



**EOG Resources, Inc.**  
600 Seventeenth Street  
Suite 1000N  
Denver, CO 80202  
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July 10, 2015

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 – Crossbow 7-06H (CT-11897) and Crossbow 12-06H (CT-15155)**  
**Campbell 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. This air permit application is being submitted to update the Crossbow 7-06H and 12-06H facility. The facilities are both located on the same pad but have separate equipment and were inadvertently permitted as separate production sites. Both facilities have recently undergone low pressure conversions which removed the TEG dehydration units from the facilities. This application will update the current equipment at the facility and include new equipment associated with the facility. EOG requests to update the permits to reflect the current equipment list, remove the conditions associated with the TEG dehydration units, and to combine the facilities under one permit. Emissions from the tanks and pneumatic pumps are routed to the enclosed combustion devices. Also, EOG requests to remove the vapor recovery unit from the equipment list in the permit.

Well Name	API Number	First Date of Production	Natural Gas Rate <sup>1</sup> (MMSCFD)	Crude Oil Rate <sup>1</sup> (BPD)
Crossbow 7-06H	49-005-60884	2/2/2011	0.380	12.3
Crossbow 12-06H	49-005-61611	3/25/2013	0.736	23.3

<sup>1</sup> Based on most recent 90 days production

Each well produces both crude oil and natural gas. Each well pad consists of the following sources of emissions:

**Crossbow 7-06H**

- Four (4) Crude Oil Storage Tanks (400 bbl capacity each);
- One (1) Produced Water Storage Tank (400 bbl capacity);
- One (1) Emergency Tank (400 bbl capacity);
- One (1) Heater Treater (0.375 MMBtu/hr heater capacity);
- **One (1) Trace Line Heater (0.50 MMBtu/hr heater capacity) (installed 2015);**
- **One (1) Pneumatic Pump (combustor scrubber);**
- **Two (2) Electric Pumps (one (1) trace and one (1) recycle); (permitted equipment list shows four (4) pneumatic pumps)**
- One (1) 36" x 20' LEED Smokeless Enclosed Combustion Device (ECD) (Controls Oil Storage Tanks, Produced Water Storage Tank, and Pneumatic Pump Emissions);

- Various Gas Dryers/Scrubbers (sales gas, fuel gas, tank vent line);
- Various non-bleed controllers;
- Fugitive Components;

**Crossbow 12-06H**

- Four (4) Crude Oil Storage Tanks (400 bbl capacity each);
- One (1) Produced Water Storage Tank (400 bbl capacity);
- One (1) Emergency Tank (400 bbl capacity);
- **One (1) Heater Treater (0.375 MMBtu/hr heater capacity) (installed 2015);**
- **One (1) Trace Line Heater (0.50 MMBtu/hr heater capacity) (installed 2015);**
- **Two (2) Pneumatic Pumps (VRT scrubber and combustor scrubber);**
- **Three (3) Electric Pumps (chemical, trace, and recycle); (permitted equipment list shows four (4) pneumatic pumps)**
- One (1) 48" x 25' Cimarron Smokeless Enclosed Combustion Device (ECD) (Controls Oil Storage Tanks, Produced Water Storage Tank, VRT Flash Gas, and Pneumatic Pump Emissions);
- One (1) Vapor Recovery Tower (VRT);
- Various Gas Dryers/Scrubbers (sales gas, fuel gas, VRT vent line, tank vent line);
- One (1) 135-gallon chemical tank
- Various non-bleed controllers;
- Fugitive Components;

Attachments A and B contain a flow diagram/plot plan of the emissions unit and facility process description, while Attachment C contains the current production rates for the wells. A recent gas analysis is contained in Attachment D, and detailed emission calculations and supporting documentation are provided in Attachment E.

We trust the attached permit application package will meet your expectations and that you will not hesitate to call me at (303) 262-9946 or Mark Smith at (307) 823-6208 if you have any questions or need additional information. We appreciate your prompt attention to this most important project.

Sincerely,



for  
Curtis Rice  
EOG Environmental – Denver Division

cc: File – Well  
Attachments: As stated

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**Attachment A – Flow Diagram and Plot Plan of Emission Units  
and/or Facility**

# Site Facility Diagram

**Well Name: Crossbow 12-06H**  
**1/4 1/4:SE/SE Sec: 06 T: 41N R: 71W**  
**County: Campbell State: Wyoming**  
**Lease: WYW055069 Unit: PA:**  
**Type of well: Injection Oil: Gas: X Tank Battery: X**



## EOG resources

EOG Resources, Inc. site facility diagrams & site security plans are located at the Big Piney office in Big Piney, Wyoming. The office is located at 1540 Belco Drive and normal business hours are 7:00am to 4:30pm MST.



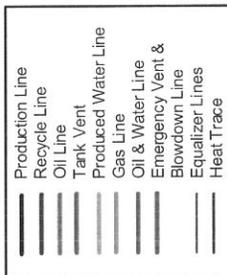
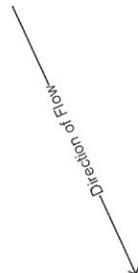
Valve	Production	Sales	Water
Change	Plane	Drain	
PV	SO	SC	SC
SV	SC	SO	SC
EV	SO	SC	SC
LV	SC	SO	SC
RV	SC	SC	SC

## Abbreviations

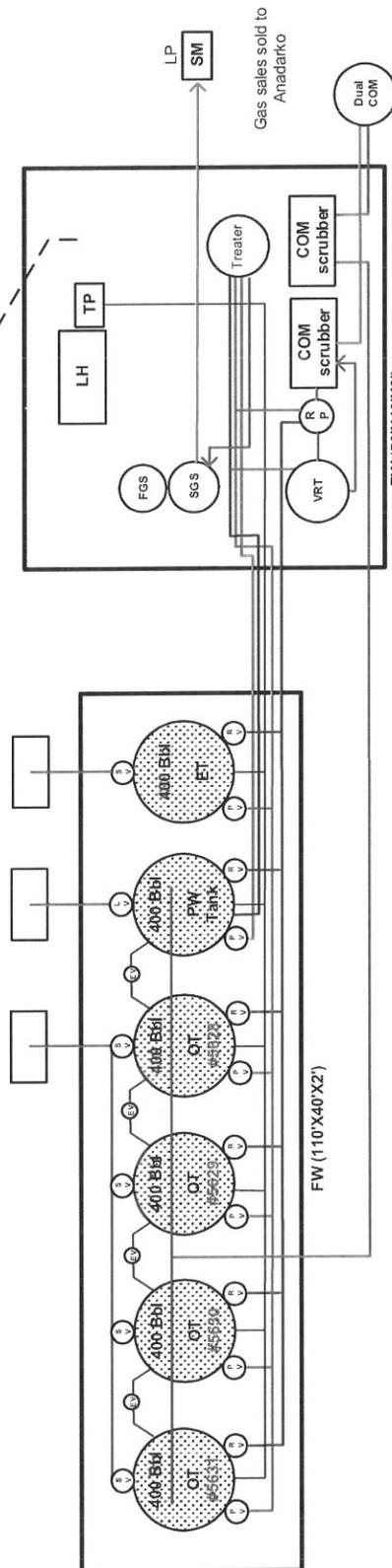
AM = Allocation Meter  
 AR = Access Road  
 CHP = Chemical Pump  
 CHT = Chemical Tank  
 COM = Compressor  
 COMPT = Composite Treater  
 CONT = Containment Tub  
 CP = Charge Pump  
 CT = Condensate Tank  
 DH = Dehydrator  
 DL = Dump Line  
 EP = Electrical Panel  
 ET = Emergency Tank  
 EV = Equalizer Valve  
 FE = Fire Extinguisher  
 FGS = Fuel Gas Scrubber  
 FT = Fiberglass Tub  
 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  
 SI = 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

Revised: 07/09/2015

Crossbow 12-06H Crossbow 7-06H



Above Ground Line  
 Underground Line



FW (110'X40'X2')

FW (50'X40'X2')

# Site Facility Diagram

Well Name: Crossbow 7-06H

1/4 1/4: SESE Sec: 6

County: Campbell State: Wyoming

Lease: WYW106828 Unit:

CA: WYW179846 PA:

Type of well: Injection: Oil: Gas: X Tank Battery: X

R: 71W



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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

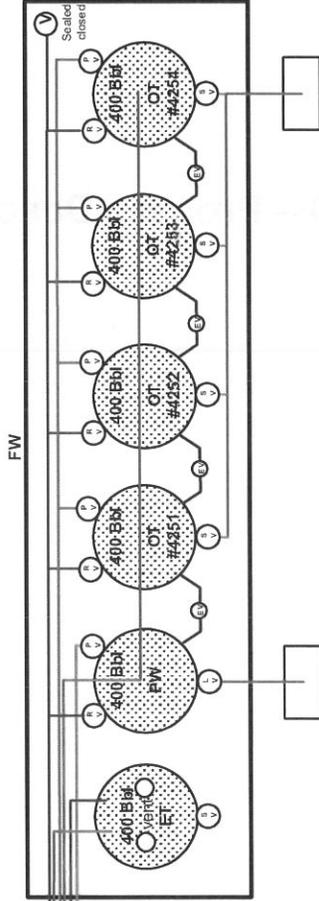
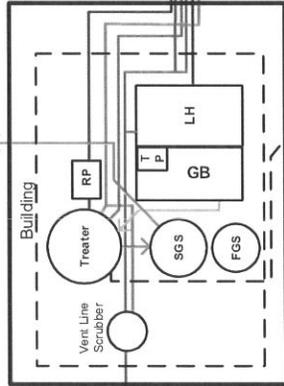
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- CT = Condensate Tank
- DH = Dehydrator
- DI = Dump Line
- EP = Electrical Panel
- ET = Emergency Tank
- EV = Equalizer Valve
- FE = Fire Extinguisher
- FGS = Fuel Gas Scrubber
- FT = Fiberglass Tub
- FW = Firewall (dimensions feet)
- FWKO = Free Water Knockout
- GB = Gas Buster
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- 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
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- VM = Vent Meter
- VPT = Vapor Recovery Tower
- UNP = Unload Pump
- WDP = Water Disposal Pump
- WD = Water Drain
- WFP = Water Flood Pump
- WH = Wellhead

Revised: 07/09/2015

Above Ground Line  
Underground Line

- Production Line
- Recycle Line
- Oil Line
- Tank Vent
- Produced Water Line
- Gas Line
- Oil & Water Line
- Emergency Vent & Blowdown Line
- Equalizer Lines
- Heat Trace

Gas sales to Anadarko



AR



Crossbow 12-06H



Crossbow 7-06H

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## **Attachment B – Process Description**

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## Process Description

### **Crossbow 7-06H and 12-06H PAD multiple well oil & gas production facility**

Crossbow 7-06H and 12-06H PAD is an oil and gas production facility located in Campbell County, Wyoming that receives production from two wells. The wells produce both crude oil and natural gas. Each well produces to separate production equipment located on the same well pad.

#### **Crossbow 7-06H**

- Four (4) Crude Oil Storage Tanks (400 bbl capacity each);
- One (1) Produced Water Storage Tank (400 bbl capacity);
- One (1) Emergency Tank (400 bbl capacity);
- One (1) Heater Treater (0.375 MMBtu/hr heater capacity);
- **One (1) Trace Line Heater (0.50 MMBtu/hr heater capacity) (installed 2015);**
- **One (1) Pneumatic Pump (combustor scrubber);**
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- One (1) 36" x 20' LEED Smokeless Enclosed Combustion Device (ECD) (Controls Oil Storage Tanks, Produced Water Storage Tank, and Pneumatic Pump Emissions);
- Various Gas Dryers/Scrubbers (sales gas, fuel gas, tank vent line);
- Various non-bleed controllers;
- Fugitive Components;

Gas and liquids rise to the surface through the well head. The gas/liquid mixture enters the heater treater to separate the natural gas, crude oil, and produced water. The natural gas stream is tied into a pipeline. In the event of pipeline shut-in, the gas from the heater treater can be flared. Crude oil is sent to the oil storage tanks and water is sent to the produced water tank and hauled away by truck as necessary.

#### **Crossbow 12-06H**

- Four (4) Crude Oil Storage Tanks (400 bbl capacity each);
- One (1) Produced Water Storage Tank (400 bbl capacity);
- One (1) Emergency Tank (400 bbl capacity);
- **One (1) Heater Treater (0.375 MMBtu/hr heater capacity) (installed 2015);**
- **One (1) Trace Line Heater (0.50 MMBtu/hr heater capacity) (installed 2015);**
- **Two (2) Pneumatic Pumps (VRT scrubber and combustor scrubber);**
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- One (1) 135-gallon chemical tank
- Various non-bleed controllers;
- Fugitive Components;

Gas and liquids rise to the surface through the well head. The gas/liquid mixture enters the heater treater to separate the natural gas, crude oil, and produced water. The natural gas stream is tied into a pipeline. In the event of pipeline shut-in, the gas from the heater treater can be flared. Crude oil is sent to a vapor recovery tower (VRT) and water is sent to the produced water tank. Oil from the VRT is sent to production oil tanks, and the flashed gas from the VRT and the tanks is sent to the combustor. The crude oil is produced in four storage tanks and hauled away by truck. The water is produced in one storage tank and also hauled away by truck as necessary.

The tank vapors from the wells' crude and produced water tanks are controlled and routed to enclosed combustion devices that have a destruction efficiency of 98%.

As standard protocol for handling fugitive VOC emissions from multiple well facilities EOG, is implementing a leak detection and repair (LDAR) program at this facility. The plan is attached below.

The Crossbow 7-06H and 12-06H PAD is located in the SE $\frac{1}{4}$ SE $\frac{1}{4}$  of Section 6, T41N, R71W approximately fourteen (14) miles south of Wright, in Campbell County, Wyoming.



## **Fugitive Equipment Leak Inspection and Maintenance Plan**

### *Statement of Dedication and Basis*

In order to demonstrate and formally document the effectiveness of the efforts made to minimize emissions from fugitive component leaks, EOG Resources, Inc. (EOG) has committed to monitoring and fixing leaks at exploration and production facilities in the Green River Basin (UGRB), DJ, and Powder River Basin (PRB) which are located in the State of Wyoming. The effort is executed as demonstrated by the select implementation of a formal Leak Detection and Repair (LDAR) program. EOG is dedicated to complying with all applicable air quality standards, rules and regulations promulgated by the Wyoming Department of Environmental Quality (WDEQ); including, but not limited, to Chapter 6, Section 2 of the WDEQ air quality standards and regulations (WAQSR). The components and schedule of this program are described in the plan that follows.

EOG applies good operating practices audio, visual and olfactory detection (AVO) and the use of leak detection solutions to identify and repair fugitive emissions from equipment leaks on an on-going basis at all of its facilities in the UGRB, DJ, and PRB operational area. EOG has implemented a formal LDAR program above and beyond current operating practices. This LDAR program uses an additional monitoring methodology- infrared (IR) camera technology -to identify fugitive volatile organic compound (VOC) emissions from equipment leaks. While the magnitude of the leak cannot be measured using the infrared camera methodology (see 'Technology' section of this Plan), the protocol being followed will allow greater opportunity to reduce overall fugitive emissions even though the value may not be quantified. The IR protocol serves to identify leaks which may only be visible in the infrared spectrum and will ensure proper documentation of the repair of any leak detected using the infrared technology. Use of this monitoring approach allows EOG to demonstrate that its operating practices effectively control fugitive emissions from equipment leaks to insignificant levels.

### *Technology and Limitations*

LDAR inspections will be conducted using IR cameras. IR cameras detect the band of light in the electromagnetic spectrum that extends beyond visible light. Using an IR camera one can identify hydrocarbon vapors which indicate possible sources of fugitive leaks. It should be noted that the intent of this device is solely qualitative; specifically, the IR camera is unable to quantify the magnitude of a leak or the leak rate). However, the objective of this program is to identify and repair any observed leak regardless of its magnitude. As such, the IR camera is the ideal tool to identify these leaks. It should also be noted that all images seen through the infrared camera are not necessarily VOC emissions. It can be difficult to determine whether recordings indicate hydrocarbon vapors or whether the vapors are heat or water vapors. Though, hydrocarbon vapors should typically dissipate slower and "trail-off" longer than heat or water vapors. The design of the camera only allows for detection of vapors and heat emissions and as such the nature of the emissions is not definitive.

### *Facility Identification*

EOG is dedicated to good operating and industry practices at all of its facilities in the UGRB, DJ, and PRB operational areas; however, the application of the EOG LDAR program will be at facilities which have been identified as being subject per condition of the associated air quality permit. A subject facility is defined as exceeding the Air Quality Division (AQD) Best Available Control Technology (BACT) threshold for potential fugitive emissions. The BACT threshold definitions are respective to the effective regulation as follows:

- 15 TPY per AQD Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, dated OB/W07; or,
- 8 TPY for new and modified facilities after August 1, 2010 per AQD Guidance dated 03/2010.

On a quarterly basis, production equipment at subject facilities will be monitored following the procedure identified in the 'Inspection Protocol' section of this Plan. Wellhead monitoring will be conducted annually during the 3<sup>rd</sup> quarter inspection.

### *Inspection Protocol*

Modified and newly constructed facilities that are identified in a permit condition as requiring participation in the LDAR program will be inspected; any leaks will be documented; and applicable repair procedures will be followed. These facilities will be incorporated into the LDAR program no later than the next quarterly inspection period. The following scenarios are provided as examples to clarify,

#### Scenario 1:

Should the quarterly LDAR monitoring occur in May (2<sup>nd</sup> quarter of the year) and a new facility begins producing the following June (3<sup>rd</sup> quarter of the year), the fugitive emissions for all sources at this facility will be reviewed as per the AQD's Chapter 6 Section 2 Permitting Guidance. As appropriate and applicable, an application will be submitted prior to the 60 day deadline and the facility monitored under the EOG LDAR program during the next scheduled quarterly inspection.

#### Scenario 2:

For an existing facility that began operating in June the fugitive emissions would be reviewed in August. If at that time the fugitive emissions are projected to exceed the 8 TPY VOC threshold this facility will be added to the list of facilities to monitor during the next scheduled quarterly inspection.

Facilities subject to compliance with this Plan and respective permit condition will do so by following the below inspection and maintenance procedure. The AVO inspection and maintenance procedure follows that which has been approved by Region 8 of the Environmental Protection Agency respective to the Tribal New Source Review program.

