	Vertical
RT1	Release Point Latitude:	**41.115306**
	Release Point Longitude:	**104.644744**
Company Release Point Description:	Base Elevation (ft):	**5858**
Recycle Treater @ 0.50 MMBTU/hr	Stack Height (ft):	**10**
	Stack Diameter (ft):	**0.67**
	Exit Gas Velocity (ft/s):	
	Exit Gas Temp (F):	**600**
	Exit Gas Flow Rate (acfm):	
Company Release Point ID:	Release Point Type:	Vertical
LH	Release Point Latitude:	**41.115306**
	Release Point Longitude:	**104.644744**
Company Release Point Description:	Base Elevation (ft):	**5858**
Trace Line Heater @ 0.50 MMBTU/hr	Stack Height (ft):	**10**
	Stack Diameter (ft):	**0.67**
	Exit Gas Velocity (ft/s):	
	Exit Gas Temp (F):	**600**
	Exit Gas Flow Rate (acfm):	
Company Release Point ID:	Release Point Type:	Vertical
HT-153	Release Point Latitude:	**41.115306**
	Release Point Longitude:	**104.644744**
Company Release Point Description:	Base Elevation (ft):	**5858**
Heater Treater @1.0 MMBTU/hr	Stack Height (ft):	**10**
	Stack Diameter (ft):	**0.666666667**
	Exit Gas Velocity (ft/s):	
	Exit Gas Temp (F):	**600**
	Exit Gas Flow Rate (acfm):	

Company Release Point ID:	Release Point Type: **Vertical**
HT-154	Release Point Latitude: **41.115306**
	Release Point Longitude: **104.645108**
Company Release Point Description:	Base Elevation (ft): **5858**
	Stack Height (ft): **10**
Heater Treater @1.0 MMBTU/hr	Stack Diameter (ft): **0.666666667**
	Exit Gas Velocity (ft/s):
	Exit Gas Temp (F): **600**
	Exit Gas Flow Rate (acfm):
Company Release Point ID:	Release Point Type: **Vertical**
HT-554	Release Point Latitude: **41.115306**
	Release Point Longitude: **104.644928**
Company Release Point Description:	Base Elevation (ft): **5858**
	Stack Height (ft): **10**
Heater Treater @1.0 MMBTU/hr	Stack Diameter (ft): **0.666666667**
	Exit Gas Velocity (ft/s):
	Exit Gas Temp (F): **600**
	Exit Gas Flow Rate (acfm):
Company Release Point ID:	Release Point Type: **Vertical**
HT-555	Release Point Latitude: **41.115306**
	Release Point Longitude: **104.644564**
Company Release Point Description:	Base Elevation (ft): **5858**
	Stack Height (ft): **10**
Heater Treater @1.0 MMBTU/hr	Stack Diameter (ft): **0.666666667**
	Exit Gas Velocity (ft/s):
	Exit Gas Temp (F): **600**
	Exit Gas Flow Rate (acfm):

Complete the table below for each fugitive (area, volume, line) release point. List each individual release point on a separate line.

Fugitive Release Point Information	
Company Release Point ID:	Release Point Latitude: **41.115306**
TLO-153	Release Point Longitude: **104.644744**
	Release Height (ft): **N/A**
Company Release Point Description:	
Crude oil Truck Loading from storage tanks	
Company Release Point ID:	Release Point Latitude: **41.115306**
FUG-153	Release Point Longitude: **104.644744**
	Release Height (ft): **N/A**
Company Release Point Description:	
All Fugitives (Valves, Flanges, Connections, Seals, Drains)	
Company Release Point ID:	Release Point Latitude: **41.115306**
TLO-154	Release Point Longitude: **104.645108**
	Release Height (ft):
Company Release Point Description:	
Condensate Truck Loading from storage tanks	

Company Release Point ID: **FUG-154** Company Release Point Description: **All Fugitives (Valves, Flanges, Connections, Seals, Drains)**	Release Point Latitude: Release Point Longitude: Release Height (ft):	**41.115306** **104.645108**
Company Release Point ID: **TLO-554** Company Release Point Description: **Condensate Truck Loading from storage tanks**	Release Point Latitude: Release Point Longitude: Release Height (ft):	**41.115306** **104.644928**
Company Release Point ID: **FUG-554** Company Release Point Description: **All Fugitives (Valves, Flanges, Connections, Seals, Drains)**	Release Point Latitude: Release Point Longitude: Release Height (ft):	**41.115306** **104.644928**
Company Release Point ID: **TLO-555** Company Release Point Description: **Condensate Truck Loading from storage tanks**	Release Point Latitude: Release Point Longitude: Release Height (ft):	**41.115306** **104.644564**
Company Release Point ID: **FUG-555** Company Release Point Description: **All Fugitives (Valves, Flanges, Connections, Seals, Drains)**	Release Point Latitude: Release Point Longitude: Release Height (ft):	**41.115306** **104.644564**

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Attachment B - Flow Diagram and Plot Plan of Emission Units and/or Facility

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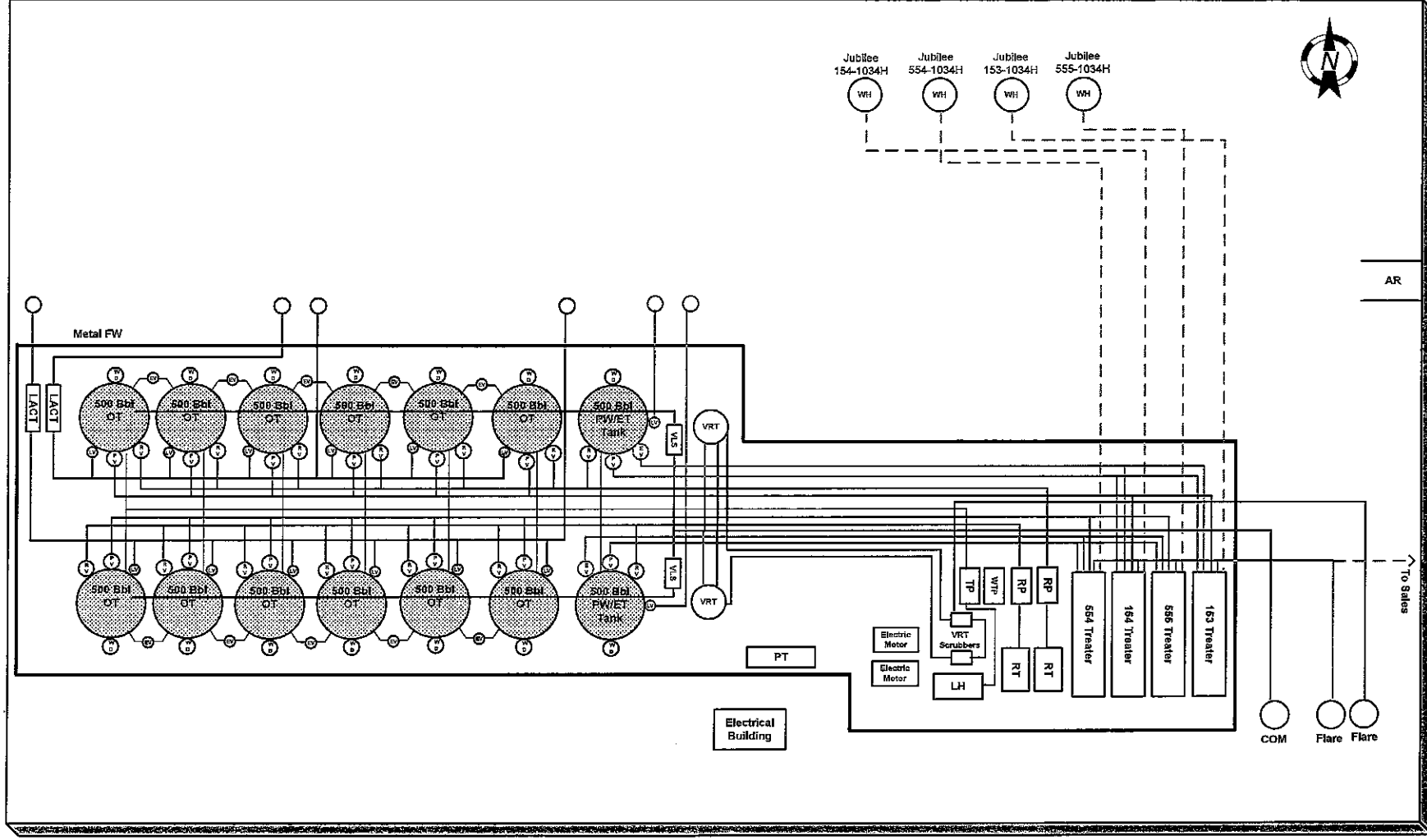
Site Facility Diagram

Well Name: Jubilee 153-1034H & Jubilee 154-1034H
1/4 1/4: NW/NE Sec: 10 T: 13N R: 65W
Latitude: 41.115306 Longitude: -104.644744 (Jubilee 153-1034H)
Latitude: 41.115306 Longitude: -104.645108 (Jubilee 154-1034H)
County: Laramie State: Wyoming
Lease: ST 13-00358
Type of well: Oil

EOG Resources, Inc. site facility diagrams & site security plans are available electronically at all EOG Resources,Inc. offices. Normal business hours are 7:00am to 4:30pm MST.

Revised: 11/17/2014

Valve	Production Phase	Sales Phase	Water Drain
PV	SO	SC	SC
SV	SC	SO	SC
EV	SO	SC	SC
LV	SC	SO	SC
RV	SC	SC	SC



Abbreviations

AM= Allocation Meter
AR = Access Road
CHP = Chemical Pump
CHT = Chemical Tank
COM = Combuster
COMP = Compressor
COMT = Composite Treater
CONT = Containment Tub
CP = Charge Pump
CT = Condensate Tank
DH = Dehydrator
DL = Dump Line
EP = Electrical Panel
ET = Emergency Tank
EV = Equalizer Valve
FE = Fire Extinguisher
FGS = Fuel Gas Scrubber
FT = Fiberglass Tub
FW = Firewall
FWKO = Free Water Knockout
GB = Gas Buster
GEN = Generator
HP = High Pressure
LACT = LACT Unit
LH = Line Heater
LP = Low Pressure
LV = Load Valve
MAN = Manifold
MB = Methanol Bath
MBT = Methanol Bulk Tank
MP = Methanol Pump
OT = Oil Tank
PIGL = Pig Launcher
PIGR = Pig Receiver
PL = Production Line
POC = Pump Off Controller
PP = Power Pole
PRT = Product Tank
PT = Propane Tank
PU = Pumping Unit
PV = Production Valve
PW = Produced Water
RL = Recycle Line
RP = Recycle Pump
RV = Recycle Valve
SC = Sealed Closed
SGS = Sales Gas Scrubber
SL = Sales Line
SM = Sales Meter
SO = Sealed Open
SP = Separator
SUMP = Sump Pump
SV = Sales Valve
TM = Test Meter
TP = Trace Pump
TRFP = Transfer Pump
TT = Test Treater
VM = Vent Meter
VRT = Vapor Recovery Tower
UNP = Unload Pump
WDP = Water Disposal Pump
WD = Water Drain
WFP = Water Flood Pump
WH = Wellhead

- Trace Line
- Oil Sales Line
- Produced Water Line
- Production Line
- Oil Production Line
- Gas Production Line
- Emergency Vent Line
- Recycle Line
- Vent Line

Above Ground Line
Underground Line

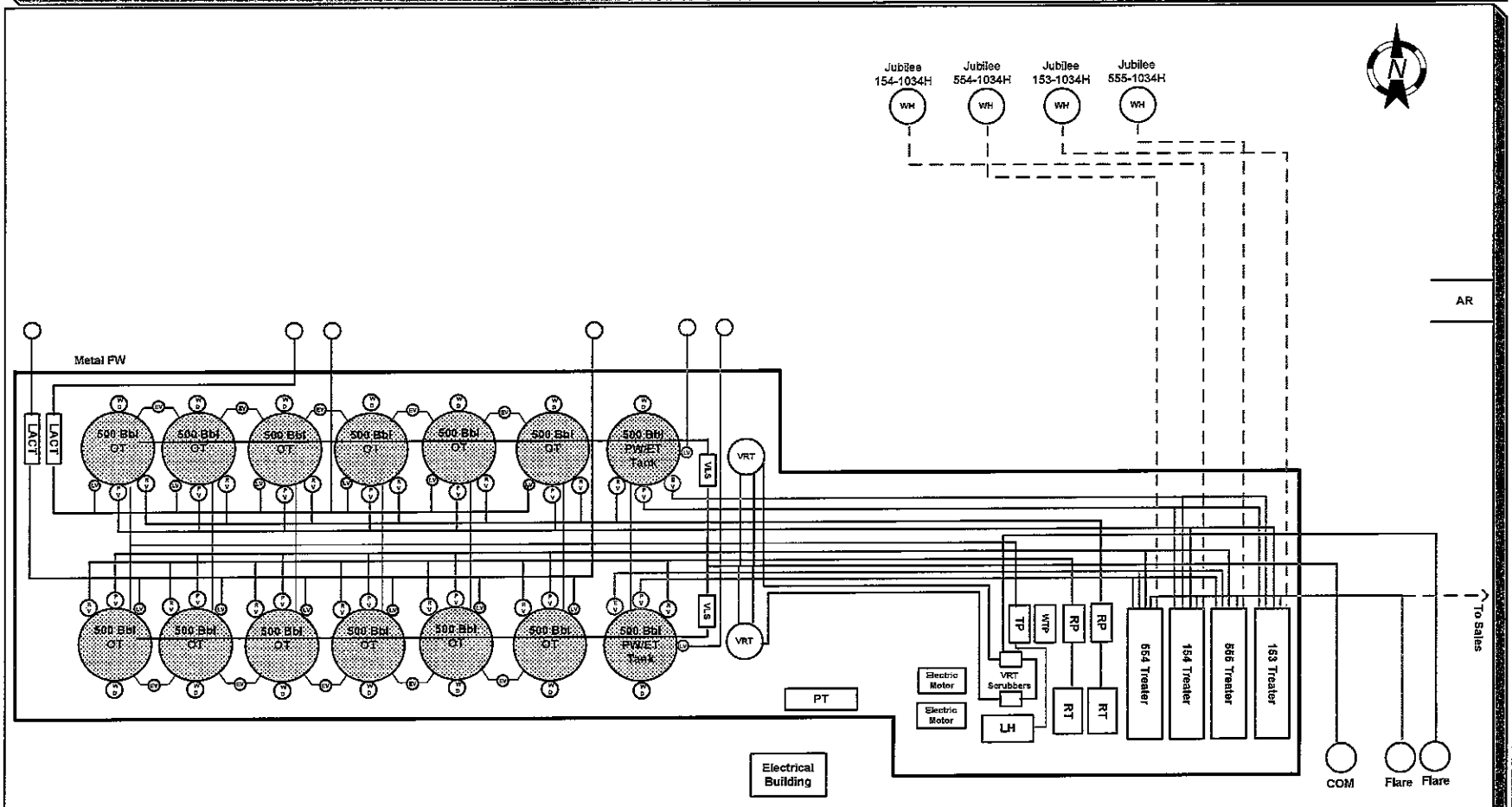
eog resources
Site Facility Diagram

Well Name: Jubilee 554-1034H & Jubilee 555-1034H
1/4 1/4: NW/NE Sec: 10 T: 13N R: 65W
Latitude: 41.115306 Longitude: -104.644928 (Jubilee 554-1034H)
Latitude: 41.115306 Longitude: -104.644564 (Jubilee 555-1034H)
County: Laramie State: Wyoming
Lease: ST 06-00042
Type of well: Oil

EOG Resources, Inc. site facility diagrams & site security plans are available electronically at all EOG Resources,Inc. offices. Normal business hours are 7:00am to 4:30pm MST.

Revised: 11/17/2014

Valve	Production Phase	Sales Phase	Water Drain
PV	SO	SC	SC
SV	SC	SO	SC
EV	SO	SC	SC
LV	SC	SO	SC
RV	SC	SC	SC



Abbreviations

AM= Allocation Meter
AR = Access Road
CHP = Chemical Pump
CHT = Chemical Tank
COM = Combuster
COMP = Compressor
COMT – Composite Treater
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CP = Charge Pump
CT = Condensate Tank
DH = Dehydrator
DL = Dump Line
EP = Electrical Panel
ET = Emergency Tank
EV = Equalizer Valve
FE = Fire Extinguisher
FGS = Fuel Gas Scrubber
FT = Fiberglass Tub
FW = Firewall
FWKO = Free Water Knockout
GB = Gas Buster
GEN = Generator
HP = High Pressure
LACT = LACT Unit
LH = Line Heater
LP = Low Pressure
LV = Load Valve
MAN = Manifold
MB = Methanol Bath
MBT = Methanol Bulk Tank
MP = Methanol Pump
OT = Oil Tank
PIGL = Pig Launcher
PIGR = Pig Receiver
PL = Production Line
POC = Pump Off Controller
PP = Power Pole
PRT = Product Tank
PT = Propane Tank
PU = Pumping Unit
PV = Production Valve
PW = Produced Water
RL = Recycle Line
RP = Recycle Pump
RV = Recycle Valve
SC = Sealed Closed
SGS = Sales Gas Scrubber
SL = Sales Line
SM = Sales Meter
SO = Sealed Open
SP = Separator
SUMP = Sump Pump
SV = Sales Valve
TM = Test Meter
TP = Trace Pump
TRFP = Transfer Pump
TT = Test Treater
VM = Vent Meter
VRT = Vapor Recovery Tower
UNP = Unload Pump
WDP = Water Disposal Pump
WD = Water Drain
WFP = Water Flood Pump
WH = Wellhead

Trace Line
Oil Sales Line
Produced Water Line
Production Line
Oil Production Line
Gas Production Line
Emergency Vent Line
Recycle Line
Vent Line

Above Ground Line
Underground Line

SLR

Attachment C - Process Description

Process Description
Jubilee 153-1034H & 154-1034H & 554-1034H & 555-1034H Oil & Gas Production Facility

Jubilee 153-1034H & 154-1034H & 554-1034H & 555-1034H is an oil and gas production facility located in Laramie County, Wyoming that currently receives production from four separate wells (Jubilee 153-1034H, Jubilee 154-1034H, Jubilee 554-1034H, and Jubilee 555-1034H). The four wells produce both crude oil and natural gas. The four wells produce to processing equipment that is both stand-alone independent and shared. The Site Facility Diagram illustrates this. The four well pad consists of the following sources of emissions:

- Six (6) Crude Oil Storage Tanks (500 bbl capacity each) shared between Jubilee 153-1034H & 154-1034H;
- One (1) Produced Water/Emergency Combination (Combo) Storage Tank (500 bbl capacity) shared between Jubilee 153-1034H & 154-1034H;
- Six (6) Crude Oil Storage Tanks (500 bbl capacity each) shared between Jubilee 554-1034H & 555-1034H;
- One (1) Produced Water/Emergency Combination (Combo) Storage Tank (500 bbl capacity) shared between Jubilee 554-1034H & 555-1034H;
- One (1) Vapor Recovery Tower (VRT) shared between Jubilee 153-1034H & 154-1034H;
- One (1) Vapor Recovery Tower (VRT) shared between Jubilee 554-1034H & 555-1034H;
- One (1) Smokeless Enclosed Cimarron Combustor (COM) shared between Jubilee 153-1034H, 154-1034H, 554-1034H, and 555-1034H Tanks and TLO Operations;
- One (1) Smokeless Steffes Tri-Tip Flare (FlareVRT) shared between Jubilee 153-1034H, 154-1034H, 554-1034H, and 555-1034H VRTs;
- One (1) Smokeless Steffes Tri-Tip Emergency Treater Gas Flare (Flare) shared between Jubilee 153-1034H, 154-1034H, 554-1034H, and 555-1034H heater treaters;
- Truck Loading Operation with vapors routed and vented to COM;
- Four (4) Heater/Treaters (1.0 MMBtu/hr burner capacity each);
- One (1) Trace Line Heater (0.50 MMBtu/hr burner capacity);
- Two (2) Receycle Treaters (0.50 MMBtu/hr burner capacity each);and
- Fugitive Components.

The crude oil is produced in twelve storage tanks and hauled away by truck as necessary. The produced water is produced in two storage tanks and also hauled away as necessary. The tank vapors from the wells' crude and produced water tanks are controlled and routed to an enclosed smokeless combustor (COM) that has a vendor guaranteed destruction efficiency of 98%. The truck loading vapor emissions are controlled and routed to the enclosed combustor (COM).

Production from the wells flows to the heater treaters where liquids are separated and the water is sent to the produced water tanks and the oil is sent to the vapor recovery towers (VRT). Oil from the VRTs is sent to the twelve (12) production oil tanks, and the flashed gas from the VRT is sent to the Tri-Tip Flare and flashed gas from the tanks is sent to the enclosed combustor. All of the controllers are non-bleed.

The facility is located in an area where there is currently no gas pipeline infrastructure available; therefore, the associated natural gas of the production stream from the wells is currently being flared with the Steffes emergency treater gas flare (guaranteed destruction efficiency of 98%).

Once the gas stream is tied into a pipeline, in the event the pipeline is shut-in and there is a need to vent the gas rather than put it into the pipeline, the gas from the fuel gas scrubbers and the liquids off the treaters will be sent into the produced water/emergency tank (Comb Tank) and then to the Flare for control, instead of venting to atmosphere uncontrolled. An orifice plate has been installed to limit or slow the volume of gas flowing to the Flare in the event of an upset. In addition, the tank has a high level controller to shut the well in and prevent tank overflows. This is a highly unlikely event and would strictly be an emergency situation.

The Jubilee 153-1034H, 154-1034H, 554-1034H, and 555-1034H wells are located in the NW/NE Quarter of Section 10, Township 13 North, Range 65 West, in Laramie County, Wyoming.

- Jubilee 153-1034H - latitude 41.115306, longitude 104.644744
- Jubilee 154-1034H - latitude 41.115306, longitude 104.645108
- Jubilee 554-1034H - latitude 41.115306, longitude 104.644928
- Jubilee 555-1034H - latitude 41.115306, longitude 104.644564

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Attachment D - Current Production Rates

Jubilee 153-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
11/9/2014	381	370	183
11/8/2014	476	366	179
11/7/2014	442	376	188
11/6/2014	455	394	195
11/5/2014	461	455	194
11/4/2014	489	471	222
11/3/2014	515	495	232
11/2/2014	540	513	242
11/1/2014	518	472	253
10/31/2014	468	397	232
10/30/2014	520	415	228
10/29/2014	552	436	243
10/28/2014	508	452	248
10/27/2014	568	455	266
10/26/2014	553	488	276
10/25/2014	536	493	274
10/24/2014	592	510	299
10/23/2014	569	414	290
10/22/2014	556	425	277
10/21/2014	575	438	293
10/20/2014	579	438	296
10/19/2014	619	442	309
10/18/2014	606	455	321
10/17/2014	619	450	334
10/16/2014	638	449	347
10/15/2014	552	378	315
10/14/2014	628	386	339
10/13/2014	599	385	349
10/12/2014	593	396	356
10/11/2014	650	405	395
10/10/2014	637	402	398
10/9/2014	651	403	419
10/8/2014	620	379	418
10/7/2014	639	391	473
10/6/2014	634	392	500
10/5/2014	643	393	544
10/4/2014	665	420	582
10/3/2014	779	673	638
10/2/2014	511	412	354
10/1/2014	802	477	607
9/30/2014	809	474	623
9/29/2014	796	474	645
9/28/2014	823	486	690
9/27/2014	859	490	738
9/26/2014	869	527	816
9/25/2014	972	556	879
9/24/2014	1005	567	911
9/23/2014	1,002	582	977
9/22/2014	1376	616	1048
9/21/2014	1036	646	1118
9/20/2014	973	634	1194
9/19/2014	1051	604	1224
9/18/2014	1009	600	1261
9/17/2014	1142	596	1292
9/16/2014	1,008	564	1299
9/15/2014	532	147	966

Jubilee 154-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
11/9/2014	585	488	282
11/8/2014	705	487	290
11/7/2014	657	484	300
11/6/2014	660	485	309
11/5/2014	647	480	299
11/4/2014	659	478	306
11/3/2014	687	484	325
11/2/2014	705	502	339
11/1/2014	702	540	363
10/31/2014	726	558	360
10/30/2014	743	560	383
10/29/2014	803	568	384
10/28/2014	744	571	374
10/27/2014	808	572	410
10/26/2014	786	582	422
10/25/2014	747	600	422
10/24/2014	828	606	475
10/23/2014	825	610	439
10/22/2014	852	601	467
10/21/2014	865	616	504
10/20/2014	872	608	503
10/19/2014	934	626	536
10/18/2014	917	640	556
10/17/2014	942	655	587
10/16/2014	963	625	604
10/15/2014	843	546	544
10/14/2014	942	558	591
10/13/2014	907	572	593
10/12/2014	899	579	607
10/11/2014	1003	594	681
10/10/2014	990	601	697
10/9/2014	1020	618	726
10/8/2014	956	573	698
10/7/2014	1051	637	774
10/6/2014	1061	644	810
10/5/2014	1103	673	843
10/4/2014	1058	671	869
10/3/2014	1067	1058	896
10/2/2014	734	613	569
10/1/2014	1091	704	944
9/30/2014	1124	704	1001
9/29/2014	1056	688	966
9/28/2014	1095	691	1026
9/27/2014	1118	692	1055
9/26/2014	1101	701	1091
9/25/2014	1145	681	1084
9/24/2014	1104	655	1189
9/23/2014	984	409	1282
9/22/2014	5	13	320
9/21/2014	0	0	0
9/20/2014	0	0	0
9/19/2014	424	379	771
9/18/2014	397	230	1299
9/17/2014	209	67	127
9/16/2014	19	11	133
9/15/2014	0	18	0

Jubilee 153-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
9/14/2014	191	0	0
9/13/2014	0	0	0
9/12/2014	0	0	0
9/11/2014	469	80	760
9/10/2014	225	68	1155
9/9/2014	283	44	189
9/8/2014	0	0	0
9/7/2014	376	213	505
9/6/2014	650	432	1008
9/5/2014	671	500	1063
9/4/2014	682	462	1252
9/3/2014	445	280	966
9/2/2014	591	466	986
9/1/2014	684	443	1231
8/31/2014	625	458	1286
8/30/2014	2529	457	1453
8/29/2014	314	518	932
Totals	**46,935.0**	**30,345.0**	**41,575.0**
Daily AVG	**642.9**	**415.7**	**569.5**
Daily MAX	**2,529.0**	**673.0**	**1,453.0**

First 30 Days	Oil Prod (BPD)	Gas Sales (MMscfd)	Water Prod (BPD)
Daily AVG	719.0	0.385	883.6
Factor	431.4	0.231	530.2

