October 11, 2017 Reference No. 082715

Ms. Beverly McKeone
Division of Air Quality
WV Department of Environmental Protection
601 57th Street, SE
Charleston, West Virginia 25304

Dear Ms. Beverly McKeone:

Re: General Permit Registration G70-D Application
Oxford 97 Well Pad
Antero Resources Corporation

GHD Services Inc. (GHD) would like to submit this General Permit application that we prepared on behalf of Antero Resources Corporation for an oil and gas facility identified as Oxford 97 Well Pad.

Enclosed are the following documents:

- Original copy of the G70-D General Permit Application.
- Two CD copies of the G70-D General Permit Application.
- The application fee with check no. 488689 in the amount of $1,500.00.

Please let us know if you have any questions or require additional information.

Sincerely,

GHD Services Inc.

Manuel Bautista

MB/ma/354

Encl.

cc: Barry Schatz, Antero Resources Corporation
Elizabeth McLaughlin, Antero Resources Corporation

GHD
6320 Rothway Street Suite 100 Houston Texas 77040 USA
T 713 734 3090 **F** 713 734 3391 **W** www.ghd.com

G70-D General Permit Registration Application

Oxford 97 Well Pad

Antero Resources Corporation

GHD 6320 Rothway Suite 100 Houston Texas 77040
082715 | Report No 354 | October 2017

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west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475
Fax (304) 926-0479
www.dep.wv.gov

G70-D GENERAL PERMIT REGISTRATION APPLICATION

PREVENTION AND CONTROL OF AIR POLLUTION IN REGARD TO THE CONSTRUCTION, MODIFICATION, RELOCATION, ADMINISTRATIVE UPDATE AND OPERATION OF NATURAL GAS PRODUCTION FACILITIES LOCATED AT THE WELL SITE

☒CONSTRUCTION
☐MODIFICATION
☐RELOCATION
☐CLASS I ADMINISTRATIVE UPDATE
☐CLASS II ADMINISTRATIVE UPDATE

SECTION 1. GENERAL INFORMATION

Name of Applicant (as registered with the WV Secretary of State's Office): Antero Resources Corporation

Federal Employer ID No. (FEIN): 80-0162034

Applicant's Mailing Address: 1615 Wynkoop Street

City: Denver	State: CO	ZIP Code: 80202

Facility Name: Oxford 97 Well Pad

Operating Site Physical Address: approximately one mile west of Co Rte 11/4 & Left Fork Run Rd intersection

City: West Union	Zip Code: 26456	County: Doddridge

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):
Latitude: 39.23292
Longitude: -80.80393

SIC Code: 1311 NAICS Code: 211111	DAQ Facility ID No. (For existing facilities)

CERTIFICATION OF INFORMATION

This G70-D General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of the Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. **Any administratively incomplete or improperly signed or unsigned G70-D Registration Application will be returned to the applicant. Furthermore, if the G70-D forms are not utilized, the application will be returned to the applicant. No substitution of forms is allowed.**

I hereby certify that Barry Schatz is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Division of Air Quality immediately.

I hereby certify that all information contained in this G70-D General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible.

Responsible Official Signature:_____
Name and Title: Phone: Fax:
Email: Date:

If applicable:
Authorized Representative Signature: Barry Schatz
Name and Title: Barry Schatz/ Senior Environmental & Regulatory Manager Phone: 303-357-7276 Fax: 303-357-7315
Email: bschatz@anteroresources.com Date: 10/16/2017

If applicable:
Environmental Contact
Name and Title: Phone: Fax:
Email: Date:

OPERATING SITE INFORMATION
Briefly describe the proposed new operation and/or any change(s) to the facility: Construction of a new natural gas and oil production facility.
Directions to the facility: From West Union, take Marie St/Old U.S. 50 W, continue to follow Old U.S. 50 W for 2.3 mi, turn right onto US-50 W and go 0.5 mi, turn left at the 1st cross street onto Arnolds Creek Rd/Central Station Rd/Right Fork Run Rd and go 0.7 mi, continue straight onto Co Rte 11/4/Left Fork Run Rd and go 4.4 mi. Access road to the facility will be towards right.

ATTACHMENTS AND SUPPORTING DOCUMENTS	
I have enclosed the following required documents:	
Check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR13 and 45CSR22). ☒ Check attached to front of application. ☐ I wish to pay by electronic transfer. Contact for payment (incl. name and email address): ☐ I wish to pay by credit card. Contact for payment (incl. name and email address): ☒$500 (Construction, Modification, and Relocation) ☐$300 (Class II Administrative Update) ☒$1,000 NSPS fee for 40 CFR60, Subpart IIII, JJJJ, OOOO and/or OOOOa [1] ☐$2,500 NESHAP fee for 40 CFR63, Subpart ZZZZ and/or HH [2] [1] Only one NSPS fee will apply. [2] Only one NESHAP fee will apply. The Subpart ZZZZ NESHAP fee will be waived for new engines that satisfy requirements by complying with NSPS, Subparts IIII and/or JJJJ. *NSPS and NESHAP fees apply to new construction or if the source is being modified.*	
☒ Responsible Official or Authorized Representative Signature (if applicable)	
☒ Single Source Determination Form **(must be completed in its entirety)** – Attachment A	
☐ Siting Criteria Waiver (if applicable) – Attachment B	☒ Current Business Certificate – Attachment C
☒ Process Flow Diagram – Attachment D	☒ Process Description – Attachment E
☒ Plot Plan – Attachment F	☒ Area Map – Attachment G
☒ G70-D Section Applicability Form – Attachment H	☒ Emission Units/ERD Table – Attachment I
☒ Fugitive Emissions Summary Sheet – Attachment J	
☒ Gas Well Affected Facility Data Sheet (if applicable) – Attachment K	
☒ Storage Vessel(s) Data Sheet (include gas sample data, USEPA Tanks, simulation software (e.g. ProMax, E&P Tanks, HYSYS, etc.), etc. where applicable) – Attachment L	
☒ Natural Gas Fired Fuel Burning Unit(s) Data Sheet (GPUs, Heater Treaters, In-Line Heaters if applicable) – Attachment M	
☒ Internal Combustion Engine Data Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment N	
☒ Tanker Truck Loading Data Sheet (if applicable) – Attachment O	
☐ Glycol Dehydration Unit Data Sheet(s) (include wet gas analysis, GRI- GLYCalc™ input and output reports and information on reboiler if applicable) – Attachment P	
☐ Pneumatic Controllers Data Sheet – Attachment Q	
☐ Pneumatic Pump Data Sheet – Attachment R	
☒ Air Pollution Control Device/Emission Reduction Device(s) Sheet(s) (include manufacturer performance data sheet(s) if applicable) – Attachment S	
☒ Emission Calculations (please be specific and include all calculation methodologies used) – Attachment T	
☒ Facility-wide Emission Summary Sheet(s) – Attachment U	
☒ Class I Legal Advertisement – Attachment V	
☒ One (1) paper copy and two (2) copies of CD or DVD with pdf copy of application and attachments	

Attachment R
AUTHORITY OF CORPORATION
OR OTHER BUSINESS ENTITY (DOMESTIC OR FOREIGN)

TO: The West Virginia Department of Environmental Protection, Division of Air Quality

DATE: January 23, 2015

ATTN.: Director

Corporation's / other business entity's Federal Employer I.D. Number 80-0162034

The undersigned hereby files with the West Virginia Department of Environmental Protection, Division of Air Quality, a permit application and hereby certifies that the said name is a trade name which is used in the conduct of an incorporated business or other business entity.

Further, the corporation or the business entity certifies as follows:

(1) Barry Schatz (is/are) the authorized representative(s) and in that capacity may represent the interest of the corporation or the business entity and may obligate and legally bind the corporation or the business entity.

(2) The corporation or the business entity is authorized to do business in the State of West Virginia.

(3) If the corporation or the business entity changes its authorized representative(s), the corporation or the business entity shall notify the Director of the West Virginia Department of Environmental Protection, Division of Air Quality, immediately upon such change.

President or Other Authorized Officer
(Vice President, Secretary, Treasurer or other official in charge of a principal business function of the corporation or the business entity)

(If not the President, then the corporation or the business entity must submit certified minutes or bylaws stating legal authority of other authorized officer to bind the corporation or the business entity).

Secretary

Name of Corporation or business entity

Attachment A
Single Source Determination Form

ATTACHMENT A - SINGLE SOURCE DETERMINATION FORM

Classifying multiple facilities as one "stationary source" under 45CSR13, 45CSR14, and 45CSR19 is based on the definition of Building, structure, facility, or installation as given in §45-14-2.13 and §45-19-2.12. The definition states:

"Building, Structure, Facility, or Installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities are a part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same two (2)-digit code) as described in the Standard Industrial Classification Manual, 1987 (United States Government Printing Office stock number GPO 1987 0-185-718:QL 3).

The Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and will become effective on August 2, 2016. EPA defined the term "adjacent" and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

Is there equipment and activities in the same industrial grouping (defined by SIC code)?
Yes ☒ No ☐

Is there equipment and activities under the control of the same person/people?
Yes ☒ No ☐

Is there equipment and activities located on the same site or on sites that share equipment and are within ¼ mile of each other?
Yes ☐ No ☒

Oxford 97 Well Pad calculation of potential to emit included all of the emission sources that belong to the same industrial grouping, are located on contiguous or adjacent properties, and are under the control of the same person. The nearby emission source that belongs to the same industrial grouping and under the control of the same person but not located on contiguous or adjacent property is the well pad site identified as Bee Lewis Well Pad. Proposed Oxford 97 Well Pad site is located approximately 1.80 miles southeast of the Bee Lewis Well Pad.

Attachment B
Siting Criteria Waiver

Attachment B

Siting Waiver
Oxford 97 Well Pad
Antero Resources Corporation
Doddridge County, West Virginia

A Siting Waiver form is not required because there are no occupied dwelling structures within 300 feet of Oxford 97 Well Pad.

Attachment C
Current Business Certificate

State of West Virginia

Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

ANTERO RESOURCES CORPORATION

a corporation formed under the laws of Delaware, which is authorized to transact business in West Virginia by a Certificate of Authority has filed in my office as required by the provisions of the West Virginia Code, a copy of an amendment to its Articles of Incorporation authenticated by the proper office of the state or country of its incorporation and was found to conform to law.

Therefore, I issue this

CERTIFICATE OF AMENDMENT TO CERTIFICATE OF AUTHORITY

Given under my hand and the Great Seal of the State of West Virginia on this day of June 10, 2013

Natalie E Tennant

Secretary of State

FILED

JUN 10 2013

IN THE OFFICE OF SECRETARY OF STATE

Natalie E. Tennant
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305

Penney Barker, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wvsos.com
E-mail: business@wvsos.com

Office Hours: Monday – Friday
8:30 a.m. – 5:00 p.m. ET

FILE ONE ORIGINAL
(Two if you want a filed stamped copy returned to you)
FEE: $25.00

APPLICATION FOR AMENDED CERTIFICATE OF AUTHORITY

****** In accordance with the provisions of the West Virginia Code, the undersigned corporation hereby **** applies for an Amended Certificate of Authority and submits the following statement:**

1. Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation

2. Date Certificate of Authority was issued in West Virginia: 6/25/2008

3. Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of incorporation.)

4. Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)

5. Other amendments:
(attach additional pages if necessary)

6. **Name and phone number of contact person.** (This is optional, however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)

Alvyn A. Schopp — Contact Name
(303) 357-7310 — Phone Number

7. **Signature information** (See below ******Important Legal Notice Regarding Signature*):

Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person

Signature: Alvyn A. Schopp **Date:** June 10, 2013

******Important Legal Notice Regarding Signature*: **Per West Virginia Code §31D-1-129. Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.**

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "ANTERO RESOURCES APPALACHIAN CORPORATION", CHANGING ITS NAME FROM "ANTERO RESOURCES APPALACHIAN CORPORATION" TO "ANTERO RESOURCES CORPORATION", FILED IN THIS OFFICE ON THE TENTH DAY OF JUNE, A.D. 2013, AT 9:37 O'CLOCK A.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS.

Jeffrey W. Bullock, Secretary of State

4520810 8100

130754186

AUTHENTICATION: 0496546

DATE: 06-10-13

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 09:37 AM 06/10/2013
FILED 09:37 AM 06/10/2013
SRV 130754186 - 4520810 FILE

AMENDMENT TO THE AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF ANTERO RESOURCES APPALACHIAN CORPORATION

Antero Resources Appalachian Corporation (the "Corporation"), a corporation organized and existing under the laws of the State of Delaware, hereby certifies as follows:

1. The original Certificate of Incorporation of the Corporation was filed under the name Antero Resources Barnett Corporation with the filing of the original Certificate of Incorporation of the Corporation with the Secretary of State of the State of Delaware on March 18, 2008.

2. This Amendment to the Amended and Restated Certificate of Incorporation has been duly adopted and approved in accordance with Sections 242 of the General Corporation Law of the State of Delaware.