1. Conduct AVOs, including IR camera inspection, on a quarterly basis of all pumps, valves, connectors, and pressure relief devices at the facility.
2. For each leak found in the AVO inspection, the leak shall be managed in accordance with the 'Repair Schedule' section of this Plan.

3. Re-screen repaired components to determine if the leak is repaired. If the rescreening shows that the leak was not repaired then another attempt to repair the leak will be made as soon as possible, but no later than 15 days after the rescreening.
4. Steps 2 and 3 will be repeated until the rescreening shows no leak.
5. Leaking components will be documented along with the date the leak is detected, date the leak is repaired, and date that the leak is rescreened; see 'Repair Schedule' section of this Plan.

#### *Monitoring and Recordkeeping*

Quarterly records and documentation associated with the infrared monitoring inspections performed as part of this LDAR program will be maintained in accordance with the following procedure and consist of the specified information. Each quarterly inspection will include a brief discussion of the inspections that were performed, any anomalies in the procedure, and incorporate the following lists:

- List of components screened and associated dates;
- List of currently leaking components;
- List of repaired components along with the repair method and associated repair dates (see 'Repair Schedule' section of this Plan); and
- List of successful repairs, repair delays, and post-repair screenings and associated dates.

The above information will be recorded, maintained and kept for five years electronically and in hardcopy at the nearest EOG field office.

#### *Repair Schedule*

Leaks identified through the quarterly inspections will be tagged using a numbered weather resistant tag, documented on a 'IR Camera Inspection' form. Additionally, still photographs of the location of the leak may be taken to assist field personnel in identifying leaking components. All findings (leaks) identified during an inspection with the Infrared camera will be communicated to field personnel so that they may be repaired.

The most common leak types identified during IR inspections are associated with loose fittings, connections and bad seals. These are relatively simple to repair and typically do not require the facility to be shut down. While EOG will be diligent about trying to repair every leak in a timely fashion, a delayed repair schedule will be required in instances where the facility must be shut down or additional time is required to procure parts or equipment in order to repair a leak. For every leak the following schedule should be followed to repair leaks identified with the infrared camera.

Repair Attempt	Timing
1 <sup>st</sup> Attempt	<p>A 1<sup>st</sup> attempt to repair a leak will be made within 7 days. This will consist of typical basic repairs (i.e., tightening packing, tightening tubing ferrules). After a repair attempt has been made, verification that the leak has been repaired shall consist of observing the component using an IR camera or similar leak detection solutions. Otherwise, visual and/or olfactory inspections shall be conducted to ensure the leak has been repaired. The leak tag may only be removed once repair of the leak has been verified using an Infrared Camera and documented on the respective facility IR Camera Inspection form.</p>
2 <sup>nd</sup> Attempt	<p>If a 1<sup>st</sup> attempt is not successful, a 2<sup>nd</sup> attempt will be made within 7 days of the 1<sup>st</sup> attempt. If the facility must be shut down to repair a leak or if additional time is needed to procure parts or equipment, the leak will be tracked on a delayed repair list. After a repair attempt has been made, verification that the leak has been repaired shall consist of observing the component using an IR camera or similar leak detection solutions. Otherwise, visual and/or olfactory inspections shall be conducted to ensure the leak has been repaired. The leak tag may only be removed once repair of the leak has been verified using an Infrared Camera and documented on the respective facility IR Camera Inspection form.</p> <p>EOG will make a "Best Attempt" at repairing every leak. However, if repairs made during the 2<sup>nd</sup> attempt are not successful, the leak will be added to the delayed repair list.</p>
Delay Repair	<p>If the facility must be shutdown to attempt the repair of a leak, additional time is needed to procure parts or equipment, or the 2<sup>nd</sup> repair attempt is not successful, it may be put on a delayed repair list. Repairs will be conducted during the next scheduled shutdown or prior to the next LDAR inspection.</p>

### *Reporting*

EOG will follow reporting protocol specified in the respective air permit for subject facilities. The following will be reported to the WDEQ Stationary Source Permitting Manager and District Engineer for the respective district office upon request to include the following information:

- List of facilities included during the inspection period;
- List of findings and leaks for each inspection; and
- MS Excel Spreadsheet that details leaks, repairs, delay repairs, and LDAR applicable facilities

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## **Attachment C – Production Rate Information**

Crossbow 7-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 7-06H	4/9/2015	433	22	14
CROSSBOW 7-06H	4/10/2015	433	12	12
CROSSBOW 7-06H	4/11/2015	433	12	3
CROSSBOW 7-06H	4/12/2015	430	22	15
CROSSBOW 7-06H	4/13/2015	429	23	18
CROSSBOW 7-06H	4/14/2015	425	5	0
CROSSBOW 7-06H	4/15/2015	428	8	10
CROSSBOW 7-06H	4/16/2015	425	8	5
CROSSBOW 7-06H	4/17/2015	429	13	20
CROSSBOW 7-06H	4/18/2015	427	15	12
CROSSBOW 7-06H	4/19/2015	426	20	13
CROSSBOW 7-06H	4/20/2015	423	20	20
CROSSBOW 7-06H	4/21/2015	425	12	8
CROSSBOW 7-06H	4/22/2015	416	15	5
CROSSBOW 7-06H	4/23/2015	420	17	12
CROSSBOW 7-06H	4/24/2015	419	13	8
CROSSBOW 7-06H	4/25/2015	419	10	12
CROSSBOW 7-06H	4/26/2015	417	18	13
CROSSBOW 7-06H	4/27/2015	417	13	15
CROSSBOW 7-06H	4/28/2015	416	5	0
CROSSBOW 7-06H	4/29/2015	420	20	15
CROSSBOW 7-06H	4/30/2015	419	20	13
CROSSBOW 7-06H	5/1/2015	421	13	13
CROSSBOW 7-06H	5/2/2015	421	17	12
CROSSBOW 7-06H	5/3/2015	420	12	8
CROSSBOW 7-06H	5/4/2015	419	17	15
CROSSBOW 7-06H	5/5/2015	420	10	10
CROSSBOW 7-06H	5/6/2015	416	23	12
CROSSBOW 7-06H	5/7/2015	415	18	13
CROSSBOW 7-06H	5/8/2015	425	7	8
CROSSBOW 7-06H	5/9/2015	420	13	10
CROSSBOW 7-06H	5/10/2015	415	30	18
CROSSBOW 7-06H	5/11/2015	421	15	8
CROSSBOW 7-06H	5/12/2015	417	9	10
CROSSBOW 7-06H	5/13/2015	418	10	10
CROSSBOW 7-06H	5/14/2015	417	10	10
CROSSBOW 7-06H	5/15/2015	417	12	12
CROSSBOW 7-06H	5/16/2015	415	12	10
CROSSBOW 7-06H	5/17/2015	414	20	18
CROSSBOW 7-06H	5/18/2015	419	10	10
CROSSBOW 7-06H	5/19/2015	409	17	12
CROSSBOW 7-06H	5/20/2015	416	22	10
CROSSBOW 7-06H	5/21/2015	391	12	8
CROSSBOW 7-06H	5/22/2015	426	15	6
CROSSBOW 7-06H	5/23/2015	414	10	6
CROSSBOW 7-06H	5/24/2015	414	13	7

Crossbow 7-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 7-06H	5/25/2015	415	10	20
CROSSBOW 7-06H	5/26/2015	416	21	13
CROSSBOW 7-06H	5/27/2015	414	8	10
CROSSBOW 7-06H	5/28/2015	412	10	10
CROSSBOW 7-06H	5/29/2015	418	15	10
CROSSBOW 7-06H	5/30/2015	404	10	10
CROSSBOW 7-06H	5/31/2015	425	17	20
CROSSBOW 7-06H	6/1/2015	413	10	10
CROSSBOW 7-06H	6/2/2015	413	22	8
CROSSBOW 7-06H	6/3/2015	411	20	7
CROSSBOW 7-06H	6/4/2015	411	13	10
CROSSBOW 7-06H	6/5/2015	183	38	43
CROSSBOW 7-06H	6/6/2015	0	0	0
CROSSBOW 7-06H	6/7/2015	0	0	0
CROSSBOW 7-06H	6/8/2015	0	0	0
CROSSBOW 7-06H	6/9/2015	528	5	0
CROSSBOW 7-06H	6/10/2015	529	12	0
CROSSBOW 7-06H	6/11/2015	518	5	10
CROSSBOW 7-06H	6/12/2015	498	10	20
CROSSBOW 7-06H	6/13/2015	457	5	20
CROSSBOW 7-06H	6/14/2015	442	32	26
CROSSBOW 7-06H	6/15/2015	435	12	10
CROSSBOW 7-06H	6/16/2015	426	18	16
CROSSBOW 7-06H	6/17/2015	432	13	14
CROSSBOW 7-06H	6/18/2015	422	10	8
CROSSBOW 7-06H	6/19/2015	420	22	12
CROSSBOW 7-06H	6/20/2015	418	20	8
CROSSBOW 7-06H	6/21/2015	415	7	15
CROSSBOW 7-06H	6/22/2015	414	5	13
CROSSBOW 7-06H	6/23/2015	411	5	5
CROSSBOW 7-06H	6/24/2015	0	0	0
CROSSBOW 7-06H	6/25/2015	0	0	0
CROSSBOW 7-06H	6/26/2015	0	0	0
CROSSBOW 7-06H	6/27/2015	0	0	0
CROSSBOW 7-06H	6/28/2015	0	0	0
CROSSBOW 7-06H	6/29/2015	0	0	0
CROSSBOW 7-06H	6/30/2015	0	0	0
CROSSBOW 7-06H	7/1/2015	0	0	0
CROSSBOW 7-06H	7/2/2015	0	0	0
CROSSBOW 7-06H	7/3/2015	639	7	33
CROSSBOW 7-06H	7/4/2015	928	7	25
CROSSBOW 7-06H	7/5/2015	712	17	18
CROSSBOW 7-06H	7/6/2015	601	18	15
CROSSBOW 7-06H	7/7/2015	539	12	10

	MCFD	BOPD	BWPD
<b>Average</b>	<b>380.5</b>	<b>12.3</b>	<b>10.5</b>

Crossbow 12-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 12-06H	4/9/2015	629	44	22
CROSSBOW 12-06H	4/10/2015	670	17	22
CROSSBOW 12-06H	4/11/2015	689	22	25
CROSSBOW 12-06H	4/12/2015	697	25	33
CROSSBOW 12-06H	4/13/2015	693	27	18
CROSSBOW 12-06H	4/14/2015	686	20	33
CROSSBOW 12-06H	4/15/2015	574	22	20
CROSSBOW 12-06H	4/16/2015	646	15	15
CROSSBOW 12-06H	4/17/2015	723	15	8
CROSSBOW 12-06H	4/18/2015	760	20	10
CROSSBOW 12-06H	4/19/2015	783	60	10
CROSSBOW 12-06H	4/20/2015	787	42	60
CROSSBOW 12-06H	4/21/2015	786	12	10
CROSSBOW 12-06H	4/22/2015	791	20	30
CROSSBOW 12-06H	4/23/2015	791	35	12
CROSSBOW 12-06H	4/24/2015	794	17	7
CROSSBOW 12-06H	4/25/2015	792	10	12
CROSSBOW 12-06H	4/26/2015	771	47	50
CROSSBOW 12-06H	4/27/2015	776	27	18
CROSSBOW 12-06H	4/28/2015	762	10	0
CROSSBOW 12-06H	4/29/2015	791	20	20
CROSSBOW 12-06H	4/30/2015	774	20	28
CROSSBOW 12-06H	5/1/2015	770	8	30
CROSSBOW 12-06H	5/2/2015	765	21	13
CROSSBOW 12-06H	5/3/2015	767	20	3
CROSSBOW 12-06H	5/4/2015	767	20	20
CROSSBOW 12-06H	5/5/2015	768	20	20
CROSSBOW 12-06H	5/6/2015	764	23	20
CROSSBOW 12-06H	5/7/2015	762	45	21
CROSSBOW 12-06H	5/8/2015	731	13	6
CROSSBOW 12-06H	5/9/2015	783	23	46
CROSSBOW 12-06H	5/10/2015	768	22	23
CROSSBOW 12-06H	5/11/2015	774	26	12
CROSSBOW 12-06H	5/12/2015	787	9	10
CROSSBOW 12-06H	5/13/2015	783	20	10
CROSSBOW 12-06H	5/14/2015	762	20	10
CROSSBOW 12-06H	5/15/2015	778	10	40
CROSSBOW 12-06H	5/16/2015	775	10	10
CROSSBOW 12-06H	5/17/2015	771	10	15
CROSSBOW 12-06H	5/18/2015	771	12	15
CROSSBOW 12-06H	5/19/2015	764	50	16
CROSSBOW 12-06H	5/20/2015	765	30	16
CROSSBOW 12-06H	5/21/2015	764	34	25
CROSSBOW 12-06H	5/22/2015	765	60	15
CROSSBOW 12-06H	5/23/2015	764	23	13
CROSSBOW 12-06H	5/24/2015	763	22	23
CROSSBOW 12-06H	5/25/2015	762	17	13

Crossbow 12-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 12-06H	5/26/2015	760	30	18
CROSSBOW 12-06H	5/27/2015	755	21	15
CROSSBOW 12-06H	5/28/2015	756	18	15
CROSSBOW 12-06H	5/29/2015	714	20	15
CROSSBOW 12-06H	5/30/2015	775	20	15
CROSSBOW 12-06H	5/31/2015	747	22	26
CROSSBOW 12-06H	6/1/2015	744	15	10
CROSSBOW 12-06H	6/2/2015	742	18	42
CROSSBOW 12-06H	6/3/2015	743	17	15
CROSSBOW 12-06H	6/4/2015	725	37	13
CROSSBOW 12-06H	6/5/2015	700	34	18
CROSSBOW 12-06H	6/6/2015	751	22	13
CROSSBOW 12-06H	6/7/2015	704	27	28
CROSSBOW 12-06H	6/8/2015	714	18	20
CROSSBOW 12-06H	6/9/2015	724	20	15
CROSSBOW 12-06H	6/10/2015	729	20	20
CROSSBOW 12-06H	6/11/2015	731	20	18
CROSSBOW 12-06H	6/12/2015	724	25	18
CROSSBOW 12-06H	6/13/2015	719	20	18
CROSSBOW 12-06H	6/14/2015	688	40	20
CROSSBOW 12-06H	6/15/2015	719	35	2
CROSSBOW 12-06H	6/16/2015	739	16	30
CROSSBOW 12-06H	6/17/2015	733	8	23
CROSSBOW 12-06H	6/18/2015	747	20	18
CROSSBOW 12-06H	6/19/2015	738	17	16
CROSSBOW 12-06H	6/20/2015	729	13	19
CROSSBOW 12-06H	6/21/2015	708	17	16
CROSSBOW 12-06H	6/22/2015	721	15	15
CROSSBOW 12-06H	6/23/2015	660	13	15
CROSSBOW 12-06H	6/24/2015	738	20	15
CROSSBOW 12-06H	6/25/2015	691	25	17
CROSSBOW 12-06H	6/26/2015	652	25	18
CROSSBOW 12-06H	6/27/2015	739	45	20
CROSSBOW 12-06H	6/28/2015	668	16	10
CROSSBOW 12-06H	6/29/2015	699	50	23
CROSSBOW 12-06H	6/30/2015	656	27	15
CROSSBOW 12-06H	7/1/2015	739	25	18
CROSSBOW 12-06H	7/2/2015	703	22	17
CROSSBOW 12-06H	7/3/2015	685	25	15
CROSSBOW 12-06H	7/4/2015	682	23	15
CROSSBOW 12-06H	7/5/2015	691	28	18
CROSSBOW 12-06H	7/6/2015	685	20	13
CROSSBOW 12-06H	7/7/2015	697	10	15

	MCFD	BOPD	BWPD
Average	735.8	23.3	18.5

July 10, 2015

OFFICE OF THE  
ATTORNEY GENERAL  
STATE OF CALIFORNIA

### Attachment D – Gas Analysis

Component	Concentration	Unit	Notes
Acetylene	0.0000	%	
Ethylene	0.0000	%	
Ethane	0.0000	%	
Propane	0.0000	%	
Propene	0.0000	%	
Butane	0.0000	%	
Butene	0.0000	%	
Pentane	0.0000	%	
Pentene	0.0000	%	
Hexane	0.0000	%	
Hexene	0.0000	%	
Heptane	0.0000	%	
Heptene	0.0000	%	
Octane	0.0000	%	
Octene	0.0000	%	
Nonane	0.0000	%	
Nonene	0.0000	%	
Tenane	0.0000	%	
Tenene	0.0000	%	
Elefane	0.0000	%	
Elefene	0.0000	%	
Dodecane	0.0000	%	
Dodecene	0.0000	%	
Tridecane	0.0000	%	
Tridecene	0.0000	%	
Tetradecane	0.0000	%	
Tetradecene	0.0000	%	
Pentadecane	0.0000	%	
Pentadecene	0.0000	%	
Hexadecane	0.0000	%	
Hexadecene	0.0000	%	
Heptadecane	0.0000	%	
Heptadecene	0.0000	%	
Octadecane	0.0000	%	
Octadecene	0.0000	%	
Nonadecane	0.0000	%	
Nonadecene	0.0000	%	
Eicosane	0.0000	%	
Eicosene	0.0000	%	
Hydrogen	0.0000	%	
Oxygen	0.0000	%	
Nitrogen	0.0000	%	
Carbon Dioxide	0.0000	%	
Water	0.0000	%	
Acetylene	0.0000	ppm	
Ethylene	0.0000	ppm	
Ethane	0.0000	ppm	
Propane	0.0000	ppm	
Propene	0.0000	ppm	
Butane	0.0000	ppm	
Butene	0.0000	ppm	
Pentane	0.0000	ppm	
Pentene	0.0000	ppm	
Hexane	0.0000	ppm	
Hexene	0.0000	ppm	
Heptane	0.0000	ppm	
Heptene	0.0000	ppm	
Octane	0.0000	ppm	
Octene	0.0000	ppm	
Nonane	0.0000	ppm	
Nonene	0.0000	ppm	
Tenane	0.0000	ppm	
Tenene	0.0000	ppm	
Elefane	0.0000	ppm	
Elefene	0.0000	ppm	
Dodecane	0.0000	ppm	
Dodecene	0.0000	ppm	
Tridecane	0.0000	ppm	
Tridecene	0.0000	ppm	
Tetradecane	0.0000	ppm	
Tetradecene	0.0000	ppm	
Pentadecane	0.0000	ppm	
Pentadecene	0.0000	ppm	
Hexadecane	0.0000	ppm	
Hexadecene	0.0000	ppm	
Heptadecane	0.0000	ppm	
Heptadecene	0.0000	ppm	
Octadecane	0.0000	ppm	
Octadecene	0.0000	ppm	
Nonadecane	0.0000	ppm	
Nonadecene	0.0000	ppm	
Eicosane	0.0000	ppm	
Eicosene	0.0000	ppm	
Hydrogen	0.0000	ppm	
Oxygen	0.0000	ppm	
Nitrogen	0.0000	ppm	
Carbon Dioxide	0.0000	ppm	
Water	0.0000	ppm	