Jubilee 154-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
9/14/2014	444	277	418
9/13/2014	546	289	532
9/12/2014	562	294	553
9/11/2014	575	312	623
9/10/2014	579	369	665
9/9/2014	671	433	776
9/8/2014	306	233	535
9/7/2014	587	381	863
9/6/2014	562	360	904
9/5/2014	599	403	871
9/4/2014	575	221	861
9/3/2014	642	261	889
9/2/2014	575	410	935
9/1/2014	684	464	1,004
8/31/2014	668	950	1,118
8/30/2014	0	512	1,261
8/29/2014	708	668	1,101
8/28/2014	1195	492	1,373
8/27/2014	1912	361	1,463
Totals	**56,258.0**	**37,296.0**	**49,170.0**
Daily AVG	**750.1**	**497.3**	**655.6**
Daily MAX	**1,912.0**	**1,058.0**	**1,463.0**

First 30 Days	Oil Prod (BPD)	Gas Sales (MMscfd)	Water Prod (BPD)
Daily AVG	555.9	0.338	765.0
Factor	333.5	0.203	459.0

Jubilee 554-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
11/9/2014	561	540	314
11/8/2014	561	456	333
11/7/2014	505	502	277
11/6/2014	544	580	352
11/5/2014	552	583	346
11/4/2014	621	601	376
11/3/2014	560	502	338
11/2/2014	630	631	412
11/1/2014	632	517	421
10/31/2014	584	448	336
10/30/2014	740	522	469
10/29/2014	817	373	434
10/28/2014	207	192	39
10/27/2014	575	513	371
10/26/2014	640	534	417
10/25/2014	620	553	415
10/24/2014	652	582	454
10/23/2014	667	544	458
10/22/2014	655	504	434
10/21/2014	679	516	467
10/20/2014	699	465	429
10/19/2014	700	527	478
10/18/2014	658	541	497
10/17/2014	794	543	516
10/16/2014	661	564	538
10/15/2014	849	547	544
10/14/2014	814	562	589
10/13/2014	822	575	591
10/12/2014	791	581	592
10/11/2014	891	598	675
10/10/2014	872	605	681
10/9/2014	922	631	723
10/8/2014	801	563	688
10/7/2014	1052	665	789
10/6/2014	989	677	850
10/5/2014	1049	683	905
10/4/2014	1,056	672	979
10/3/2014	1141	1054	919
10/2/2014	693	622	631
10/1/2014	1091	683	1042
9/30/2014	1162	690	1117
9/29/2014	1,154	689	1153
9/28/2014	1,209	692	1246
9/27/2014	1,217	694	1239
9/26/2014	1,290	748	1337
9/25/2014	1,082	727	1349
9/24/2014	1,257	752	1383
9/23/2014	1,233	758	1454
9/22/2014	1,142	739	1718
9/21/2014	1,154	687	1846
9/20/2014	1,164	759	1380
9/19/2014	1,203	754	1566
9/18/2014	1,167	734	1659
9/17/2014	1,201	715	1706
9/16/2014	1135	707	1679
9/15/2014	1,081	678	1,549

Jubilee 555-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
11/9/2014	474	527	274
11/8/2014	474	572	278
11/7/2014	499	583	299
11/6/2014	479	576	298
11/5/2014	470	574	300
11/4/2014	520	580	305
11/3/2014	518	605	325
11/2/2014	559	622	359
11/1/2014	633	525	412
10/31/2014	327	181	211
10/30/2014	383	493	188
10/29/2014	581	534	324
10/28/2014	502	522	307
10/27/2014	540	507	368
10/26/2014	627	456	387
10/25/2014	548	185	120
10/24/2014	206	372	119
10/23/2014	555	523	323
10/22/2014	570	537	340
10/21/2014	608	527	378
10/20/2014	591	519	338
10/19/2014	607	585	396
10/18/2014	578	613	405
10/17/2014	682	600	433
10/16/2014	566	598	443
10/15/2014	730	659	454
10/14/2014	689	640	527
10/13/2014	730	611	515
10/12/2014	638	539	445
10/11/2014	698	556	499
10/10/2014	677	572	502
10/9/2014	708	586	533
10/8/2014	614	518	538
10/7/2014	747	543	628
10/6/2014	666	531	678
10/5/2014	688	508	745
10/4/2014	680	459	826
10/3/2014	719	724	889
10/2/2014	438	448	496
10/1/2014	823	597	725
9/30/2014	890	643	675
9/29/2014	881	658	691
9/28/2014	929	668	742
9/27/2014	933	681	776
9/26/2014	987	646	817
9/25/2014	1,023	677	901
9/24/2014	1089	699	967
9/23/2014	1,101	710	989
9/22/2014	1,092	728	1094
9/21/2014	1,162	736	1252
9/20/2014	1,204	760	1282
9/19/2014	1,198	767	1293
9/18/2014	1,211	791	1361
9/17/2014	1,230	806	1300
9/16/2014	1194	818	1399
9/15/2014	1155	801	1498

Jubilee 554-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
9/14/2014	1280	756	1719
9/13/2014	1,022	700	1721
9/12/2014	1,077	589	1,446
9/11/2014	1804	755	1,746
9/10/2014	948	471	1,929
9/9/2014	1,493	739	2,000
9/8/2014	86	4	387
9/7/2014	0	0	0
9/6/2014	0	0	0
9/5/2014	0	0	0
9/4/2014	80	34	42
9/3/2014	690	106	701
9/2/2014	175	18	279
9/1/2014	136	245	1,001
Totals	**56,989.0**	**38,491.0**	**57,471.0**
Daily AVG	**814.1**	**549.9**	**821.0**
Daily MAX	**1,804.0**	**1,054.0**	**2,000.0**

First 30 Days	Oil Prod (BPD)	Gas Sales (MMscfd)	Water Prod (BPD)
Daily AVG	921.4	0.531	1,211.7
Factor	552.8	0.319	727.0

Jubilee 555-1034H

Date	Oil Prod (bbls)	Gas Prod (mcfd)	Water Prod (bbls)
9/14/2014	1138	781	1607
9/13/2014	1008	728	1600
9/12/2014	1244	820	1653
9/11/2014	1323	741	1786
9/10/2014	834	789	1730
9/9/2014	1109	368	1823
9/8/2014	339	288	315
9/7/2014	1875	588	1734
9/6/2014	1198	836	1705
9/5/2014	948	830	1527
9/4/2014	1004	913	1729
9/3/2014	1018	405	1684
9/2/2014	1015	710	1717
9/1/2014	957	664	2051
8/31/2014	851	593	1689
8/30/2014	336	281	1156
Totals	**56,818.0**	**43,331.0**	**59,473.0**
Daily AVG	**789.1**	**601.8**	**826.0**
Daily MAX	**1,875.0**	**913.0**	**2,051.0**

First 30 Days	Oil Prod (BPD)	Gas Sales (MMscfd)	Water Prod (BPD)
Daily AVG	1,056.8	0.687	1,372.6
Factor	634.1	0.412	823.5

SLR

Attachment E - Oil and Gas Analyses

PRECISION ANALYSIS
GAS MEASUREMENT EMISSIONS TESTING LABORATORY
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EXTENDED HYDROCARBON LIQUID STUDY
CERTIFICATE OF ANALYSIS

Company:	**EOG Resources-DJ Basin**	Sample Name:	**Jubilee 153-1034H**
Date Sampled:	09/02/2014	Sample Number:	14090408-02
Sample Location:	Wyoming	Date Tested:	09/05/2014
Sample Pressure:	79 PSI	Test Method:	GPA 2186M
Sample Temperature:	138 DEG F		
County:	NI	Date Reported:	09/10/2014
		Note: Due to the nature of H2S, the values of	
Sampling Method:	GPA-2174	H2S reported may be lower than actual.	
Type Sample:	SPOT		

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Oxygen	0.0000	0.000	0.000
Carbon Dioxide	0.1719	0.047	0.044
Nitrogen	0.0370	0.006	0.006
Methane	1.6132	0.161	0.408
Ethane	1.7373	0.326	0.693
Propane	4.4586	1.225	1.833
iso-Butane	0.8776	0.318	0.429
n-Butane	4.6524	1.685	2.189
iso-Pentane	1.9325	0.869	1.055
n-Pentane	3.6561	1.644	1.978
Hexanes	1.8163	0.976	1.115
Heptanes	4.4926	2.806	3.094
Octanes	4.3342	3.086	3.314
Nonanes	1.4251	1.139	1.197
Decanes+	63.4160	82.583	79.564
Benzene	0.2552	0.124	0.107
Toluene	1.4750	0.847	0.737
Ethylbenzene	0.0772	0.051	0.044
Xylenes	1.1596	0.767	0.672
n-Hexane	2.1668	1.164	1.330
2,2,4-Trimethylpentane	0.2454	0.175	0.190
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
2-Methylpentane	1.299	0.698	0.797
3-Methylpentane	0.518	0.278	0.318
n-Hexane	2.167	1.164	1.330
2,2,4-Trimethylpentane	0.245	0.175	0.190
Benzene	0.255	0.124	0.107
Toluene	1.475	0.847	0.737
Ethylbenzene	0.077	0.051	0.044
m-Xylene	0.133	0.088	0.077
p-Xylene	0.829	0.549	0.481
o-Xylene	0.197	0.130	0.114

RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	**0.78765**
AVERAGE MOLECULAR WEIGHT	**160.445**
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	**208.939**
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	**107.335**
AVERAGE BOILING POINT, F, calculated	**354.905**
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	**18.470**
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	**123,490.56**
LBS / GALLON OF LIQUID, calculated	**6.327**

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

FLASHED CRUDE OIL LIQUID STUDIES
CERTIFICATE OF ANALYSIS

Sample Name: **Jubilee 153-1034H**
Sample Number: 14090408-01

TEST PERFORMED	RESULTS	DATE TESTED
API GRAVITY AT 60/60 F, (ASTM D-7777), calculated from SG	34.1	09/05/2014
API GRAVITY AT 100/100 F, (ASTM D-7777), calculated from SG	34.9	09/05/2014
REID VAPOR PRESSURE (ASTM D6377), PSIG AT 100 F, measured	3.99	09/05/2014
BOTTOM SEDIMENT & WATER (ASTM D-4007), weight %, measured	<0.025	09/09/2014
CLOUD POINT (ASTM D-97), deg F, measured	14.0	09/10/2014
POUR POINT (ASTM D-97), deg F, measured	-31.0	09/10/2014
SULFUR CONTENT BY XRAY (ASTM D-4294), weight %, measured	0.2834	09/09/2014
PARAFFIN CONTENT (UOP-46), weight %, measured	25.259	09/10/2014
EOG GRINDOUT (EOG METHOD), volume %, measured	7.500	09/10/2014
KINEMATIC VISCOSITY AT 100 F (ASTM D-445),	44.000	09/10/2014
KINEMATIC VISCOSITY AT 120 F (ASTM D-445),	40.440	09/05/2014
ASPHALTENES (ASTM D-3279), weight %, CL	0.20	09/11/2014

PRECISION ANALYSIS
GAS MEASUREMENT EMISSIONS TESTING LABORATORY
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ASTM D86 Distillation
Certificate of Analysis

Date Tested:	**09/05/2014**	**Qualifiers:**
	% Recovery	DEG C @ 300mm Hg
	Intial Boiling Point	42
	5	89
	10	113
	20	154
	30	205
	40	251
	50	298
	53	300
	Final Boiling Point	N/A
	Volume % Recovery	53
	Volume % Residue	47
	Volume % Loss	0

Comments: Residue and loss observed
Temperatures are uncorrected for barometric pressure

PRECISION ANALYSIS
GAS MEASUREMENT EMISSIONS TESTING LABORATORY
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Client:	EOG-DJ Basin	**Analysis Date:**	9/5/2014
Sample ID:	Jubilee 153-1034H	**Date Sampled:**	09/02/2014
Unique #:	0	**Purpose:**	NI
Sample Temperature:	143 DEG F	**Sample Pressure:**	79 PSI
Sampled By:	Jacob Stephens	**Type Sample:**	SPOT
County:	NI		

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide.....	2.5817	4.063	2.049
Nitrogen.....	0.6989	0.700	0.358
Methane.....	59.3899	34.067	46.830
Ethane.....	12.7849	13.746	15.903
Propane.....	13.3248	21.009	17.075
iso-Butane.....	1.4621	3.039	2.225
n-Butane.....	5.4861	11.401	8.045
iso-Pentane.....	1.1815	3.048	2.010
n-Pentane.....	1.4901	3.844	2.512
Cyclopentane.....	0.0914	0.229	0.126
n-Hexane.....	0.3382	1.042	0.647
Cyclohexane.....	0.1473	0.443	0.233
Other Hexanes	0.4455	1.373	0.852
Heptanes.....	0.3871	1.387	0.831
Methylcyclohexane.....	0.0667	0.234	0.125
2,2,4-Trimethylpentane...	0.0001	0.000	0.000
Benzene.....	0.0865	0.241	0.112
Toluene.....	0.0258	0.085	0.040
Ethylbenzene.....	0.0004	0.002	0.001
Xylenes.....	0.0010	0.004	0.002
Octanes.....	0.0092	0.038	0.022
Nonanes.....	0.0011	0.005	0.003
Decanes+.....	0.0000	0.000	0.000
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
Cyclopentane	0.091	0.229	0.126
Cyclohexane	0.147	0.443	0.233
2-Methylpentane	0.280	0.864	0.536
3-Methylpentane	0.165	0.509	0.316
n-Hexane	0.338	1.042	0.647
Methylcyclohexane	0.067	0.234	0.125
2,2,4-Trimethylpentane	0.000	0.000	0.000
Benzene	0.086	0.241	0.112
Toluene	0.026	0.085	0.040
Ethylbenzene	0.000	0.002	0.001
m-Xylene	0.000	0.001	0.000
p-Xylene	0.001	0.002	0.001
o-Xylene	0.000	0.001	0.000

SPECIFIC GRAVITY @ 60/60 F, calculated	0.9656
TOTAL GPM (Ethane Inclusive)	10.884
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis	1583.546
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis	1556.714
AVERAGE MOLECULAR WEIGHT	27.967
MOLAR MASS RATIO	0.9656
RELATIVE DENSITY (G x Z (Air) / Z), calculated	0.9721
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA	1569.387
COMPRESSIBILITY FACTOR (Z)	0.99334

PROPANE GPM	3.6616
BUTANE GPM	2.2024
GASOLINE GPM (PENTANE AND HEAVIER)	1.6095
VOC WEIGHT FRACTION	0.474

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

PRECISION ANALYSIS GAS MEASUREMENT EMISSIONS TESTING LABORATORY
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FLASHED CRUDE OIL LIQUID STUDIES
CERTIFICATE OF ANALYSIS

Company:	**EOG Resources-DJ Basin**	Sample Name:	**Jubilee 154-1034H**
Date Sampled:	09/02/2014	Sample Number:	14090408-05
Sample Location:	Wyoming	Date Tested:	09/09/2014
Type Sample:	SPOT	Date Reported:	09/11/2014
County:	NI	Sampling Method:	Unpressurized 1 qt can

TEST PERFORMED	RESULTS	DATE TESTED
API GRAVITY AT 60/60 F, (ASTM D-7777), calculated from SG	34.5	09/05/2014
API GRAVITY AT 100/100 F, (ASTM D-7777), calculated from SG	35.3	09/05/2014
REID VAPOR PRESSURE (ASTM D6377), PSIG AT 100 F, measured	3.00	09/05/2014
BOTTOM SEDIMENT & WATER (ASTM D-4007), weight %, measured	<0.025	09/09/2014
CLOUD POINT (ASTM D-97), deg F, measured	1.4	09/10/2014
POUR POINT (ASTM D-97), deg F, measured	-40.0	09/10/2014
SULFUR CONTENT BY XRAY (ASTM D-4294), weight %, measured	0.2552	09/09/2014
PARAFFIN CONTENT (UOP-46), weight %, measured	20.172	09/10/2014
EOG GRINDOUT (EOG METHOD), volume %, measured	10.000	09/10/2014
KINEMATIC VISCOSITY AT 100 F (ASTM D-445),	44.500	09/10/2014
KINEMATIC VISCOSITY AT 120 F (ASTM D-445),	40.941	09/10/2014
ASPHALTENES (ASTM D-3279), weight %, CL	0.40	09/11/2014

PRECISION ANALYSIS
GAS MEASUREMENT EMISSIONS TESTING LABORATORY
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ASTM D86 Distillation
Certificate of Analysis

Date Tested:	09/09/2014	Qualifiers:
	% Recovery	DEG C @ 300mm Hg
	Intial Boiling Point	53
	5	96
	10	119
	20	151
	30	202
	40	253
	50	297
	54	300
	Final Boiling Point	N/A
	Volume % Recovery	54
	Volume % Residue	36
	Volume % Loss	10

Comments: Residue and loss observed
Temperatures are uncorrected for barometric pressure

PRECISION ANALYSIS
GAS MEASUREMENT EMISSIONS TESTING LABORATORY
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EXTENDED HYDROCARBON LIQUID STUDY
CERTIFICATE OF ANALYSIS

Company:	**EOG Resources-DJ Basin**	Sample Name:	**Jubilee 154-1034H**
Date Sampled:	08/29/2014	Sample Number:	14090503-02
Sample Location:	Colorado	Date Tested:	09/08/2014
Sample Pressure:	70 PSI	Test Method:	GPA 2186M
Sample Temperature:	113 DEG F		
County:	Weld	Date Reported:	09/10/2014
		Note: Due to the nature of H2S, the values of	
Sampling Method:	GPA-2174	H2S reported may be lower than actual.	
Type Sample:	SPOT		

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Oxygen	0.0000	0.000	0.000
Carbon Dioxide	0.1018	0.025	0.025
Nitrogen	0.0160	0.003	0.003
Methane	0.9626	0.088	0.233
Ethane	1.3253	0.227	0.506
Propane	4.3460	1.091	1.709
iso-Butane	0.9276	0.307	0.433
n-Butane	4.6627	1.543	2.098
iso-Pentane	2.1586	0.887	1.127
n-Pentane	3.4215	1.405	1.770
Hexanes	2.4028	1.179	1.410
Heptanes	6.2553	3.568	4.118
Octanes	6.1207	3.980	4.475
Nonanes	2.1021	1.535	1.688
Decanes+	57.8564	80.110	76.221
Benzene	0.3931	0.175	0.157
Toluene	1.9097	1.002	0.912
Ethylbenzene	0.1324	0.080	0.073
Xylenes	1.4996	0.906	0.831
n-Hexane	2.0215	0.992	1.186
2,2,4-Trimethylpentane	1.3843	0.900	1.026
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
2-Methylpentane	1.718	0.843	1.008
3-Methylpentane	0.685	0.336	0.402
n-Hexane	2.021	0.992	1.186
2,2,4-Trimethylpentane	1.384	0.900	1.026
Benzene	0.393	0.175	0.157
Toluene	1.910	1.002	0.912
Ethylbenzene	0.132	0.080	0.073
m-Xylene	0.172	0.104	0.096
p-Xylene	1.072	0.648	0.594
o-Xylene	0.255	0.154	0.141

RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	**0.83499**
AVERAGE MOLECULAR WEIGHT	**175.683**
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	**243.259**
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	**71.435**
AVERAGE BOILING POINT, F, calculated	**387.008**
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	**18.479**
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	**123,766.85**
LBS / GALLON OF LIQUID, calculated	**6.623**

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

PRECISION ANALYSIS

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Client:	EOG-DJ Basin	**Analysis Date:**	9/5/2014
Sample ID:	Jubilee 154-1034H	**Date Sampled:**	08/29/2014
Unique #:	0	**Purpose:**	NI
Sample Temperature:	136.5 DEG F	**Sample Pressure:**	70 PSI
Sampled By:	Jacob Stephens	**Type Sample:**	SPOT
County:	NI		

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide.....	2.4816	3.857	1.955
Nitrogen.....	0.6605	0.653	0.335
Methane.....	58.2483	33.000	45.587
Ethane.....	13.2893	14.112	16.407
Propane.....	13.7541	21.418	17.493
iso-Butane.....	1.4767	3.031	2.231
n-Butane.....	5.6207	11.537	8.180
iso-Pentane.....	1.2362	3.150	2.087
n-Pentane.....	1.5398	3.923	2.577
Cyclopentane.....	0.0971	0.240	0.133
n-Hexane.....	0.3461	1.053	0.657
Cyclohexane.....	0.1496	0.445	0.235
Other Hexanes	0.4755	1.447	0.903
Heptanes.....	0.4146	1.467	0.883
Methylcyclohexane.....	0.0776	0.269	0.144
2,2,4-Trimethylpentane...	0.0001	0.000	0.000
Benzene.....	0.0896	0.247	0.116
Toluene.....	0.0299	0.097	0.046
Ethylbenzene.....	0.0004	0.002	0.001
Xylenes.....	0.0009	0.003	0.002
Octanes.....	0.0102	0.041	0.024
Nonanes.....	0.0012	0.006	0.003
Decanes+.....	0.0000	0.000	0.000
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
Cyclopentane	0.097	0.240	0.133
Cyclohexane	0.150	0.445	0.235
2-Methylpentane	0.299	0.911	0.568
3-Methylpentane	0.176	0.536	0.335
n-Hexane	0.346	1.053	0.657
Methylcyclohexane	0.078	0.269	0.144
2,2,4-Trimethylpentane	0.000	0.000	0.000
Benzene	0.090	0.247	0.116
Toluene	0.030	0.097	0.046
Ethylbenzene	0.000	0.002	0.001
m-Xylene	0.000	0.001	0.000
p-Xylene	0.001	0.002	0.001
o-Xylene	0.000	0.001	0.000

SPECIFIC GRAVITY @ 60/60 F, calculated	0.9777
TOTAL GPM (Ethane Inclusive)	11.259
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis	1605.718
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis	1578.498
AVERAGE MOLECULAR WEIGHT	28.317
MOLAR MASS RATIO	0.9776
RELATIVE DENSITY (G x Z (Air) / Z), calculated	0.9845
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA	1591.028
COMPRESSIBILITY FACTOR (Z)	0.99313

PROPANE GPM	3.7795
BUTANE GPM	2.2494
GASOLINE GPM (PENTANE AND HEAVIER)	1.6852
VOC WEIGHT FRACTION	0.484

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

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CERTIFICATE OF ANALYSIS

Company:	**Noble Energy Inc.**	Sample Name:	**Jubilee 554-1034H**
Date Sampled:	09/04/2014	Sample Number:	14090913-02
Sample Location:	Wyoming	Date Tested:	09/11/2014
Sample Pressure:	77 PSI	Test Method:	GPA 2186M
Sample Temperature:	88 DEG F		
County:	NI	Date Reported:	09/17/2014
		Note: Due to the nature of H2S, the values of	
Sampling Method:	GPA-2174	H2S reported may be lower than actual.	
Type Sample:	SPOT		

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Oxygen	0.0000	0.000	0.000
Carbon Dioxide	0.1441	0.041	0.038
Nitrogen	0.0079	0.001	0.001
Methane	0.7349	0.076	0.194
Ethane	2.1235	0.413	0.886
Propane	6.4767	1.849	2.783
iso-Butane	1.2919	0.486	0.659
n-Butane	5.9646	2.245	2.933
iso-Pentane	2.4747	1.156	1.412
n-Pentane	3.6824	1.720	2.082
Hexanes	2.5824	1.441	1.656
Heptanes	6.3805	4.140	4.592
Octanes	7.3070	5.405	5.839
Nonanes	2.0215	1.679	1.774
Decanes+	50.9655	74.356	70.102
Benzene	0.4793	0.242	0.209
Toluene	1.6670	0.995	0.870
Ethylbenzene	0.0472	0.032	0.028
Xylenes	1.3564	0.932	0.822
n-Hexane	2.1354	1.192	1.370
2,2,4-Trimethylpentane	2.1570	1.596	1.748
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
2-Methylpentane	1.846	1.030	1.184
3-Methylpentane	0.736	0.411	0.472
n-Hexane	2.135	1.192	1.370
2,2,4-Trimethylpentane	2.157	1.596	1.748
Benzene	0.479	0.242	0.209
Toluene	1.667	0.995	0.870
Ethylbenzene	0.047	0.032	0.028
m-Xylene	0.156	0.107	0.095
p-Xylene	0.970	0.667	0.588
o-Xylene	0.231	0.159	0.140

RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	**0.80958**
AVERAGE MOLECULAR WEIGHT	**154.425**
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	**225.297**
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	**71.528**
AVERAGE BOILING POINT, F, calculated	**331.983**
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	**19.118**
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	**122,653.40**
LBS / GALLON OF LIQUID, calculated	**6.364**

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

FLASHED CRUDE OIL LIQUID STUDIES
CERTIFICATE OF ANALYSIS

Sample Name: **Jubilee 554-1034H**
Sample Number: 14090913-01

TEST PERFORMED	RESULTS	DATE TESTED
API GRAVITY AT 60/60 F, (ASTM D-7777), calculated from SG	37.0	09/11/2014
API GRAVITY AT 100/100 F, (ASTM D-7777), calculated from SG	37.8	09/11/2014
REID VAPOR PRESSURE (ASTM D6377), PSIG AT 100 F, measured	8.25	09/10/2014
BOTTOM SEDIMENT & WATER (ASTM D-4007), weight %, measured	<0.025	09/10/2014
CLOUD POINT (ASTM D-97), deg F, measured	14.0	09/10/2014
POUR POINT (ASTM D-97), deg F, measured	-5.8	09/10/2014
SULFUR CONTENT BY XRAY (ASTM D-4294), weight %, measured	0.2205	09/11/2014
PARAFFIN CONTENT (UOP-46), weight %, measured	32.614	09/12/2014
EOG GRINDOUT (EOG METHOD), volume %, measured	0.250	09/11/2014
KINEMATIC VISCOSITY AT 100 F (ASTM D-445),	42.300	09/12/2014
KINEMATIC VISCOSITY AT 120 F (ASTM D-445),	39.139	09/05/2014
ASPHALTENES (ASTM D-3279), weight %, CL	<0.10	09/17/2014

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Date Tested:	**09/11/2014**	**Qualifiers:**
	% Recovery	DEG C @ 300mm Hg
	Intial Boiling Point	42
	5	73
	10	99
	20	138
	30	185
	40	236
	50	293
	54	300
	Final Boiling Point	N/A
	Volume % Recovery	54
	Volume % Residue	46
	Volume % Loss	0

Comments: Residue and loss observed
Temperatures are uncorrected for barometric pressure

PRECISION ANALYSIS
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Client:	EOG-DJ Basin	**Analysis Date:**	9/5/2014
Sample ID:	Jubilee 554-1034H	**Date Sampled:**	09/04/2014
Unique #:	0	**Purpose:**	NI
Sample Temperature:	100 DEG F	**Sample Pressure:**	77 PSI
Sampled By:	Jacob Stephens	**Type Sample:**	SPOT
County:	NI		