3. Article FIRST of the Amended and Restated Certificate of Incorporation is hereby amended to read in its entirety as follows:

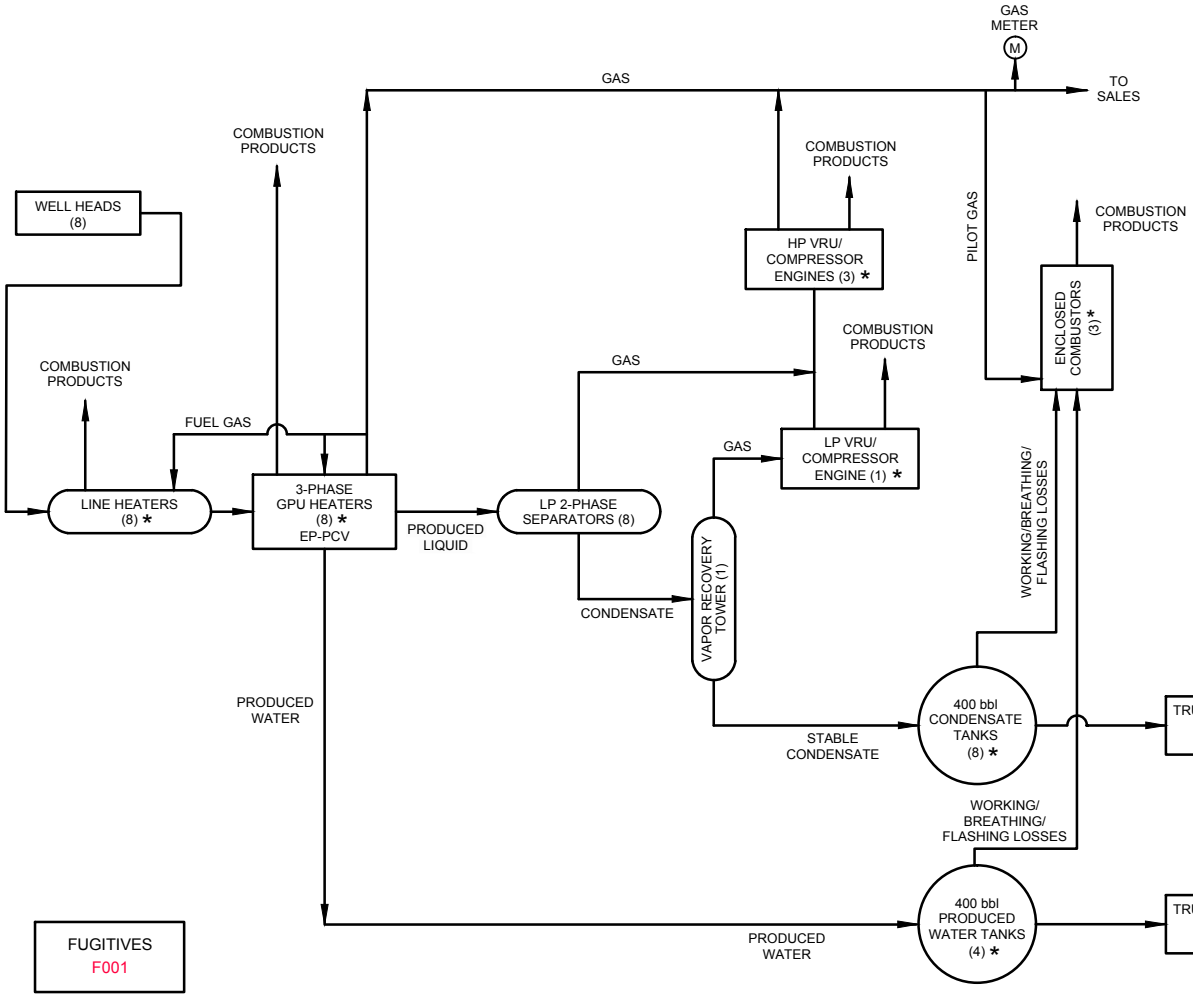
FIRST. The name of the Corporation is Antero Resources Corporation.

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to be executed by its duly authorized officer on the 10th day of June, 2013.

ANTERO RESOURCES APPALACHIAN CORPORATION

By: _____
Name: Alvyn A. Schopp
Title: Vice President of Accounting & Administration / Treasurer

Attachment D
Process Flow Diagram



* LINE HEATERS (8)

- LH001 EP-LH001
- LH002 EP-LH002
- LH003 EP-LH003
- LH004 EP-LH004
- LH005 EP-LH005
- LH006 EP-LH006
- LH007 EP-LH007
- LH008 EP-LH008

3-PHASE GPU HEATERS (8)

- GPU001 EP-GPU001
- GPU002 EP-GPU002
- GPU003 EP-GPU003
- GPU004 EP-GPU004
- GPU005 EP-GPU005
- GPU006 EP-GPU006
- GPU007 EP-GPU007
- GPU008 EP-GPU008

LOW PRESSURE VRU/ COMPRESSOR ENGINES (1)

- ENG004 EP-ENG004

HIGH PRESSURE VRU/ COMPRESSOR ENGINES (3)

- ENG001 EP-ENG001
- ENG002 EP-ENG002
- ENG003 EP-ENG003

CONDENSATE TANKS (8)

- TANKCOND001
- TANKCOND002
- TANKCOND003
- TANKCOND004
- TANKCOND005
- TANKCOND006
- TANKCOND007
- TANKCOND008

PRODUCED WATER TANKS (4)

- TANKPW001
- TANKPW002
- TANKPW003
- TANKPW004

ENCLOSED COMBUSTORS (3)

- EC001 EP-EC001
- EC002 EP-EC002
- EC003 EP-EC003

Attachment D

PROCESS FLOW DIAGRAM - ANTERO RESOURCES OXFORD 97 WELL PAD

Doddridge County, West Virginia

82715-00(354)GN-WA001 SEP 19, 2017

Attachment E
Process Description

Attachment E

Process Description
Oxford 97 Well Pad
Antero Resources Corporation
Doddridge County, West Virginia

A mixture of condensate, water, and entrained gas from the condensate and gas wells enters the facility through a series of line heaters (LH001-008) and gas production units (GPU001-GPU008). GPUs are 3-phase separators where the gas, condensate, and produced water are separated. The line heaters and GPUs are fueled by a slip stream of the separated gas.

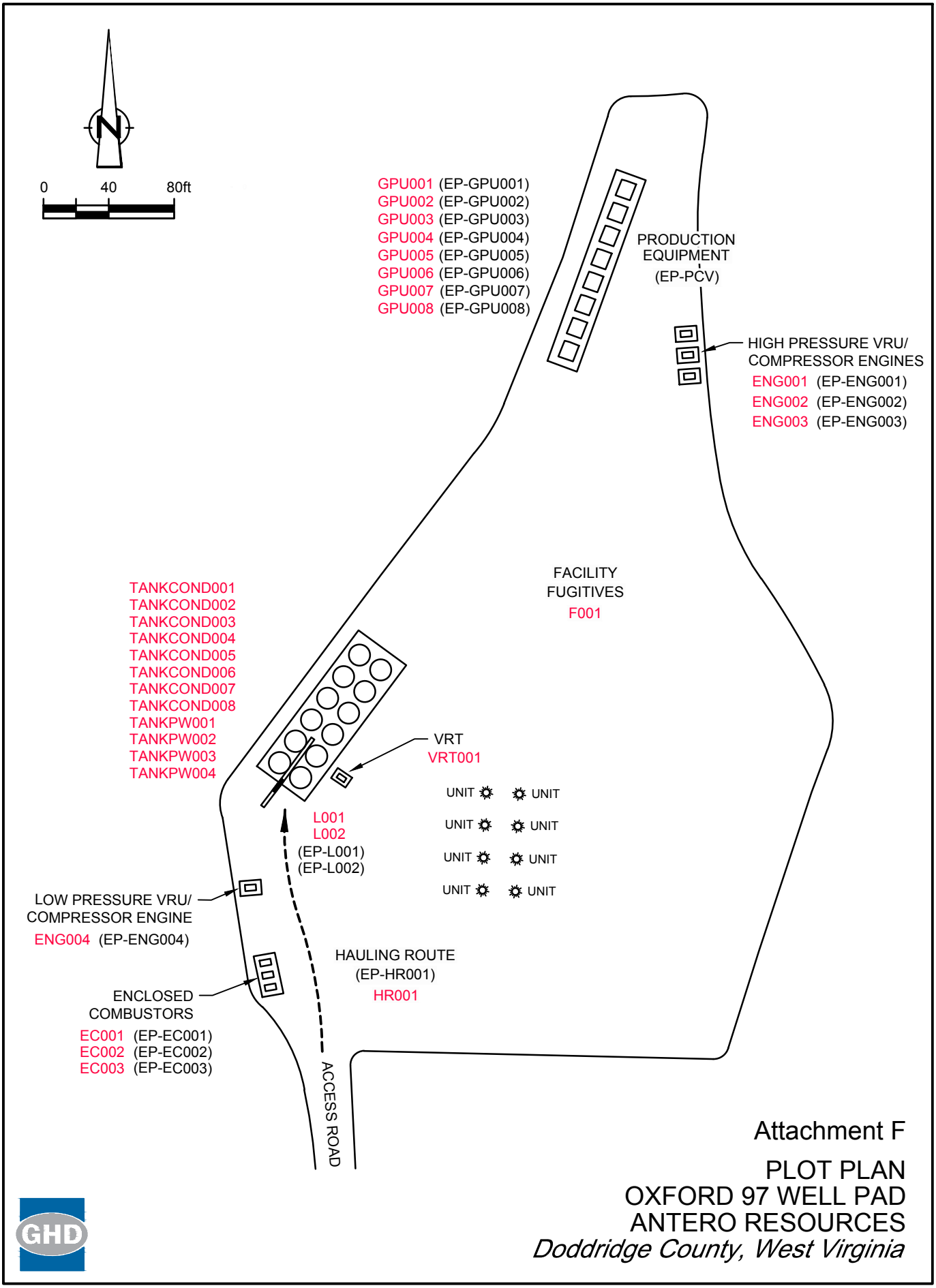
The gas from the three phase separators is metered and sent to the sales gas pipeline. The water flow to the produced water storage tanks (TANKPW001-004). The condensate is sent to two-phase low pressure separators where gas is separated. The gas is routed to the high pressure VRU driven by gas fueled engines (ENG001-003), compressed, metered and sent to the sales gas line. The condensate from the two phase separators then flows to the vapor recovery tower (VRT001) where gas is further separated. Gas from the VRT is recovered via a low pressure VRU driven by gas fueled engine (ENG004), compressed, metered and sent to the sales gas line through the high pressure compressors. The condensate from the VRT flows to the condensate storage tanks (TANKSCOND001-008). The line heaters are only used during the first several months from start of production and will be removed once production has normalized.

The facility has eight (8) tanks (TANKCOND001-008) on site to store condensate and four (4) tanks (TANKPW001-004) to store produced water prior to removal from the site. The flashing, working and breathing losses from the tanks are routed to three enclosed combustors (EC001-003) to control the emissions. The enclosed combustors that will be used to control emissions are designed to achieve a VOC destruction efficiency of 98 percent.

Condensate and produced water are transported off site on an as needed basis via tanker truck. Truck loading connections are in place to pump condensate (L001) and produced water (L002) from the storage tanks into tanker trucks. Emissions from the loading operations are vented to the atmosphere.

Emissions from the facility's emission sources were calculated using the extended condensate analysis from Nero No. 2H well in McGill Well Pad and gas analysis from Oxford 1 well pad. The extended condensate and gas analyses are considered representative of the materials from Oxford 97 well pad, being in the same Marcellus rock formation.

Attachment F
Plot Plan

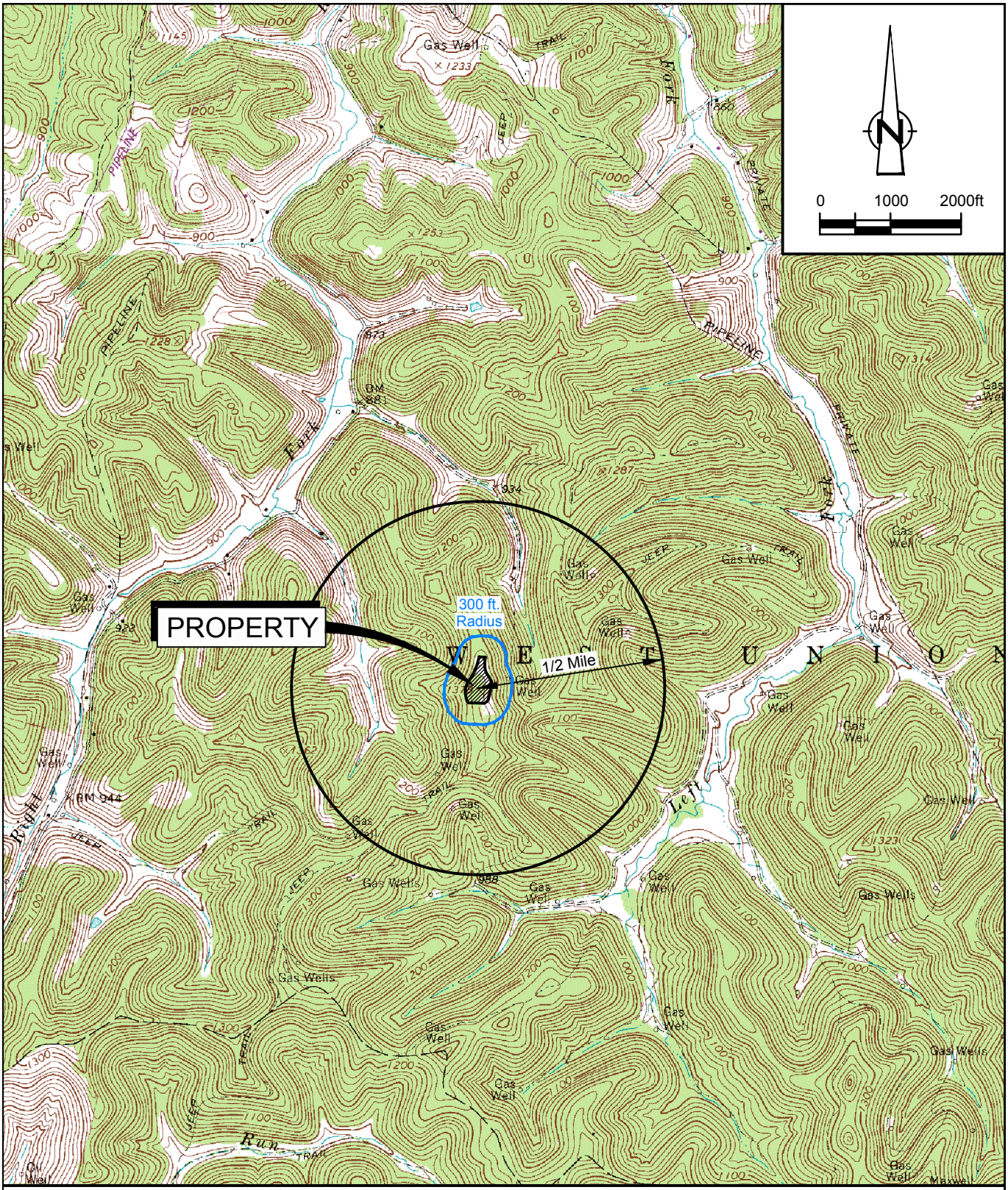


Attachment F

PLOT PLAN
OXFORD 97 WELL PAD
ANTERO RESOURCES
Doddridge County, West Virginia

82715-00(354)GN-WA002 SEP 21, 2017

Attachment G
Area Map



SOURCE: USGS QUADRANGLE MAPS;
WEST UNION AND OXFORD, WEST VIRGINIA

SITE COORDINATES: LAT. 39.232919, LONG. -80.803928
SITE ELEVATION: 1361 ft AMSL

GHD

Attachment G

AREA MAP
OXFORD 97 WELL PAD
ANTERO RESOURCES
Doddridge County, West Virginia

Attachment H
G70-D Section Applicability Form

ATTACHMENT H – G70-D SECTION APPLICABILITY FORM

General Permit G70-D Registration[1]
Section Applicability Form

General Permit G70-D was developed to allow qualified applicants to seek registration for a variety of sources. These sources include gas well affected facilities, storage vessels, gas production units, in-line heaters, heater treaters, glycol dehydration units and associated reboilers, pneumatic controllers, centrifugal compressors, reciprocating compressors, reciprocating internal combustion engines (RICEs), tank truck loading, fugitive emissions, completion combustion devices, flares, enclosed combustion devices, and vapor recovery systems. All registered facilities will be subject to Sections 1.0, 2.0, 3.0, and 4.0.