Run File C:\Galaxie\data\14\_03\_06\14022609-0241.DATA  
 Method Lab\_BTEX

Operator User1 Analysis Date 03/06/2014

Client: EOG Douglas Date Sampled: 02/26/2014

Sample Identification: Crossbow 7-06 Purpose: NI

Unique #: NI Pressure: 37 PSI

Sample Temperature: 62 DEG F Type Sample: Spot

Sampled by: Steve F County: Converse

Component	Mole %	BTU	GPM
Nitrogen (N2)	0.4642	0.0000	0.0000
Carbon Dioxide	1.7983	0.0000	0.0000
Methane (CH4)	75.7335	764.9084	0.0000
Ethane (C2)	12.1242	214.5620	3.2342
Propane (C3)	5.6865	143.0780	1.5626
iso-Butane (i-C4)	0.6702	21.7942	0.2188
Butane (C4)	1.6635	54.2684	0.5231
iso-Pentane (i-C5)	0.4801	19.2083	0.1751
Pentane (C5)	0.4846	19.4262	0.1752
Hexanes (C6)	0.3903	17.1552	0.1588
Heptanes (C7)	0.2856	15.7154	0.1314
Octanes (C8)	0.1120	6.9989	0.0572
Nonanes (C9)	0.0019	0.1329	0.0011
Decanes (C10+)	0.0000	0.0000	0.0000
Benzene	0.0615	2.2085	0.0172
Toluene	0.0410	1.7522	0.0137
Ethylbenzene	0.0004	0.0199	0.0002
Xylenes	0.0022	0.1091	0.0009
<b>Totals</b>	<b>100.0000</b>	<b>1281.3376</b>	<b>6.2693</b>

Specific Gravity from Composition 0.764

Ideal BTUs @ 14.730 Saturated 1262.685 Real BTUs @ 14.730 Saturated 1267.757

Ideal BTUs @ 14.730 Dry 1284.284 Real BTUs @ 14.730 Dry 1289.442

Compressibility 0.99600

July 10, 2015

## **Attachment E – Emissions Calculations and Supporting Documentation**

Composite Gas Analysis

Well Name: Crossbow 7-06H  
 Date Sampled: 2/26/2014

Component:	mol%	mol%	M.W.	(mol% X MW)/100	WT%
Hydrogen Sulfide (H2S)	0.00000	0.0000	34.08	0.0000	0.00000
Oxygen (O2)	0.00000	0.0000	32.00	0.0000	0.00000
Carbon Dioxide (CO2)	1.7983	1.7983	44.01	0.7914	0.03578
Nitrogen (N2)	0.4642	0.4642	28.02	0.1301	0.00588
Methane (C1)	75.7335	75.7335	16.04	12.1477	0.54911
Ethane (C2)	12.1242	12.1242	30.07	3.6457	0.16480
Propane (C3)	5.6865	5.6865	44.09	2.5072	0.11333
iso-Butane (i-C4)	0.6702	0.6702	58.12	0.3895	0.01761
n-Butane (nC-4)	1.6635	1.6635	58.12	0.9668	0.04370
iso-Pentane (i-C5)	0.4801	0.4801	72.15	0.3464	0.01566
n-Pentane (n-C5)	0.4846	0.4846	72.15	0.3496	0.01580
Cyclopentane	0.0000	0.0000	70.1	0.0000	0.00000
n-Hexane (n-C6)	0.3903	0.3903	86.17	0.3363	0.01520
Cyclohexane	0.0000	0.0000	84.16	0.0000	0.00000
Other Hexanes	0.0000	0.0000	85.00	0.0000	0.00000
Heptanes	0.2856	0.2856	100.20	0.2862	0.01294
Methylcyclohexane	0.0000	0.0000	98.18	0.0000	0.00000
2,2,4-Trimethylpentane	0.0000	0.0000	114.22	0.0000	0.00000
Benzene	0.0615	0.0615	78.11	0.0480	0.00217
Toluene	0.0410	0.0410	92.14	0.0378	0.00171
Ethylbenzene	0.0004	0.0004	106.17	0.0004	0.00002
Xylene	0.0022	0.0022	106.17	0.0023	0.00011
Octanes	0.1120	0.1120	120.00	0.1344	0.00608
Nonanes	0.0019	0.0019	128.26	0.0024	0.00011
Decanes+	0.0000	0.0000	142.29	0.0000	0.00000
Total	100.000	100.0000	M.W.=	22.12	

Temperature (F)	62.0	62.00
Pressure (psig)	37.0	37.00
Molecular WT	22.12	22.12
Higher Heating Value (Btu/scf)	1289.4	1289.44

Total VOC Weight Percent 24.44  
 Total HAP Weight Percent 1.92

### Heater Emission Calculations

AP-42 Emission Factors for Natural Gas Combustion, Table 1.4-1

Process Unit:	Heat Input Rating	
Heater Treater (7-06H):	0.375	MMBtu/hr
Line Heater (7-06H):	0.500	MMBtu/hr
Heater Treater (12-06H):	0.375	MMBtu/hr
Line Heater (12-06H):	0.500	MMBtu/hr
NA	0.000	MMBtu/hr
Fuel Heat Value:	1289.4	Btu/scf
Annual Operating Hours:	8760	hrs
<b>NO<sub>x</sub> Emissions =</b>	<b>0.9</b>	<b>TPY</b>
<b>CO Emissions =</b>	<b>0.8</b>	<b>TPY</b>
<b>VOC Emissions =</b>	<b>0.1</b>	<b>TPY</b>

	Fuel Consumed (Comb. Size, MMBtu/hr Heat Input)
	Natural Gas
NO <sub>x</sub>	100
CO	84
VOC	5.5

Estimated Heater NO <sub>x</sub> Emissions								
Heater Number	Heater Rating	Emissions Factor	Emissions Factor	Fuel Heat Value	Corrected Emissions Factor	Operating Hours	Estimated Emissions	
( )	(MMBtu/hr)	(lb/MMCF)	(lb/hr)	(Btu/scf)	(lb/hr)	(hrs)	(TPY)	
1	0.375	100	0.037	1289	0.046	8760	0.204	
2	0.500	100	0.049	1289	0.062	8760	0.271	
3	0.375	100	0.037	1289	0.046	8760	0.204	
4	0.500	100	0.049	1289	0.062	8760	0.271	
5	0.000	100	0.000	1289	0.000	8760	0.000	
6	0.000	100	0.000	1289	0.000	8760	0.000	
7	0.000	100	0.000	1289	0.000	8760	0.000	
8	0.000	100	0.000	1289	0.000	8760	0.000	
9	0.000	100	0.000	1289	0.000	8760	0.000	
10	0.000	100	0.000	1289	0.000	8760	0.000	
<b>Total NO<sub>x</sub> Emissions =</b>							<b>0.9</b>	<b>TPY</b>
<b>Total NO<sub>x</sub> Emissions =</b>							<b>0.22</b>	<b>lb/hr</b>

Estimated Heater CO Emissions								
Heater Number	Heater Rating	Emissions Factor	Emissions Factor	Fuel Heat Value	Corrected Emissions Factor	Operating Hours	Estimated Emissions	
( )	(MMBtu/hr)	(lb/MMCF)	(lb/hr)	(Btu/scf)	(lb/hr)	(hrs)	(TPY)	
1	0.375	84	0.031	1289	0.039	8760	0.171	
2	0.500	84	0.041	1289	0.052	8760	0.228	
3	0.375	84	0.031	1289	0.039	8760	0.171	
4	0.500	84	0.041	1289	0.052	8760	0.228	
5	0.000	84	0.000	1289	0.000	8760	0.000	
6	0.000	84	0.000	1289	0.000	8760	0.000	
7	0.000	84	0.000	1289	0.000	8760	0.000	
8	0.000	84	0.000	1289	0.000	8760	0.000	
9	0.000	84	0.000	1289	0.000	8760	0.000	
10	0.000	84	0.000	1289	0.000	8760	0.000	
<b>Total CO Emissions =</b>							<b>0.8</b>	<b>TPY</b>
<b>Total CO Emissions =</b>							<b>0.18</b>	<b>lb/hr</b>

Estimated Heater VOC Emissions								
Heater Number	Heater Rating	Emissions Factor	Emissions Factor	Fuel Heat Value	Corrected Emissions Factor	Annual Operating	Estimated Emissions	
( )	(MMBtu/hr)	(lb/MMCF)	(lb/hr)	(Btu/scf)	(lb/hr)	(hrs)	(TPY)	
1	0.375	5.5	0.002	1289	0.003	8760	0.011	
2	0.500	5.5	0.003	1289	0.003	8760	0.015	
3	0.375	5.5	0.002	1289	0.003	8760	0.011	
4	0.500	5.5	0.003	1289	0.003	8760	0.015	
5	0.000	5.5	0.000	1289	0.000	8760	0.000	
6	0.000	5.5	0.000	1289	0.000	8760	0.000	
7	0.000	5.5	0.000	1289	0.000	8760	0.000	
8	0.000	5.5	0.000	1289	0.000	8760	0.000	
9	0.000	5.5	0.000	1289	0.000	8760	0.000	
10	0.000	5.5	0.000	1289	0.000	8760	0.000	
<b>Total VOC Emissions =</b>							<b>0.1</b>	<b>TPY</b>
<b>Total VOC Emissions =</b>							<b>0.01</b>	<b>lb/hr</b>

**PNEUMATIC PUMP EMISSIONS CALCULATIONS**

COMPONENT	mol %	M.W.	(mol % X MW)/100	WT% of i
H2S	0.0000	34.08	0	0
O2	0.0000	32.00	0	0.0000
CO2	1.7983	44.01	0.7914	0.0358
N2	0.4642	28.02	0.1301	0.0059
Methane C1	75.7335	16.04	12.1477	0.5491
Ethane C2	12.1242	30.07	3.6457	0.1648
Propane C3	5.6865	44.09	2.5072	0.1133
i-Butane i-C4	0.6702	58.12	0.3895	0.0176
n-Butane n-C4	1.6635	58.12	0.9668	0.0437
i-Pentane iC5	0.4801	72.15	0.3464	0.0157
n-Pentane nC5	0.4846	72.15	0.3496	0.0158
Cyclopentane	0.0000	70.1	0.0000	0.0000
n-Hexane n-C6	0.3903	86.17	0.3363	0.0152
Cyclohexane	0.0000	84.16	0.0000	0.0000
other Hexanes	0.0000	85.00	0.0000	0.0000
Heptanes	0.2856	100.20	0.2862	0.0129
Methylcyclohexane	0.0000	98.18	0.0000	0.0000
2,2,4 Trimethylpentane	0.0000	114.22	0.0000	0.0000
Benzene	0.0615	78.11	0.0480	0.0022
Toluene	0.0410	92.14	0.0378	0.0017
Ethylbenzene	0.0004	106.17	0.0004	0.0000
Xylenes	0.0022	106.17	0.0023	0.0001
C8+ Heavies	0.1120	120.00	0.1344	0.0061
nonanes	0.0019	128.26	0.0024	0.0001
C <sub>10</sub> +	0.0000	142.29	0.0000	0.0000
	100.000			1.0000
MOLECULAR WEIGHT (lb/lb-mol)=			22.1224	
TOTAL VOCs WEIGHT PERCENT =			0.2444	
TOTAL HAPs WEIGHT PERCENT =			0.0192	

<b># of Pumps</b>	<b>3</b>	
<b>Flow rate</b>	<b>15408</b>	<b>scf/day</b>
<b>Gas Consumption Rate (Pumps) scf/hr</b>	<b>214</b>	

<b>Emission Summary</b>	
<b>VOC TPY</b>	<b>40.1</b>
<b>controlled</b>	<b>0.8</b>
<b>HAP TPY</b>	<b>3.2</b>
<b>controlled</b>	<b>0.1</b>
<b>NOx</b>	<b>0.5</b>
<b>CO</b>	<b>0.1</b>



STATE OF WYOMING

Department of Environmental Quality - Air Quality Division
Oil and Gas Production Facilities C6 S2 Permit Application
EMISSION SUMMARY



Company Name EOG Resources, Inc.
Facility Name Crossbow 7-06H and 12-06H PAD

This form must be completed for each emission source at the facility. A list of the emission sources which must be considered is found in Appendix B of the C6 S2 O&G Production Facilities Permitting Guidance.

UNCONTROLLED EMISSIONS (Tons Per Year)

These are the total uncontrolled, potential emissions from each source.

Table with 7 columns: EMISSION SOURCE, VOCs, total HAPs, NOx, CO, SO2, H2S. Rows include various heaters, pumps, truck loading, and fugitives, with a total row at the bottom.

CONTROLLED EMISSIONS (Tons Per Year)

These are the total emissions from each source. Include controlled emissions from each controlled source and uncontrolled emissions from each source which does not require control, such as process equipment burners.

Table with 7 columns: EMISSION SOURCE, VOCs, total HAPs, NOx, CO, SO2, H2S. Rows include various heaters, pumps, truck loading, and fugitives (LDAR), with a total row at the bottom.

HAZARDOUS AIR POLLUTANT SUMMARY (Tons Per Year)

Complete this section for each emissions source if TOTAL HAPs from that source are 9 TPY or greater.

Table with 6 columns: SOURCE, Benzene, Toluene, Ethyl-Benzene, Xylenes, Other. Rows are currently empty.



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**Equipment List**

Company Name EOG Resources, Inc.  
 Facility Name Crossbow 7-06H and 12-06H PAD  
Crossbow 7-06H well

List all production equipment at the site including all pressurized vessels with the potential for flash emissions, all hydrocarbon liquids and produced water storage tanks, all dehydration units, all pneumatic pumps, all natural gas-fired burners and heaters and all emission control equipment and devices. Pressurized vessels with the potential for flash emissions are all vessels that vent vapors to the atmosphere during times other than upset or emergency conditions (water knockouts, 2-phase and 3-phase separators, heater treaters, gun barrels, scrubber pots, etc). Provide design ratings for dehyds (MMCFD), process heaters, burners and pilots (MMBtu/hr, SCFH). Provide size of production & water storage tanks (BPD). For dehydration units indicate if the unit includes a glycol flash separator and/or reboiler still vent condenser. For emission control combustors/flares indicate design rating (MMBtu/hr, SCFD) and combustor/flare height (ft). Provide pneumatic pump motive gas useage (SCFH).

If more space is required, continue on page 2 of this sheet.

**PROVIDE INSTALLATION DATES OF ALL EMISSION CONTROL EQUIPMENT & MONITORING DEVICES/SYSTEMS !!!**

- four (4) 400-barrel (bbl) oil storage tanks (routed to LEED ECD)
- one (1) 400-bbl produced water storage tank (routed to LEED ECD)
- one (1) 400-bbl emergency storage tank
- one (1) heater treater w/ 0.375 MMBtu/hr heater
- one (1) 0.50 MMBtu/hr trace line heater
- one (1) 36"x20' LEED Smokeless Enclosed Combustion Device (ECD) (controls oil storage tanks, produced water tank, and pneumatic pump emissions) installed prior to first date of production
- controllers are all non-bleed
- one (1) pneumatic pump (combustor scrubber, 214 scf/hr, routed to LEED ECD)
- two (2) electric pumps (recycle and trace)
- various gas scrubbers/liquids knockouts (tank vent line, sales gas line, fuel gas, etc)
- truck loading
- fugitives
- 
- 
- 
- 
- 

**Example:**

- 1 2-phase high pressure separator (unheated)
- 1 3-phase low pressure separator w/ 0.5 MMBtu/hr heater
- 2 0.5 MMBtu/hr line heaters
- 1 5 MMCFD TEG dehydration unit w/ 0.5 MMBtu/hr reboiler heater, glycol flash separator(0.5 MMBtu/hr heater) and overheads condenser
- 2 400-bbl condensate tanks
- 1 400-bbl produced water tank
- 1 30-ft enclosed combustor (3.0 MMBtu/hr, 5 MCFD) for flashing & reboiler vent/glycol flash separator emissions control installed 1/1/2007

Form AQD-OG2



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Equipment List - continued

EOG Resources, Inc.

Crossbow 7-06H and 12-06H PAD

Crossbow 12-06H well

four (4) 400-barrel (bbl) oil storage tanks (routed to Cimarron ECD)

one (1) 400-bbl produced water storage tank (routed to Cimarron ECD)

one (1) 400-bbl emergency storage tank

one (1) heater treater w/ 0.375 MMBtu/hr heater

one (1) 0.50 MMBtu/hr trace line heater

one (1) 48"x25' Cimarron Smokeless Enclosed Combustion Device (ECD) (controls oil storage tanks, produced water tank, VRT flash gas, and pneumatic pump emissions) installed prior to first date of production

one (1) Vapor Recovery Tower (VRT) (routed to Cimarron ECD)

two (2) pneumatic pumps (VRT scrubber and combustor scrubber, 214 scf/hr, routed to Cimarron ECD)

three (3) electric pumps (chemical, recycle, and trace)

various gas scrubbers/liquids knockouts (VRT vent line, tank vent line, sales gas line, fuel gas, etc)

truck loading

fugitives

controllers are all non-bleed

one (1) 135 gallon chemical tank

# Site Facility Diagram

**Well Name: Crossbow 12-06H**  
**1/4 1/4:SE/SE Sec: 06 T: 41N R: 71W**  
**County: Campbell State: Wyoming**  
**Lease: WYW055069 Unit :**  
**CA: PA:**  
**Type of well: Injection: Oil: Gas: X Tank Battery: X**



EOG Resources, Inc. site facility diagrams & site security plans are located at the Big Piney office in Big Piney, Wyoming. The office is located at 1540 Balco Drive and normal business hours are 7:00am to 4:30pm MST.