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide.....	2.4427	3.214	1.743
Nitrogen.....	0.1649	0.138	0.076
Methane.....	39.0365	18.723	27.670
Ethane.....	19.8808	17.873	22.230
Propane.....	22.8599	30.138	26.333
iso-Butane.....	2.3046	4.005	3.153
n-Butane.....	8.2827	14.393	10.918
iso-Pentane.....	1.6355	3.528	2.501
n-Pentane.....	1.9484	4.203	2.953
Cyclopentane.....	0.1060	0.222	0.131
n-Hexane.....	0.3246	0.836	0.558
Cyclohexane.....	0.0989	0.249	0.141
Other Hexanes	0.5084	1.310	0.874
Heptanes.....	0.2932	0.878	0.566
Methylcyclohexane.....	0.0310	0.091	0.052
2,2,4-Trimethylpentane...	0.0000	0.000	0.000
Benzene.....	0.0681	0.159	0.080
Toluene.....	0.0113	0.031	0.016
Ethylbenzene.....	0.0000	0.000	0.000
Xylenes.....	0.0002	0.001	0.000
Octanes.....	0.0021	0.007	0.004
Nonanes.....	0.0002	0.001	0.000
Decanes+.....	0.0000	0.000	0.000
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
Cyclopentane	0.106	0.222	0.131
Cyclohexane	0.099	0.249	0.141
2-Methylpentane	0.320	0.824	0.550
3-Methylpentane	0.188	0.485	0.324
n-Hexane	0.325	0.836	0.558
Methylcyclohexane	0.031	0.091	0.052
2,2,4-Trimethylpentane	0.000	0.000	0.000
Benzene	0.068	0.159	0.080
Toluene	0.011	0.031	0.016
Ethylbenzene	0.000	0.000	0.000
m-Xylene	0.000	0.000	0.000
p-Xylene	0.000	0.000	0.000
o-Xylene	0.000	0.000	0.000

SPECIFIC GRAVITY @ 60/60 F, calculated	1.1548
TOTAL GPM (Ethane Inclusive)	16.819
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis	1899.440
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis	1867.080
AVERAGE MOLECULAR WEIGHT	33.447
MOLAR MASS RATIO	1.1548
RELATIVE DENSITY (G x Z (Air) / Z), calculated	1.1664
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA	1876.334
COMPRESSIBILITY FACTOR (Z)	0.99011

PROPANE GPM	6.2817
BUTANE GPM	3.3568
GASOLINE GPM (PENTANE AND HEAVIER)	1.8771
VOC WEIGHT FRACTION	0.601

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

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EXTENDED HYDROCARBON LIQUID STUDY
CERTIFICATE OF ANALYSIS

Company:	**EOG Resources-DJ Basin**	Sample Name:	**Jubilee 555-1034H**
Date Sampled:	09/02/2014	Sample Number:	14090408-04
Sample Location:	Wyoming	Date Tested:	09/08/2014
Sample Pressure:	83 PSI	Test Method:	GPA 2186M
Sample Temperature:	156 DEG F		
County:	NI	Date Reported:	09/10/2014
		Note: Due to the nature of H2S, the values of	
Sampling Method:	GPA-2174	H2S reported may be lower than actual.	
Type Sample:	SPOT		

Components	Mole %	Weight %	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.000	0.000
Oxygen	0.0000	0.000	0.000
Carbon Dioxide	0.1116	0.028	0.027
Nitrogen	0.0126	0.002	0.002
Methane	1.0554	0.097	0.257
Ethane	1.4068	0.243	0.540
Propane	4.3753	1.108	1.729
iso-Butane	0.9654	0.322	0.453
n-Butane	4.5909	1.533	2.076
iso-Pentane	2.1274	0.882	1.116
n-Pentane	3.1890	1.322	1.658
Hexanes	2.4147	1.195	1.424
Heptanes	6.2096	3.575	4.109
Octanes	5.5655	3.652	4.090
Nonanes	2.0406	1.504	1.647
Decanes+	58.4539	80.339	76.568
Benzene	0.3715	0.167	0.149
Toluene	1.8392	0.974	0.883
Ethylbenzene	0.1576	0.096	0.087
Xylenes	1.7016	1.038	0.948
n-Hexane	1.9646	0.973	1.159
2,2,4-Trimethylpentane	1.4470	0.950	1.078
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
2-Methylpentane	1.726	0.855	1.018
3-Methylpentane	0.688	0.341	0.406
n-Hexane	1.965	0.973	1.159
2,2,4-Trimethylpentane	1.447	0.950	1.078
Benzene	0.371	0.167	0.149
Toluene	1.839	0.974	0.883
Ethylbenzene	0.158	0.096	0.087
m-Xylene	0.196	0.119	0.109
p-Xylene	1.217	0.742	0.678
o-Xylene	0.289	0.176	0.161

RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	**0.83011**
AVERAGE MOLECULAR WEIGHT	**174.059**
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	**239.228**
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	**76.724**
AVERAGE BOILING POINT, F, calculated	**383.567**
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	**18.481**
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	**123,750.14**
LBS / GALLON OF LIQUID, calculated	**6.596**

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

FLASHED CRUDE OIL LIQUID STUDIES
CERTIFICATE OF ANALYSIS

Sample Name: **Jubilee 555-1034H**
Sample Number: 14090408-03

TEST PERFORMED	RESULTS	DATE TESTED
API GRAVITY AT 60/60 F, (ASTM D-7777), calculated from SG	35.1	09/05/2014
API GRAVITY AT 100/100 F, (ASTM D-7777), calculated from SG	35.9	09/05/2014
REID VAPOR PRESSURE (ASTM D6377), PSIG AT 100 F, measured	3.43	09/05/2014
BOTTOM SEDIMENT & WATER (ASTM D-4007), weight %, measured	<0.025	09/09/2014
CLOUD POINT (ASTM D-97), deg F, measured	-5.8	09/10/2014
POUR POINT (ASTM D-97), deg F, measured	-36.4	09/10/2014
SULFUR CONTENT BY XRAY (ASTM D-4294), weight %, measured	0.2231	09/09/2014
PARAFFIN CONTENT (UOP-46), weight %, measured	22.228	09/10/2014
EOG GRINDOUT (EOG METHOD), volume %, measured	23.750	09/10/2014
KINEMATIC VISCOSITY AT 100 F (ASTM D-445),	43.000	09/10/2014
KINEMATIC VISCOSITY AT 120 F (ASTM D-445),	39.740	09/10/2014
ASPHALTENES (ASTM D-3279), weight %, CL	0.20	09/11/2014

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Date Tested:	**09/05/2014**	**Qualifiers:**
	% Recovery	DEG C @ 300mm Hg
	Intial Boiling Point	60
	5	89
	10	110
	20	147
	30	193
	40	245
	50	295
	51	300
	Final Boiling Point	N/A
	Volume % Recovery	51
	Volume % Residue	49
	Volume % Loss	0

Comments: Residue and loss observed
Temperatures are uncorrected for barometric pressure

PRECISION ANALYSIS
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Client:	EOG-DJ Basin	**Analysis Date:**	9/5/2014
Sample ID:	Jubilee 555-1034H	**Date Sampled:**	09/02/2014
Unique #:	0	**Purpose:**	NI
Sample Temperature:	160 DEG F	**Sample Pressure:**	80 PSI
Sampled By:	Jacob Stephens	**Type Sample:**	SPOT
County:	NI		

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide.....	2.4336	3.657	1.885
Nitrogen.....	0.6268	0.600	0.313
Methane.....	55.9207	30.628	43.036
Ethane.....	13.6183	13.980	16.533
Propane.....	14.2214	21.410	17.786
iso-Butane.....	1.6073	3.189	2.388
n-Butane.....	6.2808	12.463	8.989
iso-Pentane.....	1.4933	3.678	2.479
n-Pentane.....	1.8937	4.665	3.116
Cyclopentane.....	0.1244	0.298	0.167
n-Hexane.....	0.4260	1.253	0.795
Cyclohexane.....	0.1488	0.428	0.230
Other Hexanes	0.6084	1.790	1.136
Heptanes.....	0.4247	1.453	0.889
Methylcyclohexane.....	0.0519	0.174	0.095
2,2,4-Trimethylpentane...	0.0001	0.000	0.000
Benzene.....	0.0965	0.257	0.123
Toluene.....	0.0178	0.056	0.027
Ethylbenzene.....	0.0001	0.000	0.000
Xylenes.....	0.0003	0.001	0.001
Octanes.....	0.0044	0.017	0.010
Nonanes.....	0.0004	0.002	0.001
Decanes+.....	0.0000	0.000	0.000
Totals	100.000	100.000	100.000

ADDITIONAL BTEX DATA

Components	Mole %	Weight %	Liq. Vol. %
Cyclopentane	0.124	0.298	0.167
Cyclohexane	0.149	0.428	0.230
2-Methylpentane	0.383	1.127	0.715
3-Methylpentane	0.225	0.663	0.421
n-Hexane	0.426	1.253	0.795
Methylcyclohexane	0.052	0.174	0.095
2,2,4-Trimethylpentane	0.000	0.000	0.000
Benzene	0.097	0.257	0.123
Toluene	0.018	0.056	0.027
Ethylbenzene	0.000	0.000	0.000
m-Xylene	0.000	0.000	0.000
p-Xylene	0.000	0.001	0.000
o-Xylene	0.000	0.000	0.000

SPECIFIC GRAVITY @ 60/60 F, calculated	1.0113
TOTAL GPM (Ethane Inclusive)	12.031
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis	1660.600
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis	1632.420
AVERAGE MOLECULAR WEIGHT	29.290
MOLAR MASS RATIO	1.0113
RELATIVE DENSITY (G x Z (Air) / Z), calculated	1.0189
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA	1644.501
COMPRESSIBILITY FACTOR (Z)	0.99258

PROPANE GPM	3.9079
BUTANE GPM	2.4997
GASOLINE GPM (PENTANE AND HEAVIER)	1.9905
VOC WEIGHT FRACTION	0.511

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

Sample ID No.:	14090408-02
Sample Description:	Jubilee 153-1034H
Sample Date:	9/2/174
Laboratory:	Precision Analysis

Component	yi (Mol %) [1]	(Wt %)
Hydrogen Sulfide	0.0000	0.0000
Oxygen	0.0000	0.0000
Carbon Dioxide	0.1719	0.0470
Nitrogen	0.0370	0.0060
Methane	1.6132	0.1610
Ethane	1.7373	0.3260
Propane	4.4586	1.2250
Isobutane	0.8776	0.3180
n-Butane	4.6524	1.6850
Isopentane	1.9325	0.8690
n-Pentane	3.6561	1.6440
Cyclopentane (n-C5)	0.0000	0.0000
Cyclohexanes	0.0000	0.0000
Methylcyclohexane	0.0000	0.0000
Other Hexanes	1.8163	0.9760
Other Heptanes	4.4926	2.8060
Octanes	4.3342	3.0860
Nonanes	1.4251	1.1390
Decanes Plus	63.4160	82.5830
Benzene	0.2552	0.1240
Toluene	1.4750	0.8470
Ethylbenzene	0.0772	0.0510
Xylenes (Total)	1.1596	0.7670
n-Hexane	2.1668	1.1640
2,2,4-TMP	0.2454	0.1750
Total	100.00	100.00

Sample Temperature	138	°F
Sample Pressure	79	psig
Molecular Weight C10+	208.9390	lb/lb-mol
Specific Gravity	0.7877	
API Gravity	34.9	
RVP	3.99	psig

Sample ID No.:	14090503-02
Sample Description:	Jubilee 154-1034H
Sample Date:	8/29/2014
Laboratory:	Precision Analysis

Component	yi (Mol %) [1]	(Wt %)
Hydrogen Sulfide	0.0000	0.0000
Oxygen	0.0000	0.0000
Carbon Dioxide	0.1018	0.0250
Nitrogen	0.0160	0.0030
Methane	0.9626	0.0880
Ethane	1.3253	0.2270
Propane	4.3460	1.0910
Isobutane	0.9276	0.3070
n-Butane	4.6627	1.5430
Isopentane	2.1586	0.8870
n-Pentane	3.4215	1.4050
Cyclopentane (n-C5)		
Cyclohexanes		
Methylcyclohexane		
Other Hexanes	2.4028	1.1790
Other Heptanes	6.2553	3.5680
Octanes	6.1207	3.9800
Nonanes	2.1021	1.5350
Decanes Plus	57.8564	80.1100
Benzene	0.3931	0.1750
Toluene	1.9097	1.0020
Ethylbenzene	0.1324	0.0800
Xylenes (Total)	1.4996	0.9060
n-Hexane	2.0215	0.9920
2,2,4-TMP	1.3843	0.9000
Total	100.00	100.00

Sample Temperature	113	°F
Sample Pressure	70	psig
Molecular Weight	243.2590	lb/lb-mol
Specific Gravity	0.8350	
API Gravity	35.3	
RVP	3.00	psig

Sample ID No.:	14090913-02
Sample Description:	Jubilee 554-1034H
Sample Date:	9/4/2014
Laboratory:	Precision Analysis

Component	yi (Mol %) [1]	(Wt %)
Hydrogen Sulfide	0.0000	0.0000
Oxygen	0.0000	0.0000
Carbon Dioxide	0.1441	0.0410
Nitrogen	0.0079	0.0010
Methane	0.7349	0.0760
Ethane	2.1235	0.4130
Propane	6.4767	1.8490
Isobutane	1.2919	0.4860
n-Butane	5.9646	2.2450
Isopentane	2.4747	1.1560
n-Pentane	3.6824	1.7200
Cyclopentane (n-C5)		
Cyclohexanes		
Methylcyclohexane		
Other Hexanes	2.5824	1.4410
Other Heptanes	6.3805	4.1400
Octanes	7.3070	5.4050
Nonanes	2.0215	1.6790
Decanes Plus	50.9655	74.3560
Benzene	0.4793	0.2420
Toluene	1.6670	0.9950
Ethylbenzene	0.0472	0.0320
Xylenes (Total)	1.3564	0.9320
n-Hexane	2.1354	1.1920
2,2,4-TMP	2.1570	1.5960
Total	100.00	100.00

Sample Temperature	88	°F
Sample Pressure	77	psig
Molecular Weight	225.2970	lb/lb-mol
Specific Gravity	0.8096	
API Gravity	37.8	
RVP	8.25	psig

Sample ID No.:	14091608-05
Sample Description:	Jubilee 555-1034H
Sample Date:	9/10/2014
Laboratory:	Precision Analysis

Component	yi (Mol %) [1]	(Wt %)
Hydrogen Sulfide	0.0000	0.0000
Oxygen	0.0000	0.0000
Carbon Dioxide	0.1116	0.0280
Nitrogen	0.0126	0.0020
Methane	1.0554	0.0970
Ethane	1.4068	0.2430
Propane	4.3753	1.1080
Isobutane	0.9654	0.3220
n-Butane	4.5909	1.5330
Isopentane	2.1274	0.8820
n-Pentane	3.1890	1.3220
Cyclopentane (n-C5)		
Cyclohexanes		
Methylcyclohexane		
Other Hexanes	2.4147	1.1950
Other Heptanes	6.2096	3.5750
Octanes	5.5655	3.6520
Nonanes	2.0406	1.5040
Decanes Plus	58.4539	80.3390
Benzene	0.3715	0.1670
Toluene	1.8392	0.9740
Ethylbenzene	0.1576	0.0960
Xylenes (Total)	1.7016	1.0380
n-Hexane	1.9646	0.9730
2,2,4-TMP	1.4470	0.9500
Total	100.00	100.00

Sample Temperature	156	°F
Sample Pressure	83	psig
Molecular Weight	239.2280	lb/lb-mol
Specific Gravity	0.8301	
API Gravity	35.9	
RVP	3.43	psig

Sample ID No.:	Jubilee 153-1034H
Sample Description:	Jubilee 153-1034H
Sample Date:	9/2/2014
Laboratory:	Precision Analysis

Component	MWi	yi (Mol %) [1]	yi (MolFrac)	yiMWi	lbi/lb (WtFrac)	(Wt %)
Oxygen	32	0.0000	0.0000	0.0000	0.0000	0.00
Nitrogen	28.01	0.6989	0.0070	0.1958	0.0070	0.70
Carbon Dioxide	44.01	2.5817	0.0258	1.1362	0.0406	4.06
Hydrogen Sulfide	34.8	0.0000	0.0000	0.0000	0.0000	0.00
Methane	16.041	59.3899	0.5939	9.5267	0.3407	34.07
Ethane	30.063	12.7849	0.1278	3.8435	0.1374	13.74
Propane	44.092	13.3248	0.1332	5.8752	0.2101	21.01
Isobutane	58.118	1.4621	0.0146	0.8497	0.0304	3.04
n-Butane	58.118	5.4861	0.0549	3.1884	0.1140	11.40
Isopentane	72.114	1.1815	0.0118	0.8520	0.0305	3.05
n-Pentane	72.114	1.4901	0.0149	1.0746	0.0384	3.84
Cyclopentane	70.13	0.0914	0.0009	0.0641	0.0023	0.23
Cyclohexane	84.16	0.1473	0.0015	0.1240	0.0044	0.44
2,2-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2,3-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
3-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
Other Hexanes	86.18	0.4455	0.0045	0.3839	0.0137	1.37
Methycyclohexane	98.19	0.0667	0.0007	0.0655	0.0023	0.23
Heptanes	100.21	0.3871	0.0039	0.3879	0.0139	1.39
Octanes + Heavies	114.23	0.0092	0.0001	0.0105	0.0004	0.04
Nonanes	128.26	0.0011	0.0000	0.0014	0.0001	0.01
Decanes Plus	142.29	0.0000	0.0000	0.0000	0.0000	0.00
n-Hexane	**86.17**	0.3382	0.0034	0.2914	0.0104	1.04
Benzene	**78.12**	0.0865	0.0009	0.0676	0.0024	0.24
Toluene	**92.15**	0.0258	0.0003	0.0238	0.0009	0.09
Ethylbenzene	**106.17**	0.0004	0.0000	0.0004	0.0000	0.00
Xylenes (Total)	**106.17**	0.0010	0.0000	0.0011	0.0000	0.00
2,2,4-TMP	**114.23**	0.0001	0.0000	0.0001	0.000004	0.00
	Total	100.00	1.00		1.00	100.00
	Total Hydrocarbon (HC)		0.9672		0.9524	
	Total VOC (C3+)		0.2454		**0.4742**	
	Total HAP		0.0045		**0.0137**	
			Total MW	**27.96 lb/lb-mol**		

Lower Heating Value (dry)	**1,438 Btu/scf**
Lower Heating Value (dry)	19,629 Btu/lbm
Higher Heating Value (dry)	**1,575 Btu/scf**
Higher Heating Value (dry)	21,505 Btu/lbm

EOG Resources, Inc. - Jubilee 153-1034H Facility Fuel Gas Data

FUEL COMPONENT	MOLE FRAC	COMP MOLES CARB	MOLES CARBON	COMP MOLE HYD	MOLE HYD	COMP LHV (BTU/SCF)	LHV (BTU/SCF)	COMP HHV (BTU/SCF)	HHV (BTU/SCF)	COMP MW (LBM/LBMOLE)	MASS FRAC (LBM/LBMOLE FUEL)
methane	0.59390	1	0.593899	4	2.375596	911.45	541.3092436	1012.32	601.2158357	16.032	9.521388768
ethane	0.12769	2	0.255698	6	0.767094	1622.1	207.3838629	1773.42	226.7299736	30.048	3.841606752
propane	0.13325	3	0.399744	8	1.065984	2322.01	309.4031885	2523.82	336.2939674	44.064	5.871439872
i-butane	0.01462	4	0.058484	10	0.14621	3008.96	43.99400416	3261.17	47.68156657	58.08	0.84918768
n-butane	0.05486	4	0.219444	10	0.54861	3018.48	165.5968313	3270.69	179.4333241	58.08	3.18632688
i-pentane	0.01162	5	0.059075	12	0.14178	3708.01	43.81013815	4010.71	47.38653865	72.096	0.85181424
n-pentane	0.01490	5	0.074505	12	0.178812	3717.15	55.38925215	4019.65	59.89680465	72.096	1.074302496
hexane	0.01600	6	0.096018	14	0.224042	4415.23	70.65692569	4768.27	76.30662481	86.172	1.379010516
co2	0.02582									44	1.135948
n2	0.00699									28	0.195692
			1.756867		5.448128		1437.543446		1574.944635		
											27.9067172

	1.0000
Specific Gravity	0.964
Lower Heating Value (BTU/scf)	1438
Lower Heating Value (BTU/lbm)	19629
Higher Heating Value (BTU/scf)	1575
Higher Heating Value (BTU/lbm)	21505

	Moles	Mass	Mass Frac
Carbon	1.782684	21.41003	0.766737
Hydrogen	5.448128	5.491713	0.196669
Oxygen	0.051634	0.826144	0.029586
Nitrogen	0.013978	0.195692	0.007008
		27.92358	

METHOD 19 FUEL FACTORS	
Fd (Equations in Method 19, LHV)	9559
Fc (Equations in Method 19, LHV)	1254
Fd (Equations in Method 19, HHV)	8725
Fc (Equations in Method 19, HHV)	1144

Sample ID No.:	Jubilee 154-1034H
Sample Description:	Jubilee 154-1034H
Sample Date:	8/29/2014
Laboratory:	Precision Analysis

Component	MWi	yi (Mol %) [1]	yi (MolFrac)	yiMWi	lbi/lb (WtFrac)	(Wt %)
Oxygen	32	0.0000	0.0000	0.0000	0.0000	0.00
Nitrogen	28.01	0.6605	0.0066	0.1850	0.0065	0.65
Carbon Dioxide	44.01	2.4816	0.0248	1.0922	0.0386	3.86
Hydrogen Sulfide	34.8	0.0000	0.0000	0.0000	0.0000	0.00
Methane	16.041	58.2483	0.5825	9.3436	0.3300	33.00
Ethane	30.063	13.2893	0.1329	3.9952	0.1411	14.11
Propane	44.092	13.7541	0.1375	6.0645	0.2142	21.42
Isobutane	58.118	1.4767	0.0148	0.8582	0.0303	3.03
n-Butane	58.118	5.6207	0.0562	3.2666	0.1154	11.54
Isopentane	72.114	1.2362	0.0124	0.8915	0.0315	3.15
n-Pentane	72.114	1.5398	0.0154	1.1104	0.0392	3.92
Cyclopentane	70.13	0.0971	0.0010	0.0681	0.0024	0.24
Cyclohexane	84.16	0.1496	0.0015	0.1259	0.0044	0.44
2,2-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2,3-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
3-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
Other Hexanes	86.18	0.4755	0.0048	0.4098	0.0145	1.45
Methycyclohexane	98.19	0.0776	0.0008	0.0762	0.0027	0.27
Heptanes	100.21	0.4146	0.0041	0.4155	0.0147	1.47
Octanes + Heavies	114.23	0.0102	0.0001	0.0117	0.0004	0.04
Nonanes	128.26	0.0012	0.0000	0.0015	0.0001	0.01
Decanes Plus	142.29	0.0000	0.0000	0.0000	0.0000	0.00
n-Hexane	**86.17**	0.3461	0.0035	0.2982	0.0105	1.05
Benzene	**78.12**	0.0896	0.0009	0.0700	0.0025	0.25
Toluene	**92.15**	0.0299	0.0003	0.0276	0.0010	0.10
Ethylbenzene	**106.17**	0.0004	0.0000	0.0004	0.0000	0.00
Xylenes (Total)	**106.17**	0.0009	0.0000	0.0010	0.0000	0.00
2,2,4-TMP	**114.23**	0.0001	0.0000	0.0001	0.000004	0.00
Total		100.00	1.00		1.00	100.00
Total Hydrocarbon (HC)			0.9686		0.9549	
Total VOC (C3+)			0.2532		**0.4838**	
Total HAP			0.0047		**0.0140**	
			Total MW	**28.31 lb/lb-mol**		

Lower Heating Value (dry)	**1,458 Btu/scf**
Lower Heating Value (dry)	19,662 Btu/lbm
Higher Heating Value (dry)	**1,597 Btu/scf**
Higher Heating Value (dry)	21,536 Btu/lbm

EOG Resources, Inc. - Jubilee 154-1034H Facility Fuel Gas Data

FUEL COMPONENT	MOLE FRAC	COMP MOLES CARB	MOLES CARBON	COMP MOLE HYD	MOLE HYD	COMP LHV (BTU/SCF)	LHV (BTU/SCF)	COMP HHV (BTU/SCF)	HHV (BTU/SCF)	COMP MW (LBM/LBMOLE)	MASS FRAC (LBM/LBMOLE FUEL)
methane	0.58248	1	0.582483	4	2.329932	911.45	530.9041304	1012.32	589.6591906	16.032	9.338367456
ethane	0.13289	2	0.265786	6	0.797358	1622.1	215.5657353	1773.42	235.6751041	30.048	3.993168864
propane	0.13754	3	0.412623	8	1.100328	2322.01	319.3715774	2523.82	347.1287266	44.064	6.060606624
i-butane	0.01477	4	0.059068	10	0.14767	3008.96	44.43331232	3261.17	48.15769739	58.08	0.85766736
n-butane	0.05621	4	0.224828	10	0.56207	3018.48	169.6597054	3270.69	183.8356728	58.08	3.26450256
i-pentane	0.01233	5	0.06181	12	0.148344	3708.01	45.83841962	4010.71	49.58039702	72.096	0.891250752
n-pentane	0.01540	5	0.07699	12	0.184776	3717.15	57.2366757	4019.65	61.8945707	72.096	1.110134208
hexane	0.01693	6	0.101568	14	0.236992	4415.23	74.74101344	4768.27	80.71727456	86.172	1.458719616
co2	0.02482									44	1.091904
n2	0.0066									28	0.18494
			1.785156		5.50747		1457.75057		1596.648634		
											28.25126144

1.0000

Specific Gravity	0.976
Lower Heating Value (BTU/scf)	1458
Lower Heating Value (BTU/lbm)	19662
Higher Heating Value (BTU/scf)	1597
Higher Heating Value (BTU/lbm)	21536

	Moles	Mass	Mass Frac
Carbon	1.809972	21.73776	0.768979
Hydrogen	5.50747	5.55153	0.196387
Oxygen	0.049632	0.794112	0.028092
Nitrogen	0.01321	0.18494	0.006542
		28.26835	

METHOD 19 FUEL FACTORS

Fd (Equations in Method 19, LHV)	9558
Fc (Equations in Method 19, LHV)	1255
Fd (Equations in Method 19, HHV)	8727
Fc (Equations in Method 19, HHV)	1146

Sample ID No.:	Jubilee 554-1034H
Sample Description:	Jubilee 554-1034H
Sample Date:	8/28/2014
Laboratory:	Precision Analysis