General Permit G70-D allows the registrant to choose which sections of the permit they are seeking registration under. Therefore, please mark which additional sections that you are applying for registration under. If the applicant is seeking registration under multiple sections, please select all that apply. Please keep in mind, that if this registration is approved, the issued registration will state which sections will apply to your affected facility.

GENERAL PERMIT G70-D APPLICABLE SECTIONS	
☒Section 5.0	Gas Well Affected Facility (NSPS, Subpart OOOO/OOOOa)
☒Section 6.0	Storage Vessels Containing Condensate and/or Produced Water[1]
☒Section 7.0	Storage Vessel Affected Facility (NSPS, Subpart OOOO/OOOOa)
☒Section 8.0	Control Devices and Emission Reduction Devices not subject to NSPS Subpart OOOO/OOOOa and/or NESHAP Subpart HH
☒Section 9.0	Small Heaters and Reboilers not subject to 40CFR60 Subpart Dc
☐Section 10.0	Pneumatic Controllers Affected Facility (NSPS, Subpart OOOO/OOOOa)
☐Section 11.0	Pneumatic Pump Affected Facility (NSPS, Subpart OOOOa)
☒Section 12.0	Fugitive Emissions GHG and VOC Standards (NSPS, Subpart OOOOa)
☒Section 13.0	Reciprocating Internal Combustion Engines, Generator Engines
☒Section 14.0	Tanker Truck/Rail Car Loading[2]
☐Section 15.0	Glycol Dehydration Units[3]

1 *Applicants that are subject to Section 6 may also be subject to Section 7 if the applicant is subject to the NSPS, Subparts OOOO or OOOOa control requirements or the applicable control device requirements of Section 8.*

2 *Applicants that are subject to Section 14 may also be subject to control device and emission reduction device requirements of Section 8.*

3 *Applicants that are subject to Section 15 may also be subject to the requirements of Section 9 (reboilers). Applicants that are subject to Section 15 may also be subject to control device and emission reduction device requirements of Section 8.*

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Attachment I
Emission Units/ ERD Table

ATTACHMENT I – EMISSION UNITS / EMISSION REDUCTION DEVICES (ERD) TABLE

Include ALL emission units and air pollution control devices /ERDs that will be part of this permit application review. This information is required for all sources regardless of whether it is a construction, modification, or administrative update.

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed	Manufac. Date[3]	Design Capacity	Type[4] and Date of Change	Control Device(s)[5]	ERD (s)[6]
GPU001, GPU002, GPU003, GPU004, GPU005, GPU006, GPU007, GPU008	EP-GPU001, EP-GPU002, EP-GPU003, EP-GPU004, EP-GPU005, EP-GPU006, EP-GPU007, EP-GPU008	Gas Production Unit Heater	2018		1.5 MMBtu/hr	New	N/A	
LH001, LH002, LH003, LH004, LH005, LH006, LH007, LH008	EP-LH001, EP-LH002, EP-LH003, EP-LH004, EP-LH005, EP-LH006, EP-LH007, EP-LH008	Line Heater	2018		2.0 MMBtu/hr	New	N/A	
F001	F001	Fugitives	2018		N/A	New	N/A	
TANKCOND001-008	EP-EC001, EP-EC002, EP-EC003	Condensate Tank F/W/B	2018		400 bbl each	New	EP-EC001, EP-EC002, EP-EC003	
TANKPW001-004	EP-EC001, EP-EC002, EP-EC003	PW Tank F/W/B	2018		400 bbl each	New	EP-EC001, EP-EC002, EP-EC003	
L001	EP-L001	Loading (Condensate)	2018		2,100gal/hr 18,396,000 gal/yr	New	N/A	
L002	EP-L002	Loading (Produced Water)	2018		7,000 gal/hr 61,320,000 gal/yr	New	N/A	
HR001	EP-HR001	Haul Road	2018		Tanker Trucks Condensate: 2190 trips per year Tanker Trucks PW: 7300 trips per year Pick Up Truck: 730 trips per year	New	N/A	
EC001	EP-EC001	Enclosed Combustor	2018		12 MMBtu/hr	New	N/A	
EC002	EP-EC002	Enclosed Combustor	2018		12 MMBtu/hr	New	N/A	
EC003	EP-EC003	Enclosed Combustor	2018		12 MMBtu/hr	New	N/A	
PCV	EP-PCV	Pneumatic CV	2018		6.6 scf/day/PCV	New	N/A	
ENG001-003	EP-ENG001-003	HP VRU/Compressor Engine	2018	2015	76 HP	New	Non-Selective Catalytic Reduction	
ENG004	EP-ENG004	LP VRU/Compressor Engine	2018	2015	76HP	New	Non-Selective Catalytic Reduction	

1 For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S, ... or other appropriate designation.
2 For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.
3 When required by rule.
4 New, modification, removal, existing.
5 For Control Devices use the following numbering system: 1C, 2C, 3C, ... or other appropriate designation.
6 For ERDs use the following numbering system: 1D, 2D, 3D, ... or other appropriate designation.

Attachment J
Fugitive Emissions Summary Sheet

ATTACHMENT J – FUGITIVE EMISSIONS SUMMARY SHEET

Sources of fugitive emissions may include loading operations, equipment leaks, blowdown emissions , etc.
Use extra pages for each associated source or equipment if necessary.

Source/Equipment:

Leak Detection Method Used	☐ Audible, visual, and olfactory (AVO) inspections	☑ Infrared (FLIR) cameras	☐ Other (please describe)	☐ None required

Component Type	Closed Vent System	Count	Source of Leak Factors (EPA, other (specify))	Stream type (gas, liquid, etc.)	Estimated Emissions (tpy)			
					VOC	HAP	GHG (methane)	GHG (CO2e)
Valves	☐ Yes ☑ No	400	EPA	gas	2.739	0.261	11.136	278.409
Valves	☐ Yes ☑ No	416	EPA	liquid	9.810	0.617	0.072	1.798
Connections (Not sampling)	☐ Yes ☑ No	472	EPA	gas	0.144	0.014	0.584	14.601
Flanges	☐ Yes ☑ No	104	EPA	gas	0.062	0.006	0.251	6.273

1 Other equipment types may include compressor seals, relief valves, diaphragms, drains, meters, etc.

Please provide an explanation of the sources of fugitive emissions (e. g. pigging operations, equipment blowdowns, pneumatic controllers, etc.)

Please indicate if there are any closed vent bypasses (include component)

Specify all equipment used in the closed vent system (e. g. VRU, ERD, thief hatches, tanker truck loading, etc.)

Attachment K
Gas Well Affected Facility Data Sheet

ATTACHMENT K – GAS WELL AFFECTED FACILITY DATA SHEET

Complete this data sheet if you are the owner or operator of a gas well affected facility for which construction, modification or reconstruction commenced after August 23, 2011. This form must be completed for natural gas well affected facilities regardless of when flowback operations occur (or have occurred).

API Number	Date of Flowback	Date of Well Completion	Green Completion and/or Combustion Device	Subject to OOOO or OOOOa?
	12/19/2018	11/17/2018	Green	OOOOa
	12/19/2018	11/26/2018	Green	OOOOa
No API numbers yet	12/19/2018	12/2/2018	Green	OOOOa
	12/19/2018	12/9/2018	Green	OOOOa
	12/19/2018	12/14/2018	Green	OOOOa
	12/19/2018	12/7/2018	Green	OOOOa
	12/19/2018	11/28/2018	Green	OOOOa
	12/19/2018	11/22/2018	Green	OOOOa

Note: If future wells are planned and no API number is available please list as PLANNED.
If there are existing wells that commenced construction prior to August 23, 2011, please acknowledge as existing.

This is the same API (American Petroleum Institute) well number(s) provided in the well completion notification and as provided to the WVDEP, Office of Oil and Gas for the well permit. The API number application without the state code (047).

Every oil and gas well permitted in West Virginia since 1929 has been issued an API number. This API is used by agencies to identify and track oil and gas wells.

The API number has the following format: 047-001-00001

Where,

047 = State code. The state code for WV is 047.

001 = County Code. County codes are odd numbers, beginning with 001 (Barbour) and continuing to 109 (Wyoming).

00001 = Well number. Each well will have a unique well number.

Attachment L
Storage Vessel Data Sheet

ATTACHMENT L – STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for each new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water . (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

☐ Composition of the representative sample used for the simulation
☐ For each stream that contributes to flashing emissions:
- ☐ Temperature and pressure (inlet and outlet from separator(s))
- ☐ Simulation-predicted composition
- ☐ Molecular weight
- ☐ Flow rate

☐ Resulting flash emission factor or flashing emissions from simulation
☐ Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION (REQUIRED)

1. Bulk Storage Area Name: Tanks	2. Tank Name: Condensate Tank 001-008
3. Emission Unit ID number: TANKCOND001-008	4. Emission Point ID number. EP-EC001, EP-EC002, EP-EC003
5. Date Installed , Modified or Relocated (for existing tanks)	6. Type of change:
2018 Was the tank manufactured after August 23, 2011 and on or before September 18, 2015? ☐ Yes ☑ No Was the tank manufactured after September 18, 2015? ☑ Yes ☐ No	☑ New construction ☐ New stored material ☐ Other ☐ Relocation

7A. Description of Tank Modification (if applicable)

7B. Will more than one material be stored in this tank? If so, a separate form must be completed for each material.
☐ Yes ☑ No

7C. Was USEPA Tanks simulation software utilized?
☐ Yes ☑ No

If Yes, please provide the appropriate documentation and items 8-42 below are not required.

TANK INFORMATION

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 400bbls

9A. Tank Internal Diameter (ft): 12	9B. Tank Internal Height (or Length) (ft): 20
10A. Maximum Liquid Height (ft): 18	10B. Average Liquid Height (ft): 10
11A. Maximum Vapor Space Height (ft): 18	11B. Average Vapor Space Height (ft): 10

12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights.: 400bbls

13A. Maximum annual throughput (gal/yr): 18,396,000	13B. Maximum daily throughput (gal/day): 50,400
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume): 137	15. Maximum tank fill rate (gal/min) 168

16. Tank fill method ☐ Submerged ☑ Splash ☐ Bottom Loading

17. Is the tank system a variable vapor space system? ☐ Yes ☑ No

If yes, (A) What is the volume expansion capacity of the system (gal)?
(B) What are the number of transfers into the system per year?

18. Type of tank (check all that apply):

☑ Fixed Roof ☑ vertical ☐ horizontal ☑ flat roof ☐ cone roof ☐ dome roof ☐ other (describe)

☐ External Floating Roof ☐ pontoon roof ☐ double deck roof

☐ Domed External (or Covered) Floating Roof

☐ Internal Floating Roof ☐ vertical column support ☐ self-supporting

☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm

☐ Pressurized ☐ spherical ☐ cylindrical

☐ other

ATTACHMENT L – STORAGE VESSEL DATA SHEET

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:

☐ Does Not Apply

☐ Inert Gas Blanket of

☑ Vent to Vapor Combustion Device (vapor combustors, flares, thermal oxidizers, enclosed combustors)

☐ Conservation Vent (psig)

Vacuum Setting Pressure Setting

☐ Emergency relief Valve (psig)

Vacuum Setting Pressure Setting

☐ Thief Hatch Weighted ☐ Yes ☐ No

Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	Flashing Loss		Breathing Loss		Working Loss		Total Emission Loss		[1] Estimation Method
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
Please see Table 6 and Table 7									

TANK CONSTRUCTION & OPERATION INFORMATION

21. Tank Shell Construction:
☐ Riveted ☐ Gunite lined ☐ Epoxy-coated ☑ Other (describe): Steel

21A. Shell Color: Green | 21B. Roof Color: Green | 21C. Year Last Painted 2018

22. Shell Condition (if metal and unlined):
☑ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated?
☐ Yes ☑ No

22B. If yes, operating temperature:

22C. If yes, how is heat provided to tank?

23. Operating Pressure Range (psig): 0 psig, atmospheric
Must be listed for tanks using VRUs with closed vent system

24. Is the tank a Vertical Fixed Roof Tank?
☑ Yes ☐ No

24A. If yes, for dome roof provide radius (ft): NA

24B. If yes, for cone roof, provide slop (ft/ft): NA

25. Complete the following section for **Floating Roof Tanks** Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐ Yes ☐ No

25D. If YES, how is the secondary seal mounted? (check one)
☐ Shoe ☐ Rim ☐ Other (describe)

25E. Is the Floating Roof equipped with a weather shield? ☐ Yes ☐ No

25F. Describe deck fittings

26. Complete the following section for Internal Floating Roof Tanks ☑ Does not apply

26A. Deck Type: ☐ Bolted ☐ Welded

26B. For bolted decks, provide deck construction

26C. Deck seam:
☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft wide ☐ 5 x 12 ft wide ☐ Other (describe)

26D. Deck seam length (ft)

26E. Area of deck (ft^2)

26F. For column supported tanks: Number of columns:

26G. For column supported tanks, Diameter of each column:

27. Closed Vent System with VRU ☐ Yes ☑ No

28. Closed Vent System with Enclosed Combustor? ☑ Yes ☐ No

ATTACHMENT L – STORAGE VESSEL DATA SHEET

SITE INFORMATION

29. Provide the city and state on which the data in this section are based.: West Union, WV			
30. Daily Average Ambient Temperature (°F):	72.10	31. Annual Average Maximum Temperature (°F):	75.94
32. Annual Average Minimum Temperature (°F):	46.56	33. Average Wind Speed (miles/hr): 18.5 mph	
34. Annual Average Solar Insulation Factor (BTU/(ft2·day))	1030.235999	35. Atmospheric Pressure (psia): 14.8 (based off local conditions, could not find annual)	

LIQUID INFORMATION

36. Average daily temperature range of bulk liquid (F):	72.10	36A. Minimum (°F):	46.56	36B. Maximum (°F)	75.94
37. Average operating pressure range of tank (psig):	atmosphere	37A. Minimum (psig)	0	37B. Maximum (psig)	atmosphere

38A. Minimum Liquid Surface Temperature (°F)	46.56	38B. Corresponding Vapor Pressure (psia)	1.3337
39A. Average Liquid Surface Temperature (°F)	72.10	39B. Corresponding Vapor Pressure (psia)	2.2962
40A. Maximum Liquid Surface Temperature (°F)	75.94	40B. Corresponding Vapor Pressure (psia)	2.4806

41. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.