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

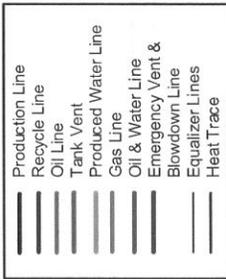
- AM = Allocation Meter
- AR = Access Road
- CHP = Chemical Pump
- CHT = Chemical Tank
- COM = Combuater
- COMP = Compressor
- COMT = Composite Treater
- CONT = Containment Tank
- CP = Charge Pump
- CT = Condensate Tank
- DH = Dehydrator
- DL = Dump Line
- EP = Electrical Panel
- ET = Emergency Tank
- EV = Equalizer Valve
- FE = Fire Extinguisher
- FGS = Fuel Gas Scrubber
- FT = Fiberglass Tub
- FW = Firewall (dimensions feet)
- 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

Revised: 07/09/2015

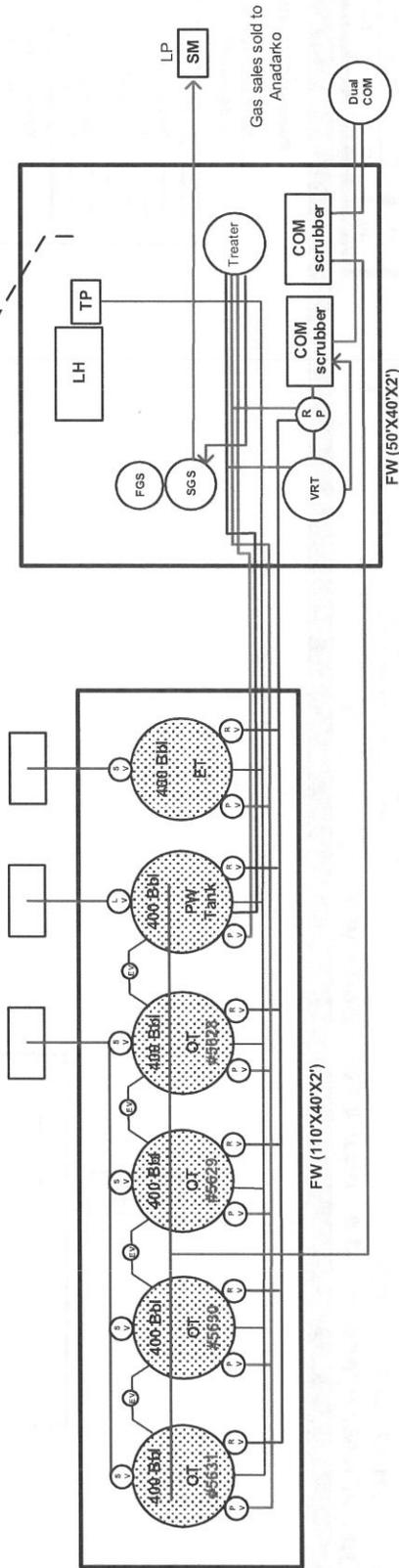
Crossbow 12-06H Crossbow 7-06H



Direction of Flow



Above Ground Line  
 Underground Line



Gas sales sold to Anadarko

FW (50'X40'X2')

FW (110'X40'X2')

# Site Facility Diagram

Well Name: Crossbow 7-06H R: 71W  
 1/4 1/4: SESE Sec: 6 T: 41N State: Wyoming  
 County: Campbell Lease: WYW106828 Unit :  
 CA: WYW179846 PA:  
 Type of well: Injection: Oil: Gas: X Tank Battery: X



## EOG resources

EOG Resources, Inc. site facility diagrams & site security plans are located at the Big Piney office in Big Piney, Wyoming. The office is located at 1540 Belco Drive and normal business hours are 7:00am to 4:30pm MST.



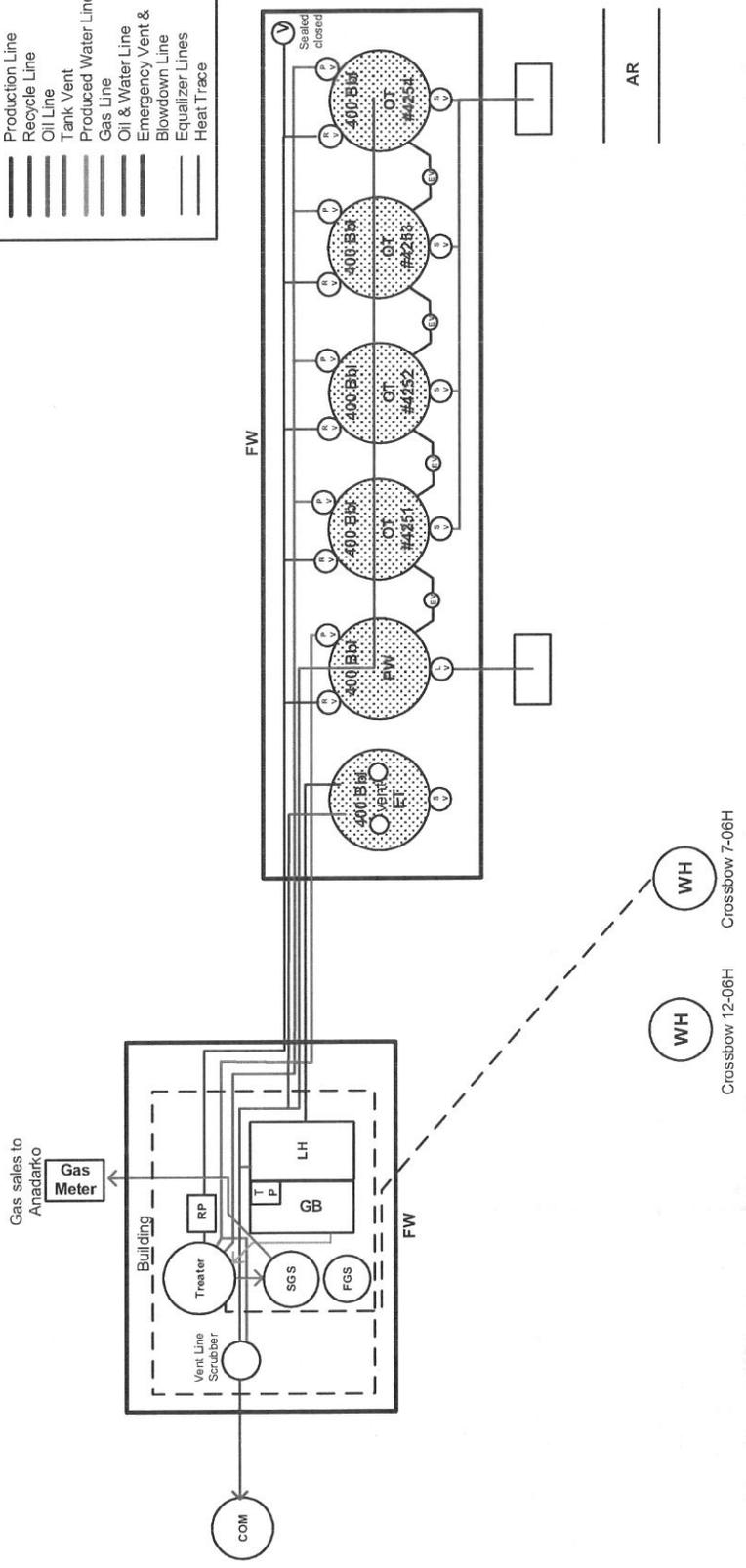
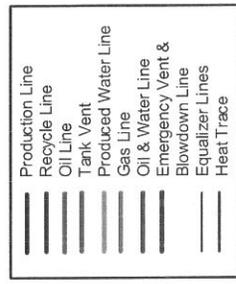
Valve	Production	Sales	Phase	Water	Drain
PV	SO	SC	SC	SC	SC
SV	SC	SO	SC	SC	SC
EV	SO	SC	SC	SC	SC
LV	SC	SO	SC	SC	SC
RV	SC	SC	SC	SC	SC

### Abbreviations

- AM = Allocation Meter
- AR = Access Road
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- CHT = Chemical Tank
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- COMP = Compressor
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- PL = Production Line
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- 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

Revised: 07/09/2015

— Above Ground Line  
 — Underground Line



Crossbow 12-06H Crossbow 7-06H



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**Equipment List**

Company Name \_\_\_\_\_ EOG Resources, Inc.  
 Facility Name \_\_\_\_\_ Crossbow 7-06H and 12-06H PAD  
 \_\_\_\_\_ Crossbow 7-06H well

List all production equipment at the site including all pressurized vessels with the potential for flash emissions, all hydrocarbon liquids and produced water storage tanks, all dehydration units, all pneumatic pumps, all natural gas-fired burners and heaters and all emission control equipment and devices. Pressurized vessels with the potential for flash emissions are all vessels that vent vapors to the atmosphere during times other than upset or emergency conditions (water knockouts, 2-phase and 3-phase separators, heater treaters, gun barrels, scrubber pots, etc). Provide design ratings for dehyds (MMCFD), process heaters, burners and pilots (MMBtu/hr, SCFH). Provide size of production & water storage tanks (BPD). For dehydration units indicate if the unit includes a glycol flash separator and/or reboiler still vent condenser. For emission control combustors/flares indicate design rating (MMBtu/hr, SCFD) and combustor/flare height (ft). Provide pneumatic pump motive gas useage (SCFH).

**If more space is required, continue on page 2 of this sheet.**

**PROVIDE INSTALLATION DATES OF ALL EMISSION CONTROL EQUIPMENT & MONITORING DEVICES/SYSTEMS !!!**

- four (4) 400-barrel (bbl) oil storage tanks (routed to LEED ECD)
- one (1) 400-bbl produced water storage tank (routed to LEED ECD)
- one (1) 400-bbl emergency storage tank
- one (1) heater treater w/ 0.375 MMBtu/hr heater
- one (1) 0.50 MMBtu/hr trace line heater
- one (1) 36"x20' LEED Smokeless Enclosed Combustion Device (ECD) (controls oil storage tanks, produced water tank, and pneumatic pump emissions) installed prior to first date of production
- controllers are all non-bleed
- one (1) pneumatic pump (combustor scrubber, 214 scf/hr, routed to LEED ECD)
- two (2) electric pumps (recycle and trace)
- various gas scrubbers/liquids knockouts (tank vent line, sales gas line, fuel gas, etc)
- truck loading
- fugitives
- 
- 
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**Example:**

- 1 2-phase high pressure separator (unheated)
- 1 3-phase low pressure separator w/ 0.5 MMBtu/hr heater
- 2 0.5 MMBtu/hr line heaters
- 1 5 MMCFD TEG dehydration unit w/ 0.5 MMBtu/hr reboiler heater, glycol flash separator(0.5 MMBtu/hr heater) and overheads condenser
- 2 400-bbl condensate tanks
- 1 400-bbl produced water tank
- 1 30-ft enclosed combustor (3.0 MMBtu/hr, 5 MCFD) for flashing & reboiler vent/glycol flash separator emissions control installed 1/1/2007



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 Department of Environmental Quality - Air Quality Division  
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Equipment List - continued

EOG Resources, Inc.

Crossbow 7-06H and 12-06H PAD

Crossbow 12-06H well

four (4) 400-barrel (bbl) oil storage tanks (routed to Cimarron ECD)

one (1) 400-bbl produced water storage tank (routed to Cimarron ECD)

one (1) 400-bbl emergency storage tank

one (1) heater treater w/ 0.375 MMBtu/hr heater

one (1) 0.50 MMBtu/hr trace line heater

one (1) 48"x25' Cimarron Smokeless Enclosed Combustion Device (ECD) (controls oil storage tanks, produced water tank, VRT flash gas, and pneumatic pump emissions) installed prior to first date of production

one (1) Vapor Recovery Tower (VRT) (routed to Cimarron ECD)

two (2) pneumatic pumps (VRT scrubber and combustor scrubber, 214 scf/hr, routed to Cimarron ECD)

three (3) electric pumps (chemical, recycle, and trace)

various gas scrubbers/liquids knockouts (VRT vent line, tank vent line, sales gas line, fuel gas, etc)

truck loading

fugitives

controllers are all non-bleed

one (1) 135 gallon chemical tank

Crossbow 7-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 7-06H	4/9/2015	433	22	14
CROSSBOW 7-06H	4/10/2015	433	12	12
CROSSBOW 7-06H	4/11/2015	433	12	3
CROSSBOW 7-06H	4/12/2015	430	22	15
CROSSBOW 7-06H	4/13/2015	429	23	18
CROSSBOW 7-06H	4/14/2015	425	5	0
CROSSBOW 7-06H	4/15/2015	428	8	10
CROSSBOW 7-06H	4/16/2015	425	8	5
CROSSBOW 7-06H	4/17/2015	429	13	20
CROSSBOW 7-06H	4/18/2015	427	15	12
CROSSBOW 7-06H	4/19/2015	426	20	13
CROSSBOW 7-06H	4/20/2015	423	20	20
CROSSBOW 7-06H	4/21/2015	425	12	8
CROSSBOW 7-06H	4/22/2015	416	15	5
CROSSBOW 7-06H	4/23/2015	420	17	12
CROSSBOW 7-06H	4/24/2015	419	13	8
CROSSBOW 7-06H	4/25/2015	419	10	12
CROSSBOW 7-06H	4/26/2015	417	18	13
CROSSBOW 7-06H	4/27/2015	417	13	15
CROSSBOW 7-06H	4/28/2015	416	5	0
CROSSBOW 7-06H	4/29/2015	420	20	15
CROSSBOW 7-06H	4/30/2015	419	20	13
CROSSBOW 7-06H	5/1/2015	421	13	13
CROSSBOW 7-06H	5/2/2015	421	17	12
CROSSBOW 7-06H	5/3/2015	420	12	8
CROSSBOW 7-06H	5/4/2015	419	17	15
CROSSBOW 7-06H	5/5/2015	420	10	10
CROSSBOW 7-06H	5/6/2015	416	23	12
CROSSBOW 7-06H	5/7/2015	415	18	13
CROSSBOW 7-06H	5/8/2015	425	7	8
CROSSBOW 7-06H	5/9/2015	420	13	10
CROSSBOW 7-06H	5/10/2015	415	30	18
CROSSBOW 7-06H	5/11/2015	421	15	8
CROSSBOW 7-06H	5/12/2015	417	9	10
CROSSBOW 7-06H	5/13/2015	418	10	10
CROSSBOW 7-06H	5/14/2015	417	10	10
CROSSBOW 7-06H	5/15/2015	417	12	12
CROSSBOW 7-06H	5/16/2015	415	12	10
CROSSBOW 7-06H	5/17/2015	414	20	18
CROSSBOW 7-06H	5/18/2015	419	10	10
CROSSBOW 7-06H	5/19/2015	409	17	12
CROSSBOW 7-06H	5/20/2015	416	22	10
CROSSBOW 7-06H	5/21/2015	391	12	8
CROSSBOW 7-06H	5/22/2015	426	15	6
CROSSBOW 7-06H	5/23/2015	414	10	6
CROSSBOW 7-06H	5/24/2015	414	13	7

Crossbow 7-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 7-06H	5/25/2015	415	10	20
CROSSBOW 7-06H	5/26/2015	416	21	13
CROSSBOW 7-06H	5/27/2015	414	8	10
CROSSBOW 7-06H	5/28/2015	412	10	10
CROSSBOW 7-06H	5/29/2015	418	15	10
CROSSBOW 7-06H	5/30/2015	404	10	10
CROSSBOW 7-06H	5/31/2015	425	17	20
CROSSBOW 7-06H	6/1/2015	413	10	10
CROSSBOW 7-06H	6/2/2015	413	22	8
CROSSBOW 7-06H	6/3/2015	411	20	7
CROSSBOW 7-06H	6/4/2015	411	13	10
CROSSBOW 7-06H	6/5/2015	183	38	43
CROSSBOW 7-06H	6/6/2015	0	0	0
CROSSBOW 7-06H	6/7/2015	0	0	0
CROSSBOW 7-06H	6/8/2015	0	0	0
CROSSBOW 7-06H	6/9/2015	528	5	0
CROSSBOW 7-06H	6/10/2015	529	12	0
CROSSBOW 7-06H	6/11/2015	518	5	10
CROSSBOW 7-06H	6/12/2015	498	10	20
CROSSBOW 7-06H	6/13/2015	457	5	20
CROSSBOW 7-06H	6/14/2015	442	32	26
CROSSBOW 7-06H	6/15/2015	435	12	10
CROSSBOW 7-06H	6/16/2015	426	18	16
CROSSBOW 7-06H	6/17/2015	432	13	14
CROSSBOW 7-06H	6/18/2015	422	10	8
CROSSBOW 7-06H	6/19/2015	420	22	12
CROSSBOW 7-06H	6/20/2015	418	20	8
CROSSBOW 7-06H	6/21/2015	415	7	15
CROSSBOW 7-06H	6/22/2015	414	5	13
CROSSBOW 7-06H	6/23/2015	411	5	5
CROSSBOW 7-06H	6/24/2015	0	0	0
CROSSBOW 7-06H	6/25/2015	0	0	0
CROSSBOW 7-06H	6/26/2015	0	0	0
CROSSBOW 7-06H	6/27/2015	0	0	0
CROSSBOW 7-06H	6/28/2015	0	0	0
CROSSBOW 7-06H	6/29/2015	0	0	0
CROSSBOW 7-06H	6/30/2015	0	0	0
CROSSBOW 7-06H	7/1/2015	0	0	0
CROSSBOW 7-06H	7/2/2015	0	0	0
CROSSBOW 7-06H	7/3/2015	639	7	33
CROSSBOW 7-06H	7/4/2015	928	7	25
CROSSBOW 7-06H	7/5/2015	712	17	18
CROSSBOW 7-06H	7/6/2015	601	18	15
CROSSBOW 7-06H	7/7/2015	539	12	10