Component	MWi	yi (Mol %) [1]	yi (MolFrac)	yiMWi	lbi/lb (WtFrac)	(Wt %)
Oxygen	32	0.0000	0.0000	0.0000	0.0000	0.00
Nitrogen	28.01	0.1649	0.0016	0.0462	0.0014	0.14
Carbon Dioxide	44.01	2.4427	0.0244	1.0750	0.0321	3.21
Hydrogen Sulfide	34.8	0.0000	0.0000	0.0000	0.0000	0.00
Methane	16.041	39.0365	0.3904	6.2618	0.1872	18.72
Ethane	30.063	19.8808	0.1988	5.9768	0.1787	17.87
Propane	44.092	22.8599	0.2286	10.0794	0.3014	30.14
Isobutane	58.118	2.3046	0.0230	1.3394	0.0400	4.00
n-Butane	58.118	8.2827	0.0828	4.8137	0.1439	14.39
Isopentane	72.114	1.6355	0.0164	1.1794	0.0353	3.53
n-Pentane	72.114	1.9484	0.0195	1.4051	0.0420	4.20
Cyclopentane	70.13	0.1060	0.0011	0.0743	0.0022	0.22
Cyclohexane	84.16	0.0989	0.0010	0.0832	0.0025	0.25
2,2-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2,3-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
3-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
Other Hexanes	86.18	0.5084	0.0051	0.4381	0.0131	1.31
Methycyclohexane	98.19	0.0310	0.0003	0.0304	0.0009	0.09
Heptanes	100.21	0.2932	0.0029	0.2938	0.0088	0.88
Octanes + Heavies	114.23	0.0021	0.0000	0.0024	0.0001	0.01
Nonanes	128.26	0.0002	0.0000	0.0003	0.0000	0.00
Decanes Plus	142.29	0.0000	0.0000	0.0000	0.0000	0.00
n-Hexane	**86.17**	0.3246	0.0032	0.2797	0.0084	0.84
Benzene	**78.12**	0.0681	0.0007	0.0532	0.0016	0.16
Toluene	**92.15**	0.0113	0.0001	0.0104	0.0003	0.03
Ethylbenzene	**106.17**	0.0000	0.0000	0.0000	0.0000	0.00
Xylenes (Total)	**106.17**	0.0002	0.0000	0.0002	0.0000	0.00
2,2,4-TMP	**114.23**	0.0000	0.0000	0.0000	0.000000	0.00
Total		100.00	1.00		1.00	100.00
Total Hydrocarbon (HC)			0.9739		0.9665	
Total VOC (C3+)			0.3848		**0.6005**	
Total HAP			0.0040		**0.0103**	
			Total MW	**33.44 lb/lb-mol**		

Lower Heating Value (dry)	**1,725 Btu/scf**
Lower Heating Value (dry)	19,681 Btu/lbm
Higher Heating Value (dry)	**1,884 Btu/scf**
Higher Heating Value (dry)	21,486 Btu/lbm

EOG Resources, Inc. - Jubilee 554-1034H Facility Fuel Gas Data

FUEL COMPONENT	MOLE FRAC	COMP MOLES CARB	MOLES CARBON	COMP MOLE HYD	MOLE HYD	COMP LHV (BTU/SCF)	LHV (BTU/SCF)	COMP HHV (BTU/SCF)	HHV (BTU/SCF)	COMP MW (LBM/LBMOLE)	MASS FRAC (LBM/LBMOLE FUEL)
methane	0.39037	1	0.390365	4	1.56146	911.45	355.7981793	1012.32	395.1742968	16.032	6.25833168
ethane	0.19861	2	0.397616	6	1.192848	1622.1	322.4864568	1773.42	352.5700834	30.048	5.973782784
propane	0.22860	3	0.685797	8	1.828792	2322.01	530.809164	2523.82	576.9427282	44.064	10.07298634
i-butane	0.02305	4	0.092184	10	0.23046	3008.96	69.34449216	3261.17	75.15692382	58.08	1.33851168
n-butane	0.08263	4	0.331308	10	0.82827	3018.48	250.011643	3270.69	270.9014406	58.08	4.81059216
i-pentane	0.01636	5	0.081775	12	0.19626	3708.01	60.64450355	4010.71	65.59516205	72.096	1.17913008
n-pentane	0.01948	5	0.09742	12	0.233808	3717.15	72.4249506	4019.65	78.3188606	72.096	1.404718464
hexane	0.01444	6	0.08664	14	0.20216	4415.23	63.7559212	4768.27	68.8538188	86.172	1.24432368
co2	0.02443									44	1.074788
n2	0.00165									28	0.046172
			2.163105		6.274058		1725.275311		1883.513314		
											33.40333686
	1.0000										

Specific Gravity	1.153
Lower Heating Value (BTU/scf)	1725
Lower Heating Value (BTU/lbm)	19681
Higher Heating Value (BTU/scf)	1884
Higher Heating Value (BTU/lbm)	21486

	Moles	Mass	Mass Frac
Carbon	2.187532	26.27226	0.786022
Hydrogen	6.274058	6.32425	0.189211
Oxygen	0.048854	0.781664	0.023386
Nitrogen	0.003298	0.046172	0.001381
		33.42435	

METHOD 19 FUEL FACTORS

Fd (Equations in Method 19, LHV)	9556
Fc (Equations in Method 19, LHV)	1282
Fd (Equations in Method 19, HHV)	8753
Fc (Equations in Method 19, HHV)	1174

Sample ID No.:	Jubilee 554-1034H
Sample Description:	Jubilee 554-1034H
Sample Date:	9/2/2014
Laboratory:	Precision Analysis

Component	MWi	yi (Mol %) [1]	yi (MolFrac)	yiMWi	lbi/lb (WtFrac)	(Wt %)
Oxygen	32	0.0000	0.0000	0.0000	0.0000	0.00
Nitrogen	28.01	0.6268	0.0063	0.1756	0.0060	0.60
Carbon Dioxide	44.01	2.4336	0.0243	1.0710	0.0366	3.66
Hydrogen Sulfide	34.8	0.0000	0.0000	0.0000	0.0000	0.00
Methane	16.041	55.9207	0.5592	8.9702	0.3063	30.63
Ethane	30.063	13.6183	0.1362	4.0941	0.1398	13.98
Propane	44.092	14.2214	0.1422	6.2705	0.2141	21.41
Isobutane	58.118	1.6073	0.0161	0.9341	0.0319	3.19
n-Butane	58.118	6.2808	0.0628	3.6503	0.1246	12.46
Isopentane	72.114	1.4933	0.0149	1.0769	0.0368	3.68
n-Pentane	72.114	1.8937	0.0189	1.3656	0.0466	4.66
Cyclopentane	70.13	0.1244	0.0012	0.0872	0.0030	0.30
Cyclohexane	84.16	0.1488	0.0015	0.1252	0.0043	0.43
2,2-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2,3-Dimethylbutane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
2-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
3-Methyl Pentane	86.18	0.0000	0.0000	0.0000	0.0000	0.00
Other Hexanes	86.18	0.6084	0.0061	0.5243	0.0179	1.79
Methycyclohexane	98.19	0.0519	0.0005	0.0510	0.0017	0.17
Heptanes	100.21	0.4247	0.0042	0.4256	0.0145	1.45
Octanes + Heavies	114.23	0.0044	0.0000	0.0050	0.0002	0.02
Nonanes	128.26	0.0004	0.0000	0.0005	0.0000	0.00
Decanes Plus	142.29	0.0000	0.0000	0.0000	0.0000	0.00
n-Hexane	**86.17**	0.4260	0.0043	0.3671	0.0125	1.25
Benzene	**78.12**	0.0965	0.0010	0.0754	0.0026	0.26
Toluene	**92.15**	0.0178	0.0002	0.0164	0.0006	0.06
Ethylbenzene	**106.17**	0.0001	0.0000	0.0001	0.0000	0.00
Xylenes (Total)	**106.17**	0.0003	0.0000	0.0003	0.0000	0.00
2,2,4-TMP	**114.23**	0.0001	0.0000	0.0001	0.000004	0.00
	Total	100.00	1.00		1.00	100.00
	Total Hydrocarbon (HC)		0.9694		0.9574	
	Total VOC (C3+)		0.2740		**0.5113**	
	Total HAP		0.0054		**0.0157**	
			Total MW	**29.29 lb/lb-mol**		

Lower Heating Value (dry)	**1,509 Btu/scf**
Lower Heating Value (dry)	19,664 Btu/lbm
Higher Heating Value (dry)	**1,651 Btu/scf**
Higher Heating Value (dry)	21,522 Btu/lbm

EOG Resources, Inc. - Jubilee 555-1034H Facility Fuel Gas Data

FUEL COMPONENT	MOLE FRAC	COMP MOLES CARB	MOLES CARBON	COMP MOLE HYD	MOLE HYD	COMP LHV (BTU/SCF)	LHV (BTU/SCF)	COMP HHV (BTU/SCF)	HHV (BTU/SCF)	COMP MW (LBM/LBMOLE)	MASS FRAC (LBM/LBMOLE FUEL)
methane	0.55921	1	0.559207	4	2.236828	911.45	509.6892202	1012.32	566.0964302	16.032	8.965206624
ethane	0.13616	2	0.272366	6	0.817098	1622.1	220.9024443	1773.42	241.5096559	30.048	4.092026784
propane	0.14221	3	0.426642	8	1.137712	2322.01	330.2223301	2523.82	358.9225375	44.064	6.266517696
i-butane	0.01607	4	0.064292	10	0.16073	3008.96	48.36301408	3261.17	52.41678541	58.08	0.93351984
n-butane	0.06281	4	0.251232	10	0.62808	3018.48	189.5846918	3270.69	205.4254975	58.08	3.64788864
i-pentane	0.01493	5	0.074665	12	0.179196	3708.01	55.37171333	4010.71	59.89193243	72.096	1.076609568
n-pentane	0.01894	5	0.094685	12	0.227244	3717.15	70.39166955	4019.65	76.12011205	72.096	1.365281952
hexane	0.01904	6	0.114228	14	0.266532	4415.23	84.05714874	4768.27	90.77832426	86.172	1.640542536
co2	0.02434									44	1.070784
n2	0.00627									28	0.175504
			1.857317		5.65342		1508.582232		1651.161275		
											29.23388164

	1.0000
Specific Gravity	1.009
Lower Heating Value (BTU/scf)	1509
Lower Heating Value (BTU/lbm)	19664
Higher Heating Value (BTU/scf)	1651
Higher Heating Value (BTU/lbm)	21522

	Moles	Mass	Mass Frac
Carbon	1.881653	22.59865	0.772562
Hydrogen	5.65342	5.698647	0.194815
Oxygen	0.048672	0.778752	0.026623
Nitrogen	0.012536	0.175504	0.006
		29.25156	

METHOD 19 FUEL FACTORS

Fd (Equations in Method 19, LHV)	9559
Fc (Equations in Method 19, LHV)	1261
Fd (Equations in Method 19, HHV)	8734
Fc (Equations in Method 19, HHV)	1152

SLR

Attachment F - Emissions Calculations and Supporting Documentation (ProMax® Model Runs)

Table A-1 **EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility**
Estimated Potential Criteria & HAP Pollutant Emissions per Source - Uncontrolled

	ID	Emission Unit	Annual Criteria Emission Rates - Uncontrolled					Total	Annual HAPs - Uncontrolled					
			NO_x	CO	VOC	SO_2	PM_{10}	HAPS	Benzene	Toluene	Ethylbenzene	Xylenes	n-Hexane	224-TMP
Jubilee 151-1034H Jubilee 152-1034H	1	Crude Oil Tanks			39.3 tpy			1.64 tpy	0.125 tpy	0.264 tpy	0.007 tpy	0.086 tpy	0.966 tpy	0.192 tpy
	2	Produced Water Tanks			2.95 tpy			0.25 tpy	0.062 tpy	0.126 tpy	0.003 tpy	0.039 tpy	0.016 tpy	0.001 tpy
	4	Enclosed Combustor [1]	0.10 tpy	0.57 tpy		0.000 tpy	0.01 tpy							
	5	Vapor Recovery Tower			824.7 tpy			41.55 tpy	3.210 tpy	6.731 tpy	0.188 tpy	2.174 tpy	24.799 tpy	4.444 tpy
	6	Tri-Tip Flare - VRTs [2]	1.41 tpy	7.70 tpy		0.005 tpy	0.21 tpy			–	–	–	–	–
	7	Recycle Treater	0.13 tpy	0.06 tpy	0.01 tpy	0.001 tpy	0.01 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	7	Trace Line Heater	0.13 tpy	0.06 tpy	0.01 tpy	0.001 tpy	0.01 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	8	Jubilee 153-1034H Heater Treater	0.26 tpy	0.11 tpy	0.02 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	9	Jubilee 154-1034H Heater Treater	0.26 tpy	0.11 tpy	0.02 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	10	Truck Loading - Jubilee 153-1034H			3.65 tpy			0.11 tpy	0.031 tpy	0.028 tpy	0.043 tpy	0.006 tpy	0.005 tpy	0.002 tpy
	11	Truck Loading - Jubilee 154-1034H			1.89 tpy			0.08 tpy	0.019 tpy	0.017 tpy	0.019 tpy	0.017 tpy	0.003 tpy	0.002 tpy
	12	Fugitive Components 153-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
	13	Fugitive Components 154-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
	14	Treater Gas Flare Emissions all 4 wells	6.17 tpy	33.59 tpy	2,199.4 tpy	0.031 tpy	1.43 tpy	57.1 tpy	9.620 tpy	2.863 tpy	0.036 tpy	0.095 tpy	44.471 tpy	0.013 tpy
Jubilee 554-1034H	15	Crude Oil Tanks			78.3 tpy			2.08 tpy	0.188 tpy	0.270 tpy	0.007 tpy	0.087 tpy	1.044 tpy	0.480 tpy
	16	Produced Water Tanks			4.44 tpy			0.15 tpy	0.046 tpy	0.065 tpy	0.002 tpy	0.020 tpy	0.015 tpy	0.001 tpy
	17	Enclosed Combustor [1]	0.18 tpy	0.95 tpy		0.001 tpy	0.02 tpy							
	18	Vapor Recovery Tower			850.6 tpy			26.10 tpy	2.445 tpy	3.465 tpy	0.084 tpy	1.090 tpy	13.516 tpy	5.498 tpy
	19	Tri-Tip Flare - VRTs [2]	1.55 tpy	8.41 tpy		0.005 tpy	0.24 tpy			–	–	–	–	–
	20	Recycle Treater	0.11 tpy	0.05 tpy	0.01 tpy	0.001 tpy	0.01 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	21	Jubilee 554-1034H Heater Treater	0.22 tpy	0.09 tpy	0.01 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	22	Jubilee 555-1034H Heater Treater	0.25 tpy	0.11 tpy	0.01 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	23	Truck Loading - Jubilee 554-1034H			12.70 tpy			0.63 tpy	0.126 tpy	0.118 tpy	0.151 tpy	0.203 tpy	0.031 tpy	0.004 tpy
	24	Truck Loading - Jubilee 555-1034H			4.09 tpy			0.17 tpy	0.040 tpy	0.043 tpy	0.040 tpy	0.039 tpy	0.007 tpy	0.004 tpy
	25	Fugitive Components 554-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
	26	Fugitive Components 555-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
		Totals	**10.8 tpy**	**51.8 tpy**	**4,029.1 tpy**	**0.05 tpy**	**2.0 tpy**	**130.2 tpy**	**15.9 tpy**	**14.0 tpy**	**0.6 tpy**	**3.9 tpy**	**85.2 tpy**	**10.6 tpy**

[1] The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks.
[2] The VOC and HAP emissions from the flashing occuring in the VRT that are sent to the Tri-Tip Flare are accounted for in the VRT. The vapors are currently sent to the Tri-Tip Flare that has a vendor guaranteed destruction efficiency of 98% or higher. VRT emissions are presented separate from tank emissions to show where the emissions are coming from.

Table A-1a **EOG Resources, Inc. - Jubilee 151-1034H, 152-1034H & 553-1034H Oil & Gas Production Facility**

Estimated Potential Criteria & HAP Pollutant Emissions per Source - Controlled

	ID	Emission Unit	Annual Criteria Emission Rates - Controlled					Total	Annual HAPs - Controlled					
			NO_x	CO	VOC	SO_2	PM_{10}	HAPs	Benzene	Toluene	Ethylbenzene	Xylenes	n-Hexane	224-TMP
Jubilee 151-1034H Jubilee 152-1034H	1	Crude Oil Tanks			0.79 tpy			0.03 tpy	0.002 tpy	0.005 tpy	0.000 tpy	0.002 tpy	0.019 tpy	0.004 tpy
	2	Produced Water Tanks			0.059 tpy			0.00494 tpy	0.001 tpy	0.003 tpy	0.000 tpy	0.001 tpy	0.000 tpy	0.000 tpy
	4	Enclosed Combustor [3]	0.10 tpy	0.57 tpy		0.000 tpy	0.01 tpy							
	5	Vapor Recovery Tower			16.49 tpy			0.83 tpy	0.064 tpy	0.135 tpy	0.004 tpy	0.043 tpy	0.496 tpy	0.089 tpy
	6	Tri-Tip Flare - VRTs [4]	1.41 tpy	7.70 tpy		0.005 tpy	0.21 tpy			–	–	–	–	–
	7	Recycle Treater	0.13 tpy	0.06 tpy	0.01 tpy	0.001 tpy	0.01 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	7	Trace Line Heater	0.13 tpy	0.06 tpy	0.01 tpy	0.001 tpy	0.01 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	8	Jubilee 153-1034H Heater Treater	0.26 tpy	0.11 tpy	0.02 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	9	Jubilee 154-1034H Heater Treater	0.26 tpy	0.11 tpy	0.02 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	10	Truck Loading - Jubilee 153-1034H			1.15 tpy			0.04 tpy	0.010 tpy	0.009 tpy	0.013 tpy	0.002 tpy	0.001 tpy	0.001 tpy
	11	Truck Loading - Jubilee 154-1034H			0.59 tpy			0.02 tpy	0.006 tpy	0.005 tpy	0.006 tpy	0.005 tpy	0.001 tpy	0.000 tpy
	12	Fugitive Components 153-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
	13	Fugitive Components 154-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
	14	Treater Gas Flare Emissions all 4 wells	6.17 tpy	33.59 tpy	43.99 tpy	0.031 tpy	1.43 tpy	1.14 tpy	0.192 tpy	0.057 tpy	0.001 tpy	0.002 tpy	0.889 tpy	0.000 tpy
Jubilee 554-1034H	15	Crude Oil Tanks			1.6 tpy			0.04 tpy	0.004 tpy	0.005 tpy	0.000 tpy	0.002 tpy	0.021 tpy	0.010 tpy
	16	Produced Water Tanks			0.09 tpy			0.00 tpy	0.001 tpy	0.001 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy
	17	Enclosed Combustor [1]	0.18 tpy	0.95 tpy		0.001 tpy	0.02 tpy							
	18	Vapor Recovery Tower			17.0 tpy			0.52 tpy	0.049 tpy	0.069 tpy	0.002 tpy	0.022 tpy	0.270 tpy	0.110 tpy
	19	Tri-Tip Flare - VRTs [2]	1.55 tpy	8.41 tpy		0.005 tpy	0.24 tpy			–	–	–	–	–
	20	Recycle Treater	0.11 tpy	0.05 tpy	0.01 tpy	0.001 tpy	0.01 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	21	Jubilee 554-1034H Heater Treater	0.22 tpy	0.09 tpy	0.01 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	22	Jubilee 555-1034H Heater Treater	0.25 tpy	0.11 tpy	0.01 tpy	0.002 tpy	0.02 tpy	0.004 tpy	0.000 tpy	0.000 tpy	–	–	0.004 tpy	–
	23	Truck Loading - Jubilee 554-1034H			3.99 tpy			0.20 tpy	0.040 tpy	0.037 tpy	0.048 tpy	0.064 tpy	0.010 tpy	0.001 tpy
	24	Truck Loading - Jubilee 555-1034H			1.29 tpy			0.05 tpy	0.013 tpy	0.013 tpy	0.013 tpy	0.012 tpy	0.002 tpy	0.001 tpy
	25	Fugitive Components 554-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
	26	Fugitive Components 555-1034H			1.78 tpy			0.09 tpy	0.003 tpy	0.004 tpy	0.001 tpy	0.001 tpy	0.076 tpy	–
		Totals	**10.8 tpy**	**51.8 tpy**	**94.2 tpy**	**0.05 tpy**	**2.0 tpy**	**3.26 tpy**	**0.4 tpy**	**0.4 tpy**	**0.1 tpy**	**0.2 tpy**	**2.0 tpy**	**0.2 tpy**

[3] The VOC and HAP emissions from the enclosed combustor are accounted for in the crude oil and produced water tanks.

[4] The VOC and HAP emissions from the flashing occuring in the VRT that are sent to the Tri-Tip Flare are accounted for in the VRT. The vapors are currently sent to the Tri-Tip Flare that has a vendor guaranteed destruction efficiency of 98% or higher. VRT emissions are presented separate from tank emissions to show where the emissions are coming from.

Table A-2 EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facil

Enclosed Combustor Emission Calculations

Enclosed Combustor for Crude Oil & Produce Water Tanks

Jubilee 153-1034H & Jubilee 154-1034H

Emission Source:	Crude & PW Tanks
Source Type:	Enclosed Combustor
Heat Input:	0.35 MMBtu/hr
Tank Vent Gas Flowrate:	114.5 scf/hr
Tank Vent Gas Flowrate:	1.00 MMscf/yr
Pilot Gas Flowrate:	16.8 scf/hr
Pilot Gas Flowrate:	0.15 MMscf/yr
Total Flowrate to Combustor Including Pilot:	1.15 MMscf/yr
Estimated HHV:	2,685 Btu/scf
Total VOC Destruction Efficiency:	98%
Sulfur Content of Fuel:	0.0020 gr/scf
Operating Hours per Year:	8,760 hr/yr

Pollutant	Emission Factors or Uncontrolled Emissions [a]	Emissions - Controlled	
		lb/hr [b], [c]	tpy [d]
NO_x	0.068 lb/MMBtu	0.024	0.10
CO	0.370 lb/MMBtu	0.130	0.57
VOC - Crude	39.32 tpy uncontrolled [e]	0.180	0.79
VOC - PW	2.953 tpy uncontrolled [e]	0.013	0.059
SO_2	0.00021 lb/MMBtu	0.0001	0.0003
PM_{10}	40.0 µg/L	0.003	0.0133
$PM_{2.5}$	40.0 µg/L	0.003	0.0133
Benzene-Crude	0.125 tpy uncontrolled [e]	0.0006	0.0025
Benzene-PW	0.062 tpy uncontrolled [e]	0.00028	0.0012
Toluene-Crude	0.264 tpy uncontrolled [e]	0.0012	0.0053
Toluene-PW	0.126 tpy uncontrolled [e]	0.00057	0.0025
Ethylbenzene-Crude	0.007 tpy uncontrolled [e]	0.0000	0.0001
Ethylbenzene-PW	0.00336 tpy uncontrolled [e]	0.000015	0.0001
Xylenes-Crude	0.086 tpy uncontrolled [e]	0.0004	0.0017
Xylenes-PW	0.0391 tpy uncontrolled [e]	0.000179	0.0008
n-Hexane-Crude	0.966 tpy uncontrolled [e]	0.0044	0.0193
n-Hexane-PW	0.016 tpy uncontrolled [e]	0.00007	0.0003
224-TMP-Crude	0.192 tpy uncontrolled [e]	0.0009	0.0038
224-TMP-PW	0.00059 tpy uncontrolled [e]	0.0000027	0.000012
Total HAPs	**1.887 tpy uncontrolled [e]**	**0.0086**	**0.0377**

Notes:

(a) Emission factors are from AP-42 Tables 13.5-1 & 2 (Industrial Flares)

40 µg/L is for lightly smoking flare (this is conservative as this unit is smokeless in design).

SO_2 emissions based on AP42, which is based on 100% conversion of sulfur to SO_2 at 2000 grains/MMscf.

(b) Hourly Emission Rate (lb/hr) except for PM_{10} = (Emission Factor, lb/MMBtuf) * (Heat Input, MMBtu/hr)

(c) (MMscf CH_4) (10.6 scf E/scf CH_4) (0.0283 m^3/scf E) (40 µ PM_{10}/L E) (1000 l/m^3) (g/106 µg) (lb/453.59 g) / (hr/yr) = lb PM_{10} / hr

(d) Annual Emission Rate (tpy) = (Hourly Emission Rate, lb/hr) * (hr/yr) / (2,000 lb/ton)

(e) For VOC & HAP there are no emission factors used, instead uncontrolled emissions are taken directly from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using site specific compositional analysis (Precision Analysis 09-02-2014 & 08-29-2014 for Jubilee 153-1034H & Jubilee 154-1034H). Controlled emissions are based on 98% control efficiency for enclosed combustor.

From the 3-phase separator, liquids are sent to a Vapor Recovery Tower (VRT) where the majority of the flashing occurs and the vapors are sent to the enclosed combustor (COM). The liquids from the VRT are then sent to the tanks where the pressure differential is about 1.75 psia and a little flashing occurs along with working and breathing losses. These vapors from both the oil and produced water tanks are also captured and routed to the enclosed combustor that has a vendor guaranteed destruction efficiency of 98% or higher.

(tpy uncontrolled) * (100-95%) / (100) = tpy controlled (tpy controlled) (2000 lb/ton) / (8760 hr/yr) = lb/hr controlled

Table A-3 EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Produc
Vapor Recovery Tower Emissions Controlled by Tri-Tip Flare
Jubilee 153-1034H & Jubilee 154-1034H

Emission Source:	VRT with Tri-Tip Flare
Source Type:	Process Vessel
Heat Input:	4.75 MMBtu/hr
VRT Vapor Flowrate:	1,822.6 scf/hr
Tank Vent Gas Flowrate:	15.97 MMscf/yr
Pilot Gas Flowrate:	16.8 scf/hr
Pilot Gas Flowrate:	0.15 MMscf/yr
Total Flowrate to Combustor Including Pilot:	16.11 MMscf/yr
Estimated HHV:	2,583 Btu/scf
Total VOC Destruction Efficiency:	98%
Sulfur Content of Fuel:	0.0020 gr/scf
Operating Hours per Year:	8,760 hr/yr

Pollutant	Emission Factors or Uncontrolled Emissions [a]	Emissions - Controlled	
		lb/hr [b], [c]	tpy [d]
NO_x	0.068 lb/MMBtu	0.32	1.41
CO	0.370 lb/MMBtu	1.76	7.70
VOC	824.7 tpy uncontrolled [e]	3.77	16.49
SO_2	0.00022 lb/MMBtu	0.0011	0.0046
PM_{10}	40.0 µg/L	0.048	0.2112
$PM_{2.5}$	40.0 µg/L	0.048	0.2112
Benzene	3.210 tpy uncontrolled [e]	0.0147	0.0642
Toluene	6.731 tpy uncontrolled [e]	0.0307	0.1346
Ethylbenzene	0.188 tpy uncontrolled [e]	0.0009	0.0038
Xylenes	2.174 tpy uncontrolled [e]	0.0099	0.0435
n-Hexane	24.80 tpy uncontrolled [e]	0.1132	0.4960
224-TMP	4.444 tpy uncontrolled [e]	0.0203	0.0889
Total HAPs	**41.55 tpy uncontrolled [e]**	**0.1897**	**0.8309**

Notes:

(a) Emission factors are from AP-42 Tables 13.5-1 & 2 (Industrial Flares)

40 µg/L is for lightly smoking flare (this is conservative as this unit is smokeless in design).