41A. Material Name or Composition	Condensate		
41B. CAS Number	mix of HC		
41C. Liquid Density (lb/gal)	5.9600		
41D. Liquid Molecular Weight (lb/lb-mole)	112.40		
41E. Vapor Molecular Weight (lb/lb-mole)	41.5429		
Maximum Vapor Pressure 41F. True (psia)	2.4806		
41G. Reid (psia)	3.54		
Months Storage per Year 41H. From - To	year round		
Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations 42.	5 psig; 70 F		

ATTACHMENT L – STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for each new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water . (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

☐ Composition of the representative sample used for the simulation
☐ For each stream that contributes to flashing emissions:
- ☐ Temperature and pressure (inlet and outlet from separator(s))
- ☐ Simulation-predicted composition
- ☐ Molecular weight
- ☐ Flow rate

☐ Resulting flash emission factor or flashing emissions from simulation
☐ Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION (REQUIRED)

1. Bulk Storage Area Name: Tanks	2. Tank Name: Produced Water Tank 001-004
3. Emission Unit ID number: TANKPW001-004	4. Emission Point ID number. EP-EC001, EP-EC002, EP-EC003
5. Date Installed , Modified or Relocated (for existing tanks) 2018 Was the tank manufactured after August 23, 2011 and on or before September 18, 2015? ☐ Yes ☑ No Was the tank manufactured after September 18, 2015? ☑ Yes ☐ No	6. Type of change: ☑ New construction ☐ New stored material ☐ Other ☐ Relocation

7A. Description of Tank Modification (if applicable)

7B. Will more than one material be stored in this tank? If so, a separate form must be completed for each material.
☐ Yes ☑ No

7C. Was USEPA Tanks simulation software utilized?
☐ Yes ☑ No

If Yes, please provide the appropriate documentation and items 8-42 below are not required.

TANK INFORMATION

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 400bbls

9A. Tank Internal Diameter (ft): 12	9B. Tank Internal Height (or Length) (ft): 20
10A. Maximum Liquid Height (ft): 18	10B. Average Liquid Height (ft): 10
11A. Maximum Vapor Space Height (ft): 18	11B. Average Vapor Space Height (ft): 10

12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights.: 400bbls

13A. Maximum annual throughput (gal/yr): 61,320,000	13B. Maximum daily throughput (gal/day): 168,000
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume): 913	15. Maximum tank fill rate (gal/min) 168

16. Tank fill method ☐ Submerged ☑ Splash ☐ Bottom Loading

17. Is the tank system a variable vapor space system? ☐ Yes ☑ No

If yes, (A) What is the volume expansion capacity of the system (gal)?
(B) What are the number of transfers into the system per year?

18. Type of tank (check all that apply):

☑ Fixed Roof ☑ vertical ☐ horizontal ☑ flat roof ☐ cone roof ☐ dome roof ☐ other (describe)
☐ External Floating Roof ☐ pontoon roof ☐ double deck roof
☐ Domed External (or Covered) Floating Roof
☐ Internal Floating Roof ☐ vertical column support ☐ self-supporting
☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm
☐ Pressurized ☐ spherical ☐ cylindrical

ATTACHMENT L – STORAGE VESSEL DATA SHEET

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:

☐ Does not apply ☐ Rupture Disc (psig)

☐ Inert Gas Blanket ☐ Carbon Adsorption

☑ Vent to Vapor Combustion Device (vapor combustors, flares, thermal oxidizers, enclosed combustors)

☐ Conservation Vent (psig)
Vacuum Setting Pressure Setting

☐ Emergency relief Valve (psig)
Vacuum Setting Pressure Setting

☐ Thief Hatch Weighted ☐ Yes ☐ No

Complete appropriate Air Pollution Control Device Sheet

20. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

Material Name	Flashing Loss		Breathing Loss		Working Loss		Total Emission Loss		[1] Estimation Method
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
Please see Table 6 and Table 7									

TANK CONSTRUCTION & OPERATION INFORMATION

21. Tank Shell Construction:
☐ Riveted ☐ Gunite lined ☐ Epoxy-coated ☑ Other(describe): Steel

21A. Shell Color: Green	21B. Roof Color: Green	21C. Year Last Painted 2018

22. Shell Condition (if metal and unlined):
☑ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☐ Yes ☑ No	22B. If yes, operating temperature:	22C. If yes, how is heat provided to tank?

23. Operating Pressure Range (psig): 0 psig, atmospheric
Must be listed for tanks using VRUs with closed vent system

24. Is the tank a Vertical Fixed Roof Tank? ☑ Yes ☐ No	24A. If yes, for dome roof provide radius (ft): NA	24B. If yes, for cone roof, provide slop (ft/ft): NA

25. Complete the following section for **Floating Roof Tanks** Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient ☐ Vapor mounted resilient seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐ Yes ☐ No

25D. If YES, how is the secondary seal mounted? (check one)
☐ Shoe ☐ Rim ☐ Other(describe):

25E. Is the Floating Roof equipped with a weather shield? ☐ Yes ☐ No

25F. Describe deck fittings

26. Complete the following section for Internal Floating Roof Tanks ☑ Does not apply

26A. Deck Type: ☐ Bolted ☐ Welded	26B. For bolted decks, provide deck construction

26C. Deck seam:
☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ Other (describe)

26D. Deck seam length (ft)	26E. Area of deck (ft^2)	26F. For column supported tanks: Number of columns:	26G. For column supported tanks, Diameter of each column:

27. Closed Vent System with VRU ☐ Yes ☑ No

28. Closed Vent System with Enclosed Combustor? ☑ Yes ☐ No

ATTACHMENT L – STORAGE VESSEL DATA SHEET

SITE INFORMATION

29. Provide the city and state on which the data in this section are based.: West Union, WV			
30. Daily Average Ambient Temperature (°F):	72.10	31. Annual Average Maximum Temperature (°F):	75.94
32. Annual Average Minimum Temperature (°F):	46.56	33. Average Wind Speed (miles/hr): 5.9 mph	
34. Annual Average Solar Insulation Factor (BTU/(ft2·day))	1030.236	35. Atmospheric Pressure (psia): 14.8 (based off local conditions, could not find annual)	

LIQUID INFORMATION

36. Average daily temperature range of bulk liquid (F):	72.10	36A. Minimum (°F):	46.56	36B. Maximum (°F)	75.94
37. Average operating pressure range of tank (psig):	atmosphere	37A. Minimum (psig)	0	37B. Maximum (psig)	atmosphere

38A. Minimum Liquid Surface Temperature (°F)	46.56	38B. Corresponding Vapor Pressure (psia)	0.2280
39A. Average Liquid Surface Temperature (°F)	72.10	39B. Corresponding Vapor Pressure (psia)	0.4525
40A. Maximum Liquid Surface Temperature (°F)	75.94	40B. Corresponding Vapor Pressure (psia)	0.4988

41. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if necessary.

41A. Material Name or Composition	Produced Water		
41B. CAS Number	mix of HC and water		
41C. Liquid Density (lb/gal)	8.3300		
41D. Liquid Molecular Weight (lb/lb-mole)	18.51		
41E. Vapor Molecular Weight (lb/lb-mole)	18.5141		
Maximum Vapor Pressure 41F. True (psia)	0.4988		
41G. Reid (psia)	1.0333		
Months Storage per Year 41H. From - To	year round		
Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations 42.	154 psig 70 F		

Attachment M
Natural Gas Fired Fuel Burning Unit(s)
Data Sheet

ATTACHMENT M – SMALL HEATERS AND REBOILERS NOT SUBJECT TO 40CFR60 SUBPART DC
DATA SHEET

Complete this data sheet for each small heater and reboiler not subject to 40CFR60 Subpart Dc at the facility. ***The Maximum Design Heat Input (MDHI) must be less than 10 MMBTU/hr.***

Emission Unit ID#	Emission Point ID#	Emission Unit Description (Manufacturer, model#)	Year Installed/ Modified	Type and Date of Change	Maximum Design Heat Input (MMBTU/hr)	Fuel Heating Value (BTU/scf)
GPU001	EP-GPU001	Gas Production Unit Heater	2018	New	1.5	1225.7673
GPU002	EP-GPU002	Gas Production Unit Heater	2018	New	1.5	1225.7673
GPU003	EP-GPU003	Gas Production Unit Heater	2018	New	1.5	1225.7673
GPU004	EP-GPU004	Gas Production Unit Heater	2018	New	1.5	1225.7673
GPU005	EP-GPU005	Gas Production Unit Heater	2018	New	1.5	1225.7673
GPU006	EP-GPU006	Gas Production Unit Heater	2018	New	1.5	1225.7673
GPU007	EP-GPU007	Gas Production Unit Heater	2018	New	1.5	1225.7673
GPU008	EP-GPU008	Gas Production Unit Heater	2018	New	1.5	1225.7673
LH001	EP-LH001	Line Heater	2018	New	2	1225.7673
LH002	EP-LH002	Line Heater	2018	New	2	1225.7673
LH003	EP-LH003	Line Heater	2018	New	2	1225.7673
LH004	EP-LH004	Line Heater	2018	New	2	1225.7673
LH005	EP-LH005	Line Heater	2018	New	2	1225.7673
LH006	EP-LH006	Line Heater	2018	New	2	1225.7673
LH007	EP-LH007	Line Heater	2018	New	2	1225.7673
LH008	EP-LH008	Line Heater	2018	New	2	1225.7673

1. Enter the appropriate Emission Unit (or Source) identification number for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For sources, use 1S, 2S, 3S…or other appropriate designation. Enter glycol dehydration unit Reboiler Vent data on the Glycol Dehydration Unit Data Sheet.
2. Enter the appropriate Emission Point identification numbers for each fuel burning unit located at the production pad. Gas Producing Unit Burners should be designated GPU-1, GPU-2, etc. Heater Treaters should be designated HT-1, HT-2, etc. Heaters or Line Heaters should be designated LH-1, LH-2, etc. For emission points, use 1E, 2E, 3E…or other appropriate designation.
3. New, modification, removal.
4. Enter design heat input capacity in MMBtu/hr.
5. Enter the fuel heating value in BTU/standard cubic foot.

Attachment N
Internal Combustion Engine Data Sheet

ATTACHMENT N – INTERNAL COMBUSTION ENGINE DATA SHEET

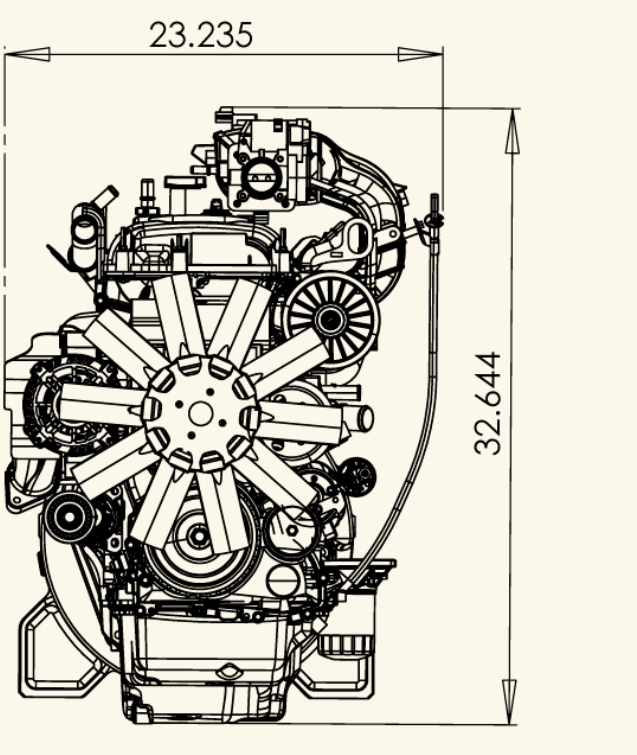
Complete this data sheet for each internal combustion engine at the facility. Include manufacturer performance data sheet(s) or any other supporting document if applicable. Use extra pages if necessary. *Generator(s) and microturbine generator(s) shall also use this form.*

Emission Unit ID#	ENG001-004
Engine Manufacturer/Model	Ford MSG425 2.5L Engine
Manufacturers Rated bhp/rpm	76 HP @ 3200 rpm
Source Status	NS
Date Installed/ Modified/ Removed/ Relocated	2018
Engine Manufacturer/ Reconstruction Date	2015
Check all applicable Federal Rules for the engine (include EPA Certification of Conformity if applicable)	☑ 40CFR60 Subpart JJJJ ☑ JJJJ Certified? ☐ 40CFR60 Subpart IIII ☐ IIII Certified? ☑ 40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources
Engine Type	4SRB
APCD Type	NSCR
Fuel Type	RG
H2S (gr/ 100 scf)	0
Operating bhp/rpm	50 HP @ 2300 rpm
BSFC (BTU/bhp-hr)	8458
Hourly Fuel Throughput (Must use 8,760 hrs/yr unless emergency generator)	345 ft^3/hr gal/hr
Fuel Usage or Hours of Operation Metered	3.0222 $MMft^3/yr$ gal/yr