	MCFD	BOPD	BWPD
<b>Average</b>	<b>380.5</b>	<b>12.3</b>	<b>10.5</b>

Crossbow 12-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 12-06H	4/9/2015	629	44	22
CROSSBOW 12-06H	4/10/2015	670	17	22
CROSSBOW 12-06H	4/11/2015	689	22	25
CROSSBOW 12-06H	4/12/2015	697	25	33
CROSSBOW 12-06H	4/13/2015	693	27	18
CROSSBOW 12-06H	4/14/2015	686	20	33
CROSSBOW 12-06H	4/15/2015	574	22	20
CROSSBOW 12-06H	4/16/2015	646	15	15
CROSSBOW 12-06H	4/17/2015	723	15	8
CROSSBOW 12-06H	4/18/2015	760	20	10
CROSSBOW 12-06H	4/19/2015	783	60	10
CROSSBOW 12-06H	4/20/2015	787	42	60
CROSSBOW 12-06H	4/21/2015	786	12	10
CROSSBOW 12-06H	4/22/2015	791	20	30
CROSSBOW 12-06H	4/23/2015	791	35	12
CROSSBOW 12-06H	4/24/2015	794	17	7
CROSSBOW 12-06H	4/25/2015	792	10	12
CROSSBOW 12-06H	4/26/2015	771	47	50
CROSSBOW 12-06H	4/27/2015	776	27	18
CROSSBOW 12-06H	4/28/2015	762	10	0
CROSSBOW 12-06H	4/29/2015	791	20	20
CROSSBOW 12-06H	4/30/2015	774	20	28
CROSSBOW 12-06H	5/1/2015	770	8	30
CROSSBOW 12-06H	5/2/2015	765	21	13
CROSSBOW 12-06H	5/3/2015	767	20	3
CROSSBOW 12-06H	5/4/2015	767	20	20
CROSSBOW 12-06H	5/5/2015	768	20	20
CROSSBOW 12-06H	5/6/2015	764	23	20
CROSSBOW 12-06H	5/7/2015	762	45	21
CROSSBOW 12-06H	5/8/2015	731	13	6
CROSSBOW 12-06H	5/9/2015	783	23	46
CROSSBOW 12-06H	5/10/2015	768	22	23
CROSSBOW 12-06H	5/11/2015	774	26	12
CROSSBOW 12-06H	5/12/2015	787	9	10
CROSSBOW 12-06H	5/13/2015	783	20	10
CROSSBOW 12-06H	5/14/2015	762	20	10
CROSSBOW 12-06H	5/15/2015	778	10	40
CROSSBOW 12-06H	5/16/2015	775	10	10
CROSSBOW 12-06H	5/17/2015	771	10	15
CROSSBOW 12-06H	5/18/2015	771	12	15
CROSSBOW 12-06H	5/19/2015	764	50	16
CROSSBOW 12-06H	5/20/2015	765	30	16
CROSSBOW 12-06H	5/21/2015	764	34	25
CROSSBOW 12-06H	5/22/2015	765	60	15
CROSSBOW 12-06H	5/23/2015	764	23	13
CROSSBOW 12-06H	5/24/2015	763	22	23
CROSSBOW 12-06H	5/25/2015	762	17	13

Crossbow 12-06H

Selected Item	Date	Gas Prod	Oil Prod	Water Prod
CROSSBOW 12-06H	5/26/2015	760	30	18
CROSSBOW 12-06H	5/27/2015	755	21	15
CROSSBOW 12-06H	5/28/2015	756	18	15
CROSSBOW 12-06H	5/29/2015	714	20	15
CROSSBOW 12-06H	5/30/2015	775	20	15
CROSSBOW 12-06H	5/31/2015	747	22	26
CROSSBOW 12-06H	6/1/2015	744	15	10
CROSSBOW 12-06H	6/2/2015	742	18	42
CROSSBOW 12-06H	6/3/2015	743	17	15
CROSSBOW 12-06H	6/4/2015	725	37	13
CROSSBOW 12-06H	6/5/2015	700	34	18
CROSSBOW 12-06H	6/6/2015	751	22	13
CROSSBOW 12-06H	6/7/2015	704	27	28
CROSSBOW 12-06H	6/8/2015	714	18	20
CROSSBOW 12-06H	6/9/2015	724	20	15
CROSSBOW 12-06H	6/10/2015	729	20	20
CROSSBOW 12-06H	6/11/2015	731	20	18
CROSSBOW 12-06H	6/12/2015	724	25	18
CROSSBOW 12-06H	6/13/2015	719	20	18
CROSSBOW 12-06H	6/14/2015	688	40	20
CROSSBOW 12-06H	6/15/2015	719	35	2
CROSSBOW 12-06H	6/16/2015	739	16	30
CROSSBOW 12-06H	6/17/2015	733	8	23
CROSSBOW 12-06H	6/18/2015	747	20	18
CROSSBOW 12-06H	6/19/2015	738	17	16
CROSSBOW 12-06H	6/20/2015	729	13	19
CROSSBOW 12-06H	6/21/2015	708	17	16
CROSSBOW 12-06H	6/22/2015	721	15	15
CROSSBOW 12-06H	6/23/2015	660	13	15
CROSSBOW 12-06H	6/24/2015	738	20	15
CROSSBOW 12-06H	6/25/2015	691	25	17
CROSSBOW 12-06H	6/26/2015	652	25	18
CROSSBOW 12-06H	6/27/2015	739	45	20
CROSSBOW 12-06H	6/28/2015	668	16	10
CROSSBOW 12-06H	6/29/2015	699	50	23
CROSSBOW 12-06H	6/30/2015	656	27	15
CROSSBOW 12-06H	7/1/2015	739	25	18
CROSSBOW 12-06H	7/2/2015	703	22	17
CROSSBOW 12-06H	7/3/2015	685	25	15
CROSSBOW 12-06H	7/4/2015	682	23	15
CROSSBOW 12-06H	7/5/2015	691	28	18
CROSSBOW 12-06H	7/6/2015	685	20	13
CROSSBOW 12-06H	7/7/2015	697	10	15

	MCFD	BOPD	BWPD
<b>Average</b>	<b>735.8</b>	<b>23.3</b>	<b>18.5</b>

Composite Gas Analysis

Well Name: Crossbow 7-06H  
 Date Sampled: 2/26/2014

Component:	mol%	mol%	M.W.	(mol% X MW)/100	WT%
Hydrogen Sulfide (H2S)	0.00000	0.0000	34.08	0.0000	0.00000
Oxygen (O2)	0.00000	0.0000	32.00	0.0000	0.00000
Carbon Dioxide (CO2)	1.7983	1.7983	44.01	0.7914	0.03578
Nitrogen (N2)	0.4642	0.4642	28.02	0.1301	0.00588
Methane (C1)	75.7335	75.7335	16.04	12.1477	0.54911
Ethane (C2)	12.1242	12.1242	30.07	3.6457	0.16480
Propane (C3)	5.6865	5.6865	44.09	2.5072	0.11333
iso-Butane (i-C4)	0.6702	0.6702	58.12	0.3895	0.01761
n-Butane (n-C4)	1.6635	1.6635	58.12	0.9668	0.04370
iso-Pentane (i-C5)	0.4801	0.4801	72.15	0.3464	0.01566
n-Pentane (n-C5)	0.4846	0.4846	72.15	0.3496	0.01580
Cyclopentane	0.0000	0.0000	70.1	0.0000	0.00000
n-Hexane (n-C6)	0.3903	0.3903	86.17	0.3363	0.01520
Cyclohexane	0.0000	0.0000	84.16	0.0000	0.00000
Other Hexanes	0.0000	0.0000	85.00	0.0000	0.00000
Heptanes	0.2856	0.2856	100.20	0.2862	0.01294
Methylcyclohexane	0.0000	0.0000	98.18	0.0000	0.00000
2,2,4-Trimethylpentane	0.0000	0.0000	114.22	0.0000	0.00000
Benzene	0.0615	0.0615	78.11	0.0480	0.00217
Toluene	0.0410	0.0410	92.14	0.0378	0.00171
Ethylbenzene	0.0004	0.0004	106.17	0.0004	0.00002
Xylene	0.0022	0.0022	106.17	0.0023	0.00011
Octanes	0.1120	0.1120	120.00	0.1344	0.00608
Nonanes	0.0019	0.0019	128.26	0.0024	0.00011
Decanes+	0.0000	0.0000	142.29	0.0000	0.00000
Total	100.0000	100.0000	M.W.=	22.12	

Temperature (F)	62.00
Pressure (psig)	37.00
Molecular WT	22.12
Higher Heating Value (Btu/scf)	1289.44

Total VOC Weight Percent 24.44  
 Total HAP Weight Percent 1.92

### Heater Emission Calculations

AP-42 Emission Factors for Natural Gas Combustion, Table 1.4-1

Process Unit:	Heat Input Rating	
Heater Treater (7-06H):	0.375	MMBtu/hr
Line Heater (7-06H):	0.500	MMBtu/hr
Heater Treater (12-06H):	0.375	MMBtu/hr
Line Heater (12-06H):	0.500	MMBtu/hr
NA	0.000	MMBtu/hr
Fuel Heat Value:	1289.4	Btu/scf
Annual Operating Hours:	8760	hrs
<b>NO<sub>x</sub> Emissions =</b>	<b>0.9</b>	<b>TPY</b>
<b>CO Emissions =</b>	<b>0.8</b>	<b>TPY</b>
<b>VOC Emissions=</b>	<b>0.1</b>	<b>TPY</b>

	Fuel Consumed (Comb. Size, MMBtu/hr Heat Input)
	Natural Gas
NO <sub>x</sub>	100
CO	84
VOC	5.5

Estimated Heater NO <sub>x</sub> Emissions							
Heater Number	Heater Rating (MMBtu/hr)	Emissions Factor (lb/MMCF)	Emissions Factor (lb/hr)	Fuel Heat Value (Btu/scf)	Corrected Emissions Factor (lb/hr)	Operating Hours (hrs)	Estimated Emissions (TPY)
1	0.375	100	0.037	1289	0.046	8760	0.204
2	0.500	100	0.049	1289	0.062	8760	0.271
3	0.375	100	0.037	1289	0.046	8760	0.204
4	0.500	100	0.049	1289	0.062	8760	0.271
5	0.000	100	0.000	1289	0.000	8760	0.000
6	0.000	100	0.000	1289	0.000	8760	0.000
7	0.000	100	0.000	1289	0.000	8760	0.000
8	0.000	100	0.000	1289	0.000	8760	0.000
9	0.000	100	0.000	1289	0.000	8760	0.000
10	0.000	100	0.000	1289	0.000	8760	0.000

<b>Total NO<sub>x</sub> Emissions =</b>	<b>0.9</b>	<b>TPY</b>
<b>Total NO<sub>x</sub> Emissions =</b>	<b>0.22</b>	<b>lb/hr</b>

Estimated Heater CO Emissions							
Heater Number	Heater Rating (MMBtu/hr)	Emissions Factor (lb/MMCF)	Emissions Factor (lb/hr)	Fuel Heat Value (Btu/scf)	Corrected Emissions Factor (lb/hr)	Operating Hours (hrs)	Estimated Emissions (TPY)
1	0.375	84	0.031	1289	0.039	8760	0.171
2	0.500	84	0.041	1289	0.052	8760	0.228
3	0.375	84	0.031	1289	0.039	8760	0.171
4	0.500	84	0.041	1289	0.052	8760	0.228
5	0.000	84	0.000	1289	0.000	8760	0.000
6	0.000	84	0.000	1289	0.000	8760	0.000
7	0.000	84	0.000	1289	0.000	8760	0.000
8	0.000	84	0.000	1289	0.000	8760	0.000
9	0.000	84	0.000	1289	0.000	8760	0.000
10	0.000	84	0.000	1289	0.000	8760	0.000

<b>Total CO Emissions =</b>	<b>0.8</b>	<b>TPY</b>
<b>Total CO Emissions =</b>	<b>0.18</b>	<b>lb/hr</b>

Estimated Heater VOC Emissions							
Heater Number	Heater Rating (MMBtu/hr)	Emissions Factor (lb/MMCF)	Emissions Factor (lb/hr)	Fuel Heat Value (Btu/scf)	Corrected Emissions Factor (lb/hr)	Annual Operating (hrs)	Estimated Emissions (TPY)
1	0.375	5.5	0.002	1289	0.003	8760	0.011
2	0.500	5.5	0.003	1289	0.003	8760	0.015
3	0.375	5.5	0.002	1289	0.003	8760	0.011
4	0.500	5.5	0.003	1289	0.003	8760	0.015
5	0.000	5.5	0.000	1289	0.000	8760	0.000
6	0.000	5.5	0.000	1289	0.000	8760	0.000
7	0.000	5.5	0.000	1289	0.000	8760	0.000
8	0.000	5.5	0.000	1289	0.000	8760	0.000
9	0.000	5.5	0.000	1289	0.000	8760	0.000
10	0.000	5.5	0.000	1289	0.000	8760	0.000

<b>Total VOC Emissions =</b>	<b>0.1</b>	<b>TPY</b>
<b>Total VOC Emissions =</b>	<b>0.01</b>	<b>lb/hr</b>

**PNEUMATIC PUMP EMISSIONS CALCULATIONS**

COMPONENT	mol %	M.W.	(mol % X MW)/100	WT% of i
H2S	0.0000	34.08	0	0
O2	0.0000	32.00	0	0.0000
CO2	1.7983	44.01	0.7914	0.0358
N2	0.4642	28.02	0.1301	0.0059
Methane C1	75.7335	16.04	12.1477	0.5491
Ethane C2	12.1242	30.07	3.6457	0.1648
Propane C3	5.6865	44.09	2.5072	0.1133
i-Butane i-C4	0.6702	58.12	0.3895	0.0176
n-Butane n-C4	1.6635	58.12	0.9668	0.0437
i-Pentane iC5	0.4801	72.15	0.3464	0.0157
n-Pentane nC5	0.4846	72.15	0.3496	0.0158
Cyclopentane	0.0000	70.1	0.0000	0.0000
n-Hexane n-C6	0.3903	86.17	0.3363	0.0152
Cyclohexane	0.0000	84.16	0.0000	0.0000
other Hexanes	0.0000	85.00	0.0000	0.0000
Heptanes	0.2856	100.20	0.2862	0.0129
Methylcyclohexane	0.0000	98.18	0.0000	0.0000
2,2,4 Trimethylpentane	0.0000	114.22	0.0000	0.0000
Benzene	0.0615	78.11	0.0480	0.0022
Toluene	0.0410	92.14	0.0378	0.0017
Ethylbenzene	0.0004	106.17	0.0004	0.0000
Xylenes	0.0022	106.17	0.0023	0.0001
C8+ Heavies	0.1120	120.00	0.1344	0.0061
nonanes	0.0019	128.26	0.0024	0.0001
C <sub>10</sub> +	0.0000	142.29	0.0000	0.0000
	100.000			1.0000
MOLECULAR WEIGHT (lb/lb-mol)=			22.1224	
TOTAL VOCs WEIGHT PERCENT =			0.2444	
TOTAL HAPs WEIGHT PERCENT =			0.0192	

# of Pumps	3	
Flow rate	15408	scf/day
Gas Consumption Rate (Pumps) scf/hr	214	

Emission Summary	
VOC TPY	40.1
controlled	0.8
HAP TPY	3.2
controlled	0.1
NOx	0.5
CO	0.1



STATE OF WYOMING

Department of Environmental Quality - Air Quality Division
Oil and Gas Production Facilities C6 S2 Permit Application



EMISSION SUMMARY

Company Name EOG Resources, Inc.
Facility Name Crossbow 7-06H and 12-06H PAD

This form must be completed for each emission source at the facility. A list of the emission sources which must be considered is found in Appendix B of the C6 S2 O&G Production Facilities Permitting Guidance.

UNCONTROLLED EMISSIONS (Tons Per Year)

These are the total uncontrolled, potential emissions from each source.

Table with 7 columns: EMISSION SOURCE, VOCs, total HAPs, NOx, CO, SO2, H2S. Rows include oil storage tanks, heaters, pumps, truck loading, and fugitives.

CONTROLLED EMISSIONS (Tons Per Year)

These are the total emissions from each source. Include controlled emissions from each controlled source and uncontrolled emissions from each source which does not require control, such as process equipment burners.

Table with 7 columns: EMISSION SOURCE, VOCs, total HAPs, NOx, CO, SO2, H2S. Rows include oil storage tanks, heaters, pumps, truck loading, and fugitives (LDAR).

HAZARDOUS AIR POLLUTANT SUMMARY (Tons Per Year)

Complete this section for each emissions source if TOTAL HAPs from that source are 9 TPY or greater.

Table with 6 columns: SOURCE, Benzene, Toluene, Ethyl-Benzene, Xylenes, Other.



**STATE OF WYOMING**  
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 Oil and Gas Production Facilities C6 S2 Permit Application



**Equipment List**

Company Name EOG Resources, Inc.  
 Facility Name Crossbow 7-06H and 12-06H PAD  
Crossbow 7-06H well

List all production equipment at the site including all pressurized vessels with the potential for flash emissions, all hydrocarbon liquids and produced water storage tanks, all dehydration units, all pneumatic pumps, all natural gas-fired burners and heaters and all emission control equipment and devices. Pressurized vessels with the potential for flash emissions are all vessels that vent vapors to the atmosphere during times other than upset or emergency conditions (water knockouts, 2-phase and 3-phase separators, heater treaters, gun barrels, scrubber pots, etc). Provide design ratings for dehyds (MMCFD), process heaters, burners and pilots (MMBtu/hr, SCFH). Provide size of production & water storage tanks (BPD). For dehydration units indicate if the unit includes a glycol flash separator and/or reboiler still vent condenser. For emission control combustors/flares indicate design rating (MMBtu/hr, SCFD) and combustor/flare height (ft). Provide pneumatic pump motive gas usage (SCFH).

If more space is required, continue on page 2 of this sheet.