SO_2 emissions based on AP42, which is based on 100% conversion of sulfur to SO_2 at 2000 grains/MMscf.

(b) Hourly Emission Rate (lb/hr) except for PM_{10} = (Emission Factor, lb/MMBtuf) * (Heat Input, MMBtu/hr)

(c) (MMscf CH_4) (10.6 scf E/scf CH_4) (0.0283 m^3/scf E) (40 µ PM_{10}/L E) (1000 l/m^3) (g/106 µg) (lb/453.59 g) / (hr/yr) = lb PM_{10}/ hr

(d) Annual Emission Rate (tpy) = (Hourly Emission Rate, lb/hr) * (hr/yr) / (2,000 lb/ton)

(e) For VOC & HAP there are no emission factors used, instead uncontrolled emissions are taken directly from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using site specific compositional analysis (Precision Analysis 09-02-2014 & 08-29-2014 for Jubilee 153-1034H & Jubilee 154-1034H). Controlled emissions are based on 98% control efficiency for Tri-Tip Flare.

From the 3-phase separator, liquids are sent to a Vapor Recovery Tower (VRT) where the majority of the flashing occurs and the vapors are also sent to the Tri-Tip Flare that has a vendor guaranteed destruction efficiency of 98% or higher.

(tpy uncontrolled) * (100-95%) / (100) = tpy controlled (tpy controlled) (2000 lb/ton) / (8760 hr/yr) = lb/hr controlled

Table A-4 EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facil

Enclosed Combustor Emission Calculations

Enclosed Combustor for Crude Oil & Produce Water Tanks

Jubilee 554-1034H & Jubilee 555-1034H

Emission Source:	Crude & PW Tanks
Source Type:	Enclosed Combustor
Heat Input:	0.59 MMBtu/hr
Tank Vent Gas Flowrate:	213.1 scf/hr
Tank Vent Gas Flowrate:	1.87 MMscf/yr
Pilot Gas Flowrate:	16.8 scf/hr
Pilot Gas Flowrate:	0.15 MMscf/yr
Total Flowrate to Combustor Including Pilot:	2.01 MMscf/yr
Estimated HHV:	2,562 Btu/scf
Total VOC Destruction Efficiency:	98%
Sulfur Content of Fuel:	0.0020 gr/scf
Operating Hours per Year:	8,760 hr/yr

Pollutant	Emission Factors or Uncontrolled Emissions [a]	Emissions - Controlled	
		lb/hr [b], [c]	tpy [d]
NO_x	0.068 lb/MMBtu	0.040	0.18
CO	0.370 lb/MMBtu	0.218	0.95
VOC - Crude	78.26 tpy uncontrolled [e]	0.357	1.57
VOC - PW	4.438 tpy uncontrolled [e]	0.020	0.089
SO_2	0.00022 lb/MMBtu	0.0001	0.0006
PM_{10}	40.0 µg/L	0.006	0.0247
$PM_{2.5}$	40.0 µg/L	0.006	0.0247
Benzene-Crude	0.188 tpy uncontrolled [e]	0.0009	0.0038
Benzene-PW	0.046 tpy uncontrolled [e]	0.00021	0.0009
Toluene-Crude	0.270 tpy uncontrolled [e]	0.0012	0.0054
Toluene-PW	0.065 tpy uncontrolled [e]	0.00030	0.0013
Ethylbenzene-Crude	0.007 tpy uncontrolled [e]	0.0000	0.0001
Ethylbenzene-PW	0.00158 tpy uncontrolled [e]	0.000007	0.0000
Xylenes-Crude	0.087 tpy uncontrolled [e]	0.0004	0.0017
Xylenes-PW	0.0204 tpy uncontrolled [e]	0.000093	0.0004
n-Hexane-Crude	1.044 tpy uncontrolled [e]	0.0048	0.0209
n-Hexane-PW	0.015 tpy uncontrolled [e]	0.00007	0.0003
224-TMP-Crude	0.480 tpy uncontrolled [e]	0.0022	0.0096
224-TMP-PW	0.00102 tpy uncontrolled [e]	0.0000047	0.000020
Total HAPs	**2.225 tpy uncontrolled [e]**	**0.0102**	**0.0445**

Notes:

(a) Emission factors are from AP-42 Tables 13.5-1 & 2 (Industrial Flares)

40 µg/L is for lightly smoking flare (this is conservative as this unit is smokeless in design).

SO_2 emissions based on AP42, which is based on 100% conversion of sulfur to SO_2 at 2000 grains/MMscf.

(b) Hourly Emission Rate (lb/hr) except for PM_{10} = (Emission Factor, lb/MMBtuf) * (Heat Input, MMBtu/hr)

(c) (MMscf CH_4) (10.6 scf E/scf CH_4) (0.0283 m^3/scf E) (40 µ PM_{10}/L E) (1000 l/m^3) (g/106 µg) (lb/453.59 g) / (hr/yr) = lb PM_{10} / hr

(d) Annual Emission Rate (tpy) = (Hourly Emission Rate, lb/hr) * (hr/yr) / (2,000 lb/ton)

(e) For VOC & HAP there are no emission factors used, instead uncontrolled emissions are taken directly from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using site specific compositional analysis (Precision Analysis 09-04-2014 & 09-02-2014 for Jubilee 554-1034H & Jubilee 555-1034H). Controlled emissions are based on 98% control efficiency for enclosed combustor.

From the 3-phase separator, liquids are sent to a Vapor Recovery Tower (VRT) where the majority of the flashing occurs and the vapors are sent to the enclosed combustor (COM). The liquids from the VRT are then sent to the tanks where the pressure differential is about 1.75 psia and a little flashing occurs along with working and breathing losses. These vapors from both the oil and produced water tanks are also captured and routed to the enclosed combustor that has a vendor guaranteed destruction efficiency of 98% or higher.

(tpy uncontrolled) * (100-95%) / (100) = tpy controlled (tpy controlled) (2000 lb/ton) / (8760 hr/yr) = lb/hr controlled

Table A-5 EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Produci
Vapor Recovery Tower Emissions Controlled by Enclosed Combustor
Jubilee 554-1034H & Jubilee 555-1034H

Emission Source:	VRT with Tri-Tip Flare
Source Type:	Process Vessel
Heat Input:	5.19 MMBtu/hr
VRT Vapor Flowrate:	2,114.0 scf/hr
Tank Vent Gas Flowrate:	18.52 MMscf/yr
Pilot Gas Flowrate:	16.8 scf/hr
Pilot Gas Flowrate:	0.15 MMscf/yr
Total Flowrate to Combustor Including Pilot:	18.67 MMscf/yr
Estimated HHV:	2,434 Btu/scf
Total VOC Destruction Efficiency:	98%
Sulfur Content of Fuel:	0.0020 gr/scf
Operating Hours per Year:	8,760 hr/yr

Pollutant	Emission Factors or Uncontrolled Emissions [a]	Emissions - Controlled	
		lb/hr [b], [c]	tpy [d]
NO_x	0.068 lb/MMBtu	0.35	1.55
CO	0.370 lb/MMBtu	1.92	8.41
VOC	850.6 tpy uncontrolled [e]	3.88	17.01
SO_2	0.00023 lb/MMBtu	0.0012	0.0053
PM_{10}	40.0 µg/L	0.056	0.2449
$PM_{2.5}$	40.0 µg/L	0.056	0.2449
Benzene	2.445 tpy uncontrolled [e]	0.0112	0.0489
Toluene	3.465 tpy uncontrolled [e]	0.0158	0.0693
Ethylbenzene	0.084 tpy uncontrolled [e]	0.0004	0.0017
Xylenes	1.090 tpy uncontrolled [e]	0.0050	0.0218
n-Hexane	13.52 tpy uncontrolled [e]	0.0617	0.2703
224-TMP	5.498 tpy uncontrolled [e]	0.0251	0.1100
Total HAPs	**26.10 tpy uncontrolled [e]**	**0.1192**	**0.5219**

Notes:

(a) Emission factors are from AP-42 Tables 13.5-1 & 2 (Industrial Flares)

40 µg/L is for lightly smoking flare (this is conservative as this unit is smokeless in design).

SO_2 emissions based on AP42, which is based on 100% conversion of sulfur to SO_2 at 2000 grains/MMscf.

(b) Hourly Emission Rate (lb/hr) except for PM_{10} = (Emission Factor, lb/MMBtuf) * (Heat Input, MMBtu/hr)

(c) (MMscf CH_4) (10.6 scf E/scf CH_4) (0.0283 m^3/scf E) (40 µ PM_{10}/L E) (1000 l/m^3) (g/106 µg) (lb/453.59 g) / (hr/yr) = lb PM_{10}/ hr

(d) Annual Emission Rate (tpy) = (Hourly Emission Rate, lb/hr) * (hr/yr) / (2,000 lb/ton)

(e) For VOC & HAP there are no emission factors used, instead uncontrolled emissions are taken directly from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using site specific compositional analysis (Precision Analysis 09-04-2014 & 09-02-2014 for Jubilee 554-1034H & Jubilee 556-1034H). Controlled emissions are based on 98% control efficiency for Tri-Tip Flare.

From the 3-phase separator, liquids are sent to a Vapor Recovery Tower (VRT) where the majority of the flashing occurs and the vapors are also sent to the Tri-Tip Flare that has a vendor guaranteed destruction efficiency of 98% or higher.

(tpy uncontrolled) * (100-95%) / (100) = tpy controlled (tpy controlled) (2000 lb/ton) / (8760 hr/yr) = lb/hr controlled

Bryan Research & Engineering, Inc.

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Simulation Report

Project: Jubilee 153, 154, 554 & 555-1034H.pmx

Licensed to SLR International Corporation and Affiliates

Client Name: EOG Resources
Location: Jubilee 153, 154, 554 & 555-1034H Tank Battery
Job: Tank Emissions Estimate

ProMax Filename: N:\Fort Collins\EOG\Wyoming\Jubilee 153, 154, 554 & 555-1034H\Promax model\Jubilee 153, 154, 554 & 555-1034H.pmx
ProMax Version: 3.2.13330.0
Simulation Initiated: 11/20/2014 10:43:06 AM

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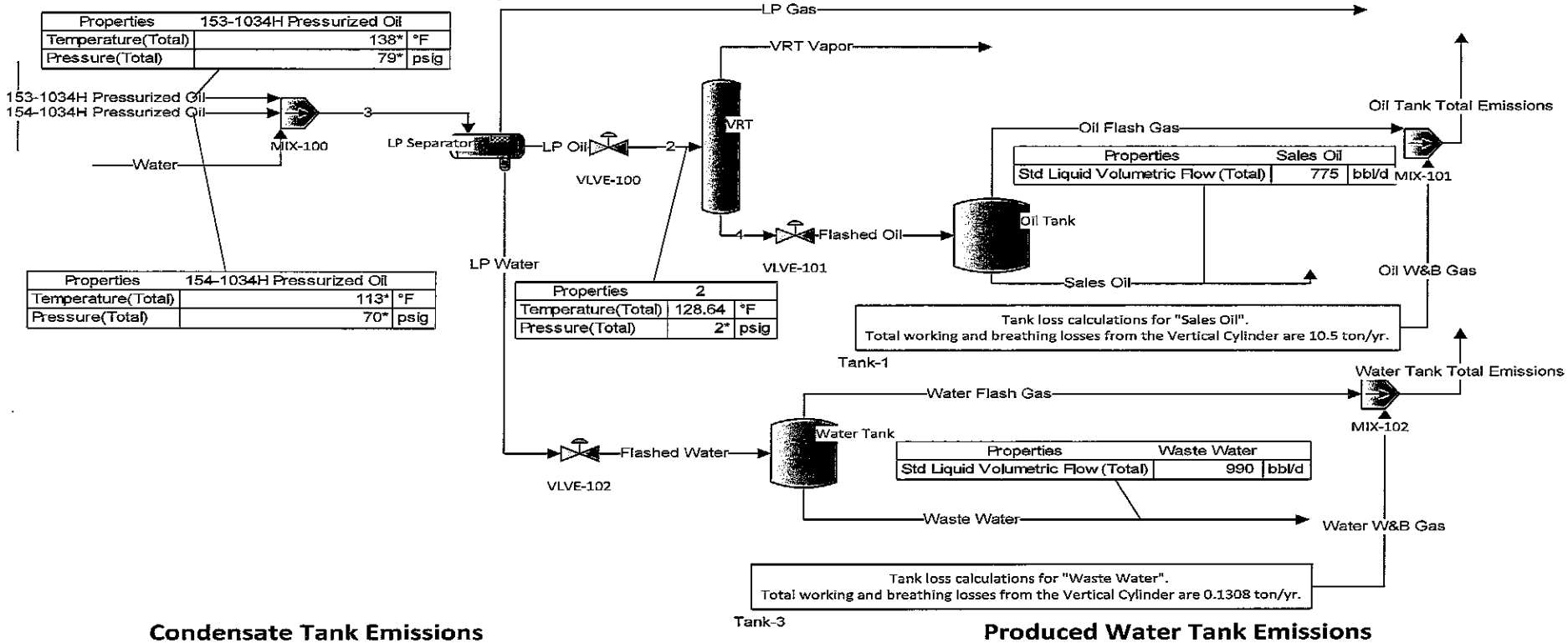
Report Navigator can be activated via the ProMax Navigator Toolbar.
An asterisk (*), throughout the report, denotes a user specified value.
A question mark (?) after a value, throughout the report, denotes an extrapolated or approximate value.

EOG Resources

Jubilee 153 & 154-1034H Tank Battery



Condensate Tank Emissions

Stream Oil Tank Total Emissions C3+ Mass Flow =39.32 ton/yr

VOC Emission Factor = 0.278 lb/bbl

Names	Units	Oil Flash Gas	Oil W&B Gas	Oil Tank Total Emissions
n-Hexane(Mass Flow)	ton/yr	0.9521	0.01348*	0.9656
Benzene(Mass Flow)	ton/yr	0.1233	0.001444*	0.1247
Toluene(Mass Flow)	ton/yr	0.2585	0.005346*	0.2639
Ethylbenzene(Mass Flow)	ton/yr	0.007235	0.0002287*	0.007464
p-Xylene(Mass Flow)	ton/yr	0.08344	0.002827*	0.08627
Std Vapor Volumetric Flow	MSCFD	1.491	0.4802	1.971
Molecular Weight	lb/lbmol	49.28	45.46	48.35
Gross Ideal Gas Heating Value	Btu/ft^3	2733	2535	2685

Produced Water Tank Emissions

Stream Water Tank Total Emissions C3+ Mass Flow =2.953 ton/yr

VOC Emission Factor = 0.01634 lb/bbl

Names	Units	Water Flash Gas	Water W&B Gas	Water Tank Total Emissions
n-Hexane(Mass Flow)	ton/yr	0.01618	6.962e-010*	0.01618
Benzene(Mass Flow)	ton/yr	0.06235	6.539e-007*	0.06235
Toluene(Mass Flow)	ton/yr	0.1256	6.273e-007*	0.1256
Ethylbenzene(Mass Flow)	ton/yr	0.003363	7.037e-009*	0.003363
p-Xylene(Mass Flow)	ton/yr	0.03914	8.242e-008*	0.03914
Std Vapor Volumetric Flow	MSCFD	0.7629	0.01396	0.7768
Molecular Weight	lb/lbmol	25.64	19.48	25.53
Gross Ideal Gas Heating Value	Btu/ft^3	1140	85.2	1121