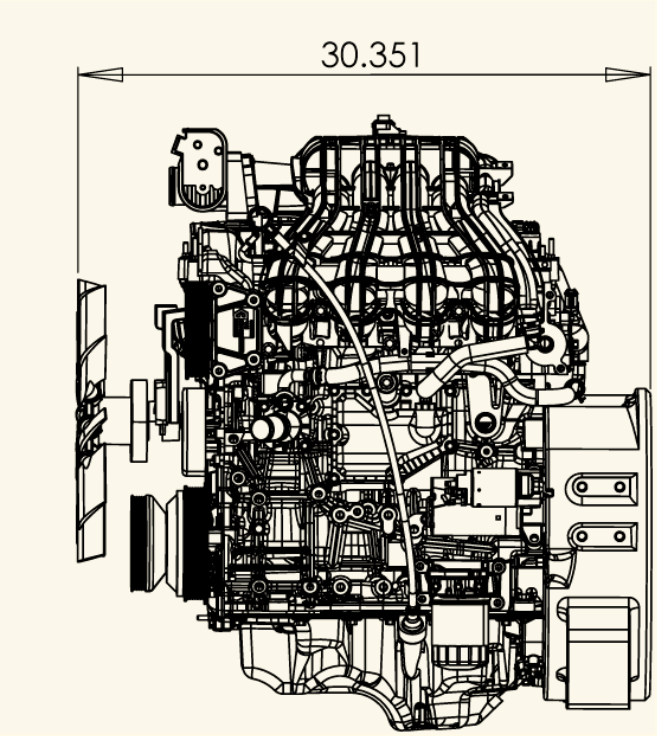
Calculation Methodology	Pollutant	Hourly PTE (lb/hr)	Annual PTE (tons/year)
MD	NOx	0.2501	1.0953
MD	CO	1.6505	7.2293
AP	VOC	0.0761	0.3333
AP	SO2	0.0015	0.0066
AP	PM10	0.0244	0.1070
AP	Formaldehyde	0.0527	0.2309
AP	Total HAPs	0.0590	0.2585
OT	GHG (CO2e)	297.6129	1303.5444

Installation Drawings

Front End View

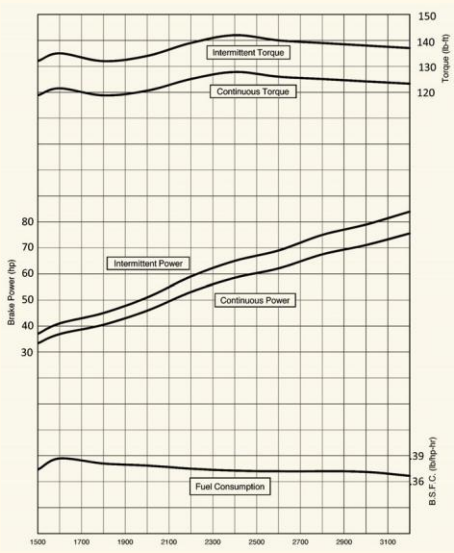


Left Side View

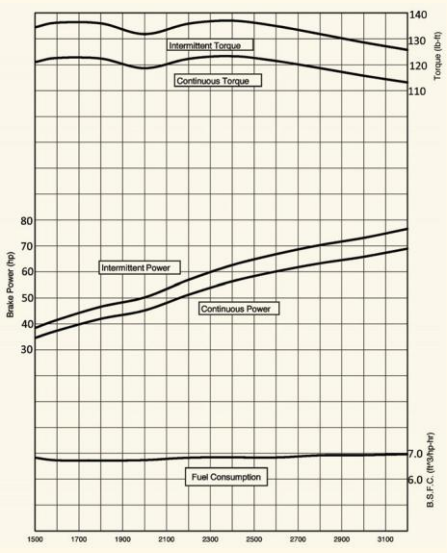


Power Curves (corrected per SAE J1349)

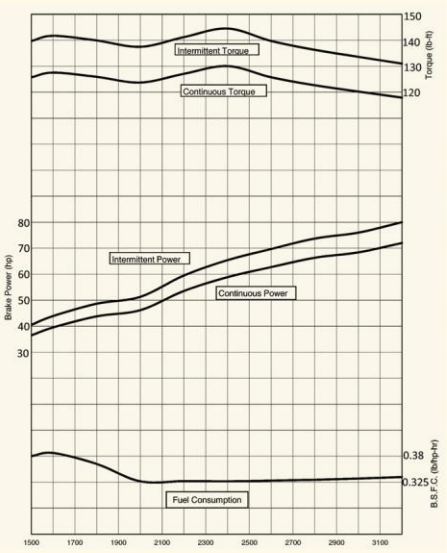
Gasoline



Natural Gas



Liquefied Petroleum Gas



Ford Power Products

Powertrain Assemblies & Components Provided By Ford Component Sales

MSG-425 EFI

2.5 Liter 4-Cylinder

Options

Engine Cooling Fans
- 15" (381mm) diameter suction
- 15" (381mm) diameter pusher

Flywheels
- 10" (254mm) SAE over-center clutch
- flat face flywheel

Flywheel Housings
- SAE #4

Exhaust Manifold
- rear dump down

Power Steering Pump

Wiring Harnesses

Discrete Speed Switch

Variable Speed Hand Throttle

Variable Speed Foot Pedal

Engine Mounts
- Automotive with insulators
- Open power unit

Electronic Instrument Panel, Gauges

Three Way Catalyst / Muffler Standard

Transmissions

6R80 electronic shift
C6 Mechanical

Emissions Information

California Air Resources Board (CARB)
Environmental Protection Agency (EPA)
Emission Certified Packages Available.

Warranty

Contact Engine Distributors, Inc for warranty details.

Power Products

Powertrain Assemblies & Components Provided By Ford Component Sales

Specifications

Engine Type	I-4
Bore and Stroke	3.5" x 3.93" (89mm x 100mm)
Displacement	2.5L Liter (152.5 CID)
Compression Ratio	9.7:1
Oil Capacity	7 qts. including filter
Net Weight	351 Lbs. with accessories (159 Kgs.)
Dimensions	L 30.3" x W 23.3" x H 32.6" (769 mm x 589 mm x 828 mm)

Gasoline (corrected per SAE J1349)

Unleaded 87 or 89 octane

Intermittent Power	84 [HP] @ 3200rpm	(62 [kW] @ 3200rpm)
Continuous power	75 [HP] @ 3200rpm	(56 [kW] @ 3200rpm)
Intermittent Torque	137 [ft-lbs] @3200rpm	(185 [N-m] @ 3200rpm)
Continuous Torque	123 [ft-lbs] @3200rpm	(166 [N-m] @ 3200rpm)

Natural Gas (corrected per SAE J1349)

Fuel Specification	1050 BTU/FT3	
Intermittent Power	76 [HP] @ 3200rpm	(56 [kW] @ 3200rpm)
Continuous power	68 [HP] @ 3200rpm	(50 [kW] @ 3200rpm)
Intermittent Torque	125 [ft-lbs] @3200rpm	(169 [N-m] @ 3200rpm)
Continuous Torque	113 [ft-lbs] @3200rpm	(153 [N-m] @ 3200rpm)

Liquefied Petroleum Gas (corrected per SAE J1349)

Fuel Specification	HD-5	
Intermittent Power	80 [HP] @ 3200rpm	(59 [kW] @ 3200rpm)
Continuous power	72 [HP] @ 3200rpm	(53 [kW] @ 3200rpm)
Intermittent Torque	131 [ft-lbs] @3200rpm	(177 [N-m] @ 3200rpm)
Continuous Torque	118 [ft-lbs] @3200rpm	(160 [N-m] @ 3200rpm)

Standard Features / Benefits

Set-for-life valvetrain

Deep skirted, ribbed cylinder block casting for rigidity

Aluminum AA319 cylinder block cast with the Cosworth process, including cast-in-place iron cylinder liners.

Chain driven dual camshafts with automatic tensioning system

Structural front cover and oil pan

Alternate fuel ready valvetrain components

Individual coil on plug electronic ignition

Cast aluminum camshaft cover to ensure warp-free sealing

Sintered metal connecting rods

Nodular iron crankshaft, featuring five main bearings, eight counterweights

Broadband knock sensor, calibrated for individual cylinder use

Gasoline Sequential Port Fuel Injection

Closed loop fuel control for all fuels

Electronic engine management system with built-in engine protection against detonation, high coolant temperature, low oil pressure, over speed shutdown and starter lockout

Next generation governing - discrete speeds, variable speeds, drive by wire - using the highest quality components.

California Environmental Protection Agency **Air Resources Board**	**ENGINE DISTRIBUTORS, INC.**	**EXECUTIVE ORDER U-L-034-0028** New Off-Road Large Spark-Ignition Engines Above 19 Kilowatts

Pursuant to the authority vested in the Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapters 1 and 2; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following new large spark-ignition engines and emission control systems produced by the manufacturer are certified for use in off-road equipment as described below. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY NAME	ENGINE DISPLACEMENT (liters)	FUEL TYPE
2015	FEDIB02.5MSG	2.5	Gasoline, LPG, CNG, Gasoline-LPG Dual Fuel

DURABILITY HOURS	SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT USAGE
5000	Three-Way Catalytic Converter, Heated Oxygen Sensor, Sequential Multiport Fuel Injection (Gas), Gaseous Fuel Mixer (LPG, CNG)	Forklift, Aerial Lift, Generator, Compressor, Pump, Other Industrial Equipment

ENGINE MODELS (rated power in kilowatt, kW)	MSG425-DF (64.3 kW), MSG425-GAS (64.3 kW), MSG425-LPG (59.8 kW), MSG425-LP VAPOR (59.8 kW), MSG425-NG (57.3 kW)

The following are the hydrocarbon plus oxides of nitrogen (HC+NOx) and carbon monoxide (CO) exhaust certification emission standards (Title 13, California Code of Regulations, (13 CCR) Section 2433(b)(1)) and certification emission levels for this engine family in grams per kilowatt-hour (g/kW-hr). Engines within this engine family shall have closed crankcases in conformance with 13 CCR Section 2433(b)(3).

(g/kW-hr)	HC+NOx	CO
Exhaust Standards	0.8	20.6
Certification Levels	0.5	3.3

The following is the evaporative hydrocarbon emission standard (13 CCR Section 2433(b)(4)) and certification emission level for this engine family in grams per gallon of fuel tank capacity (g/gallon).

Evaporative Certification Method	HC Certification Level (g/gallon)	HC Certification Standard (g/gallon)
Design Based	N/A	0.2

BE IT FURTHER RESOLVED: That for the listed engines for the aforementioned model-year, the manufacturer has submitted, and the Executive Officer hereby approves, the information and materials to demonstrate certification compliance with 13 CCR Section 2433(c) (certification and test procedures), 13 CCR Section 2434 (emission control labels), and 13 CCR Sections 2435 and 2436 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 14th day of November 2014.

FOR Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2015 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Engine Distributors, Inc.**
(U.S. Manufacturer or Importer)

Certificate Number: FEDIB02.5MSG-002

Effective Date: 12/09/2014

Expiration Date: 12/31/2015

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 12/09/2014

Revision Date: N/A

Manufacturer: Engine Distributors, Inc.
Engine Family: FEDIB02.5MSG
Certification Type: Mobile and Stationary
Fuel : LPG/Propane
Gasoline (up to and including 10% Ethanol)
Natural Gas (CNG/LNG)
Emission Standards : NMHC + NOx (g/kW-hr) : 0.8
HC + NOx (g/kW-hr) : 0.8
CO (g/kW-hr) : 20.6NMHC + NOx (g/kW-hr) : 0.8
HC + NOx (g/kW-hr) : 0.8
CO (g/kW-hr) : 20.6
Emergency Use Only : N

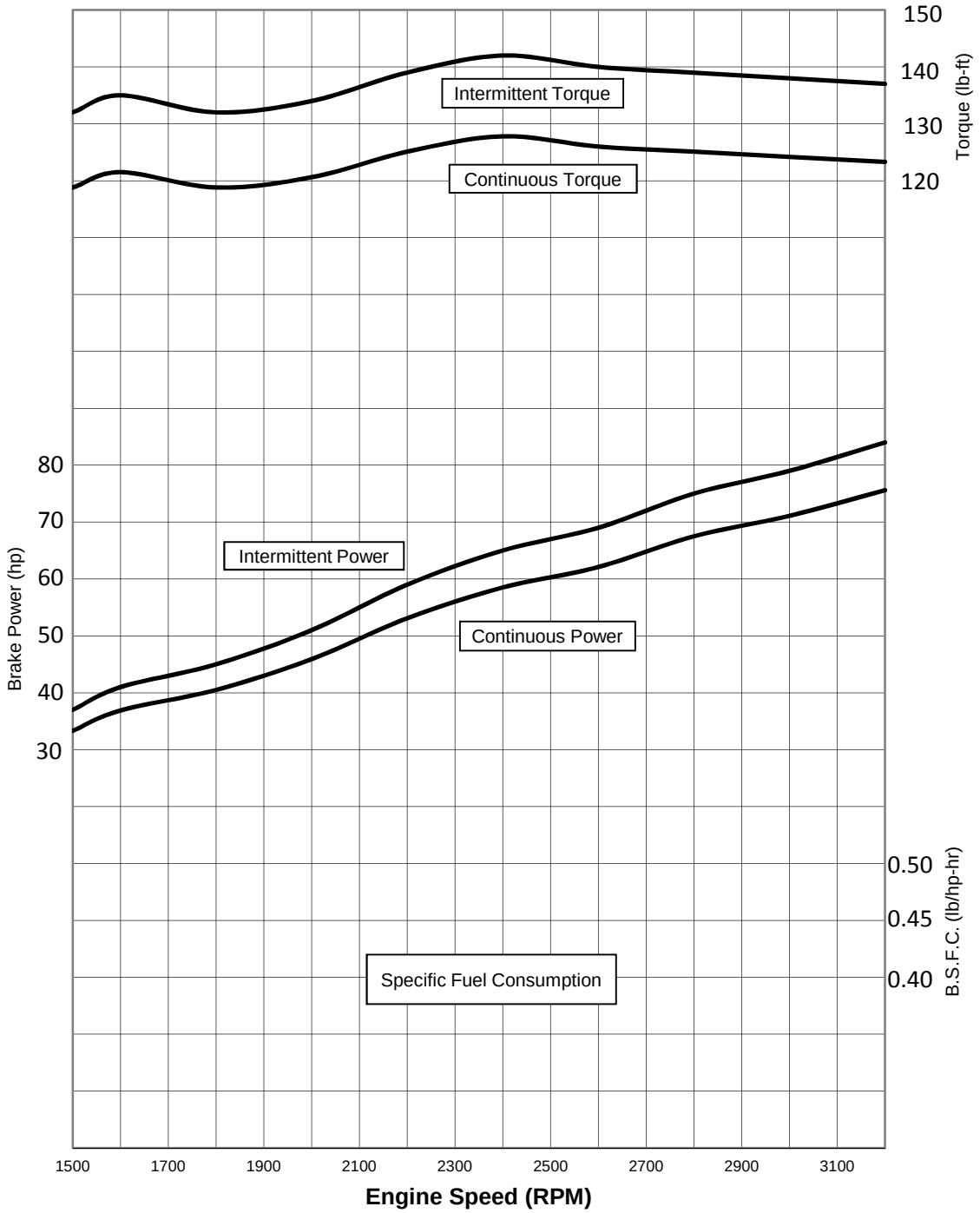
Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 40 CFR Part 1048, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60, 40 CFR Part 1048 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60, 40 CFR Part 1048 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60, 40 CFR Part 1048. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