**PROVIDE INSTALLATION DATES OF ALL EMISSION CONTROL EQUIPMENT & MONITORING DEVICES/SYSTEMS !!!**

- four (4) 400-barrel (bbl) oil storage tanks (routed to LEED ECD)
- one (1) 400-bbl produced water storage tank (routed to LEED ECD)
- one (1) 400-bbl emergency storage tank
- one (1) heater treater w/ 0.375 MMBtu/hr heater
- one (1) 0.50 MMBtu/hr trace line heater
- one (1) 36"x20' LEED Smokeless Enclosed Combustion Device (ECD) (controls oil storage tanks, produced water tank, and pneumatic pump emissions) installed prior to first date of production
- controllers are all non-bleed
- one (1) pneumatic pump (combustor scrubber, 214 scf/hr, routed to LEED ECD)
- two (2) electric pumps (recycle and trace)
- various gas scrubbers/liquids knockouts (tank vent line, sales gas line, fuel gas, etc)
- truck loading
- fugitives
- 
- 
- 
- 
- 

Example:

- 1 2-phase high pressure separator (unheated)
- 1 3-phase low pressure separator w/ 0.5 MMBtu/hr heater
- 2 0.5 MMBtu/hr line heaters
- 1 5 MMCFD TEG dehydration unit w/ 0.5 MMBtu/hr reboiler heater, glycol flash separator(0.5 MMBtu/hr heater) and overheads condenser
- 2 400-bbl condensate tanks
- 1 400-bbl produced water tank
- 1 30-ft enclosed combustor (3.0 MMBtu/hr, 5 MCFD) for flashing & reboiler vent/glycol flash separator emissions control installed 1/1/2007



**STATE OF WYOMING**  
 Department of Environmental Quality - Air Quality Division  
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Equipment List - continued

EOG Resources, Inc.

Crossbow 7-06H and 12-06H PAD

Crossbow 12-06H well

four (4) 400-barrel (bbl) oil storage tanks (routed to Cimarron ECD)

one (1) 400-bbl produced water storage tank (routed to Cimarron ECD)

one (1) 400-bbl emergency storage tank

one (1) heater treater w/ 0.375 MMBtu/hr heater

one (1) 0.50 MMBtu/hr trace line heater

one (1) 48"x25' Cimarron Smokeless Enclosed Combustion Device (ECD) (controls oil storage tanks, produced water tank, VRT flash gas, and pneumatic pump emissions) installed prior to first date of production

one (1) Vapor Recovery Tower (VRT) (routed to Cimarron ECD)

two (2) pneumatic pumps (VRT scrubber and combustor scrubber, 214 scf/hr, routed to Cimarron ECD)

three (3) electric pumps (chemical, recycle, and trace)

various gas scrubbers/liquids knockouts (VRT vent line, tank vent line, sales gas line, fuel gas, etc)

truck loading

fugitives

controllers are all non-bleed

one (1) 135 gallon chemical tank



## **Fugitive Equipment Leak Inspection and Maintenance Plan**

### *Statement of Dedication and Basis*

In order to demonstrate and formally document the effectiveness of the efforts made to minimize emissions from fugitive component leaks, EOG Resources, Inc. (EOG) has committed to monitoring and fixing leaks at exploration and production facilities in the Green River Basin (UGRB), DJ, and Powder River Basin (PRB) which are located in the State of Wyoming. The effort is executed as demonstrated by the select implementation of a formal Leak Detection and Repair (LDAR) program. EOG is dedicated to complying with all applicable air quality standards, rules and regulations promulgated by the Wyoming Department of Environmental Quality (WDEQ); including, but not limited, to Chapter 6, Section 2 of the WDEQ air quality standards and regulations (WAQSR). The components and schedule of this program are described in the plan that follows.

EOG applies good operating practices audio, visual and olfactory detection (AVO) and the use of leak detection solutions to identify and repair fugitive emissions from equipment leaks on an ongoing basis at all of its facilities in the UGRB, DJ, and PRB operational area. EOG has implemented a formal LDAR program above and beyond current operating practices. This LDAR program uses an additional monitoring methodology- infrared (IR) camera technology -to identify fugitive volatile organic compound (VOC) emissions from equipment leaks. While the magnitude of the leak cannot be measured using the infrared camera methodology (see 'Technology' section of this Plan), the protocol being followed will allow greater opportunity to reduce overall fugitive emissions even though the value may not be quantified. The IR protocol serves to identify leaks which may only be visible in the infrared spectrum and will ensure proper documentation of the repair of any leak detected using the infrared technology. Use of this monitoring approach allows EOG to demonstrate that its operating practices effectively control fugitive emissions from equipment leaks to insignificant levels.

### *Technology and Limitations*

LDAR inspections will be conducted using IR cameras. IR cameras detect the band of light in the electromagnetic spectrum that extends beyond visible light. Using an IR camera one can identify hydrocarbon vapors which indicate possible sources of fugitive leaks. It should be noted that the intent of this device is solely qualitative; specifically, the IR camera is unable to quantify the magnitude of a leak or the leak rate). However, the objective of this program is to identify and repair any observed leak regardless of its magnitude. As such, the IR camera is the ideal tool to identify these leaks. It should also be noted that all images seen through the infrared camera are not necessarily VOC emissions. It can be difficult to determine whether recordings indicate hydrocarbon vapors or whether the vapors are heat or water vapors. Though, hydrocarbon vapors should typically dissipate slower and "trail-off" longer than heat or water vapors. The design of the camera only allows for detection of vapors and heat emissions and as such the nature of the emissions is not definitive.

### *Facility Identification*

EOG is dedicated to good operating and industry practices at all of its facilities in the UGRB, DJ, and PRB operational areas; however, the application of the EOG LDAR program will be at facilities which have been identified as being subject per condition of the associated air quality permit. A subject facility is defined as exceeding the Air Quality Division (AQD) Best Available Control Technology (BACT) threshold for potential fugitive emissions. The BACT threshold definitions are respective to the effective regulation as follows:

- 15 TPY per AQD Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, dated OB/W07; or,
- 8 TPY for new and modified facilities after August 1, 2010 per AQD Guidance dated 03/2010.

On a quarterly basis, production equipment at subject facilities will be monitored following the procedure identified in the 'Inspection Protocol' section of this Plan. Wellhead monitoring will be conducted annually during the 3<sup>rd</sup> quarter inspection.

### *Inspection Protocol*

Modified and newly constructed facilities that are identified in a permit condition as requiring participation in the LDAR program will be inspected; any leaks will be documented; and applicable repair procedures will be followed. These facilities will be incorporated into the LDAR program no later than the next quarterly inspection period. The following scenarios are provided as examples to clarify,

#### Scenario 1:

Should the quarterly LDAR monitoring occur in May (2<sup>nd</sup> quarter of the year) and a new facility begins producing the following June (3<sup>rd</sup> quarter of the year), the fugitive emissions for all sources at this facility will be reviewed as per the AQD's Chapter 6 Section 2 Permitting Guidance. As appropriate and applicable, an application will be submitted prior to the 60 day deadline and the facility monitored under the EOG LDAR program during the next scheduled quarterly inspection.

#### Scenario 2:

For an existing facility that began operating in June the fugitive emissions would be reviewed in August. If at that time the fugitive emissions are projected to exceed the 8 TPY VOC threshold this facility will be added to the list of facilities to monitor during the next scheduled quarterly inspection.

Facilities subject to compliance with this Plan and respective permit condition will do so by following the below inspection and maintenance procedure. The AVO inspection and maintenance procedure follows that which has been approved by Region 8 of the Environmental Protection Agency respective to the Tribal New Source Review program.

1. Conduct AVOs, including IR camera inspection, on a quarterly basis of all pumps, valves, connectors, and pressure relief devices at the facility.
2. For each leak found in the AVO inspection, the leak shall be managed in accordance with the 'Repair Schedule' section of this Plan.

3. Re-screen repaired components to determine if the leak is repaired. If the rescreening shows that the leak was not repaired then another attempt to repair the leak will be made as soon as possible, but no later than 15 days after the rescreening.
4. Steps 2 and 3 will be repeated until the rescreening shows no leak.
5. Leaking components will be documented along with the date the leak is detected, date the leak is repaired, and date that the leak is rescreened; see 'Repair Schedule' section of this Plan.

#### *Monitoring and Recordkeeping*

Quarterly records and documentation associated with the infrared monitoring inspections performed as part of this LDAR program will be maintained in accordance with the following procedure and consist of the specified information. Each quarterly inspection will include a brief discussion of the inspections that were performed, any anomalies in the procedure, and incorporate the following lists:

- List of components screened and associated dates;
- List of currently leaking components;
- List of repaired components along with the repair method and associated repair dates (see 'Repair Schedule' section of this Plan); and
- List of successful repairs, repair delays, and post-repair screenings and associated dates.

The above information will be recorded, maintained and kept for five years electronically and in hardcopy at the nearest EOG field office.

#### *Repair Schedule*

Leaks identified through the quarterly inspections will be tagged using a numbered weather resistant tag, documented on a 'IR Camera Inspection' form. Additionally, still photographs of the location of the leak may be taken to assist field personnel in identifying leaking components. All findings (leaks) identified during an inspection with the Infrared camera will be communicated to field personnel so that they may be repaired.

The most common leak types identified during IR inspections are associated with loose fittings, connections and bad seals. These are relatively simple to repair and typically do not require the facility to be shut down. While EOG will be diligent about trying to repair every leak in a timely fashion, a delayed repair schedule will be required in instances where the facility must be shut down or additional time is required to procure parts or equipment in order to repair a leak. For every leak the following schedule should be followed to repair leaks identified with the infrared camera.

Repair Attempt	Timing
1 <sup>st</sup> Attempt	<p>A 1<sup>st</sup> attempt to repair a leak will be made within 7 days. This will consist of typical basic repairs (i.e., tightening packing, tightening tubing ferrules). After a repair attempt has been made, verification that the leak has been repaired shall consist of observing the component using an IR camera or similar leak detection solutions. Otherwise, visual and/or olfactory inspections shall be conducted to ensure the leak has been repaired. The leak tag may only be removed once repair of the leak has been verified using an Infrared Camera and documented on the respective facility IR Camera Inspection form.</p>
2 <sup>nd</sup> Attempt	<p>If a 1<sup>st</sup> attempt is not successful, a 2<sup>nd</sup> attempt will be made within 7 days of the 1<sup>st</sup> attempt. If the facility must be shut down to repair a leak or if additional time is needed to procure parts or equipment, the leak will be tracked on a delayed repair list. After a repair attempt has been made, verification that the leak has been repaired shall consist of observing the component using an IR camera or similar leak detection solutions. Otherwise, visual and/or olfactory inspections shall be conducted to ensure the leak has been repaired. The leak tag may only be removed once repair of the leak has been verified using an Infrared Camera and documented on the respective facility IR Camera Inspection form.</p> <p>EOG will make a "Best Attempt" at repairing every leak. However, if repairs made during the 2<sup>nd</sup> attempt are not successful, the leak will be added to the delayed repair list.</p>
Delay Repair	<p>If the facility must be shutdown to attempt the repair of a leak, additional time is needed to procure parts or equipment, or the 2<sup>nd</sup> repair attempt is not successful, it may be put on a delayed repair list. Repairs will be conducted during the next scheduled shutdown or prior to the next LDAR inspection.</p>

### *Reporting*

EOG will follow reporting protocol specified in the respective air permit for subject facilities. The following will be reported to the WDEQ Stationary Source Permitting Manager and District Engineer for the respective district office upon request to include the following information:

- List of facilities included during the inspection period;
- List of findings and leaks for each inspection; and
- MS Excel Spreadsheet that details leaks, repairs, delay repairs, and LDAR applicable facilities

**NSR Application A0001286  
Crossbow 7-06H and 12-06H PAD  
F023958  
July 10, 2015**

If I am claiming any information in this submission is a trade secret, I hereby swear or affirm that the trade secret request meets the requirements of Wyoming Air Quality Standards and Regulations and that the justification submitted with the trade secret request sets forth the basis for claiming that the information should be considered a trade secret as defined in Wyoming Air Quality Standards and Regulations.

- a) I am the Authorized Representative identified in applicable Wyoming Air Quality Standards and Regulations as authorized to sign this document; and
- b) Based on information and belief formed after reasonable inquiry, I hereby affirm that all factual statements in this transmittal are true, accurate and complete to the best of my knowledge and that all judgments and estimates have been made in good faith.

Account: markEOG

Date/time submitted: Jul 10 2015, 08:46:02

**Air Quality Division**  
**Application for NSR Permit**

Jul 10 2015, 08:46:02

- **NSR Application**

*This information should be filled out for each New Source Review (NSR) application. An NSR permit is required for all air contaminant sources (emissions units) installed or modified after January 1, 1974. See the application instructions for additional information.*

- **Purpose of Application**

Please summarize the reason this permit is being applied for.

This air permit application is being submitted to update the Crossbow 7-06H and 12-06H PAD facility. The facilities are both located on the same pad but have separate equipment and were inadvertently permitted as separate production sites. Both facilities have recently undergone low pressure conversions which removed the TEG dehydration units from the facilities. This application will update the current equipment at the facility and include new equipment associated with the facility. EOG requests to update the permits to reflect the current equipment list, remove the conditions associated with the TEG dehydration units, and to combine the facilities under one permit. Emissions from the tanks and pneumatic pumps are routed to the enclosed combustion devices. Also, EOG requests to remove the vapor recovery unit from the equipment list in the permit.

Has the facility changed location or is it a new/greenfield facility? No

Does production at this facility contain H2S? No

- **Federal Rules Applicability - Facility Level**

**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.*

- **Trade Secret Information** - One or more Emissions Units in this application contains trade secret information.

No

- **Permit Application Contact** - Newly created contacts and application contact changes will be saved when the application is saved.

Curtis Rice	Senior Environmental Specialist	EOG Resources, Inc.
<b>Name</b>	<b>Title</b>	<b>Company</b>
600 17th Street, Suite 1000N	Denver, CO	80202
<b>Street Address</b>	<b>City/Township, State</b>	<b>Zip Code</b>
(303) 262-9946		Curtis_Rice@eogresources.com
<b>Phone</b>	<b>Fax</b>	<b>E-mail</b>

- **Modeling Section**

*Ambient Air Quality Impact Analysis: WAQSR Chapter 6, Section 2(c)(ii) requires that permit applicants demonstrate that a proposed facility will not prevent the attainment or maintenance of any ambient air quality standard.*

Has the applicant contacted AQD to determine if modeling is required? No

Is a modeling analysis part of this application? No

Is the proposed project subject to Prevention of Significant Deterioration (PSD) requirements? No

- **Application Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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X	6546	Process Flow Diagram	process flow-site diagram
X	6547	Emissions Calculations	emission calculations
X	6548	Cover Letter/Project Description	Cover letter and emissions calcs with supporting data
X	6549	Equipment List	equipment list
	6550	Other Type of Demonstration	LDAR Protocol

**Section II - Specific Air Contaminant Source Information**

**AQD EU ID:** HET001

**AQD EU description:**

**Company EU ID:** HET1

**Company EU Description:** Trace Line Heater  
- 0.50 MMBtu/hr  
(7-06H well)

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Modification

**When will you begin to modify the air contaminant source?**

03/25/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Heater/Chiller

Fuel Sulfur Content : 0.00

Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

**Criteria Pollutants :**

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	

Nitrogen oxides (NOx)	0	0		0.062	0.27	AP-42
Carbon monoxide (CO)	0	0		0.052	0.22	AP-42
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

**Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

**Greenhouse Gases (GHGs):**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

\* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

\*\* AQD Calculated - See 'Help' for more information.

- **Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

**New Source Performance Standards (NSPS)**

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

Not affected

**National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61)**

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).

Not affected

**National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)**

National Emission Standards for Hazardous Air Pollutants

Not affected

(NESHAP Part 63) standards are listed under 40 CFR 63.

**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.*

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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**Section II - Specific Air Contaminant Source Information**

**AQD EU ID:** HET002

**AQD EU description:**

**Company EU ID:** HET2

**Company EU Description:** heater treater -  
0.375 MMBtu/hr (7-  
06H well)

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Modification

**When will you begin to modify the air contaminant source?**

03/25/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Heater/Chiller

Fuel Sulfur Content : 0.00

Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

**Criteria Pollutants :**

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	

Nitrogen oxides (NOx)	0	0		0.046	0.2	AP-42
Carbon monoxide (CO)	0	0		0.039	0.17	AP-42
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

**Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

**Greenhouse Gases (GHGs):**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

\* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

\*\* AQD Calculated - See 'Help' for more information.

**- Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

**- Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

**- Federal and State Rule Applicability**

**New Source Performance Standards (NSPS)** Not affected  
*New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.*

**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).*

**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.

**Prevention of Significant Deterioration (PSD)**

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

Not Affected

**Non-Attainment New Source Review**

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

Not Affected

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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**Section II - Specific Air Contaminant Source Information**

**AQD EU ID:** HET003

**AQD EU description:**

**Company EU ID:** HET3

**Company EU Description:** Trace Line Heater  
- 0.50 MMBtu/hr  
(12-06H well)

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Modification

**When will you begin to modify the air contaminant source?**

03/25/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Heater/Chiller

Fuel Sulfur Content : 0.00

Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

**Criteria Pollutants :**

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	

Nitrogen oxides (NOx)	0	0		0.062	0.27	AP-42
Carbon monoxide (CO)	0	0		0.052	0.22	AP-42
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

**Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

**Greenhouse Gases (GHGs):**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

\* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

\*\* AQD Calculated - See 'Help' for more information.

- **Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

**New Source Performance Standards (NSPS)** Not affected  
*New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.*

**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).*

**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.

**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.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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**Section II - Specific Air Contaminant Source Information**

**AQD EU ID:** HET004

**AQD EU description:**

**Company EU ID:** HET4

**Company EU Description:** heater treater -  
0.375 MMBtu/hr  
(12-06H well)

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Modification

**When will you begin to modify the air contaminant source?**

03/25/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Heater/Chiller

Fuel Sulfur Content : 0.00

Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

**Criteria Pollutants :**

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	

Nitrogen oxides (NOx)	0	0		0.046	0.2	AP-42
Carbon monoxide (CO)	0	0		0.039	0.17	AP-42
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

**Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

**Greenhouse Gases (GHGs):**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

\* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

\*\* AQD Calculated - See 'Help' for more information.

**- Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

**- Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

**- Federal and State Rule Applicability**

**New Source Performance Standards (NSPS)** Not affected  
*New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.*

**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).*

**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.

**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.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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**Section II - Specific Air Contaminant Source Information**

**AQD EU ID:** PNE001

**AQD EU description:**

**Company EU ID:** PNE1

**Company EU Description:** three (3) pneumatic pumps (tank combustor scrubber, VRT combustor scrubber from the 12-06H well, tank combustor scrubber pump from the 7-06H well) each pump has a gas consumption rate of 214 scf/hr for a total of 642 scf/hr

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Modification

**When will you begin to modify the air contaminant source?**

03/25/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Pneumatic Equipment

Motive Force : Field Gas

VOC Content (%) : 24.440

HAP Content (%) : 1.920

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

**Criteria Pollutants :**

Pollutant	Pre-Controlled Potential Emissions	Efficiency Standards	Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*

	(tons/yr)	Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	40.1	0		0.18	0.8	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	3.2	0		0.02	0.1	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

**Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

**Greenhouse Gases (GHGs):**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

\* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

\*\* AQD Calculated - See 'Help' for more information.

**- Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

**- Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

**- Federal and State Rule Applicability**

**New Source Performance Standards (NSPS)** Not affected  
 New Source Performance Standards are listed under 40

CFR 60 - Standards of Performance for New Stationary Sources.

**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).*

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

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

**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.*

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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**Section II - Specific Air Contaminant Source Information**

**AQD EU ID:** PNE002

**AQD EU description:**

**Company EU ID:** PNE2

**Company EU Description:** five (5) electric pumps (chemical, recycle, and trace - 12-06H well, recycle and trace - 7-06H well)

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Modification

**When will you begin to modify the air contaminant source?**

03/25/2015

- **Emission Unit Type Specific Information**

Emission Unit Type : Pneumatic Equipment

Motive Force : Other

VOC Content (%) : 0.000

HAP Content (%) : 0.000

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24

Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations promulgated thereunder.

Basis for Determination Options:

- *Manufacturer Data*
- *Test results for this source*
- *Similar source test results*
- *GRICalc*
- *Tanks Program*
- *AP-42*
- *Other. If this is selected, attach a document with a description of the method used.*

**Criteria Pollutants :**

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		0	0	
PM # 10 microns in diameter (PE/PM10)	0	0		0	0	

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		0	0	
Sulfur dioxide (SO2)	0	0		0	0	
Nitrogen oxides (NOx)	0	0		0	0	
Carbon monoxide (CO)	0	0		0	0	
Volatile organic compounds (VOC)	0	0		0	0	
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0	0	
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

**Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

**Greenhouse Gases (GHGs):**

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			

\* Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

\*\* AQD Calculated - See 'Help' for more information.

**- Best Available Control Technology (BACT)**

Was a BACT Analysis completed for this unit? No

**- Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

**- Federal and State Rule Applicability**

**New Source Performance Standards (NSPS)** Not affected  
 New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

**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).

**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.*

**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.*

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
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**Facility Detail Report**  
**Facility Name: Crossbow 7-06H and 12-06H PAD**  
**ID: F023958**

10/27/2017 10:00 AM

10/27/2017

10/27/2017

10/27/2017

10/27/2017

10/27/2017

10/27/2017

10/27/2017

10/27/2017

Item	Quantity	Unit	Location	Notes
...	...	...	...	...

10/27/2017 10:00 AM

Item	Quantity	Unit	Location	Notes
...	...	...	...	...

10/27/2017

Item	Quantity	Unit	Location	Notes
...	...	...	...	...

10/27/2017

Item	Quantity	Unit	Location	Notes
...	...	...	...	...

10/27/2017

- Facility Information

Facility ID: F023958  
 FacilityName: Crossbow 7-06H and 12-06H PAD  
 Facility Description: multiple well sweet crude oil and natural gas production facility  
 Company Name: EOG Resources, Inc.  
 Operating Status: Operating AFS:  
 Facility Class: Minor Facility Type: Production Site  
 CERR Class: NON

- Location

Physical Address	City	County	Lat/Long	PLSS	Effective Date
600 17th Street Suite 1000N	Denver	Campbell	43.55094/-105.42421	S6-T41N-R71W	05/08/2012

Location Detail For : 600 17th Street Suite 1000N

Latitude: 43.55094 Longitude: -105.42421  
 Quarter Quarter: Quarter:  
 Section: 6  
 Township: 41N Range: 71W  
 County: Campbell State: Wyoming  
 Distict: District 3  
 Physical Address 1: 600 17th Street Suite 1000N Physical Address 2:  
 City: Denver Zip: 80202  
 Effective Date: 05/08/2012

- API

API
560884
561611

- Notes

User Name	Date	Note
Data, Legacy	05/08/2012	[AQDS_Site_Memo] Request for permit to operate 6/30/11 KMG [Process_Memo] single well gas/condensate production facility with one (1) three-phase low-pressure (LP) separator w/ 0.375 million Btu per hour (MMBtu/hr) heater, one (1) two-phase high-pressure (HP) separator w/ 1.5 MMBtu/hr heater, one (1) 5.0 million cubic feet per

- NAICS Codes

211111 Crude Petroleum and Natural Gas Extraction (SIC 1311)

- **Contacts**

Contact Type	Contact Person	Phone Number	Email	Start Date	End Date
Compliance contact	Long, David	(303)262-9448	david_long@eogresources.com	05/15/2013	
Environmental contact	Long, David	(303)262-9448	david_long@eogresources.com	05/15/2013	
NSR Permitting contact	Rice, Curtis	(303)262-9946	Curtis_Rice@eogresources.com	05/15/2013	
Environmental contact	Rice, Curtis	(303)262-9946	Curtis_Rice@eogresources.com	03/09/2015	
NSR Permitting contact	Smith, Mark	(307)399-2365	mark_smith@eogresources.com	01/05/2015	
Compliance contact	Davison, Aimee	(307)276-3331		05/15/2013	07/09/2015
Compliance contact	Gardner, Mike	(307)276-4841		05/15/2013	07/09/2015
NSR Permitting contact	Gardner, Mike	(307)276-4841		05/15/2013	07/09/2015
NSR Permitting contact	Heydt, Luigi	(307)276-3331	<Luigi_Heydt@eogresources.com>	05/15/2013	07/09/2015
Compliance contact	Heydt, Luigi	(307)276-3331	<Luigi_Heydt@eogresources.com>	05/15/2013	07/09/2015
NSR Permitting contact	Kelly, Ted	(307)276-3331	ted_kelly@eogresources.com	05/15/2013	07/09/2015
Compliance contact	Kelly, Ted	(307)276-3331	ted_kelly@eogresources.com	05/15/2013	07/09/2015
NSR Permitting contact	Mansor, Scott			05/15/2013	07/09/2015
Compliance contact	Schaefer, Jim	(307)276-3331	jschaefer@enron.com	05/15/2013	07/09/2015
NSR Permitting contact	Schaefer, Jim	(307)276-3331	jschaefer@enron.com	05/15/2013	07/09/2015
NSR Permitting contact	Scharfer, James			05/15/2013	07/09/2015
NSR Permitting contact	Schell, Shayla	(307)276-4854	shayla_schell@eogresources.com	05/15/2013	07/09/2015

Contact Detail For : Long, David

Prefix: First Name: David  
Middle Name: Last Name: Long  
Suffix:  
Company Title: Contact's Company Name: EOG Resources, Inc.  
Address 1: 600 17th St Ste 1000N  
Address 2:  
City: Denver Zip Code: 80202  
State: Colorado  
Work Phone No: (303)262-9448 Secondary Phone No.:  
Address 2: (307)276-4891 Secondary Ext. No.:

Mobile Phone No.:  
Fax No:  
Email: david\_long@eogresources.com  
Email Pager Address:

Pager No.:  
Pager PIN No.:

Contact Detail For : Rice, Curtis

Prefix:  
Middle Name:  
Suffix:  
Company Title:  
Address 1: 600 17th Street, Suite 1000N  
Address 2:  
City: Denver  
State: Colorado  
Work Phone No: (303)262-9946  
Address 2:  
Mobile Phone No.:  
Fax No: (303)262-9449  
Email: Curtis\_Rice@eogresources.com  
Email Pager Address:

First Name: Curtis  
Last Name: Rice  
Contact's Company Name: EOG Resources, Inc.  
Zip Code: 80202  
Secondary Phone No.:  
Secondary Ext. No.:  
Pager No.:  
Pager PIN No.:

Contact Detail For : Rice, Curtis

Prefix: Mr.  
Middle Name:  
Suffix:  
Company Title: Senior Environmental Specialist  
Address 1: 600 17th Street, Suite 1000N  
Address 2:  
City: Denver  
State: Colorado  
Work Phone No: (303)262-9946  
Address 2:  
Mobile Phone No.:  
Fax No:  
Email: Curtis\_Rice@eogresources.com  
Email Pager Address:

First Name: Curtis  
Last Name: Rice  
Contact's Company Name: EOG Resources, Inc.  
Zip Code: 80202  
Secondary Phone No.:  
Secondary Ext. No.:  
Pager No.:  
Pager PIN No.:

Contact Detail For : Smith, Mark

Prefix: Mr.  
Middle Name:  
Suffix:  
Company Title: Senior Environmental

First Name: Mark  
Last Name: Smith  
Contact's Company Name: EOG Resources, Inc.

Representative

Address 1: 3001 E. Pershing Blvd.

Address 2:

City: Cheyenne

Zip Code: 82001

State: Wyoming

Work Phone No: (307) 399-2365

Secondary Phone No.:

Address 2:

Secondary Ext. No.:

Mobile Phone No.:

Pager No.:

Fax No:

Pager PIN No.:

Email: mark\_smith@eogresources.com

Email Pager Address:

Contact Detail For : Davison, Aimee

Prefix:

First Name: Aimee

Middle Name:

Last Name: Davison

Suffix:

Company Title:

Contact's Company Name: EOG Resources, Inc.

Address 1: 1540 Belco Drive, P.O. Box 250

Address 2:

City: Big Piney

Zip Code: 83113

State: Wyoming

Work Phone No: (307) 276-3331

Secondary Phone No.:

Address 2:

Secondary Ext. No.:

Mobile Phone No.: (307) 260-8082

Pager No.:

Fax No: (307) 276-3335

Pager PIN No.:

Email:

Email Pager Address:

Contact Detail For : Gardner, Mike

Prefix:

First Name: Mike

Middle Name:

Last Name: Gardner

Suffix:

Company Title:

Contact's Company Name: EOG Resources, Inc.

Address 1: P.O. Box 250

Address 2:

City: Big Piney

Zip Code: 83113

State: Wyoming

Work Phone No: (307) 276-4841

Secondary Phone No.:

Address 2:

Secondary Ext. No.:

Mobile Phone No.:

Pager No.:

Fax No: (307) 276-3335

Pager PIN No.:

Email:

Email Pager Address:

Contact Detail For : Heydt, Luigi

Prefix:	First Name: Luigi
Middle Name:	Last Name: Heydt
Suffix:	
Company Title:	Contact's Company Name: EOG Resources, Inc.
Address 1: 1540 Belco Drive, P.O. Box 250	
Address 2:	
City: Big Piney	Zip Code: 83113
State: Wyoming	
Work Phone No: (307) 276-3331	Secondary Phone No.:
Address 2:	Secondary Ext. No.:
Mobile Phone No.: (307) 260-8082	Pager No.:
Fax No:	Pager PIN No.:
Email: <Luigi_Heydt@eogresources.com>	

Email Pager Address:

Contact Detail For : Kelly, Ted

Prefix:	First Name: Ted
Middle Name:	Last Name: Kelly
Suffix:	
Company Title:	Contact's Company Name: EOG Resources, Inc.
Address 1: P.O. Box 250	
Address 2:	
City: Big Piney	Zip Code: 83113
State: Wyoming	
Work Phone No: (307) 276-3331	Secondary Phone No.:
Address 2:	Secondary Ext. No.:
Mobile Phone No.:	Pager No.:
Fax No: (307) 276-4841	Pager PIN No.:
Email: ted kelly@eogresources.com	

Email Pager Address:

Contact Detail For : Mansor, Scott

Prefix:	First Name: Scott
Middle Name:	Last Name: Mansor
Suffix:	
Company Title:	Contact's Company Name: EOG Resources, Inc.
Address 1: P.O. Box 250	
Address 2:	
City: Big Piney	Zip Code: 83113

State: Wyoming

Work Phone No:  
Address 2:  
Mobile Phone No.:  
Fax No:  
Email:  
Email Pager Address:

Secondary Phone No.:  
Secondary Ext. No.:  
Pager No.:  
Pager PIN No.:

Contact Detail For : Schaefer, Jim

Prefix:  
Middle Name:  
Suffix:  
Company Title:

First Name: Jim  
Last Name: Schaefer

Contact's Company Name: EOG Resources, Inc.

Address 1: P.O. Box 250

Address 2:

City: Big Piney

Zip Code: 83113

State: Wyoming

Work Phone No: (307) 276-3331

Secondary Phone No.:

Address 2:

Secondary Ext. No.:

Mobile Phone No.:

Pager No.:

Fax No: (307) 276-3335

Pager PIN No.:

Email: jschaefer@enron.com

Email Pager Address:

Contact Detail For : Scharfer, James

Prefix:  
Middle Name:  
Suffix:  
Company Title:

First Name: James  
Last Name: Scharfer

Contact's Company Name: EOG Resources, Inc.

Address 1: Box 250

Address 2:

City: Big Piney

Zip Code: 83113

State: Wyoming

Work Phone No:

Secondary Phone No.:

Address 2:

Secondary Ext. No.:

Mobile Phone No.:

Pager No.:

Fax No:

Pager PIN No.:

Email:

Email Pager Address:

Contact Detail For : Schell, Shayla

Prefix:

First Name: Shayla

Middle Name:

Last Name: Schell

Suffix:

Company Title:

Contact's Company Name: EOG Resources, Inc.

Address 1: P.O. Box 250

Address 2:

City: Big Piney

Zip Code: 83113

State: Wyoming

Work Phone No: (307) 276-4854

Secondary Phone No.:

Address 2:

Secondary Ext. No.:

Mobile Phone No.:

Pager No.:

Fax No: (307) 276-3335

Pager PIN No.:

Email: shayla\_schell@eogresources.com

Email Pager Address:

- **Rules & Regs**

Subject to Part 60 NSPS:

Subject to 112(r) Accidental Release Prevention:

Subject to Part 61 NESHAP:

Subject to non-attainment NSR:

Subject Part 63 NESHAP:

Subject to PSD:

Subject to Title IV Acid Rain:

- **Attachments**

Description	Type	Modified By	Modified Date
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- **Version**

Version ID	Version Start Date	Version End Date	Preserved
CURRENT	07/09/2015		X
23958	05/08/2012	07/09/2015	X

**Emission Unit : FLR001**

Sep 22 2015, 14:01:57

**- Emission Unit Information**

AQD Emissions Unit ID: FLR001  
 Emission Unit Type: Flare  
 Maximum Design Capacity: 99000.0 Units: scf/day  
 Minimum Design Capacity: 1000.0 Units: scf/day  
 Pilot Gas Volume (scf/min): 0.2800  
 AQD Description:  
 Company Equipment ID: FLA1  
 Company Equipment Description: 36"x20' LEED smokeless enclosed combustion device (7-06H well)  
 Operating Status: Operating  
 Initial Construction Commencement Date: 02/02/2011  
 Initial Operation Commencement Date: 02/02/2011  
 Most Recent Construction/Modification Commencement Date:  
 Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC001  
 Process Name: 36"x20' LEED ECD  
 Company Process Description: 36"x20' LEED ECD  
 Source Classification Code (SCC): 3-10-002-05

Release points(s) directly associated with this process

VER003

## Emission Unit : FLR002

Sep 22 2015, 14:01:57

### - Emission Unit Information

AQD Emissions Unit ID: FLR002

Emission Unit Type: Flare

Maximum Design Capacity: 125000.0

Units: scf/day

Minimum Design Capacity: 25000.0

Units: scf/day

Pilot Gas Volume (scf/min): 0.2800

AQD Description:

Company Equipment ID: FLA2

Company Equipment Description: 48"x25' Cimarron Dual Volume smokeless enclosed combustion device (12-06H well)

Operating Status: Operating

Initial Construction Commencement 03/25/2013

Date:

Initial Operation Commencement 03/25/2013

Date:

Most Recent  
Construction/Modification  
Commencement Date:

Most Recent Operation  
Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

### - Processes

#### - Emission Process Information

Process ID: PRC025

Process Name: 48"x25' HV Cimarron ECD

Company Process Description: 48"x25' HV Cimarron ECD

Source Classification Code (SCC): 3-10-002-05

Release points(s) directly associated with this process

VER006

## Emission Unit : FUG001

Sep 22 2015, 14:01:57

### - Emission Unit Information

AQD Emissions Unit ID: FUG001

Emission Unit Type: Fugitive

AQD Description:

Company Equipment ID: FUG1

Company Equipment Description: process fugitives - combined from the Crossbow 7-06H and 12-06H wells

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC002

Process Name: fugitive emissions

Company Process Description: fugitive emissions

Source Classification Code (SCC): 3-10-888-11

Release points(s) directly associated with this process

AVL003

## Emission Unit : HET001

Sep 22 2015, 14:01:57

### - Emission Unit Information

AQD Emissions Unit ID: HET001

Emission Unit Type: Heater/Chiller

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 (BTU/scf): 1289

AQD Description:

Company Equipment ID: HET1

Company Equipment Description: Trace Line Heater - 0.50 MMBtu/hr (7-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC003

Process Name: Line Heater

Company Process Description: Line Heater

Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER001

## Emission Unit : HET002

Sep 22 2015, 14:01:57

### - Emission Unit Information

AQD Emissions Unit ID: HET002

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 0.38

Units: MMBtu/hr

Primary Fuel Type: Field Gas

Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1289

AQD Description:

Company Equipment ID: HET2

Company Equipment Description: heater treater - 0.375 MMBtu/hr (7-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC004

Process Name: heater treater heater

Company Process Description: heater treater heater

Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER002

## Emission Unit : HET003

Sep 22 2015, 14:01:57

**- Emission Unit Information**

AQD Emissions Unit ID: HET003  
 Emission Unit Type: Heater/Chiller  
 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 (BTU/scf): 1289  
 AQD Description:  
 Company Equipment ID: HET3  
 Company Equipment Description: Trace Line Heater - 0.50 MMBtu/hr (12-06H well)  
 Operating Status: Operating  
 Initial Construction Commencement Date: 03/25/2013  
 Initial Operation Commencement Date: 03/25/2013  
 Most Recent Construction/Modification Commencement Date:  
 Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC016  
 Process Name: Line Heater  
 Company Process Description: Line Heater  
 Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER004