Jubilee 153-1034H 154-1034H ProMax Runs Summary

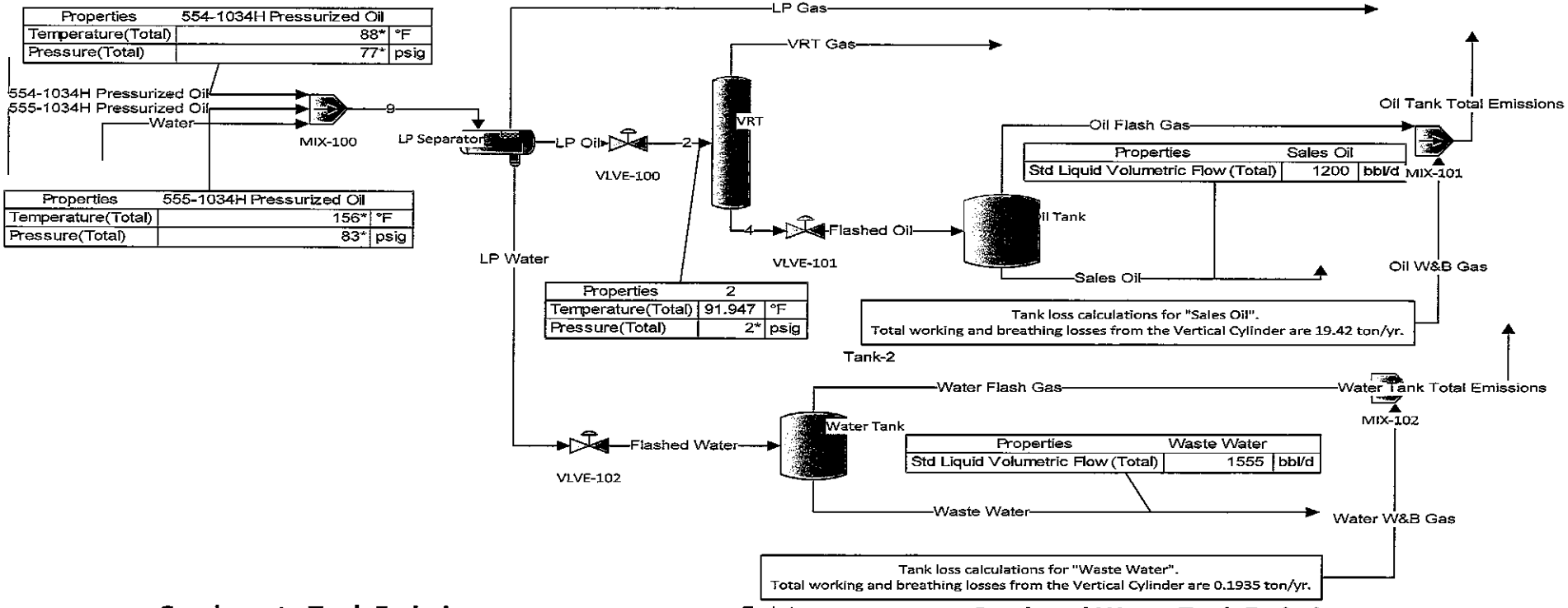
Process Streams		Flashed Oil	Flashed Water	LP Gas	LP Oil	LP Water	Oil Flash Gas	Oil Tank Total Emissions	Oil W&B Gas	Sales Oil	VRT Vapor	Waste Water	Water	Water Flash Gas	Water Tank Total Emissions	Water W&B Gas	2
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	VLVE-101	VLVE-102	LP Separator	LP Separator	LP Separator	Oil Tank	MIX-101	–	Oil Tank	VRT	Water Tank	–	Water Tank	MIX-102	–	VLVE-100
	To Block:	Oil Tank	Water Tank	–	VLVE-100	VLVE-102	MIX-101	–	MIX-101	–	–	–	MIX-100	MIX-102	–	MIX-102	VRT
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Carbon Dioxide		0.0160768	0.00214909	1.36829	0.108131	0.00214909	0.965928	1.23349	2.06397*	0.0129383	1.08067	0.00151682	0*	6.05258	6.04298	5.51818*	0.108131
Nitrogen		0.000407552	0.000124134	2.41025	0.0222393	0.000124134	0.0860515	0.0639100	0.0157049*	0.000124571	0.248145	8.83685E-06	0*	1.10963	1.08426	0.0254052*	0.0222393
Methane		0.0515486	0.00536072	52.6838	1.17013	0.00536072	7.52613	6.80764	4.57753*	0.0268494	12.7447	0.000715096	0*	44.4685	43.7196	2.78015*	1.17013
Ethane		0.289996	0.00158023	15.4243	1.51335	0.00158023	13.6163	16.1994	24.2186*	0.225897	14.3780	0.000217401	0*	13.0451	12.8203	0.531466*	1.51335
Propane		1.31467	0.00117997	14.8189	4.37122	0.00117997	32.8892	34.1967	38.3173*	1.71206	30.8253	0.000132917	0*	10.0225	9.84367	0.0678365*	4.37122
i-Butane		0.579055	4.14829E-05	1.33658	0.896690	4.14829E-05	4.61417	4.55539	4.36471*	0.565722	4.16345	1.99607E-06	0*	0.377968	0.371184	0.000351185*	0.896690
n-Butane		3.35452	0.000388225	5.18989	4.64523	0.000388225	18.9831	19.2582	17.0080*	3.29958	18.0010	4.23105E-05	0*	3.31112	3.25173	0.00497336*	4.64523
i-Pentane		1.82171	4.17291E-05	0.999845	2.02811	4.17291E-05	4.66959	4.32456	3.25361*	1.81230	4.16384	2.72222E-06	0*	0.373375	0.366869	0.000111447*	2.02811
n-Pentane		3.31842	6.75859E-05	1.39356	3.55453	6.75859E-05	6.72452	6.12952	4.28271*	3.30817	5.98728	5.07908E-06	0*	0.598318	0.587572	0.000149942*	3.55453
Isohexane		2.09996	9.22249E-06	0.380881	2.06756	9.22249E-06	1.95085	1.72870	1.03917*	2.10048	1.73228	3.86577E-07	0*	0.0847707	0.0832479	4.13339E-06*	2.06756
n-Heptane		5.63098	2.21084E-06	0.264491	5.24899	2.21084E-06	1.46052	1.22970	0.513251*	5.64476	1.29632	2.97876E-08	0*	0.0208772	0.0205021	6.17215E-06*	5.24899
n-Octane		5.54873	1.11450E-06	0.105344	5.10099	1.11450E-06	0.528916	0.432363	0.138881*	5.56532	0.468044	2.08518E-08	0*	0.0104654	0.0102804	1.18660E-06*	5.10099
n-Nonane		1.87544	2.00980E-07	0.0142859	1.71560	2.00980E-07	0.0893583	0.0555889	0.0128504*	1.88140	0.0616652	5.10400E-09	0*	0.00187492	0.00184124	7.94674E-10*	1.71560
Benzene		0.321862	0.000242939	0.0420751	0.310714	0.000242939	0.220186	0.168482	0.00800191*	0.322198	0.195380	0.000220231	0*	0.217576	0.213670	0.000124726*	0.310714
Toluene		1.78305	0.000355290	0.0750322	1.65652	0.000355290	0.391437	0.302176	0.0251231*	1.78764	0.347261	0.000316507	0*	0.371548	0.364874	0.000101434*	1.65652
Ethylbenzene		0.109698	8.01018E-06	0.00187169	0.100774	6.01018E-06	0.00950643	0.00741724	0.000932859*	0.110029	0.00844030	5.10873E-08	0*	0.00863354	0.00847845	9.87500E-07*	0.100774
p-Xylene		1.42132	7.32156E-05	0.0216944	1.30465	7.32156E-05	0.109643	0.0857352	0.0115289*	1.42566	0.0973621	5.27235E-05	0*	0.100493	0.0986876	1.15687E-05*	1.30465
n-Hexane		2.17655	5.51728E-06	0.298572	2.10530	5.51728E-06	1.54120	1.18216	0.0677530*	2.17865	1.36800	1.69724E-07	0*	0.0511868	0.0502872	1.20363E-07*	2.10530
2,2,4-Trimethylpentane		0.785785	1.47498E-07	0.0404679	0.732836	1.47498E-07	0.206391	0.177211	0.0804323*	0.787693	0.184939	9.44033E-10	0*	0.00140224	0.00137705	2.19821E-09*	0.732836
Water		0.0441470	99.9884	3.12606	0.273005	99.9884	2.45045	1.85370	0.00144561*	0.0361962	2.64113	99.9968	100*	19.7780	21.0588	91.0711*	0.273005
153-1034H C10+		39.8243	1.97488E-10	0.00180334	36.3153	1.97488E-10	0.00815807	0.00470972	0.000214233*	39.9559	0.00551699	5.19364E-14	0*	1.88985E-06	1.85590E-06	6.35017E-16*	36.3153
154-1034H C10+		27.1508	6.02941E-11	0.000108457	24.7582	6.02941E-11	0.000372206	0.000283086	6.46566E-06*	27.2405	0.000334498	7.62847E-14	0*	5.76403E-07	5.66047E-07	4.12899E-19*	24.7582
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Carbon Dioxide		0.00396056	0.00524951	2.13779	0.0284947	0.00524951	0.862656	1.12279	1.89797*	0.00317978	1.00206	0.00370551	0*	10.3892	10.4178	12.4857*	0.0284947
Nitrogen		6.39088E-05	0.000193008	2.39701	0.00373040	0.000193008	0.0489183	0.0399269	0.00967697*	1.94875E-05	0.149224	1.37404E-06	0*	1.20583	1.18980	0.0365312*	0.00373040
Methane		0.00462895	0.00477323	29.9632	0.112401	0.00477323	2.45013	2.25884	1.61526*	0.00240536	4.38901	0.000636755	0*	27.8239	27.4736	2.28636*	0.112401
Ethane		0.0454452	0.00263728	16.4851	0.272474	0.00263728	8.30858	10.0748	16.0169*	0.0379319	9.28142	0.000362842	0*	15.2990	15.1005	0.820297*	0.272474
Propane		0.447924	0.00288792	23.1981	1.15416	0.00288792	29.4125	31.1887	37.1646*	0.421588	29.1789	0.000325322	0*	17.2372	17.0030	0.153545*	1.15416
i-Butane		0.168397	0.000133822	2.75790	0.312070	0.000133822	5.44231	5.47387	5.58003*	0.163619	5.21666	6.43955E-06	0*	0.845092	0.829244	0.00104774*	0.312070
n-Butane		1.09140	0.00125240	10.7088	1.61665	0.00125240	23.5696	23.1513	21.7437*	1.07096	22.4597	0.000136498	0*	7.50606	7.40335	0.0148377*	1.61665
i-Pentane		0.735731	0.000167104	2.56096	0.876167	0.000167104	6.83683	6.45339	5.16338*	0.730183	6.44896	1.09016E-05	0*	1.05068	1.03628	0.000412736*	0.876167
n-Pentane		1.34061	0.000270647	3.56941	1.53560	0.000270647	9.84549	9.14688	6.79652*	1.33288	9.27310	2.03401E-05	0*	1.66367	1.66059	0.000555301*	1.53560
Isohexane		1.01299	4.41113E-05	1.16523	1.06866	4.41113E-05	3.41158	3.06121	1.99373*	1.01081	3.20452	1.75246E-06	0*	0.281014	0.281014	1.82838E-05*	1.06866
n-Heptane		3.15843	1.22956E-05	1.01201	3.14934	1.22956E-05	2.96982	2.54854	1.13121*	3.15860	2.78839	1.65581E-07	0*	0.0815910	0.0804724	3.17459E-05*	3.14934
n-Octane		3.54797	7.06602E-06	0.427184	3.48896	7.06602E-06	1.22141	1.02150	0.348944*	3.55008	1.14770	1.32207E-07	0*	0.0486391	0.0459997	6.95750E-06*	3.48896
n-Nonane		1.34645	1.43069E-06	0.0650463	1.31752	1.43069E-06	0.180518	0.147462	0.0362519*	1.34751	0.169778	3.63348E-08	0*	0.00937892	0.00925033	5.23964E-09*	1.31752
Benzene		0.140734	0.00105325	0.116676	0.145327	0.00105325	0.348021	0.272200	0.0137483*	0.140544	0.327580	0.000954347	0*	0.862882	0.853781	0.000500092*	0.145327
Toluene		0.919633	0.00181695	0.245431	0.913911	0.00181695	0.731895	0.575862	0.0509159*	0.919804	0.686852	0.00181888	0*	1.33521	1.31891	0.000479733*	0.913911
Ethylbenzene		0.0651914	3.54149E-05	0.00705435	0.0640617	3.54149E-05	0.0204808	0.0162870	0.00217793*	0.0652320	0.0192356	3.01046E-05	0*	0.0357491	0.0352990	5.38139E-06*	0.0640617
p-Xylene		0.844667	0.000431423	0.0817652	0.829359	0.000431423	0.236216	0.188260	0.0269220*	0.845220	0.221890	0.000309615	0*	0.416113	0.410408	6.30330E-05*	0.829359
n-Hexane		1.04994	2.63892E-05	0.913730	1.08634	2.63892E-05	2.69518	2.10706	0.128425*	1.04844	2.53067	8.11829E-07	0*	0.172042	0.169684	5.32416E-07*	1.08634
2,2,4-Trimethylpentane		0.502446	9.34766E-07	0.164107	0.501243	9.34766E-07	0.483060	0.415681	0.202090*	0.502484	0.453490	5.98549E-09	0*	0.00824728	0.00818163	1.28890E-08*	0.501243
Water		0.00445199	99.9790	2.00058	0.0294495	99.9790	0.895848	0.690712	0.000572837*	0.00364148	1.02140	99.9918	100*	13.8989	14.8610	84.2186*	0.0294495
153-1034H C10+		46.5778	2.29023E-09	0.0118828	45.4335	2.29023E-09	0.0261103	0.0203532	0.000984568*	46.6201	0.0247450	8.02322E-13	0*	1.54007E-05	1.51896E-05	6.81053E-17*	45.4335
154-1034H C10+		38.9711	8.14070E-10	0.000919352	36.0624	8.14070E-10	0.00183738	0.00142431	3.45956E-05*	37.0048	0.00174673	1.03002E-12	0*	5.46877E-06	5.39379E-06	5.15570E-18*	36.0624
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Carbon Dioxide		0.351620	0.756333	0.0549469	2.59353	0.756333	0.0695741	0.117470	0.0478981*	0.282046	2.24191	0.535210	0*	0.223123	0.226845	0.00372148*	2.59353
Nitrogen		0.00567385	0.0278815	0.0606004	0.339532	0.0278815	0.00394531	0.00417729	0.000231981*	0.00172854	0.333858	0.00198462	0*	0.0259078	0.0259078	1.09059E-05*	0.339532
Methane		0.410960	0.689531	0.758280	10.2305	0.689531	0.197608	0.236327	0.0387217*	0.213355	9.81954	0.0919706	0*	0.597560	0.598244	0.000683459*	10.2305
Ethane		4.03464	0.380976	0.416266	24.8000	0.380978	0.670095	1.05406	0.383984*	3.36455	20.7653	0.0524076	0*	0.328569	0.328814	0.000244889*	24.8000
Propane		39.7569	0.417183	0.588488	105.049	0.417183	2.37214	3.26307	0.890927*	37.9347	65.2820	0.0469893	0*	0.370240	0.370240	4.58387E-05*	105.049
i-Butane		16.7259	0.0193317	0.0897244	28.4039	0.0193317	0.438927	0.572694	0.133767*	16.2870	11.6780	0.000930104	0*	0.0184016	0.0184019	3.12789E-07*	28.4039
n-Butane		96.8949	0.180919	0.270737	147.144	0.180919	1.90091	2.42216	0.521250*	94.9940	50.2490	0.0197153	0*	0.161204	0.161208	4.42961E-06*	147.144
i-Pentane		65.3185	0.0241394	0.0647453	79.7467	0.0241394	0.551397	0.675176	0.123779*	64.7671	14.4283	0.00157459	0*	0.0225648	0.0225650	1.23217E-07*	79.7467
n-Pentane		119.020	0.0390971	0.0802408	139.767	0.0390971	0.794048	0.958677	0.162929*	118.226	20.7487	0.00293784	0*	0.0361594	0.0361594	1.85778E-07*	139.767
Isohexane		89.9340	0.00637221	0.0294591	97.1034	0.00637221	0.275147	0.322366	0.0472193*	89.6588	7.16947	0.000253119	0*	0.00611909	0.00611910	5.45838E-09*	97.1034
n-Heptane		280.407	0.00177620	0.0255853	286.645	0.00177620	0.239519	0.268637	0.0271180*	280.167	6.23848	2.39130E-05	0*	0.00175229	0.00175229	9.47733E-11*	286.645
n-Octane		314.990	0.00102074	0.0108002	317.568	0.00102074	0.0985082	0.106873	0.00836504*	314.891	2.56774	1.90956E-05	0*	0.00100165	0.00100165	2.07707E-11*	317.568
n-Nonane		119.538	0.000206674	0.00164448	119.918	0.000206674	0.0145589	0.0154280	0.000869048*	119.523	0.379844	5.24806E-06	0*	0.000201426	0.000201426	1.56243E-12*	119.918
Benzene		12.4944	0.152150	0.00294977	13.2273	0.152150	0.0281489	0.0284784	0.000329581*	12.4863	0.732898	0.137915	0*	0.0142361	0.0142361	1.49296E-07*	13.2273
Toluene		81.6454	0.262472	0.0660490	83.1821	0.262472	0.0690261	0.0602487	0.00122058*	81.5864	1.53689	0.239797	0*	0.0286757	0.0286758	1.43218E-07*	83.1821
Ethylbenzene		5.78772	0.00511596	0.000178346	5.83075	0.00511596	0.00165179	0.00170400	5.22103E-05*	5.78607	0.0430358	0.00434819	0*	0.000787765	0.000787765	1.80654E-09*	5.83075
p-Xylene		74.9899	0.0623224	0.00208716	75.4883	0.0623224	0.0190510	0.0156964	0.000645388*	74.9708	0.496434	0.0533858	0*	0.00893664	0.00893666	1.88177E-08*	75.4883
n-Hexane		93.2136	0.00381212	0.0231006	98.8757	0.00381212	0.217369	0.220448	0.00307867*	92.9985	5.66186	0.000117258	0*	0.00369487	0.00369487	1.58048E-10*	98.8757
2,2,4-Trimethylpentane		44.6074	0.000135034	0.00414889	45.6220	0.000135034	0.0389592	0.0438038	0.00484459*	44.5684	1.01459	8.64521E-07	0*	0.000134170	0.000134170	3.84784E-12*	45.6220
Water		0.395249	14442.7	0.0505781	2.68043	14442.7	0.0722510	0.0722847	1.37323E-05*	0.322998	2.28518	14442.4	14445.5*	0.298457	0.323599	0.0251418*	2.68043
153-1034H C10+		4135.20	3.30841E-07	0.000300670	4135.25	3.30841E-07	0.00210582	0.00212942	3.36025E-05*	4135.19	0.0553620	8.69971E-11	0*	3.30754E-07	3.30754E-07	2.03319E-20*	4135.25
154-1034H C10+		3282.31	1.17599E-07	2.32428E-05	3282.32	1.17599E-07	0.000148187	0.000149016	8.29341E-07*	3282.31	0.00390796	1.48772E-10	0*	1.17450E-07	1.17450E-07	1.53917E-21*	3282.32
Property	**Units**																
Temperature	°F	128.388	135.317	135.163	135.163	135.163	128.388	111.096	53.0901*	128.388	128.638	135.317	136*	135.317	133.104	53.0901*	128.638
Pressure	psig	0.25*	0.25*	70	70	70	0.25	-5.45165	-5.45165	0.25	2	0.25	79*	0.25	-12.5119	-12.5119	2*
Molecular Weight	lb/lbmol	178.644	18.0170	28.1552	167.006	18.0170	49.2780	48.3484	45.4633	179.071	46.5837	18.0162	18.0153	25.6393	25.5286	19.4616	167.006
Mass Density	lb/ft^3	33.3749	52.3044	0.374895	46.7554	61.4285	0.102762	0.0579204	0.0607208	47.2999	0.110211	61.4273	61.3879	0.0523137	0.000879432	0.000775971	4.10399
Mass Flow	lb/h	8878.04	14445.8	2.52817	9101.77	14445.8	8.06509	10.4623	2.39725*	8869.98	223.730	14443.6	14445.5	2.14765	2.17750	0.0298537*	9101.77
Std Vapor Volumetric Flow	MMSCFD	0.452820	7.30238	0.000817432	0.496362	7.30238	0.00149060	0.00197054	0.000480239	0.451130	0.0437417	7.30162	7.30291	0.000762893	0.000778849	1.39566E-05*	0.496362
Std Liquid Volumetric Flow	sgpm	22.6341	28.8544	0.0120604	23.4844	28.8544	0.0299545	0.0394541	0.00948960	22.6042	0.850238	28.8750	28.8776*	0.00952124	0.00952124	6.55203E-05*	23.4844
Net Ideal Gas Heating Value	Btu/ft^3	8855.58	0.147317	1416.55	8284.73	0.147317	2518.35	2473.25	2333.27	8876.52	2377.81	0.0395474	0	1031.66	1013.71	35.6371	8284.73
Gross Ideal Gas Heating Value	Btu/ft^3	9462.97	50.4644	1562.34	8856.65	50.4644	2733.32	2685.00	2535.03	9485.20	2582.73	50.3505	50.31	1140.29	1121.33	85.2038	8856.65

Jubilee 153-1034H 154-1034H ProMax Runs Summary

Process Streams		Flashed Oil	Flashed Water	LP Gas	LP Oil	LP Water	Oil Flash Gas	Oil Tank Total Emissions	Oil W&B Gas	Sales Oil	VRT Vapor	Waste Water	Water	Water Flash Gas	Water Tank Total Emissions	Water W&B Gas	2
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Vapor	From Block:	VLVE-101	VLVE-102	LP Separator	LP Separator	LP Separator	Oil Tank	MIX-101	–	Oil Tank	VRT	Water Tank	–	Water Tank	MIX-102	–	VLVE-100
	To Block:	Oil Tank	Water Tank	–	VLVE-100	VLVE-102	MIX-101	–	MIX-101	–	–	–	MIX-100	MIX-102	–	MIX-102	VRT
Mole Fraction		%	%	%			%	%	%		%			%	%	%	%
Carbon Dioxide		0.985928	6.05258	1.36829			0.985928	1.23349	2.06397		1.08067			6.05258	6.04298	5.51818	1.08067
Nitrogen		0.0860515	1.10363	2.41025			0.0860515	0.0689100	0.0157049		0.248145			1.10363	1.08426	0.0254052	0.248145
Methane		7.52613	44.4685	52.6638			7.52613	6.80764	4.57763		12.7447			44.4685	43.7196	2.78015	12.7447
Ethane		13.6163	13.0451	15.4243			13.6183	16.1994	24.2189		14.3790			13.0451	12.8203	0.531468	14.3790
Propane		32.8692	10.0225	14.8189			32.8692	34.1987	38.3178		30.8253			10.0225	9.84367	0.0678365	30.8253
i-Butane		4.61417	0.377968	1.33858			4.61417	4.55339	4.36471		4.18345			0.377968	0.371184	0.000351185	4.18345
n-Butane		19.9831	3.31112	5.18989			19.9831	19.2582	17.0080		18.0010			3.31112	3.25173	0.00497336	18.0010
i-Pentane		4.66959	0.373375	0.999845			4.66959	4.32456	3.25381		4.16384			0.373375	0.366669	0.000111447	4.16384
n-Pentane		6.72452	0.598318	1.39356			6.72452	6.12952	4.26271		5.98728			0.598318	0.587572	0.000149042	5.98728
Isohexane		1.95085	0.0847707	0.380881			1.95085	1.72870	1.03917		1.73226			0.0847707	0.0832479	4.13339E-06	1.73226
n-Heptane		1.46052	0.0208772	0.284491			1.46052	1.22970	0.613251		1.29632			0.0208772	0.0205021	6.17215E-08	1.29632
n-Octane		0.526916	0.0104684	0.105344			0.526916	0.432363	0.138881		0.468044			0.0104684	0.0102804	1.18860E-08	0.468044
n-Nonane		0.0693583	0.00187492	0.0142859			0.0693583	0.0555889	0.0126504		0.0616652			0.00187492	0.00184124	7.94974E-10	0.0616652
Benzene		0.220185	0.217576	0.0420751			0.220185	0.168482	0.00800191		0.195360			0.217576	0.213670	0.000124726	0.195360
Toluene		0.391437	0.371548	0.0750322			0.391437	0.302176	0.0251231		0.347261			0.371548	0.364874	0.000101434	0.347261
Ethylbenzene		0.00950643	0.00863354	0.00187169			0.00950643	0.00741724	0.000932659		0.00844030			0.00863354	0.00847845	9.87500E-07	0.00844030
p-Xylene		0.109643	0.100493	0.0216944			0.109643	0.0857352	0.0115289		0.0973621			0.100493	0.0986875	1.15667E-05	0.0973621
n-Hexane		1.54120	0.0511868	0.298672			1.54120	1.18216	0.0677530		1.36800			0.0511868	0.0502672	1.20363E-07	1.36800
2,2,4-Trimethylpentane		0.208391	0.00140224	0.0404679			0.208391	0.177211	0.0804928		0.184939			0.00140224	0.00137705	2.19821E-09	0.184939
Water		2.45045	19.7780	3.12806			2.45045	1.85370	0.00144561		2.64113			19.7780	21.0588	91.0711	2.64113
153-1034H C10+		0.00615807	1.88985E-06	0.00160334			0.00615807	0.00479972	0.000214233		0.00551699			1.88985E-06	1.85590E-06	0	0.00551699
154-1034H C10+		0.000372205	5.76403E-07	0.000106457			0.000372205	0.000283086	6.48586E-06		0.000334496			5.76403E-07	5.66047E-07	0	0.000334496

EOG Resources

Jubilee 554 & 555-1034H Tank Battery



Condensate Tank Emissions

Stream Oil Tank Total Emissions C3+ Mass Flow =78.26 ton/yr

VOC Emission Factor = 0.3573 lb/bbl

Names	Units	Oil Flash Gas	Oil W&B Gas	Oil Tank Total Emissions
n-Hexane(Mass Flow)	ton/yr	1.028	0.01602*	1.044
Benzene(Mass Flow)	ton/yr	0.1861	0.002379*	0.1885
Toluene(Mass Flow)	ton/yr	0.2634	0.006727*	0.2701
Ethylbenzene(Mass Flow)	ton/yr	0.006382	0.000278*	0.00666
p-Xylene(Mass Flow)	ton/yr	0.08268	0.00392*	0.0866
Std Vapor Volumetric Flow	MSCFD	3.368	0.9057	4.274
Molecular Weight	lb/lbmol	46.14	44.59	45.81
Gross Ideal Gas Heating Value	Btu/ft^3	2580	2496	2562

Produced Water Tank Emissions

Stream Water Tank Total Emissions C3+ Mass Flow =4.438 ton/yr

VOC Emission Factor = 0.01564 lb/bbl

Names	Units	Water Flash Gas	Water W&B Gas	Water Tank Total Emissions
n-Hexane(Mass Flow)	ton/yr	0.01476	1.085e-009*	0.01476
Benzene(Mass Flow)	ton/yr	0.0464	1.161e-006*	0.0464
Toluene(Mass Flow)	ton/yr	0.06514	7.646e-007*	0.06514
Ethylbenzene(Mass Flow)	ton/yr	0.001576	9.068e-009*	0.001576
p-Xylene(Mass Flow)	ton/yr	0.02044	1.113e-007*	0.02044
Std Vapor Volumetric Flow	MSCFD	0.8211	0.02041	0.8415
Molecular Weight	lb/lbmol	27.95	19.71	27.75
Gross Ideal Gas Heating Value	Btu/ft^3	1435	98.65	1403

Jubilee 554-1034H 555-1034H ProMax Runs Summary

Process Streams		Flashed Oil	Flashed Water	LP Gas	LP Oil	LP Water	Oil Flash Gas	Oil Tank Total Emissions	Oil W&B Gas	Sales Oil	VRT Gas	Waste Water	Water	Water Flash Gas	Water Tank Total Emissions	Water W&B Gas
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	VLVE-101	VLVE-102	LP Separator	LP Separator	LP Separator	Oil Tank	MIX-101	–	Oil Tank	VRT	Water Tank	–	Water Tank	MIX-102	–
	To Block:	Oil Tank	Water Tank	–	VLVE-100	VLVE-102	MIX-101	–	MIX-101	–	–	–	MIX-100	MIX-102	–	MIX-102
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Carbon Dioxide		0.0223521	0.00207638		0.0868242	0.00207638	1.05138	1.20881	1.78482*	0.0175544	1.16215	0.00171389	0*	5.06529	5.09109	6.12871*
Nitrogen		0.000235233	5.98351E-05		0.00942839	5.98351E-05	0.0387090	0.0314571	0.00448818*	5.58559E-05	0.140937	6.70759E-06	0*	0.742147	0.724602	0.0189559*
Methane		0.0538852	0.00409247		0.839014	0.00409247	6.34955	5.56892	2.66580*	0.0245328	12.0703	0.000840186	0*	45.4320	44.4077	3.21095*
Ethane		0.475403	0.00176274		1.73084	0.00176274	18.6473	20.3525	26.6939*	0.390680	19.6900	0.000362944	0*	19.1351	18.6937	0.944276*
Propane		3.16343	0.00152191		5.37936	0.00152191	40.3015	40.8003	42.6552*	2.98028	37.0783	0.000330452	0*	16.6439	16.2441	0.165785*
i-Butane		0.912071	4.56335E-05		1.12493	4.56335E-05	4.68385	4.82339	4.39655*	0.894486	4.16083	4.19722E-06	0*	0.576829	0.564804	0.00072597*
n-Butane		4.57852	0.000351374		5.25739	0.000351374	16.9409	16.4991	14.8559*	4.52189	14.9543	6.61632E-05	0*	3.98419	3.88771	0.00764491*
i-Pentane		2.25701	3.83914E-05		2.29700	3.83914E-05	3.27876	3.13008	2.57712*	2.25224	2.86907	4.83223E-06	0*	0.456063	0.447397	0.000198491*
n-Pentane		3.43666	4.84032E-05		3.48012	4.84032E-05	3.81696	3.60870	2.83419*	3.43490	3.33640	6.24467E-06	0*	0.550882	0.537377	0.000181218*
Isohexane		2.59782	6.94014E-06		2.49727	6.94014E-06	1.21335	1.13025	0.821185*	2.60427	1.05899	4.88309E-07	0*	0.0901263	0.0879399	5.41536E-06*
n-Heptane		5.66933	2.57654E-06		5.29517	2.57654E-06	0.751596	0.674813	0.389264*	6.71701	0.656688	1.11529E-07	0*	0.0344339	0.0335985	2.27318E-07*
n-Octane		8.85013	7.66537E-07		8.41992	7.66537E-07	0.251121	0.221097	0.109441*	8.88090	0.219793	2.94904E-08	0*	0.0102958	0.0100461	1.84966E-06*
n-Nonane		2.17237	1.27236E-07		2.03202	1.27236E-07	0.0277817	0.0239077	0.00950050*	2.18237	0.0243533	7.17546E-09	0*	0.00167713	0.00163845	1.09562E-09*
Benzene		0.440435	0.000282592		0.420040	0.000282592	0.147087	0.117384	0.00899331*	0.441803	0.128284	0.000271842	0*	0.150447	0.146800	0.000151338*
Toluene		1.86341	0.000261093		1.75172	0.000261093	0.176476	0.142631	0.0167615*	1.87127	0.154110	0.000268294	0*	0.179049	0.174708	8.45210E-05*
Ethylbenzene		0.110783	4.84741E-06		0.103738	4.84741E-06	0.00371139	0.00305228	0.000601102*	0.111262	0.00324633	4.57855E-08	0*	0.00376021	0.00366901	8.69973E-07*
p-Xylene		1.83714	6.23677E-05		1.53293	6.23677E-05	0.0480819	0.0396889	0.00847626*	1.84455	0.0420888	5.88810E-06	0*	0.0487843	0.0475815	1.06736E-05*
n-Hexane		2.14684	3.28900E-06		2.04857	3.28900E-06	0.736543	0.589505	0.0426828*	2.15342	0.642779	1.84029E-07	0*	0.0433736	0.0423213	1.28289E-07*
2,2,4-Trimethylpentane		1.90543	1.63309E-07		1.79382	1.63309E-07	0.225852	0.204378	0.124518*	1.91326	0.197272	1.56149E-08	0*	0.00220463	0.00220463	3.57418E-09*
Water		0.0907252	99.9894		0.120855	99.9894	1.30918	1.03189	0.000630381*	0.0247647	1.41017	99.9960	100*	6.82599	6.83227	89.5223*
554-1034H C10+		26.5980	2.17726E-11		24.8583	2.17726E-11	0.000203607	0.000184678	1.99052E-05*	26.7200	0.000181107	2.73365E-14	0*	3.03760E-07	2.96391E-07	0*
555-1034H C10+		32.0591	2.40323E-11		29.9644	2.40323E-11	6.28790E-05	6.67801E-05	6.90957E-06*	32.2085	7.38648E-05	8.02267E-14	0*	3.34588E-07	3.26470E-07	6.05308E-19*
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Carbon Dioxide		0.00568709	0.00507189		0.0259017	0.00507189	1.00280	1.15991	1.76159*	0.00445119	1.17517	0.00418662	0*	7.97668	8.07506	13.8881*
Nitrogen		3.80989E-05	9.30335E-05		0.00160547	9.30335E-05	0.0235009	0.0192353	0.00281967*	9.01526E-06	0.0907156	1.04296E-05	0*	0.743921	0.731586	0.0269448*
Methane		0.00499765	0.00364396		0.0818160	0.00364396	2.20760	1.95009	0.959093*	0.00226757	4.44919	0.000748137	0*	26.0798	25.8755	2.61377*
Ethane		0.0826431	0.00294187		0.316355	0.00294187	12.1519	13.3583	18.0009*	0.0676836	13.8037	0.000655820	0*	20.5883	20.2584	1.44073*
Propane		0.806454	0.00372480		1.44186	0.00372480	38.5145	39.2710	42.1822*	0.759716	37.5669	0.000808795	0*	26.2616	25.8155	0.370941*
i-Butane		0.306476	0.000147212		0.397221	0.000147212	5.90000	5.86585	5.73343*	0.299543	5.55638	1.35408E-05	0*	1.20383	1.18312	0.00214082*
n-Butane		1.53882	0.00113352		1.85742	0.00113352	21.3396	20.9322	19.3643*	1.51428	19.9710	0.000213449	0*	8.28618	8.14378	0.0225464*
i-Pentane		0.941428	0.000153738		1.00737	0.000153738	5.12680	4.92943	4.10991*	0.938241	4.75822	1.97518E-05	0*	1.20666	1.18588	0.000726684*
n-Pentane		1.43348	0.000185821		1.50431	0.000185821	5.96835	5.68320	4.58585*	1.42786	5.53093	2.50076E-05	0*	1.44827	1.42332	0.000663428*
Isohexane		1.29425	3.31947E-05		1.30812	3.31947E-05	2.26809	2.12603	1.58704*	1.29304	2.09864	2.33567E-06	0*	0.277911	0.273122	2.36796E-05*
n-Heptane		3.87511	1.43295E-05		3.83426	1.43295E-05	1.63218	1.47595	0.874747*	3.87789	1.51191	6.20295E-07	0*	0.123462	0.121395	1.15577E-06*
n-Octane		4.52375	4.85987E-06		4.45553	4.85987E-06	0.621677	0.551278	0.280361*	4.52859	0.576872	1.85978E-07	0*	0.0420831	0.0413580	9.58162E-06*
n-Nonane		1.61077	9.05736E-07		1.58417	9.05736E-07	0.0772220	0.0669307	0.0273265*	1.61267	0.0717657	5.10609E-08	0*	0.00769686	0.00758423	7.14984E-09*
Benzene		0.198895	0.00122517		0.199437	0.00122517	0.248966	0.200142	0.0122507*	0.198833	0.230240	0.00117860	0*	0.420505	0.413289	0.000599830*
Toluene		0.992599	0.00143750		0.981081	0.00143750	0.352399	0.286858	0.0346351*	0.993392	0.326259	0.00137210	0*	0.590316	0.580151	0.000395156*
Ethylbenzene		0.0678833	2.85633E-05		0.0669451	2.85633E-05	0.00853936	0.00707324	0.00143117*	0.0680570	0.00791889	2.69801E-06	0*	0.0142845	0.0140384	4.66652E-06*
p-Xylene		1.00483	0.000367501		0.989237	0.000367501	0.110629	0.0919737	0.0201812*	1.00594	0.102620	0.000346969	0*	0.185248	0.182057	5.74981E-05*
n-Hexane		1.06957	1.57313E-05		1.07308	1.57313E-05	1.37559	1.10688	0.0824884*	1.06919	1.27273	5.80246E-07	0*	0.131441	0.130748	5.60964E-07*
2,2,4-Trimethylpentane		1.25832	1.03538E-06		1.24552	1.03538E-06	0.559120	0.509590	0.318984*	1.25919	0.517763	9.90029E-09	0*	0.00923525	0.00907811	2.07163E-08*
Water		0.00320009	99.8798		0.0132344	99.8798	0.511151	0.405775	0.000254687*	0.00257049	0.563715	99.9804	100*	4.40025	5.73458	81.8344*
554-1034H C10+		34.6415	2.72260E-10		34.0427	2.72260E-10	0.000994158	0.000909850	0.000100574*	34.8844	0.000937522	3.41848E-13	0*	2.44883E-06	2.40883E-06	0*
555-1034H C10+		44.3392	3.19099E-10		43.5728	3.19099E-10	0.000429899	0.000348716	3.70702E-05*	44.3842	0.000406013	1.06528E-12	0*	2.86413E-06	2.81478E-06	7.34771E-18*
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Carbon Dioxide		0.783919	1.15076	0	3.69314	1.15076	0.171118	0.249230	0.0781113*	0.612801	2.84922	0.949795	0*	0.200963	0.207009	0.00804578*
Nitrogen		0.00525194	0.0211083	0	0.225193	0.0211083	0.00401020	0.00413523	0.000125028*	0.00124114	0.219942	0.00236810	0*	0.0187421	0.0187541	1.19028E-05*
Methane		0.688886	0.826775	0	11.4760	0.826775	0.376706	0.419234	0.0425278*	0.312180	10.7872	0.169725	0*	0.657050	0.658205	0.00115462*
Ethane		11.3917	0.667480	0	44.3740	0.667480	2.07359	2.87179	0.798185*	9.31808	32.9824	0.148782	0*	0.518698	0.519334	0.000636487*
Propane		111.163	0.845117	0	202.245	0.845117	6.57212	8.44254	1.87042*	104.591	91.0818	0.183487	0*	0.661831	0.661794	0.000163862*
i-Butane		42.2452	0.0334008	0	55.7188	0.0334008	1.00678	1.26101	0.254228*	41.2384	13.4716	0.00307188	0*	0.0303290	0.0303299	9.45701E-07*
n-Butane		212.114	0.257184	0	260.534	0.257184	3.64140	4.50004	0.858643*	208.472	48.4201	0.0484238	0*	0.208760	0.208770	9.95962E-06*
i-Pentane		129.766	0.0348814	0	141.300	0.0348814	0.874837	1.05974	0.184900*	128.893	11.5315	0.00448098	0*	0.0304005	0.0304008	3.21001E-07*
n-Pentane		197.594	0.0421608	0	211.004	0.0421608	1.01844	1.22178	0.203343*	196.576	13.4068	0.00567334	0*	0.0364874	0.0364877	2.99067E-07*
Isohexane		178.401	0.00753152	0	183.485	0.00753152	0.386686	0.457057	0.0703715*	178.015	5.08334	0.000529881	0*	0.00700164	0.00700165	1.04604E-06*
n-Heptane		534.152	0.00325120	0	537.818	0.00325120	0.278515	0.317303	0.0387876*	533.874	3.66588	0.000140723	0*	0.00311048	0.00311048	5.10559E-10*
n-Octane		623.562	0.00110265	0	624.961	0.00110265	0.106083	0.118515	0.0124316*	623.456	1.39864	4.24185E-05	0*	0.00106023	0.00106023	4.22381E-11*
n-Nonane		222.031	0.000205502	0	222.205	0.000205502	0.0131772	0.0143889	0.00121170*	222.018	0.174000	1.15864E-05	0*	0.000193913	0.000193913	3.15833E-12*
Benzene		27.4161	0.277977	0	27.9743	0.277977	0.0424835	0.0430268	0.000543215*	27.3736	0.558223	0.267383	0*	0.0105941	0.0105944	2.64973E-07*
Toluene		138.822	0.326153	0	137.613	0.326153	0.0601334	0.0818682	0.00153577*	136.762	0.791023	0.311281	0*	0.0148723	0.0148725	1.74559E-07*
Ethylbenzene		9.37094	0.00648070	0	9.39014	0.00648070	0.00145716	0.00152082	6.34603E-05*	9.38949	0.0191995	0.00612082	0*	0.000359881	0.000359883	2.07028E-09*
p-Xylene		138.508	0.0833820	0	138.757	0.0833820	0.0188778	0.0197727	0.000894866*	138.489	0.248805	0.0787149	0*	0.00466712	0.00466714	2.53996E-08*
n-Hexane		147.481	0.00356926	0	150.517	0.00356926	0.234731	0.238388	0.00365770*	147.197	3.08575	0.000199696	0*	0.00338956	0.00338956	2.47804E-10*
2,2,4-Trimethylpentane		173.450	0.000234917	0	174.705	0.000234917	0.0954084	0.109553	0.0141442*	173.354	1.25533	2.24602E-06	0*	0.000232671	0.000232671	9.15135E-12*
Water		0.441106	22684.3	0	1.65634	22684.3	0.0872229	0.0872342	1.12932E-05*	0.353883	1.41524	22684.2	22686.2*	0.110859	0.147009	0.0361501*
554-1034H C10+		4775.05	6.17728E-08	0	4775.05	6.17728E-08	0.000169643	0.000174103	4.45869E-06*	4775.05	0.00227304	7.75930E-11	0*	6.16953E-08	6.16953E-08	0*
555-1034H C10+		6111.80	7.24001E-08	0	6111.80	7.24001E-08	7.33238E-05	7.49678E-05	1.64375E-06*	6111.80	0.000984388	2.41675E-10	0*	7.21585E-08	7.21585E-08	3.24583E-21*
Property	**Units**															
Temperature	°F	91.5719	96.9773	66.7833	66.7833	66.7833	91.5719	83.6389	53.0901*	91.5719	91.9472	96.9773	88*	96.9773	94.0464	53.0901*
Pressure	psig	0*	0*	77	77	77	0	-1.28480	-1.28480	0	2	0	77*	0	-12.5081	-12.5081
Molecular Weight	lb/lbmol	172.972	18.0170		164.514	18.0170	46.1416	45.8128	44.5900	173.563	43.5220	18.0163	18.0153	27.9466	27.7467	19.7077
Mass Density	lb/ft^3	30.3932	55.5952		48.0426	61.9848	0.100730	0.0911303	0.0941265	48.4546	0.109907	61.9825	62.0940	0.0598482	0.00103931	0.000798562
Mass Flow	lb/h	13784.2	22688.9	0	14026.6	22688.9	17.0640	21.4682	4.43415*	13767.1	242.452	22686.4	22686.2	2.51938	2.56356	0.0441747*
Std Vapor Volumetric Flow	MMSCFD	0.725791	11.4693	0	0.776528	11.4693	0.00338817	0.00427388	0.000905888	0.722423	0.0507367	11.4685	11.4690	0.000821052	0.000841486	2.04147E-05
Std Liquid Volumetric Flow	sgpm	35.0663	45.3660	0	36.0327	45.3660	0.0862974	0.0841237	0.0178263	35.0000	0.966361	45.3542	45.3514*	0.0119074	0.0119095	9.90410E-05
Net Ideal Gas Heating Value	Btu/ft^3	8563.02	0.142214		8149.85	0.142214	2374.94	2358.41	2296.94	8591.87	2239.34	0.0486990	0	1307.80	1277.25	48.6020
Gross Ideal Gas Heating Value	Btu/ft^3	9150.25	50.4592		8711.45	50.4592	2579.82	2562.09	2496.16	9180.88	2434.48	50.3600	50.31	1435.21	1402.79	98.8499