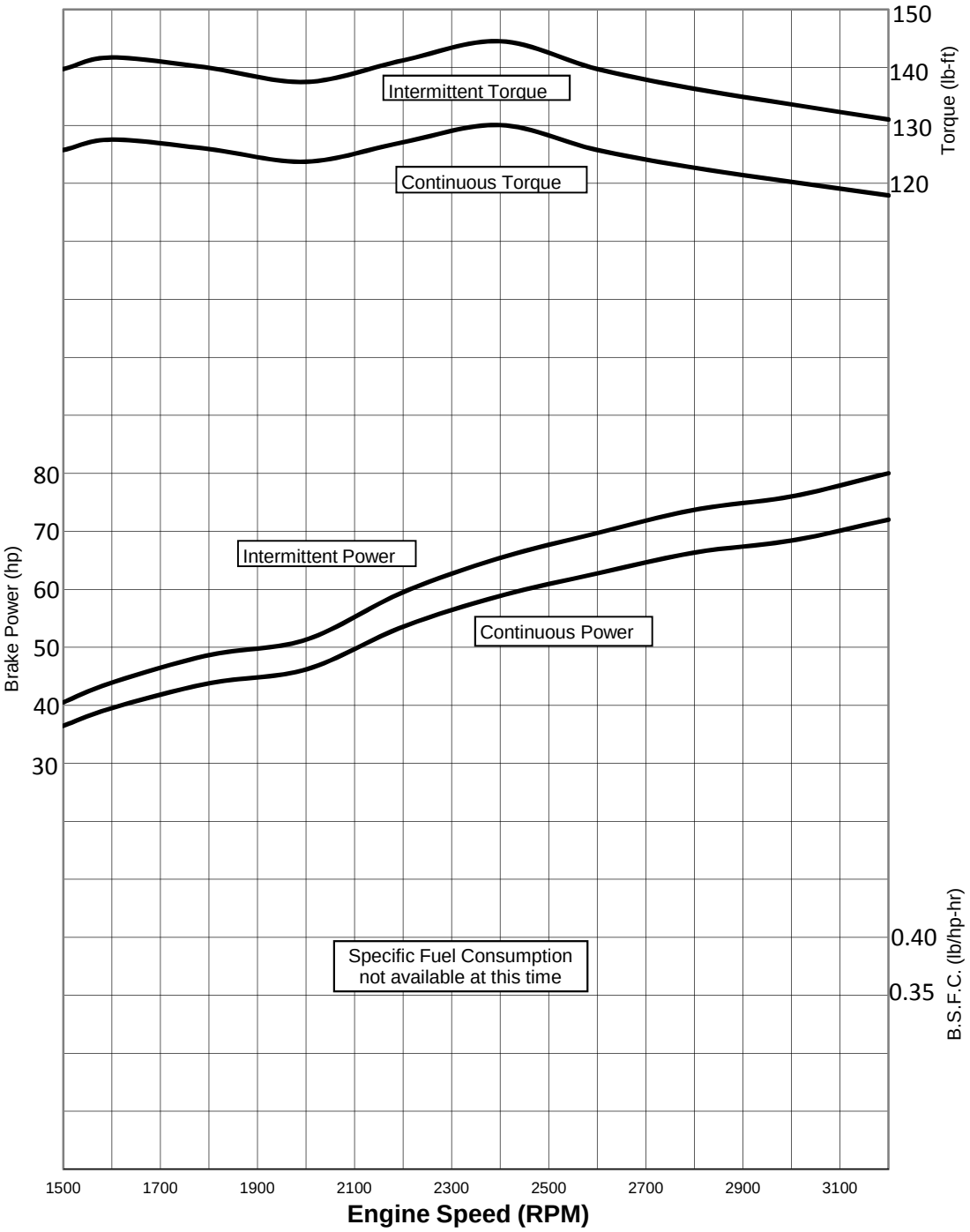
It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60, 40 CFR Part 1048. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60, 40 CFR Part 1048.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

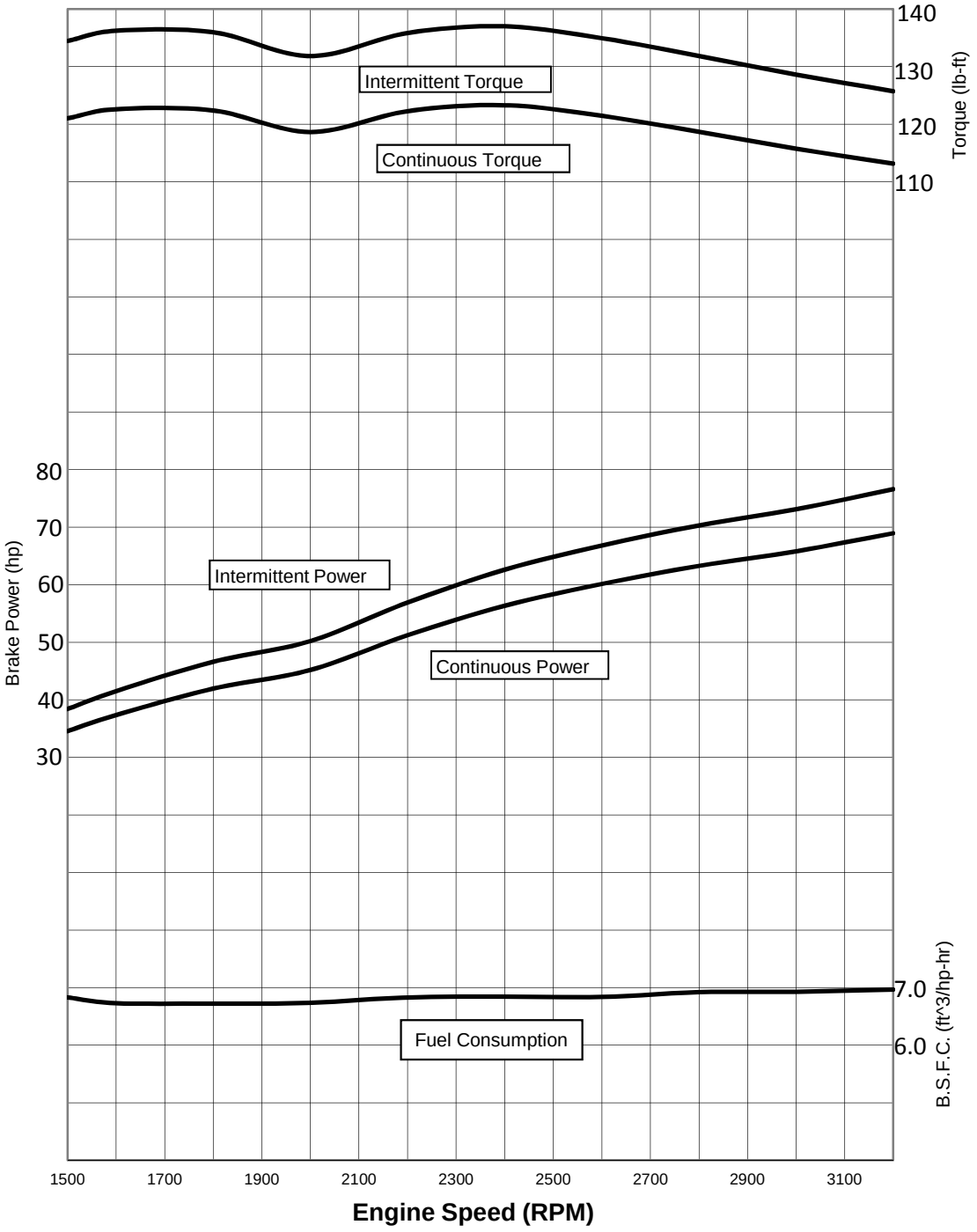
Gasoline


150
140
130
120
Torque (lb-ft)
Intermittent Torque
Continuous Torque
80
70
60
50
40
30
Brake Power (hp)
Intermittent Power
Continuous Power
0.50
0.45
0.40
B.S.F.C. (lb/hp-hr)
Specific Fuel Consumption
1500
1700
1900
2100
2300
2500
2700
2900
3100
Engine Speed (RPM)

LP


150
140
130
120
Torque (lb-ft)
Intermittent Torque
Continuous Torque
80
70
60
50
40
30
Brake Power (hp)
Intermittent Power
Continuous Power
Specific Fuel Consumption
not available at this time
0.40
0.35
B.S.F.C. (lb/hp-hr)
1500
1700
1900
2100
2300
2500
2700
2900
3100
Engine Speed (RPM)

NG


140
130
120
110
Torque (lb-ft)
Intermittent Torque
Continuous Torque
80
70
60
50
40
30
Brake Power (hp)
Intermittent Power
Continuous Power
7.0
6.0
B.S.F.C. (ft^3/hp-hr)
Fuel Consumption
1500
1700
1900
2100
2300
2500
2700
2900
3100
Engine Speed (RPM)

Attachment O
Tanker Truck Loading Data Sheet

ATTACHMENT O – TANKER TRUCK LOADING DATA S HEET

Complete this data sheet for each new or modified bulk liquid transfer area or loading rack at the facility. This is to be used for bulk liquid transfer operations to tanker trucks. Use extra pages if necessary.

Truck Loadout Collection Efficiencies

The following applicable capture efficiencies of a truck loadout are allowed:

- For tanker trucks passing the MACT level annual leak test – 99.2%
- For tanker trucks passing the NSPS level annual leak test – 98.7%
- For tanker trucks not passing one of the annual leak tests listed above – 70%

Compliance with this requirement shall be demonstrated by keeping records of the applicable MACT or NSPS Annual Leak Test certification for ***every*** truck and railcar loaded/unloaded. This requirement can be satisfied if the trucking company provided certification that its entire fleet was compliant. This certification must be submitted in writing to the Director of the DAQ. These additional requirements must be noted in the Registration Application.

Emission Unit ID#:	L001, L002	Emission Point ID#:	EP-L001, EP-L002	Year Installed/ Modified:	2018

Emission Unit Description: Condensate Loading, Produced Water Loading

Loading Area Data

Number of Pumps: 2 | Number of Liquids Loaded: 2 | Max number of trucks loading at one time: 2

Are Tanker trucks pressure tested for leaks at this any other location? ☑ Yes ☐ No ☐ Not Required

If Yes, Please Describe: Tank trucks are pressure tested for leaks at the location of the leak testing company. Trucks are tested using EPA Method 27-internal vapor valve test and issued certification that DOT requirements are met.

Provide description of closed vent system and any bypasses

Are any of the following truck loadout systems utilized? No

☐ Closed System to Tanker Truck passing a MACT level annual leak test?

☐ Closed System to Tanker Truck passing a NSPS level annual leak test?

☐ Closed System to Tanker Truck not passing an annual leak test and has vapor return?

Projected Maximum Operating Schedule (for rack or transfer point as a whole)

Time	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec
Hours/day	11	11	11	11
Days/week	7	7	7	7

Bulk Liquid Data (use extra pages as necessary)

Liquid Name		Condensate	Produced Water	
Max. Daily Throughput (1000 gal/day)		50.40	168.00	
Max. Annual Throughput (1000 gal/yr)		18,396	61,320	
Loading Method		BF	BF	
Max. Fill Rate (gal/min)		168	168	
Average Fill Time (min/loading)		50	50	
Max. Bulk Liquid Temperature (F)		72.1	72.1	
True Vapor Pressure		2.3	0.5	
Cargo Vessel Condition		U	U	
Control Equipment or Method		None	None	
Max. Collection Efficiency (%)		0	0	
Max. Control Efficiency (%)		0	0	
Max VOC Emission Rate	Loading (lb/hr)	8.8674	0.0016	
	Annual (ton/yr)	8.0915	0.0048	
Max HAP Emission Rate	Loading (lb/hr)	0.6819	8.17E-06	
	Annual (ton/yr)	0.6222	2.48E-05	
Estimation Method		Promax	Promax	

1 BF Bottom Fill SP Splash Fill SUB Submerged Fill

2 At maximum bulk liquid temperature

3 B Ballasted Vessel C Cleaned U Uncleaned (dedicated servi O Other (describe)

4 List as many as apply (complete and submit appropriate Air Pollution Control Device Sheets)

CA Carbon Adsorption VB Dedicated Vapor Balance (closed system)

ECD Enclosed Combustion Device F Flare

TO Thermal Oxidization or Incineration

5 EPA EPA Emission Factor in AP-42 MB Material Balance

TM Test Measurement based upon test data submittal O Other (describe)

Attachment Q
Pneumatic Controllers Data Sheet

ATTACHMENT Q – PNEUMATIC CONTROLLERS DATA SHEET

Are there any continuous bleed natural gas driven pneumatic controllers at this facility that commenced construction, modification or reconstruction after August 23, 2011, and on or before September 18, 2015?

☐ Yes ☒ No

Please list approximate number.

Are there any continuous bleed natural gas driven pneumatic controllers at this facility that commenced construction, modification or reconstruction after September 18, 2015?

☐ Yes ☒ No

Please list approximate number.

Are there any continuous bleed natural gas driven pneumatic controllers at this facility with a bleed rate greater than 6 standard cubic feet per hour that are required based on functional needs, including but not limited to response time, safety and positive actuation that commenced construction, modification or reconstruction after August 23, 2011, and on or before September 18, 2015?

☐ Yes ☒ No

Please list approximate number.

Are there any continuous bleed natural gas driven pneumatic controllers at this facility with a bleed rate greater than 6 standard cubic feet per hour that are required based on functional needs, including but not limited to response time, safety and positive actuation that commenced construction, modification or reconstruction after September 18, 2015?

☐ Yes ☒ No

Please list approximate number.

Attachment R
Pneumatic Pump Data Sheet

ATTACHMENT R – PNEUMATIC PUMP DATA SHEET

Are there any natural gas-driven diaphragm pumps located at a well site that commenced construction, modification or reconstruction after September 18, 2015?

☐ Yes ☒ No

Please list.

Source ID #	Date	Pump Make/Model	Pump Size

Attachment S
Air Pollution Control Device – Emission Reduction Device Sheets

ATTACHMENT S – AIR POLLUTION CONTROL DEVICE / EMISSION REDUCTION DEVICE SHEETS

Complete the applicable air pollution control device sheet s for each flare, vapor combustor, thermal oxidizer, condenser, adsorption system, vapor recovery unit , BTEX Eliminator, Reboiler with and without Glow Plug, etc. at the facility. Use extra pages if necessary.