## Emission Unit : HET004

Sep 22 2015, 14:01:57

**- Emission Unit Information**

AQD Emissions Unit ID: HET004  
 Emission Unit Type: Heater/Chiller  
 Firing Type: Indirect  
 Heat Input Rating: 0.38 Units: MMBtu/hr  
 Primary Fuel Type: Field Gas Secondary Fuel Type: N/A  
 Heat Content of Fuel (BTU/scf): 1289  
 AQD Description:  
 Company Equipment ID: HET4  
 Company Equipment Description: heater treater - 0.375 MMBtu/hr (12-06H well)  
 Operating Status: Operating  
 Initial Construction Commencement Date: 03/25/2013  
 Initial Operation Commencement Date: 03/25/2013  
 Most Recent Construction/Modification Commencement Date:  
 Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC017  
 Process Name: heater treater heater  
 Company Process Description: heater treater heater  
 Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER005

## Emission Unit : LUD001

Sep 22 2015, 14:01:57

### - Emission Unit Information

AQD Emissions Unit ID: LUD001

Emission Unit Type: Loading/Unloading/Dump

Type of Material: liquid

Material Description: crude oil - 35.6 bbls/day

Maximum Annual Throughput: 12994

Units: barrels/yr

AQD Description:

Company Equipment ID: TL01

Company Equipment Description: truck oil loading from storage tanks (combined from the Crossbow 7-06H and 12-06H wells)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC005

Process Name: truck loadout

Company Process Description: truck loadout

Source Classification Code (SCC): 4-06-001-32

Release points(s) directly associated with this process

AVL002

**Emission Unit : PNE001**

Sep 22 2015, 14:01:57

**- Emission Unit Information**

AQD Emissions Unit ID: PNE001

Emission Unit Type: Pneumatic Equipment

Type of Equipment: Pump

Bleed rate (cu. ft/hr):

Gas Consumption Rate (cu. ft/hr): 642.0000

AQD Description:

Company Equipment ID: PNE1

Company Equipment Description: three (3) pneumatic pumps (tank combustor scrubber, VRT combustor scrubber from the 12-06H well, tank combustor scrubber pump from the 7-06H well) each pump has a gas consumption rate of 214 scf/hr for a total of 642 scf/hr

Operating Status: Operating

Initial Construction Commencement 02/02/2011  
Date:

Initial Operation Commencement 02/02/2011  
Date:

Most Recent  
Construction/Modification  
Commencement Date:

Most Recent Operation  
Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC006

Process Name: pneumatic pumps

Company Process Description: pneumatic pumps

Source Classification Code (SCC): 3-10-001-99

Control equipment(s) directly associated with this process

FLA001

FLA002

## Emission Unit : PNE002

Sep 22 2015, 14:01:57

### - Emission Unit Information

AQD Emissions Unit ID: PNE002

Emission Unit Type: Pneumatic Equipment

Type of Equipment: Pump

Bleed rate (cu. ft/hr):

Gas Consumption Rate (cu. ft/hr): 0.0000

AQD Description:

Company Equipment ID: PNE2

Company Equipment Description: five (5) electric pumps (chemical, recycle, and trace - 12-06H well, recycle and trace - 7-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC007

Process Name: electric pumps

Company Process Description: electric pumps

Source Classification Code (SCC): 3-10-001-99

## Emission Unit : SEP001

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: SEP001

Emission Unit Type: Separator/Treater

Type Of Vessel: Heater-Treater

is Vessel Heated: Yes

AQD Description:

Company Equipment ID: HT1

Company Equipment Description: Heater Treater (7-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC008

Process Name: heater treater

Company Process Description: heater treater

Source Classification Code (SCC): 3-10-001-07

## Emission Unit : SEP002

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: SEP002

Emission Unit Type: Separator/Treater

Type Of Vessel: Heater-Treater

is Vessel Heated: Yes

AQD Description:

Company Equipment ID: HT2

Company Equipment Description: Heater Treater (12-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 03/25/2013

Initial Operation Commencement Date: 03/25/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC018

Process Name: heater treater

Company Process Description: heater treater

Source Classification Code (SCC): 3-10-001-07

## Emission Unit : TNK001

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: TNK001

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 4.4500

Units: barrels/day

AQD Description:

Company Equipment ID: T1

Company Equipment Description: 400-bbl oil storage tank (7-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC009

Process Name: oil storage tank

Company Process Description: oil storage tank

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA001

**Emission Unit : TNK002**

Sep 22 2015, 14:01:58

**- Emission Unit Information**

AQD Emissions Unit ID: TNK002  
 Emission Unit Type: Storage Tank/Silo  
 Material Type: Liquid  
 Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank  
 Capacity: 400 Units: barrels  
 Maximum Throughput: 4.4500 Units: barrels/day  
 AQD Description:  
 Company Equipment ID: T2  
 Company Equipment Description: 400-bbl oil storage tank (7-06H well)  
 Operating Status: Operating  
 Initial Construction Commencement Date: 02/02/2011  
 Initial Operation Commencement Date: 02/02/2011  
 Most Recent Construction/Modification Commencement Date:  
 Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC010  
 Process Name: oil storage tank  
 Company Process Description: oil storage tank  
 Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA001

Emission Unit : TNK003

Sep 22 2015, 14:01:58

- Emission Unit Information

AQD Emissions Unit ID: TNK003

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 4.4500

Units: barrels/day

AQD Description:

Company Equipment ID: T3

Company Equipment Description: 400-bbl oil storage tank (7-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

- Processes

- Emission Process Information

Process ID: PRC011

Process Name: oil storage tank

Company Process Description: oil storage tank

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA001

## Emission Unit : TNK004

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: TNK004

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 4.4500

Units: barrels/day

AQD Description:

Company Equipment ID: T4

Company Equipment Description: 400-bbl oil storage tank (7-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 02/02/2011

Initial Operation Commencement Date: 02/02/2011

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC012

Process Name: oil storage tank

Company Process Description: oil storage tank

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA001

**Emission Unit : TNK005**

Sep 22 2015, 14:01:58

**- Emission Unit Information**

AQD Emissions Unit ID: TNK005  
 Emission Unit Type: Storage Tank/Silo  
 Material Type: Liquid  
 Description of Material Stored: produced water - 10.5 bbl/day total throughput. 10.5 bbl/tank  
 Capacity: 400 Units: barrels  
 Maximum Throughput: 10.5000 Units: barrels/day  
 AQD Description:  
 Company Equipment ID: T5  
 Company Equipment Description: 400-bbl produced water storage tank (7-06H well)  
 Operating Status: Operating  
 Initial Construction Commencement Date: 02/02/2011  
 Initial Operation Commencement Date: 02/02/2011  
 Most Recent Construction/Modification Commencement Date:  
 Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC013  
 Process Name: produced water storage tank  
 Company Process Description: produced water storage tank  
 Source Classification Code (SCC): 4-04-003-15

Control equipment(s) directly associated with this process

FLA001

**Emission Unit : TNK006**

Sep 22 2015, 14:01:58

**- Emission Unit Information**

AQD Emissions Unit ID: TNK006  
Emission Unit Type: Storage Tank/Silo  
Material Type: Liquid  
Description of Material Stored: emergency tank  
Capacity: 400 Units: barrels  
Maximum Throughput: 1.0000 Units: barrels/day  
AQD Description:  
Company Equipment ID: T6  
Company Equipment Description: 400-bbl emergency tank (7-06H well)  
Operating Status: Operating  
Initial Construction Commencement Date: 02/02/2011  
Initial Operation Commencement Date: 02/02/2011  
Most Recent Construction/Modification Commencement Date:  
Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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**- Processes**

**- Emission Process Information**

Process ID: PRC014  
Process Name: emergency tank  
Company Process Description: emergency tank  
Source Classification Code (SCC): 4-04-003-15

Release points(s) directly associated with this process

AVL001

**Emission Unit : TNK007**

Sep 22 2015, 14:01:58

**- Emission Unit Information**

AQD Emissions Unit ID: TNK007  
 Emission Unit Type: Storage Tank/Silo  
 Material Type: Liquid  
 Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank  
 Capacity: 400 Units: barrels  
 Maximum Throughput: 4.4500 Units: barrels/day  
 AQD Description:  
 Company Equipment ID: T7  
 Company Equipment Description: 400-bbl oil storage tank (12-06H well)  
 Operating Status: Operating  
 Initial Construction Commencement Date: 03/25/2013  
 Initial Operation Commencement Date: 03/25/2013  
 Most Recent Construction/Modification Commencement Date:  
 Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC019  
 Process Name: oil storage tank  
 Company Process Description: oil storage tank  
 Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA002

**Emission Unit : TNK008**

Sep 22 2015, 14:01:58

**- Emission Unit Information**

AQD Emissions Unit ID: TNK008  
 Emission Unit Type: Storage Tank/Silo  
 Material Type: Liquid  
 Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank  
 Capacity: 400 Units: barrels  
 Maximum Throughput: 4.4500 Units: barrels/day  
 AQD Description:  
 Company Equipment ID: T8  
 Company Equipment Description: 400-bbl oil storage tank (12-06H well)  
 Operating Status: Operating  
 Initial Construction Commencement Date: 03/25/2013  
 Initial Operation Commencement Date: 03/25/2013  
 Most Recent Construction/Modification Commencement Date:  
 Most Recent Operation Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC022  
 Process Name: oil storage tank  
 Company Process Description: oil storage tank  
 Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA002

## Emission Unit : TNK009

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: TNK009

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 4.4500

Units: barrels/day

AQD Description:

Company Equipment ID: T9

Company Equipment Description: 400-bbl oil storage tank (12-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 03/25/2013

Initial Operation Commencement Date: 03/25/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC021

Process Name: oil storage tank

Company Process Description: oil storage tank

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA002

## Emission Unit : TNK010

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: TNK010

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: crude oil - 35.6 bbl/day total throughput. 4.45 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 4.4500

Units: barrels/day

AQD Description:

Company Equipment ID: T10

Company Equipment Description: 400-bbl oil storage tank (12-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 03/25/2013

Initial Operation Commencement Date: 03/25/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC020

Process Name: oil storage tank

Company Process Description: oil storage tank

Source Classification Code (SCC): 4-04-003-12

Control equipment(s) directly associated with this process

FLA002

## Emission Unit : TNK011

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: TNK011

Emission Unit Type: Storage Tank/Silo

Material Type: Liquid

Description of Material Stored: produced water - 18.5 bbl/day total throughput. 18.5 bbl/tank

Capacity: 400

Units: barrels

Maximum Throughput: 18.5000

Units: barrels/day

AQD Description:

Company Equipment ID: T11

Company Equipment Description: 400-bbl produced water storage tank (12-06H well)

Operating Status: Operating

Initial Construction Commencement Date: 03/25/2013

Initial Operation Commencement Date: 03/25/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC023

Process Name: produced water storage tank

Company Process Description: produced water storage tank

Source Classification Code (SCC): 4-04-003-15

Control equipment(s) directly associated with this process

FLA002

**Emission Unit : TNK012**

Sep 22 2015, 14:01:58

**- Emission Unit Information**

AQD Emissions Unit ID: TNK012  
 Emission Unit Type: Storage Tank/Silo  
 Material Type: Liquid  
 Description of Material Stored: emergency tank  
 Capacity: 400 Units: barrels  
 Maximum Throughput: 1.0000 Units: barrels/day  
 AQD Description:  
 Company Equipment ID: T12  
 Company Equipment Description: 400-bbl emergency tank (12-06H well)  
 Operating Status: Operating

Initial Construction Commencement 03/25/2013  
 Date:

Initial Operation Commencement 03/25/2013  
 Date:

Most Recent  
 Construction/Modification  
 Commencement Date:

Most Recent Operation  
 Commencement Date:

**- Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments

**- Processes**

**- Emission Process Information**

Process ID: PRC024  
 Process Name: emergency tank  
 Company Process Description: emergency tank  
 Source Classification Code (SCC): 4-04-003-15

Release points(s) directly associated with this process

AVL001

## Emission Unit : VNT001

Sep 22 2015, 14:01:58

### - Emission Unit Information

AQD Emissions Unit ID: VNT001

Emission Unit Type: Process Vent

AQD Description:

Company Equipment ID: VRT1

Company Equipment Description: Vapor Recovery Tower

Operating Status: Operating

Initial Construction Commencement Date: 03/25/2013

Initial Operation Commencement Date: 03/25/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

### - Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year)	Comments
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### - Processes

#### - Emission Process Information

Process ID: PRC015

Process Name: Vapor Recovery Tower

Company Process Description: Vapor Recovery Tower

Source Classification Code (SCC): 3-10-001-07

Control equipment(s) directly associated with this process

FLA002

## Control Equipment : FLA001

Sep 22 2015, 14:01:58

### - Control Equipment Information

Equipment Type: Flare  
Control Equipment ID: FLA001  
AQD Description:  
Company Control Equipment ID: FL1  
Company Control Equipment Description: 36"x20' LEED ECD  
Operating Status: Operating  
Manufacturer: LEED

Initial Installation Date: 02/02/2011

Model: 36"x20' ECD

### - Specific Equipment Type information

Flare Type: Enclosed  
Elevated Flare Type: Non-Assisted  
Ignition Device: Yes  
Flame Presence Sensor: Yes  
Inlet Gas Temp: 50  
Flame Presence Type: Thermocouple  
Gas Flow Rate:  
Sec. Outlet Gas Temp:

### - Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
Total HAP Pollutants	98	98	100	98
VOC - Volatile Organic Compounds	98	98	100	98

### - Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER003

## Control Equipment : FLA002

Sep 22 2015, 14:01:58

**- Control Equipment Information**

Equipment Type: Flare  
 Control Equipment ID: FLA002  
 AQD Description:  
 Company Control Equipment ID: FL2  
 Company Control Equipment Description: 48"x25' Cimarron ECD  
 Operating Status: Operating  
 Manufacturer: Cimarron  
 Initial Installation Date: 03/25/2013  
 Model: 48"x25' dual volume

**- Specific Equipment Type information**

Flare Type: Enclosed  
 Elevated Flare Type: Non-Assisted  
 Ignition Device: Yes  
 Flame Presence Sensor: Yes  
 Inlet Gas Temp: 50  
 Flame Presence Type: Thermocouple  
 Gas Flow Rate:  
 Sec. Outlet Gas Temp:

**- Pollutants Controlled**

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
Total HAP Pollutants	98	98	100	98
VOC - Volatile Organic Compounds	98	98	100	98

**- Associated Control Equipments And Release Points**

Release points(s) directly associated with this control equipment

VER006

## Release Point : AVL001

Sep 22 2015, 14:01:58

### - Release Point Information

Release Point ID: AVL001

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: AVL1

Company Release Point Description: emergency tank

Operating Status: Operating

Release Height (ft): 15.0

### - Release Latitude and Longitude

Latitude:

Longitude:

### - CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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## Release Point : AVL002

Sep 22 2015, 14:01:58

### - Release Point Information

Release Point ID: AVL002

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: AVL2

Company Release Point Description: truck loadout

Operating Status: Operating

Release Height (ft): 3.0

### - Release Latitude and Longitude

Latitude: 43.55094

Longitude: -105.42421

### - CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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## Release Point : AVL003

Sep 22 2015, 14:01:58

### - Release Point Information

Release Point ID: AVL003

Release Type: Fugitive (Area, Volume, Line)

AQD Description:

Company Release Point ID: FUG001

Company Release Point Description: process fugitives - combined from the Crossbow 7-06H and 12-06H wells

Operating Status: Operating

Release Height (ft): 3.0

### - Release Latitude and Longitude

Latitude: 43.55094

Longitude: -105.42421

### - CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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## Release Point : VER002

Sep 22 2015, 14:01:58

### - Release Point Information

Release Point ID: VER002

Release Type: Vertical

AQD Description:

Company Release Point ID: HET002

Company Release Point Description: 0.375 MMBtu/hr heater treater heater (7-06H well)

Operating Status: Operating

Base Elevation (ft): 4850.0

### - Stack Details

Stack Height (ft): 15.0

Stack Diameter (ft): 1.0

Exit Gas Velocity (ft/s): 50.0

Exit Gas Flow Rate (acfm): 1.0

Exit Gas Temp (F): 600.0

### - Release Latitude and Longitude

Latitude: 43.55094

Longitude: -105.42421

### - CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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**Release Point : VER004**

Sep 22 2015, 14:01:58

- **Release Point Information**

Release Point ID: VER004

Release Type: Vertical

AQD Description:

Company Release Point ID: HET003

Company Release Point Description: 0.50 MMBtu/hr line heater (12-06H well)

Operating Status: Operating

Base Elevation (ft): 4850.0

- **Stack Details**

Stack Height (ft): 15.0

Stack Diameter (ft): 1.0

Exit Gas Velocity (ft/s): 50.0

Exit Gas Flow Rate (acfm): 1.0

Exit Gas Temp (F): 600.0

- **Release Latitude and Longitude**

Latitude: 43.55094

Longitude: -105.42421

- **CEM Data**

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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## Release Point : VER005

Sep 22 2015, 14:01:58

### - Release Point Information

Release Point ID: VER005

Release Type: Vertical

AQD Description:

Company Release Point ID: HET004

Company Release Point Description: 0.375 MMBtu/hr heater treater heater (12-06H well)

Operating Status: Operating

Base Elevation (ft): 4850.0

### - Stack Details

Stack Height (ft): 15.0

Stack Diameter (ft): 1.0

Exit Gas Velocity (ft/s): 50.0

Exit Gas Flow Rate (acfm): 1.0

Exit Gas Temp (F): 600.0

### - Release Latitude and Longitude

Latitude: 43.55094

Longitude: -105.42421

### - CEM Data

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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**Release Point : VER003**

Sep 22 2015, 14:01:58

- **Release Point Information**

Release Point ID: VER003  
Release Type: Vertical  
AQD Description:  
Company Release Point ID: VER1  
Company Release Point Description: 36"x20' LEED ECD  
Operating Status: Operating  
Base Elevation (ft): 4850.0

- **Stack Details**

Stack Height (ft): 20.0  
Stack Diameter (ft): 3.0  
Exit Gas Velocity (ft/s): 44.7  
Exit Gas Flow Rate (acfm): 3.65  
Exit Gas Temp (F): 1400.0

- **Release Latitude and Longitude**

Latitude: 43.55094  
Longitude: -105.42421

- **CEM Data**

Description	H2S	SO2	NOX	CO	THC	HCL	HFL	O	TRS	CO2	FLOW	OPACITY	PM
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