Jubilee 554-1034H 555-1034H ProMax Runs Summary

Process Streams		Flashed Oil	Flashed Water	LP Gas	LP Oil	LP Water	Oil Flash Gas	Oil Tank Total Emissions	Oil W&B Gas	Sales Oil	VRT Gas	Waste Water	Water	Water Flash Gas	Water Tank Total Emissions	Water W&B Gas
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Vapor	From Block:	VLVE-101	VLVE-102	LP Separator	LP Separator	LP Separator	Oil Tank	MIX-101	--	Oil Tank	VRT	Water Tank	--	Water Tank	MIX-102	--
	To Block:	Oil Tank	Water Tank	--	VLVE-100	VLVE-102	MIX-101	--	MIX-101	--	--	--	MIX-100	MIX-102	--	MIX-102
Mole Fraction		%	%				%	%	%		%			%	%	%
Carbon Dioxide		1.05139	5.06529				1.05139	1.20681	1.78482		1.16215			5.06529	5.09109	6.12871
Nitrogen		0.0387090	0.742147				0.0387090	0.0314571	0.00448818		0.140937			0.742147	0.724802	0.0189559
Methane		6.34955	45.4320				6.34955	5.56892	2.66580		12.0703			45.4320	44.4077	3.21095
Ethane		18.6473	19.1351				18.6473	20.3525	26.6939		19.6900			19.1351	18.6937	0.944276
Propane		40.3015	16.6439				40.3015	40.8003	42.8552		37.0783			16.6439	16.2441	0.185785
i-Butane		4.68385	0.578629				4.68385	4.82339	4.39855		4.18083			0.578629	0.564804	0.000725897
n-Butane		16.9409	3.98419				16.9409	16.4991	14.8559		14.9543			3.98419	3.88771	0.00764491
i-Pentane		3.27876	0.467397				3.27876	3.13008	2.57712		2.86907			0.467397	0.456063	0.000196491
n-Pentane		3.81696	0.560982				3.81696	3.60870	2.83419		3.33640			0.560982	0.547377	0.000181218
Isohexane		1.21335	0.0901263				1.21335	1.13025	0.821185		1.05889			0.0901263	0.0879399	5.41536E-06
n-Heptane		0.751596	0.0344339				0.751596	0.674813	0.389264		0.658888			0.0344339	0.0335985	2.27318E-07
n-Octane		0.251121	0.0102958				0.251121	0.221097	0.109441		0.219793			0.0102958	0.0100461	1.84966E-08
n-Nonane		0.0277817	0.00167713				0.0277817	0.0239077	0.00950050		0.0243533			0.00167713	0.00163645	1.09882E-09
Benzene		0.147067	0.150447				0.147067	0.117384	0.00699331		0.128284			0.150447	0.146800	0.000151398
Toluene		0.176476	0.179049				0.176476	0.142631	0.0167615		0.154110			0.179049	0.174708	8.45210E-05
Ethylbenzene		0.00371139	0.00376021				0.00371139	0.00305228	0.000601102		0.00324633			0.00376021	0.00366901	8.69973E-07
p-Xylene		0.0480819	0.0487643				0.0480819	0.0396589	0.00847626		0.0420668			0.0487643	0.0475815	1.06736E-05
n-Hexane		0.736543	0.0433736				0.736543	0.589505	0.0428828		0.642779			0.0433736	0.0423213	1.28289E-07
2,2,4-Trimethylpentane		0.225852	0.00225945				0.225852	0.204378	0.124518		0.197272			0.00225945	0.00220463	3.57416E-09
Water		1.30918	8.82599				1.30918	1.03189	0.000890381		1.41017			8.82599	8.83227	99.5223
554-1034H C10+		0.000203607	3.03760E-07				0.000203607	0.000164678	1.99052E-05		0.000181107			3.03760E-07	2.96391E-07	0
555-1034H C10+		8.28790E-05	3.34588E-07				8.28790E-05	6.67801E-05	5.90957E-06		7.38648E-05			3.34588E-07	3.26470E-07	0

Table A-6 ***EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility***
Process Heater(s) Emission Calculations

AP-42 Emission Factors for Natural Gas Combustion		
NO_x Emission Factor =	100.0 lb/MMscf	[AP-42, Table 1.4-1; <300,000 Btu/hr]
NO_x Emission Factor =	94.0 lb/MMscf	[AP-42, Table 1.4-1; >300,000 Btu/hr]
CO Emission Factor =	84.0 lb/MMscf	[AP-42, Table 1.4-1; <300,000 Btu/hr]
CO Emission Factor =	40.0 lb/MMscf	[AP-42, Table 1.4-1; >300,000 Btu/hr]
VOC Emission Factor =	5.5 lb/MMscf	[AP-42, Table 1.4-2]
SO_2 Emission Factor =	0.00036 lb/MMBtu	AP42 Table 1.4-2, 2,000 grains S/MMscf
PM_{10} Emission Factor =	7.6 lb/MMscf	[AP-42, Table 1.4-2]
$PM_{2.5}$ Emission Factor =	7.6 lb/MMscf	[AP-42, Table 1.4-2]

Natural Gas Higher Heating Value =	1,575 Btu/scf	1,597 Btu/scf	1,884 Btu/scf	1,651 Btu/scf
Annual Hours of Operation	8,760 hr/yr	8,760 hr/yr	8,760 hr/yr	8,760 hr/yr

Process Unit	Input Duty	Fuel Consumption	No. Of Units
Recycle Treater	0.500 MMBtu/hr	2.78 MMscf/yr	1
Trace Line Heater	0.500 MMBtu/hr	2.78 MMscf/yr	1
Jubilee 153-1034H Heater Treater	1.000 MMBtu/hr	5.56 MMscf/yr	1
Jubilee 154-1034H Heater Treater	1.000 MMBtu/hr	5.49 MMscf/yr	1
Recycle Treater	0.500 MMBtu/hr	2.33 MMscf/yr	1
Jubilee 554-1034H Heater Treater	1.000 MMBtu/hr	4.65 MMscf/yr	1
Jubilee 555-1034H Heater Treater	1.000 MMBtu/hr	5.31 MMscf/yr	1
Total Heat Input & Fuel Consumption	5.500 MMBtu/hr	28.89 MMscf/yr	7

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Recycle Treater	**0.13**	**0.008**	**0.06**	**0.0008**	**0.011**	**0.011**
Trace Line Heater	**0.13**	**0.008**	**0.06**	**0.0008**	**0.011**	**0.011**
Jubilee 153-1034H Heater Treater	**0.26**	**0.015**	**0.11**	**0.0016**	**0.021**	**0.021**
Jubilee 154-1034H Heater Treater	**0.26**	**0.015**	**0.11**	**0.0016**	**0.021**	**0.021**
Recycle Treater	**0.11**	**0.006**	**0.05**	**0.0008**	**0.009**	**0.009**
Jubilee 554-1034H Heater Treater	**0.22**	**0.013**	**0.09**	**0.0016**	**0.018**	**0.018**
Jubilee 555-1034H Heater Treater	**0.25**	**0.015**	**0.11**	**0.0016**	**0.020**	**0.020**
Total Process Heater Emissions	**1.36**	**0.08**	**0.58**	**0.01**	**0.11**	**0.11**

(MMBtu/hr) / (Btu/scf) * (8,760 hr/yr) = MMscf/yr

Table A-6a EOG Resources, Inc. - Jubilee 151-1034H, 152-1034H & 553-1034H Oil & Gas Production Facility Process Heater(s) Hazardous Air Pollutant Emissions Calculations

Annual Hours of Operation	8,760 hr/yr
Total Maximum Heat Input	5.500 MMBtu/hr
Natural Gas Higher Heating Value	1,677 Btu/scf
Fuel Consumption (HHV)	0.0033 MMscf/hr
Fuel Consumption (HHV)	28.74 MMscf/yr
Number of Heaters	7

Pollutant	Emission Factor (lb/MMscf) [a]	Emission Rates Total for Seven (7) Heaters		
		(lb/hr) [b]	(lbs/yr)	(tpy) [c]
2-Methylnaphthalene	2.4E-05	7.87E-08	6.90E-04	3.45E-07
3-Methylchloranthrene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
7,12-Dimethylbenz(a)anthracene	1.6E-05	5.25E-08	4.60E-04	2.30E-07
Acenaphthene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
Acenaphthylene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
Anthracene	2.4E-06	7.87E-09	6.90E-05	3.45E-08
Benz(a)anthracene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
Benzene	2.1E-03	6.89E-06	6.03E-02	3.02E-05
Benzo(a)pyrene	1.2E-06	3.94E-09	3.45E-05	1.72E-08
Benzo(b)fluoranthene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
Benzo(g,h,i)perylene	1.2E-06	3.94E-09	3.45E-05	1.72E-08
Benzo(k)fluoranthene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
Chrysene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
Dibenzo(a,h)anthracene	1.2E-06	3.94E-09	3.45E-05	1.72E-08
Dichlorobenzene	1.2E-03	3.94E-06	3.45E-02	1.72E-05
Fluoranthene	3.0E-06	9.84E-09	8.62E-05	4.31E-08
Fluorene	2.8E-06	9.19E-09	8.05E-05	4.02E-08
Formaldehyde	7.5E-02	2.46E-04	2.16E+00	1.08E-03
Hexane	1.8E+00	5.90E-03	5.17E+01	**2.59E-02**
Indeno(1,2,3-cd)pyrene	1.8E-06	5.90E-09	5.17E-05	2.59E-08
Naphthalene	6.1E-04	2.00E-06	1.75E-02	8.76E-06
Phenanathrene	1.7E-05	5.58E-08	4.89E-04	2.44E-07
Pyrene	5.0E-06	1.64E-08	1.44E-04	7.18E-08
Toluene	3.4E-03	1.12E-05	9.77E-02	4.89E-05
			Heater Total HAPs	**0.0270 tpy**
			Maximum Individual HAP	**0.0259 tpy**

Notes:

(a) Emission factors from AP-42, Section 1.4, Table 1.4-3 (7/98).

(b) Hourly Emission Rate (lb/hr) = (MMscf/hr) * (lb/MMscf)

(c) Annual Emission Rate (tpy) = (MMscf/yr) * (lb/MMscf) / (2,000 lb/ton)

Table A-7 ***EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility***
VOC Emissions from Truck Loading [AP-42 Chapter 5.2 (1/95)]

Site	Product	Loading Mode	Sales	Sales (kgal/year)	Saturation Factor (S) [1]	True Vapor Pressure (P) [psia]	Molecular Weight (M) [lb/lb-mol]	Bulk Temp. (T) [F]	Uncontrolled Loading Loss (L_L) [2] [lb/kgal]	Control Efficiency [%]	Controlled Loading Loss (L_L) [lb/kgal]	VOC Emissions	
												Uncontrolled	Controlled
Jubilee 153-1034H	crude oil	Submerged loading: dedicated vapor balance service	158,775 bbl/year	6,668.6	0.6	1.53	48.35	45	1.10	68.60%	0.344	3.7 tpy	1.1 tpy

158,775 bbls/yr assumes that 435 bbl/day of crude is loaded to trucks for 365 days per year.

[1] Source: AP-42 Table 5.2-1 (1/95)

[2] Equation 1 for loading losses: (12.46) * (SPM / T) = L_L

Where:

L_L = loading losses, lbs/1000 gal of liquid loaded
S = saturation factor
P = true vapor pressure of liquid loaded (psia). Source: 3.99 RVP of crude oil (from Precision Analysis Jubilee 153-1034H 09-02-2014) converted to TVP @45°F using Figure 7.1-13a of AP-42 Chapter 7 (11/06).
M = Molecular wt of vapors, lb/lb-mol (from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using Precision Extended Liquid Analysis: 09-02-14 for Jubilee 153-1034H)
T = temperature of bulk liquids loaded °R (°F = 460)

AP-42 Chapter 5.2, Table 5.2-1 (1/95)	
Tank trucks and rail tank cars Submerged loading of a clean cargo tank	0.5
Submerged loading: dedicated normal service	***0.6***
Submerged loading: dedicated vapor balance service	1.0
Splash loading of a clean cargo tank	1.45
Splash loading: dedicated normal service	1.45
Splash loading: dedicated vapor balance service	1
Marine vesselsa Submerged loading: ships	0.2
Submerged loading: barges	0.5

HAP	Wt. % [3]	HAP Emissions			
		Uncontrolled		Controlled	
n-Hexane	0.1240	9.1 lb/yr	0.00 tpy	2.84 lb/yr	0.00 tpy
Benzene	0.8470	61.9 lb/yr	0.03 tpy	19.43 lb/yr	0.01 tpy
2,2,4 Trimethylpentane	0.0510	3.7 lb/yr	0.00 tpy	1.17 lb/yr	0.00 tpy
Toluene	0.7670	56.0 lb/yr	0.03 tpy	17.59 lb/yr	0.01 tpy
Ethylbenzene	1.1640	85.0 lb/yr	0.04 tpy	26.70 lb/yr	0.01 tpy
Xylenes	0.1750	12.8 lb/yr	0.01 tpy	4.01 lb/yr	0.00 tpy
Total		228.5 lb/yr	**0.11 tpy**	71.75 lb/yr	**0.04 tpy**

[3] From Precision Analysis Jubilee 153-1034H Oil Analysis - 09-02-2014.

Table A-7a ***EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility***
VOC Emissions from Truck Loading [AP-42 Chapter 5.2 (1/95)]

Site	Product	Loading Mode	Sales	Sales (kgal/year)	Saturation Factor (S) [1]	True Vapor Pressure (P) [psia]	Molecular Weight (M) [lb/lb-mol]	Bulk Temp. (T) [F]	Uncontrolled Loading Loss (L_L) [2] [lb/kgal]	Control Efficiency [%]	Controlled Loading Loss (L_L) [lb/kgal]	VOC Emissions	
												Uncontrolled	Controlled
Jubilee 154-1034H	crude oil	Submerged loading: dedicated vapor balance service	124,100 bbl/year	5,212.2	0.6	1.01	48.35	45	0.73	68.60%	0.228	1.9 tpy	0.6 tpy

124,100 bbls/yr assumes that 340 bbl/day of crude is loaded to trucks for 365 days per year.

[1] Source: AP-42 Table 5.2-1 (1/95)

[2] Equation 1 for loading losses: (12.46) * (SPM / T) = L_L

Where:

L_L = loading losses, lbs/1000 gal of liquid loaded
S = saturation factor
P = true vapor pressure of liquid loaded (psia). Source: 3.0 RVP of crude oil (from Precision Analysis Jubilee 154-1034H 08-29-2014) converted to TVP @45°F using Figure 7.1-13a of AP-42 Chapter 7 (11/06).
M = Molecular wt of vapors, lb/lb-mol (from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using Precision Extended Liquid Analysis: 08-29-14 for Jubilee 154-1034H)
T = temperature of bulk liquids loaded °R (°F = 460)

AP-42 Chapter 5.2, Table 5.2-1 (1/95)	
Tank trucks and rail tank cars Submerged loading of a clean cargo tank	0.5
Submerged loading: dedicated normal service	***0.6***
Submerged loading: dedicated vapor balance service	1.0
Splash loading of a clean cargo tank	1.45
Splash loading: dedicated normal service	1.45
Splash loading: dedicated vapor balance service	1
Marine vesselsa Submerged loading: ships	0.2
Submerged loading: barges	0.5

		HAP Emissions			
HAP	Wt. % [3]	Uncontrolled		Controlled	
n-Hexane	0.1750	6.6 lb/yr	0.00 tpy	2.08 lb/yr	0.00 tpy
Benzene	1.0020	37.9 lb/yr	0.02 tpy	11.91 lb/yr	0.01 tpy
2,2,4 Trimethylpentane	0.0800	3.0 lb/yr	0.00 tpy	0.95 lb/yr	0.00 tpy
Toluene	0.9060	34.3 lb/yr	0.02 tpy	10.77 lb/yr	0.01 tpy
Ethylbenzene	0.9920	37.5 lb/yr	0.02 tpy	11.79 lb/yr	0.01 tpy
Xylenes	0.9000	34.1 lb/yr	0.02 tpy	10.70 lb/yr	0.01 tpy
Total		153.5 lb/yr	**0.08 tpy**	48.19 lb/yr	**0.02 tpy**

[3] From Precision Analysis Jubilee 154-1034H Oil Analysis - 08-29-2014.

Table A-7b ***EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility***
VOC Emissions from Truck Loading [AP-42 Chapter 5.2 (1/95)]

Site	Product	Loading Mode	Sales	Sales (kgal/year)	Saturation Factor (S) [1]	True Vapor Pressure (P) [psia]	Molecular Weight (M) [lb/lb-mol]	Bulk Temp. (T) [F]	Uncontrolled Loading Loss (L_L) [2] [lb/kgal]	Control Efficiency [%]	Controlled Loading Loss (L_L) [lb/kgal]	VOC Emissions	
												Uncontrolled	Controlled
Jubilee 554-1034H	crude oil	Submerged loading: dedicated vapor balance service	204,400 bbl/year	8,584.8	0.6	4.36	45.81	45	2.96	68.60%	0.929	12.7 tpy	4.0 tpy

204,400 bbls/yr assumes that 560 bbl/day of crude is loaded to trucks for 365 days per year.

[1] Source: AP-42 Table 5.2-1 (1/95)

[2] Equation 1 for loading losses: (12.46) * (SPM / T) = L_L

Where:

L_L = loading losses, lbs/1000 gal of liquid loaded
S = saturation factor
P = true vapor pressure of liquid loaded (psia). Source: 8.25 RVP of crude oil (from Precision Analysis Jubilee 554-1034H 09-04-2014) converted to TVP @45°F using Figure 7.1-13a of AP-42 Chapter 7 (11/06).
M = Molecular wt of vapors, lb/lb-mol (from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using Precision Extended Liquid Analysis: 09-04-14 for Jubilee 554-1034H)
T = temperature of bulk liquids loaded °R (°F = 460)

AP-42 Chapter 5.2, Table 5.2-1 (1/95)	
Tank trucks and rail tank cars Submerged loading of a clean cargo tank	0.5
Submerged loading: dedicated normal service	***0.6***
Submerged loading: dedicated vapor balance service	1.0
Splash loading of a clean cargo tank	1.45
Splash loading: dedicated normal service	1.45
Splash loading: dedicated vapor balance service	1
Marine vesselsa Submerged loading: ships	0.2
Submerged loading: barges	0.5

HAP	Wt. % [3]	HAP Emissions			
		Uncontrolled		Controlled	
n-Hexane	0.2420	61.5 lb/yr	0.03 tpy	19.30 lb/yr	0.01 tpy
Benzene	0.9950	252.7 lb/yr	0.13 tpy	79.35 lb/yr	0.04 tpy
2,2,4 Trimethylpentane	0.0320	8.1 lb/yr	0.00 tpy	2.55 lb/yr	0.00 tpy
Toluene	0.9320	236.7 lb/yr	0.12 tpy	74.33 lb/yr	0.04 tpy
Ethylbenzene	1.1920	302.7 lb/yr	0.15 tpy	95.06 lb/yr	0.05 tpy
Xylenes	1.5960	405.4 lb/yr	0.20 tpy	127.28 lb/yr	0.06 tpy
Total		1,267.1 lb/yr	**0.63 tpy**	397.87 lb/yr	**0.20 tpy**

[3] From Precision Analysis Jubilee 554-1034H Oil Analysis - 09-04-2014.