Emissions calculations must be performed using the most conservative control device efficiency.

The following five (5) rows are only to be completed if registering an alternative air pollution control device.

Emission Unit ID:	NA	Make/Model:	NA
Primary Control Device ID:	NA	Make/Model	NA
Control Efficiency (%):	NA	APCD/ERD Data Sheet Completed	☐ Yes ☐ No
Secondary Control Device ID:	NA	Make/Model	NA
Control Efficiency (%):	NA	APCD/ERD Data Sheet Completed	☐ Yes ☐ No

VAPOR COMBUSTION (Including Enclosed Combustors)

General Information

Control Device ID#:	EC001-003	Installation Date: ☑ New ☐ Modified ☐ Relocated	
Maximum Rated Total Flow Capacity: 5458 scfh / 131000 scfd		Maximum Design Heating Input (from mfg. spec sheet): 12.0 MMBTU/hr	Design Heat Content: 2300 BTU/scf

Control Device Information

Type of Vapor Combustion Control?

☑ Enclosed Combustion Device ☐ Elevated Flare ☐ Ground Flare ☐ Thermal Oxidizer

Manufacturer: Cimarron Model: 48" HV ECD		Hours of operation per year?	8760

List the emission units whose emissions are controlled by this vapor control device (Emission Point ID# NA

Emission Unit ID#	Emission Source Description	Emission Unit ID#	Emission Source Description
TANKCOND001-008	Condensate Tanks		
TANKPW001-004	Produced Water Tanks		

If this vapor combustor controls emissions from more than six (6) emission units, please attach additional pages.

Assist Type (Flares only)	Flare height	Tip Diameter	Was the design per §60.18?
☐ Steam ☐ Air ☐ Pressure ☑ Non	25 feet	3.33 feet	☑ Yes ☐ No Provide determination

Waste Gas Information

Maximum Waste Gas Flow Rate	Heat Value of Waste Gas Stream	Exit Velocity of the Emission Stream
19.17 (scfm)	1,860.95 BTU/ft^3	0.0367 (ft/s)

Please see Attachment S, Tables 6 & 7 for VOC composition/ characteristics of the waste gas stream to be burned.

Pilot Gas Information

Number of Pilot Lights	Fuel Flow Rate to Pilot Flame per Pilot	Heat Input per Pilot	Will automatic re-ignition be used?
3	17 scfh	20838 BTU/hr	☑ Yes ☐ No

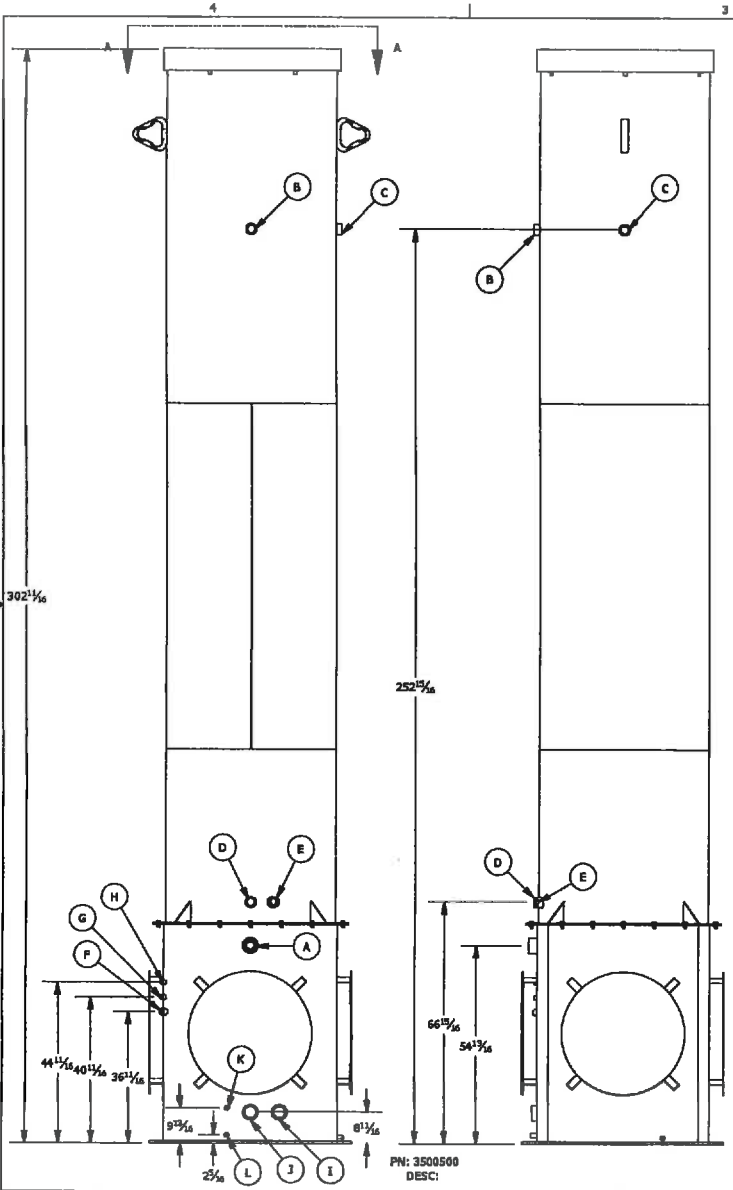
If automatic re-ignition is used, please describe the method. Flame Rectification, a thermocouple equivalent

Is pilot flame equipped with a monitor to detect the presence of the flame?	If Yes, What type?
☑ Yes ☐ No	☐ Thermocouple ☐ Infrared ☐ Ultraviolet ☐ Camera ☑ Other: Flame Ionization Rod

Describe all operating ranges and maintenance procedures required by the manufacturer to maintain the warranty. *(If unavailable, please indicate).*

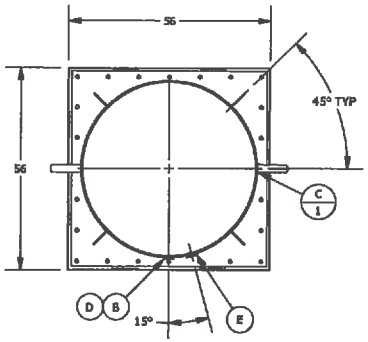
Additional information attached? ☑ Yes ☐ No Manufacturer's specs sheet

Please attach copies of manufacturer's data sheets, drawings, flame demonstration per §60.18 or §63.11 (b) and performance testing.



48" DIA x 302 5/8" HEIGHT, 88 ORIFICES EMISSION CONTROL DEVICE

* >98% TVOC DRE, CERTIFIED USEPA 40 CFR 60, APPENDIX A, SOURCE EMMISIONS TEST METHODS REFERENCED. MEETS ALL EPA & CDPHE REGULATIONS.
* DESTROYS OIL/CONDENSATE PRODUCTION TANK VAPORS W/ NO VISIBLE FLAME.
* EXCELLENT OPACITY AND SMOKELESS OPERATION.
* RELIABLE AND CUSTOMIZABLE IGNITION.
* VERY LOW CAPITAL AND OPERATING COST.
* EASY TO OPERATE AND MAINTAIN.
* FIELD TESTED TO DESTROY UP TO 119.5 MDSCFD (131 MCFD) @ 10 oz/in^2; 2300 BTU/CF WASTE GAS (SG 1.45)
* STRUCTURE CERTIFIED FOR 90 MPH 3-SEC WIND GUST PER ASCE 7-05 & IBC 2006 STANDARDS. HIGHER WIND LOAD RATED STRUCTURES AVAILABLE.



VIEW A-A

PN: 3500500
DESC:

SCHEDULE OF NOZZLES				
MARK	QTY	DESCRIPTION	SERIES	SERVICE
A	1	3" HALF COUPLING	2000#	BURNER WASTE GAS IN
B	1	2" FULL COUPLING	3000#	FLOW TEST/AUTOMATION
C	1	2" FULL COUPLING	3000#	FLOW TEST/AUTOMATION
D	1	2" FULL COUPLING	3000#	SIGHT GLASS
E	1	2" FULL COUPLING	3000#	MANUAL LIGHTING
F	1	1" FULL COUPLING	3000#	PILOT GAS IN
G	1	1/2" FULL COUPLING	3000#	IGNITOR CABLE
H	1	1/2" FULL COUPLING	3000#	AUTOMATION
I	1	3" HALF COUPLING	3000#	DRIP TANK WASTE GAS IN
J	1	3" HALF COUPLING	3000#	DRIP TANK WASTE GAS OUT
K	1	1/2" FULL COUPLING	3000#	AUTOMATION
L	1	1/2" FULL COUPLING	3000#	LIQUID DRAIN

UNLESS OTHERWISE SPECIFIED

1. REMOVE ALL BURRS AND SHARP CORNERS.
2. COR. RAD .03
3. DO NOT SCALE DRAWING.
4. ALL DIMENSIONS ARE IN INCHES.
5. MACHINE FIN.
6. FABRICATION
   .X = ± 0.25
   .XX = ± 0.125
   .XXX = ± 0.06
   ANGLES ± 3°
7. MACHINE
   .X = ±0.030
   .XX = ±0.015
   .XXX = ±0.005
   ANGLES ±1/2°
   CONTRICITY WITHIN 0.010 TIR

APPROVED FOR A.S.M.E CODE, SECTION VIII DIV 1
_____ED,_____ ADDENDA BY_____ DATE_____

CIMARRON
Energy Inc.

TITLE:
48" HIGH VOLUME ECD

DATE:	WO No.:	SHEET: 1 OF 1

DRAWN BY: TDS | REV. | DRAW NO.: 3500500

Attachment T
Emissions Calculations

Table 1

Facility Information
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Oil and Gas Site General Information

Administrative Information	
Company Name	Antero Resources Corporation
Facility/Well Name	Oxford 97 Well Pad
Nearest City/Town	West Union
API Number/SIC Code	1311
Latitude/Longitude	39.232919, -80.803928
County	Doddridge County

Technical Information	
Max Condensate Site Throughput (bbl/day):	1,200
Max Produced Water Site Throughput (bbl/day):	4,000
Are there any sour gas streams at this site?	No
Is this site currently operational/producing?	No

Equipment/Processes at Site	
Equipment/Process Types	**How many for this site?**
Fugitives	8
IC Engines	4
Gas Production Unit Heaters	8
Line Heaters	8
Condensate Tanks	8
Produced Water Tanks	4
Loading Jobs	2
Vapor Recovery Towers	1
Enclosed Combustors	3

Table 2

Uncontrolled/Controlled Emissions Summary
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Emission Source	VOC		NO_x		CH_4		CO_{2e}		CO		SO_2		$PM_{2.5}$		PM_{10}		Lead		Total HAPs		Benzene		Xylenes		Formaldehyde	
	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)	(lbs/hr)	(ton/yr)
UNCONTROLLED (Fugitives, Storage Tanks, Engines, Gas Production Unit Heaters, Line Heaters)																										
Fugitive Emissions (Component Count, PCV and Hauling)[1]	2.9851	13.0746			3.0469	13.3454	76.175	333.64							6.9496	16.3312			0.2120	0.9284	0.0013	0.0056	0.0560	0.2451		
Flashing, Working and Breathing (F/W/B) Losses[2]	58.1114	254.5279			12.8974	56.4904	323.1610	1415.4452											4.7436	20.7769	0.0100	0.0436	0.0841	0.3685		
VRU Engine Emissions[3]	0.0761	0.3333	0.2501	1.0953	0.5914	2.5902	297.6129	1303.5444	1.6505	7.2293	0.0015	0.0066	0.0244	0.1070	0.0244	0.1070			0.0590	0.2585	0.0041	0.0178	0.0005	0.0022	0.0527	0.2309
Gas Production Unit Heater Emissions[4]	0.0538	0.2358	0.9790	4.2879	0.0525	0.2301	1,174.77	5,145.51	0.8223	3.6019	0.0059	0.0257	0.0744	0.3259	0.0744	0.3259	4.89E-06	2.14E-05	0.018	0.081	2.06E-05	9.00E-05			0.0007	0.0032
Line Heater Emissions[4]	0.0718	0.3144	1.3053	5.7172			1,566.37	6,860.68	1.0965	4.8025	0.0078	0.0343	0.0992	0.4345	0.0992	0.4345	6.53E-06	2.86E-05	0.025	0.108	2.74E-05	1.20E-04			0.0010	0.0043
TOTALS:	**61.2982**	**268.4862**	**2.5344**	**11.1005**	**16.5882**	**72.6562**	**3438.0887**	**15058.8283**	**3.5693**	**15.6336**	**0.0152**	**0.0667**	**0.1980**	**0.8674**	**7.1476**	**17.1986**	**1.14E-05**	**5.00E-05**	**5.0576**	**22.1521**	**0.0153**	**0.0672**	**0.1406**	**0.6159**	**0.0544**	**0.2384**
UNCONTROLLED (Truck Loading Emissions)																										
Truck Loading Emissions[5]	8.8690	8.0963			0.1233	0.1909	3.1525	4.9350											0.6819	0.6222	0.0007	6.81E-04	0.0064	0.0058		
CONTROLLED EMISSIONS																										
Enclosed Combustor Emissions (from F/W/B losses)[6]	1.1625	5.0918	2.4531	10.7446	0.2846	1.2464	309.1470	1354.0639	11.1643	48.8996	3.06E-05	0.0001	0.0068	0.0300	0.0091	0.0400	6.01E-07	2.63E-06	0.0950	0.4159	0.0002	0.0009	0.0017	0.0074	3.83E-06	1.68E-05
Controlled Fugitive Emissions from Hauling															3.4748	8.1656										
TOTALS:	**1.163**	**5.092**	**2.453**	**10.745**	**0.285**	**1.246**	**309.147**	**1354.064**	**11.164**	**48.900**	**3.06E-05**	**1.34E-04**	**0.007**	**0.030**	**3.484**	**8.206**	**6.01E-07**	**2.63E-06**	**0.095**	**0.416**	**1.99E-04**	**0.0009**	**0.0017**	**0.007**	**3.83E-06**	**1.68E-05**
POTENTIAL TO EMIT[7]	**13.2183**	**27.1463**	**4.9875**	**21.8451**	**4.0987**	**17.6030**	**3427.2272**	**15002.3819**	**14.7336**	**64.5332**	**0.0152**	**0.0668**	**0.2049**	**0.8974**	**3.6819**	**9.0730**	**1.20E-05**	**5.27E-05**	**1.0908**	**2.4134**	**0.0063**	**0.0251**	**0.0645**	**0.2605**	**0.0544**	**0.2384**
POTENTIAL TO EMIT (Excluding Fugitives)	**10.2332**	**14.0717**	**4.9875**	**21.8451**	**1.0518**	**4.2575**	**3351.0526**	**14668.7372**	**14.7336**	**64.5332**	**0.0152**	**0.0668**	**0.2049**	**0.8974**	**0.2072**	**0.9074**	**1.20E-05**	**5.27E-05**	**0.8789**	**1.4850**	**0.0050**	**0.0196**	**0.0086**	**0.0154**	**0.0544**	**0.2384**

Enter any notes here:	1 - See Tables 4 and 5 for fugitive emission calculations; Table 12 for PM emissions from hauling. 2 - See Tables 6 and 7 for tanks emission calculations 3 - See Table 13 for engine emissions 4 - See Table 9 for gas production unit heater and line heater emission calculations 5 - The maximum emission was calculated based on tank truck capacity of 200 barrels and actual fill rate of 50 minutes per tank truck. At a production rate of 1200 barrels per day, VOC emissions would be 8.869 pounds per hour when there are truck loading activities. Average hourly VOC emissions from truck loading is 1.8485 pound per hour. 6 - See Table 10 and 11 for enclosed combustion emission calculations. 7 - The maximum hourly potential to emit is the sum of emissions from gas production unit heaters, line heaters, storage tanks, engines, enclosed combustors, loading, and fugitives. PM 10 TPY is the sum of uncontrolled hauling and other PM10 sources.