Table A-7c ***EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility***
VOC Emissions from Truck Loading [AP-42 Chapter 5.2 (1/95)]

Site	Product	Loading Mode	Sales	Sales (kgal/year)	Saturation Factor (S) [1]	True Vapor Pressure (P) [psia]	Molecular Weight (M) [lb/lb-mol]	Bulk Temp. (T) [F]	Uncontrolled Loading Loss (L_L) [2] [lb/kgal]	Control Efficiency [%]	Controlled Loading Loss (L_L) [lb/kgal]	VOC Emissions	
												Uncontrolled	Controlled
Jubilee 555-1034H	crude oil	Submerged loading: dedicated vapor balance service	233,600 bbl/year	9,811.2	0.6	1.23	45.81	45	0.83	68.60%	0.262	4.1 tpy	1.3 tpy

233,600 bbls/yr assumes that 640 bbl/day of crude is loaded to trucks for 365 days per year.

[1] Source: AP-42 Table 5.2-1 (1/95)

[2] Equation 1 for loading losses: (12.46) * (SPM / T) = L_L

Where:

L_L = loading losses, lbs/1000 gal of liquid loaded

S = saturation factor

P = true vapor pressure of liquid loaded (psia). Source: 3.43 RVP of crude oil (from Precision Analysis Jubilee 555-1034H 09-02-2014) converted to TVP @45°F using Figure 7.1-13a of AP-42 Chapter 7 (11/06).

M = Molecular wt of vapors, lb/lb-mol (from Bryan Research & Engineering, Inc. ProMax™ 3.2 simulation software program using Precision Extended Liquid Analysis: 09-02-14 for Jubilee 555-1034H)

T = temperature of bulk liquids loaded °R (°F = 460)

AP-42 Chapter 5.2, Table 5.2-1 (1/95)	
Tank trucks and rail tank cars Submerged loading of a clean cargo tank	0.5
Submerged loading: dedicated normal service	***0.6***
Submerged loading: dedicated vapor balance service	1.0
Splash loading of a clean cargo tank	1.45
Splash loading: dedicated normal service	1.45
Splash loading: dedicated vapor balance service	1
Marine vesselsa Submerged loading: ships	0.2
Submerged loading: barges	0.5

		HAP Emissions			
HAP	Wt. % [3]	Uncontrolled		Controlled	
n-Hexane	0.1670	13.7 lb/yr	0.01 tpy	4.29 lb/yr	0.00 tpy
Benzene	0.9740	79.8 lb/yr	0.04 tpy	25.04 lb/yr	0.01 tpy
2,2,4 Trimethylpentane	0.0960	7.9 lb/yr	0.00 tpy	2.47 lb/yr	0.00 tpy
Toluene	1.0380	85.0 lb/yr	0.04 tpy	26.69 lb/yr	0.01 tpy
Ethylbenzene	0.9730	79.7 lb/yr	0.04 tpy	25.02 lb/yr	0.01 tpy
Xylenes	0.9500	77.8 lb/yr	0.04 tpy	24.43 lb/yr	0.01 tpy
Total		343.8 lb/yr	**0.17 tpy**	107.94 lb/yr	**0.05 tpy**

[3] From Precision Analysis Jubilee 555-1034H Oil Analysis - 09-02-2014.

Table A-8

EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility
Equipment Leak Emission Factors
Jubilee 153-1034H

Component Description	Service	Component Count (N)	TOC Emission Factor [1]		Emission Rates							
			(kg/hr/source)	(lb/hr/source)	TOC (tpy)	VOC (tpy)	C6+ (lb/yr)	Benzene (lb/yr)	Toluene (lb/yr)	Ethylbenzene (lb/yr)	Xylenes (lb/yr)	Total HAP (tpy)
Valves	Gas	64	4.50E-03	9.92E-03	2.78	0.097	18.80	1.28	2.17	0.11	0.56	0.011
	Heavy Oil		8.40E-06	1.85E-05								
	Light Oil	50	2.50E-03	5.51E-03	1.21	0.352	58.66	0.65	1.81	0.41	0.87	0.031
	Water/Oil	24	9.80E-05	2.16E-04	0.02	0.023	0.00	0.05	0.01	0.00	0.00	0.000
Pump Seals	Gas		2.40E-03	5.29E-03								
	Heavy Oil											
	Light Oil	1	1.30E-02	2.87E-02	0.13	0.037	6.10	0.07	0.19	0.04	0.09	0.003
	Water/Oil		2.40E-05	5.29E-05								
Others: pressure relief valves, compressors, instruments, diaphrams, drains, hatches, meters, and vents.	Gas	32	8.80E-03	1.94E-02	2.72	0.095	18.38	1.25	2.12	0.11	0.54	0.011
	Heavy Oil		3.20E-05	7.05E-05								
	Light Oil	4	7.50E-03	1.65E-02	0.29	0.085	14.08	0.16	0.43	0.10	0.21	0.007
	Water/Oil	6	1.40E-02	3.09E-02	0.81	0.811	0.00	1.95	0.52	0.02	0.06	0.001
Connectors	Gas	395	2.00E-04	4.41E-04	0.76	0.027	5.16	0.35	0.60	0.03	0.15	0.003
	Heavy Oil		7.50E-06	1.65E-05								
	Light Oil	277	2.10E-04	4.63E-04	0.56	0.164	27.30	0.30	0.84	0.19	0.40	0.015
	Water/Oil	51	1.10E-04	2.43E-04	0.05	0.054	0.00	0.13	0.03	0.00	0.00	0.000
Flanges	Gas	9	3.90E-04	8.60E-04	0.03	0.001	0.23	0.02	0.03	0.00	0.01	0.000
	Heavy Oil		3.90E-07	8.60E-07								
	Light Oil	8	1.10E-04	2.43E-04	0.01	0.002	0.41	0.00	0.01	0.00	0.01	0.000
	Water/Oil	4	2.90E-06	6.39E-06	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.000
Open-Ended Lines	Gas	7	2.00E-03	4.41E-03	0.14	0.005	0.91	0.06	0.11	0.01	0.03	0.001
	Heavy Oil		1.40E-04	3.09E-04								
	Light Oil	3	1.40E-03	3.09E-03	0.04	0.012	1.97	0.02	0.06	0.01	0.03	0.001
	Water/Oil	5	2.50E-04	5.51E-04	0.01	0.012	0.00	0.03	0.01	0.00	0.00	0.000
					9.6 tpy	**1.8 tpy**	**152.0 lb/yr**	**6.3 lb/yr**	**8.9 lb/yr**	**1.0 lb/yr**	**3.0 lb/yr**	**0.09 tpy**
							0.076 tpy	**0.003 tpy**	**0.004 tpy**	**0.001 tpy**	**0.001 tpy**	**0.000 tpy**

Service	Stream VOC & HAP Component Weight Fraction (Estimated weight fractions of TOC emissions)							
	Methane	NMHC	VOC	C6+	Benzene	Toluene	Ethylbenzene	Xylenes
Gas Production [2]	0.92	0.08	0.035	0.00338	0.00023	0.00039	0.00002	0.0001
Heavy Oil [2]	0.942	0.058	0.03	0.00752	0.00935	0.00344	0.00051	0.00372
Light Oil [2]	0.613	0.387	0.292	0.0243	0.00027	0.00075	0.00017	0.00036
Water/Oil [3]			1.000		0.0012	0.00032	0.00001	0.00004

Sample Calculations: TOC emissions = (N) * (lb / hr/ source) * (8,760 hr/yr) (ton / 2,000 lb) = ton TOC / yr
VOC emissions = (TOC ton / yr) * (VOC wt. fraction) = ton VOC / yr
HAP emissions = (TOC ton / yr) * (HAP wt. fraction) (2,000 lb / ton) = lb HAP / yr

References:

[1] EPA Protocol for Equipment Leak Emission Estimates, November 1995 (EPA-453/R-95-017). Table 2-4, Page 2-15.

[2] Oil and Gas Production Facilities, Chapter 6, section 2 Permitting Guidance, WDEQ, Air Quality Division; Fugitive Emissions Pg. 71 of 81

[3] Gas Research Institute (GRI) Technical Reference Manual for GRI-HAPCalc, Software for Estimating Emissions of Hazardous Air Pollutants and Criteria Air Pollutants from Natural Gas Industry Operations, GRI-96/0346

Table A-8a

EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility
Equipment Leak Emission Factors
Jubilee 154-1034H

Component Description	Service	Component Count (N)	TOC Emission Factor [1]		Emission Rates							
			(kg/hr/source)	(lb/hr/source)	TOC (tpy)	VOC (tpy)	C6+ (lb/yr)	Benzene (lb/yr)	Toluene (lb/yr)	Ethylbenzene (lb/yr)	Xylenes (lb/yr)	Total HAP (tpy)
Valves	Gas	64	4.50E-03	9.92E-03	2.78	0.097	18.80	1.28	2.17	0.11	0.56	0.011
	Heavy Oil		8.40E-06	1.85E-05								
	Light Oil	50	2.50E-03	5.51E-03	1.21	0.352	58.66	0.65	1.81	0.41	0.87	0.031
	Water/Oil	24	9.80E-05	2.16E-04	0.02	0.023	0.00	0.05	0.01	0.00	0.00	0.000
Pump Seals	Gas		2.40E-03	5.29E-03								
	Heavy Oil											
	Light Oil	1	1.30E-02	2.87E-02	0.13	0.037	6.10	0.07	0.19	0.04	0.09	0.003
	Water/Oil		2.40E-05	5.29E-05								
Others: pressure relief valves, compressors, instruments, diaphrams, drains, hatches, meters, and vents.	Gas	32	8.80E-03	1.94E-02	2.72	0.095	18.38	1.25	2.12	0.11	0.54	0.011
	Heavy Oil		3.20E-05	7.05E-05								
	Light Oil	4	7.50E-03	1.65E-02	0.29	0.085	14.08	0.16	0.43	0.10	0.21	0.007
	Water/Oil	6	1.40E-02	3.09E-02	0.81	0.811	0.00	1.95	0.52	0.02	0.06	0.001
Connectors	Gas	395	2.00E-04	4.41E-04	0.76	0.027	5.16	0.35	0.60	0.03	0.15	0.003
	Heavy Oil		7.50E-06	1.65E-05								
	Light Oil	277	2.10E-04	4.63E-04	0.56	0.164	27.30	0.30	0.84	0.19	0.40	0.015
	Water/Oil	51	1.10E-04	2.43E-04	0.05	0.054	0.00	0.13	0.03	0.00	0.00	0.000
Flanges	Gas	9	3.90E-04	8.60E-04	0.03	0.001	0.23	0.02	0.03	0.00	0.01	0.000
	Heavy Oil		3.90E-07	8.60E-07								
	Light Oil	8	1.10E-04	2.43E-04	0.01	0.002	0.41	0.00	0.01	0.00	0.01	0.000
	Water/Oil	4	2.90E-06	6.39E-06	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.000
Open-Ended Lines	Gas	7	2.00E-03	4.41E-03	0.14	0.005	0.91	0.06	0.11	0.01	0.03	0.001
	Heavy Oil		1.40E-04	3.09E-04								
	Light Oil	3	1.40E-03	3.09E-03	0.04	0.012	1.97	0.02	0.06	0.01	0.03	0.001
	Water/Oil	5	2.50E-04	5.51E-04	0.01	0.012	0.00	0.03	0.01	0.00	0.00	0.000
					9.6 tpy	**1.8 tpy**	**152.0 lb/yr**	**6.3 lb/yr**	**8.9 lb/yr**	**1.0 lb/yr**	**3.0 lb/yr**	**0.09 tpy**
							0.076 tpy	**0.003 tpy**	**0.004 tpy**	**0.001 tpy**	**0.001 tpy**	**0.000 tpy**

Service	Stream VOC & HAP Component Weight Fraction (Estimated weight fractions of TOC emissions)							
	Methane	NMHC	VOC	C6+	Benzene	Toluene	Ethylbenzene	Xylenes
Gas Production [2]	0.92	0.08	0.035	0.00338	0.00023	0.00039	0.00002	0.0001
Heavy Oil [2]	0.942	0.058	0.03	0.00752	0.00935	0.00344	0.00051	0.00372
Light Oil [2]	0.613	0.387	0.292	0.0243	0.00027	0.00075	0.00017	0.00036
Water/Oil [3]			1.000		0.0012	0.00032	0.00001	0.00004

Sample Calculations: TOC emissions = (N) * (lb / hr/ source) * (8,760 hr/yr) (ton / 2,000 lb) = ton TOC / yr
VOC emissions = (TOC ton / yr) * (VOC wt. fraction) = ton VOC / yr
HAP emissions = (TOC ton / yr) * (HAP wt. fraction) (2,000 lb / ton) = lb HAP / yr

References:

[1] EPA Protocol for Equipment Leak Emission Estimates, November 1995 (EPA-453/R-95-017). Table 2-4, Page 2-15.

[2] Oil and Gas Production Facilities, Chapter 6, section 2 Permitting Guidance, WDEQ, Air Quality Division; Fugitive Emissions Pg. 71 of 81

[3] Gas Research Institute (GRI) Technical Reference Manual for GRI-HAPCalc, Software for Estimating Emissions of Hazardous Air Pollutants and Criteria Air Pollutants from Natural Gas Industry Operations, GRI-96/0346

Table A-8b

EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility
Equipment Leak Emission Factors
Jubilee 554-1034H

Component Description	Service	Component Count (N)	TOC Emission Factor [1]		Emission Rates							
			(kg/hr/source)	(lb/hr/source)	TOC (tpy)	VOC (tpy)	C6+ (lb/yr)	Benzene (lb/yr)	Toluene (lb/yr)	Ethylbenzene (lb/yr)	Xylenes (lb/yr)	Total HAP (tpy)
Valves	Gas	64	4.50E-03	9.92E-03	2.78	0.097	18.80	1.28	2.17	0.11	0.56	0.011
	Heavy Oil		8.40E-06	1.85E-05								
	Light Oil	50	2.50E-03	5.51E-03	1.21	0.352	58.66	0.65	1.81	0.41	0.87	0.031
	Water/Oil	24	9.80E-05	2.16E-04	0.02	0.023	0.00	0.05	0.01	0.00	0.00	0.000
Pump Seals	Gas		2.40E-03	5.29E-03								
	Heavy Oil											
	Light Oil	1	1.30E-02	2.87E-02	0.13	0.037	6.10	0.07	0.19	0.04	0.09	0.003
	Water/Oil		2.40E-05	5.29E-05								
Others: pressure relief valves, compressors, instruments, diaphrams, drains, hatches, meters, and vents.	Gas	32	8.80E-03	1.94E-02	2.72	0.095	18.38	1.25	2.12	0.11	0.54	0.011
	Heavy Oil		3.20E-05	7.05E-05								
	Light Oil	4	7.50E-03	1.65E-02	0.29	0.085	14.08	0.16	0.43	0.10	0.21	0.007
	Water/Oil	6	1.40E-02	3.09E-02	0.81	0.811	0.00	1.95	0.52	0.02	0.06	0.001
Connectors	Gas	395	2.00E-04	4.41E-04	0.76	0.027	5.16	0.35	0.60	0.03	0.15	0.003
	Heavy Oil		7.50E-06	1.65E-05								
	Light Oil	277	2.10E-04	4.63E-04	0.56	0.164	27.30	0.30	0.84	0.19	0.40	0.015
	Water/Oil	51	1.10E-04	2.43E-04	0.05	0.054	0.00	0.13	0.03	0.00	0.00	0.000
Flanges	Gas	9	3.90E-04	8.60E-04	0.03	0.001	0.23	0.02	0.03	0.00	0.01	0.000
	Heavy Oil		3.90E-07	8.60E-07								
	Light Oil	8	1.10E-04	2.43E-04	0.01	0.002	0.41	0.00	0.01	0.00	0.01	0.000
	Water/Oil	4	2.90E-06	6.39E-06	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.000
Open-Ended Lines	Gas	7	2.00E-03	4.41E-03	0.14	0.005	0.91	0.06	0.11	0.01	0.03	0.001
	Heavy Oil		1.40E-04	3.09E-04								
	Light Oil	3	1.40E-03	3.09E-03	0.04	0.012	1.97	0.02	0.06	0.01	0.03	0.001
	Water/Oil	5	2.50E-04	5.51E-04	0.01	0.012	0.00	0.03	0.01	0.00	0.00	0.000
					9.6 tpy	**1.8 tpy**	**152.0 lb/yr**	**6.3 lb/yr**	**8.9 lb/yr**	**1.0 lb/yr**	**3.0 lb/yr**	**0.09 tpy**
							0.076 tpy	**0.003 tpy**	**0.004 tpy**	**0.001 tpy**	**0.001 tpy**	**0.000 tpy**

Service	Stream VOC & HAP Component Weight Fraction (Estimated weight fractions of TOC emissions)							
	Methane	NMHC	VOC	C6+	Benzene	Toluene	Ethylbenzene	Xylenes
Gas Production [2]	0.92	0.08	0.035	0.00338	0.00023	0.00039	0.00002	0.0001
Heavy Oil [2]	0.942	0.058	0.03	0.00752	0.00935	0.00344	0.00051	0.00372
Light Oil [2]	0.613	0.387	0.292	0.0243	0.00027	0.00075	0.00017	0.00036
Water/Oil [3]			1.000		0.0012	0.00032	0.00001	0.00004

Sample Calculations: TOC emissions = (N) * (lb / hr/ source) * (8,760 hr/yr) (ton / 2,000 lb) = ton TOC / yr
VOC emissions = (TOC ton / yr) * (VOC wt. fraction) = ton VOC / yr
HAP emissions = (TOC ton / yr) * (HAP wt. fraction) (2,000 lb / ton) = lb HAP / yr

References:

[1] EPA Protocol for Equipment Leak Emission Estimates, November 1995 (EPA-453/R-95-017). Table 2-4, Page 2-15.

[2] Oil and Gas Production Facilities, Chapter 6, section 2 Permitting Guidance, WDEQ, Air Quality Division; Fugitive Emissions Pg. 71 of 81

[3] Gas Research Institute (GRI) Technical Reference Manual for GRI-HAPCalc, Software for Estimating Emissions of Hazardous Air Pollutants and Criteria Air Pollutants from Natural Gas Industry Operations, GRI-96/0346

Table A-8c

EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production Facility
Equipment Leak Emission Factors
Jubilee 555-1034H

Component Description	Service	Component Count (N)	TOC Emission Factor [1]		Emission Rates							
			(kg/hr/source)	(lb/hr/source)	TOC (tpy)	VOC (tpy)	C6+ (lb/yr)	Benzene (lb/yr)	Toluene (lb/yr)	Ethylbenzene (lb/yr)	Xylenes (lb/yr)	Total HAP (tpy)
Valves	Gas	64	4.50E-03	9.92E-03	2.78	0.097	18.80	1.28	2.17	0.11	0.56	0.011
	Heavy Oil		8.40E-06	1.85E-05								
	Light Oil	50	2.50E-03	5.51E-03	1.21	0.352	58.66	0.65	1.81	0.41	0.87	0.031
	Water/Oil	24	9.80E-05	2.16E-04	0.02	0.023	0.00	0.05	0.01	0.00	0.00	0.000
Pump Seals	Gas		2.40E-03	5.29E-03								
	Heavy Oil		-	-								
	Light Oil	1	1.30E-02	2.87E-02	0.13	0.037	6.10	0.07	0.19	0.04	0.09	0.003
	Water/Oil		2.40E-05	5.29E-05								
Others: pressure relief valves, compressors, instruments, diaphrams, drains, hatches, meters, and vents.	Gas	32	8.80E-03	1.94E-02	2.72	0.095	18.38	1.25	2.12	0.11	0.54	0.011
	Heavy Oil		3.20E-05	7.05E-05								
	Light Oil	4	7.50E-03	1.65E-02	0.29	0.085	14.08	0.16	0.43	0.10	0.21	0.007
	Water/Oil	6	1.40E-02	3.09E-02	0.81	0.811	0.00	1.95	0.52	0.02	0.06	0.001
Connectors	Gas	395	2.00E-04	4.41E-04	0.76	0.027	5.16	0.35	0.60	0.03	0.15	0.003
	Heavy Oil		7.50E-06	1.65E-05								
	Light Oil	277	2.10E-04	4.63E-04	0.56	0.164	27.30	0.30	0.84	0.19	0.40	0.015
	Water/Oil	51	1.10E-04	2.43E-04	0.05	0.054	0.00	0.13	0.03	0.00	0.00	0.000
Flanges	Gas	9	3.90E-04	8.60E-04	0.03	0.001	0.23	0.02	0.03	0.00	0.01	0.000
	Heavy Oil		3.90E-07	8.60E-07								
	Light Oil	8	1.10E-04	2.43E-04	0.01	0.002	0.41	0.00	0.01	0.00	0.01	0.000
	Water/Oil	4	2.90E-06	6.39E-06	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.000
Open-Ended Lines	Gas	7	2.00E-03	4.41E-03	0.14	0.005	0.91	0.06	0.11	0.01	0.03	0.001
	Heavy Oil		1.40E-04	3.09E-04								
	Light Oil	3	1.40E-03	3.09E-03	0.04	0.012	1.97	0.02	0.06	0.01	0.03	0.001
	Water/Oil	5	2.50E-04	5.51E-04	0.01	0.012	0.00	0.03	0.01	0.00	0.00	0.000
					9.6 tpy	**1.8 tpy**	**152.0 lb/yr**	**6.3 lb/yr**	**8.9 lb/yr**	**1.0 lb/yr**	**3.0 lb/yr**	**0.09 tpy**
							0.076 tpy	**0.003 tpy**	**0.004 tpy**	**0.001 tpy**	**0.001 tpy**	**0.000 tpy**

Service	Stream VOC & HAP Component Weight Fraction (Estimated weight fractions of TOC emissions)							
	Methane	NMHC	VOC	C6+	Benzene	Toluene	Ethylbenzene	Xylenes
Gas Production [2]	0.92	0.08	0.035	0.00338	0.00023	0.00039	0.00002	0.0001
Heavy Oil [2]	0.942	0.058	0.03	0.00752	0.00935	0.00344	0.00051	0.00372
Light Oil [2]	0.613	0.387	0.292	0.0243	0.00027	0.00075	0.00017	0.00036
Water/Oil [3]			1.000		0.0012	0.00032	0.00001	0.00004

Sample Calculations: TOC emissions = (N) * (lb / hr/ source) * (8,760 hr/yr) (ton / 2,000 lb) = ton TOC / yr
VOC emissions = (TOC ton / yr) * (VOC wt. fraction) = ton VOC / yr
HAP emissions = (TOC ton / yr) * (HAP wt. fraction) (2,000 lb / ton) = lb HAP / yr

References:

[1] EPA Protocol for Equipment Leak Emission Estimates, November 1995 (EPA-453/R-95-017), Table 2-4, Page 2-15.

[2] Oil and Gas Production Facilities, Chapter 6, section 2 Permitting Guidance, WDEQ, Air Quality Division; Fugitive Emissions Pg. 71 of 81

[3] Gas Research Institute (GRI) Technical Reference Manual for GRI-HAPCalc, Software for Estimating Emissions of Hazardous Air Pollutants and Criteria Air Pollutants from Natural Gas Industry Operations, GRI-96/0346

Table A-9 ***EOG Resources, Inc. - Jubilee 153-1034H, 154-1034H, 554-1034H, & 555-1034H Oil & Gas Production F***

Flare Emission Calculations

Jubilee 153-1034H & Jubilee 154-1034H & Jubilee 554-1034H & Jubilee 555-1034H

Source Type:	Tri-Tip Flare
Heat Input:	90.80 MMBtu/hr
Flowrate:	1,299,760 scf/day
Flowrate:	54,156.7 scf/hr
Flowrate:	108.31 MMscf/yr
Estimated HHV:	1,677 Btu/scf
Total VOC Destruction Efficiency:	98%
Molecular Weight:	29.8 lb/lb-mol
VOC Fraction of Gas:	0.5175
Sulfur Content of Fuel:	0.0020 gr/scf
Operating Hours per Year:	2,000 hr/yr

Pollutant	Emission Factors [a]	Emissions	
		lb/hr [b], [c]	tpy [d]
NO_x	0.068 lb/MMBtu	6.17	6.2
CO	0.370 lb/MMBtu	33.59	33.6
SO_2	0.00034 lb/MMBtu	0.03	0.03
PM_{10}	40.0 µg / L^3	1.43	1.4
$PM_{2.5}$	40.0 µg / L^3	1.43	1.4

Pollutant	Wt. Fraction of Gas	VOC & HAP Emission Rates [e]			
		Uncontrolled		Controlled	
VOC	0.5175	2,199.4 lb/hr	2,199.4 tpy	43.99 lb/hr	44.0 tpy
Benzene	0.0023	9.62 lb/hr	19,239.6 lb/yr	0.19 lb/hr	384.8 lb/yr
Toluene	0.0007	2.86 lb/hr	5,726.7 lb/yr	0.06 lb/hr	114.5 lb/yr
Ethylbenzene	0.0000	0.04 lb/hr	71.9 lb/yr	0.00 lb/hr	1.4 lb/yr
Xylenes	0.0000	0.09 lb/hr	189.0 lb/yr	0.00 lb/hr	3.8 lb/yr
n-Hexane	0.0105	44.47 lb/hr	88,941.6 lb/yr	0.89 lb/hr	1,778.8 lb/yr
2,2,4-TMP	0.000003	0.01 lb/hr	25.5 lb/yr	0.00 lb/hr	0.5 lb/yr

Notes:

(a) Emission factors are from AP-42 Tables 13.5-1 & 2 (Industrial Flares)

40 µg / L is for lightly smoking flare (this is conservative as this unit is smokeless in design).

SO_2 emissions based on AP42 Table 1.4-2, which is based on 2,000 grains S/MMscf and 100% conversion

(b) Hourly Emission Rate (lb/hr) except for PM_{10} = (Emission Factor, lb/MMBtuf) * (Heat Input, MMBtu/hr)

(c) (MMscf CH_4) (10.6 scf E/scf CH_4) (0.0283 m^3/scf E) (40 µ PM_{10}/L E) (1000 l/m^3) (g/106 µg) (lb/453.59 g) / (hr/yr) = lb PM_{10}/ hr

(d) Annual Emission Rate (tpy) = (Hourly Emission Rate, lb/hr) * (hr/yr) / (2,000 lb/ton)

(e) VOC & HAP emisssions:

Uncontrolled

(scf/hr) (lb/lb-mol) (VOC Fraction) (lb-mol/379.3 scf) = lb VOC/hr

(scf/hr) (lb/lb-mol) (HAP Fraction) (lb-mol/379.3 scf) = lb HAP/hr

(lb /hr) (hr/yr) (ton/2,000 lb) = ton VOC/yr

(lb /hr) (hr/yr) = lb HAP/yr

Controlled

(lb VOC/hr) (100 - 95%) / (100) = lb/hr

(lb HAP/hr) (100 - 95%) / (100) = lb/hr

(ton VOC/yr) (100 - 95%) / (100) = tpy

(lb HAP/yr) (100 - 95%) / (100) = lb/yr

VOC & HAP fraction from Average of Jubilee 153, 154, 554, & 555-1034H Gas Analyses.