Table 3

Permits Summary

Oxford 97 Well Pad

Doddridge County, West Virginia

Antero Resources Corporation

Pollutant		Emissions		Threshold Exceeded?		
		Uncontrolled	Controlled	Threshold	Uncontrolled	Controlled
VOC	lbs/hr	70.1672	13.2183	6	**Yes**	**Yes**
	tons/yr	276.5825	27.1463	10	**Yes**	**Yes**
NO_X	lbs/hr	2.5344	4.9875	6		
	tons/yr	11.1005	21.8451	10	**Yes**	**Yes**
CH_4	lbs/hr	16.7115	4.0987			**Yes**
	tons/yr	72.8470	17.6030			**Yes**
CO	lbs/hr	3.5693	14.7336	6		**Yes**
	tons/yr	15.6336	64.5332	10	**Yes**	**Yes**
SO_2	lbs/hr	0.0152	0.0152	6		
	tons/yr	0.0667	0.0668	10		
$PM_{2.5}$	lbs/hr	0.1980	0.2049	6		
	tons/yr	0.8674	0.8974	10		
PM_{10}	lbs/hr	7.1476	3.6819	6	**Yes**	
	tons/yr	17.1986	9.0730	10	**Yes**	
Lead	lbs/hr	1.14E-05	1.20E-05	6		
	tons/yr	5.00E-05	5.27E-05	10		
Total HAPs	lbs/hr	5.7394	1.0908	2	**Yes**	
	tons/yr	22.7744	2.4134	5	**Yes**	
Total TAPs	lbs/hr	0.0705	0.0607	1.14		
n-Hexane	lbs/hr	5.3928	0.9220			
	tons/yr	21.3054	1.7232			
Toluene	lbs/hr	0.0688	0.0187			
	tons/yr	0.2875	0.0681			
Ethylbenzene	lbs/hr	0.0600	0.0245			
	tons/yr	0.2522	0.0968			
Xylenes	lbs/hr	0.1470	0.0645			
	tons/yr	0.6217	0.2605			
Benzene	lbs/hr	0.0161	0.0063			
	tons/yr	0.0679	0.0251			

Enter any notes here:	1. Emissions are based on 98% Enclosed Combustor DRE operating 100% of the time. 2. Please see Attachment J - Fugitive Emissions Data Summary Sheet and Attachment T - Emission Points Summary Sheet for sitewide sources and breakdown of emission quantities.

Table 4

Fugitive Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

VOC Type:	Condensate VOC
Emission Type:	Steady State (continuous)

Gas Weight Fraction From Analysis:	VOC frac	0.158
	Benzene frac	0.000
	Toluene	0.000
	Ethylbenzene	0.000
	Xylenes	0.000
	n-Hexane	0.015
	HAPs	0.015
	Methane	0.642

Gas					
Number	Component	Pollutant	Emission Factor (kg/hr of THC per component)	kg/hr	lb/yr
400	Valves	Gas VOC	0.004500	0.28	5,478.19
		Non VOC	0.004500	1.52	29,211.41
		HAPs	0.004500	0.03	522.31
		CO2e	0.004500	28.89	556,818.75
472	Connectors	VOC	0.000200	0.01	287.30
		Non-VOC	0.000200	0.08	1,531.98
		HAPs	0.000200	0.00	27.39
		CO2e	0.000200	1.52	29,202.05
104	Flanges	VOC	0.000390	0.01	123.44
		Non-VOC	0.000390	0.03	658.23
		HAPs	0.000390	0.00	11.77
		CO2e	0.000390	0.651047	12546.982484
			Total VOCs:	0.31	5888.93
			Total THC:	1.93	37290.55
			Total CH4:	1.24	23942.71

Light Liquid Weight Fraction From Analysis:	VOC frac	0.979
	Benzene frac	0.001
	Toluene	0.005
	Ethylbenzene	0.009
	Xylenes	0.024
	n-hexane	0.022
	HAPs	0.062
	Methane	0.007

Light Liquid					
Number	Component	Pollutant	Emission Factor (kg/hr of THC per component)	kg/hr	lb/yr
416	Valves	Light Liquid VOC	0.002500	1.02	19,619.70
		Light Liquid Non-VOC	0.002500	0.02	423.18
		Light Liquid HAPs	0.002500	0.06	1,234.23
		CO2e	0.002500	0.19	3596.25
			Total VOC:	1.02	19,619.70
			Total THC:	1.04	20,042.88
			Total CH4:	0.01	143.85

Fugitive Total Emissions			
	Annual Emissions (lb/yr)	Annual Emissions (lb/hr)	Annual Emissions (tpy)
VOC	25,508.64	2.91	12.75
Ethylbenzene		0.02	0.09
Toluene		0.01	0.05
Xylenes		0.06	0.25
n-Hexane		0.11	0.50
TAPs (Benzene)		0.00	0.01
HAPs		0.20	0.90
CH_4 [3]		2.75	12.04
CO_{2e}	602,164.03	68.74	301.08

Enter Notes Here:	Fugitive emissions based on an estimated component count Global Warming Potentials from EPA site Reference to Emission factors used: 1. Emission factors are for oil and gas production facilities (not refineries) come from the EPA's "Protocol for Equipment Leak Emission Estimates" November 1995, EPA 4531, R-95-017, Table 2-4. 2. Percent of speciated VOCs used in fugitive calculations are based on the total hydrocarbons, not of the total sample. 3. CH_4 emissions are based on percent of CH4 of the total hydrocarbons

Table 5

Pneumatic Control Valve Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Number of PCVs	32
Bleed Rate (scf/day/PCV)	6.6
Total Bleed Rate (scf/day)	211.2

Component	Mol%	Molecular Weight (lb/lb-mole)	Component Flow (scf/day)	Component Moles (lb-moles)	Component Emissions (lbs/day)	(lbs/hr)	(tons/year)
H2S	0.00E+00	34.08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nitrogen	0.5035	14.01	1.063392	2.80E-03	0.04	1.64E-03	0.01
Carbon Dioxide	0.1918	44.01	0.4050816	1.07E-03	0.05	1.96E-03	8.57E-03
Methane	79.9271	16.04	168.8060352	0.44	7.14	0.30	1.30
Ethane	13.2821	30.07	28.0517952	0.07	2.22	0.09	0.41
Propane	3.9216	44.1	8.2824192	0.02	0.96	0.04	0.18
Isobutane	0.4842	58.12	1.0226304	2.69E-03	0.16	0.01	0.03
n-Butane	0.8942	58.12	1.8885504	4.98E-03	0.29	0.01	0.05
Isopentane	0.2342	72.15	0.4946304	1.30E-03	0.09	3.92E-03	0.02
n-Pentane	0.2124	72.15	0.4485888	1.18E-03	0.09	3.55E-03	0.02
2-Methylpentane	0.00E+00	86.18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3-Methylpentane	0.00E+00	86.18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
n-Hexane	0.3489	86.18	0.7368768	1.94E-03	0.17	0.01	0.03
Methylcyclopentane	0.00E+00	84.16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	0.00E+00	78.11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2-Methylhexane	0.00E+00	100.2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3-Methylhexane	0.00E+00	100.2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heptane	0.00E+00	100.21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methylcyclohexane	0.00E+00	98.186	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	0.00E+00	92.14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Octane	0.00E+00	114.23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ethylbenzene	0.00E+00	106.17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
m & p-Xylene	0.00E+00	106.16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
o-Xylene	0.00E+00	106.16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nonane	0.00E+00	128.2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C10+	0.00E+00	174.28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	lb/hr	tpy
VOC Emissions	0.0731	0.3203
Benzene Emissions	0.00E+00	0.00E+00
Toluene Emissions	0.00E+00	0.00E+00
Ethylbenzene Emissions	0.00E+00	0.00E+00
Xylene Emissions	0.00E+00	0.00E+00
n-Hexane Emissions	0.0070	0.0305
HAPs Emissions	0.0070	0.0305
TAPs Emissions	0.00E+00	0.00E+00
CH_4 Emissions	0.2973	1.3022
CO_{2e} emissions	7.4344	32.5627

Enter any notes here:	1. PCV bleed rate obtained from the user manual for PCV http://issuu.com/rmcprocesscontrols/docs/mizer-pilot-operation--parts---installation-manual 2. Emissions per hour= Mol % x no. of PCV x bleed rate x MW / 379.48 / 24

Table 6

Uncontrolled Flashing Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

# Hours Operational	8760

	Condensate Tank Flashing Losses			Produced Water Tank Flashing Losses		
	Vapor Mass Fraction	Flashing Losses		Vapor Mass Fraction	Flashing Losses	
	wt%	lbs/hr	tpy	wt%	lbs/hr	tpy
Water	0.2821	0.1714	0.7508	2.3924	0.4539	1.9883
H2S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nitrogen	0.0020	0.0012	0.0054	0.3235	0.0614	0.2689
Carbon Dioxide	0.2082	0.1265	0.5540	2.9326	0.5565	2.4373
Methane	3.4757	2.1117	9.2494	56.0609	10.6374	46.5917
Ethane	28.6761	17.4226	76.3112	24.1457	4.5816	20.0673
Propane	31.8920	19.3765	84.8690	7.2844	1.3822	6.0540
Isobutane	6.4204	3.9008	17.0855	3.7432	0.7103	3.1109
n-Butane	12.6327	7.6752	33.6173	1.9074	0.3619	1.5852
2,2 Dimethylpropane	0.0110	0.0067	0.0292	0.0008	0.0002	0.0007
Isopentane	4.2371	2.5743	11.2755	0.4361	0.0828	0.3625
n-Pentane	3.9519	2.4010	10.5165	0.1583	0.0300	0.1315
2,2 Dimethylbutane	0.0203	0.0123	0.0540	0.0008	0.0001	0.0006
Cyclopentane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2,3 Dimethylbutane	0.0339	0.0206	0.0901	0.0028	0.0005	0.0024
2-Methylpentane	0.2312	0.1405	0.6154	0.0126	0.0024	0.0105
3-Methylpentane	0.1572	0.0955	0.4183	0.0204	0.0039	0.0170
n-Hexane	5.6639	3.4412	15.0724	0.1522	0.0289	0.1265
Methylcyclopentane	0.0383	0.0233	0.1019	0.0080	0.0015	0.0066
Benzene	0.0095	0.0058	0.0253	0.0157	0.0030	0.0130
Cyclohexane	0.0673	0.0409	0.1791	0.0607	0.0115	0.0505
2-Methylhexane	0.2385	0.1449	0.6346	0.0093	0.0018	0.0078
3-Methylhexane	0.1968	0.1195	0.5236	0.0093	0.0018	0.0077
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Heptane	0.4188	0.2545	1.1145	0.0084	0.0016	0.0070
Methylcyclohexane	0.2207	0.1341	0.5874	0.0458	0.0087	0.0381
Toluene	0.0491	0.0298	0.1306	0.0776	0.0147	0.0645
Octane	0.5537	0.3364	1.4735	0.0046	0.0009	0.0038
Ethylbenzene	0.0346	0.0210	0.0920	0.0537	0.0102	0.0446
m & p-Xylene	0.0339	0.0206	0.0903	0.0499	0.0095	0.0415
o-Xylene	0.0478	0.0291	0.1273	0.0768	0.0146	0.0638
Nonane	0.1660	0.1008	0.4417	0.0015	0.0003	0.0013
C10+	0.0294	0.0179	0.0782	0.0047	0.0009	0.0039
Total VOCs	67.356	40.92	179.2	14.145	2.6839	11.7557
Total CO_{2e}		52.92	231.8		266.49	1,167.2
CH_4		2.11	9.25		10.64	46.59
Total TAPs (Benzene)		0.0058	0.0253		0.0030	0.0130
Toluene		0.0298	0.1306		0.0147	0.0645
Ethylbenzene		0.0210	0.0920		0.0102	0.0446
Xylenes		0.0497	0.2176		0.0240	0.1053
n-Hexane		3.441	15.072		0.0289	0.1265
Total HAPs		3.547	15.538		0.0808	0.3539
Total	100.00	60.76	266.1	100.00	18.975	83.11

Enter any notes here:	Vapor mass fractions and Flashing losses from Promax output

Table 7

Uncontrolled Working and Breathing Losses
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Condensate Tank Information	
Number of Tanks	8
Maximum Working Losses (lbs/hr)	9.6565
Maximum Breathing Losses (lbs/hr)	12.4545
# Hours Operational	8760

	Condensate Tank W/B Losses						
	Vapor Mass Fraction	Working Losses		Breathing Losses		Max W/B Losses	
	wt%	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nitrogen	0.0001	5.72E-06	2.50E-05	0.0000	0.0000	0.0000	0.0001
Carbon Dioxide	0.1612	0.0156	0.0682	0.0201	0.0879	0.0356	0.1561
Methane	0.6403	0.0618	0.2708	0.0798	0.3493	0.1416	0.6201
Ethane	33.6016	3.2448	14.2120	4.1849	18.3299	7.4297	32.5419
Propane	32.7534	3.1628	13.8532	4.0793	17.8671	7.2421	31.7204
Isobutane	6.2377	0.6024	2.6383	0.7769	3.4027	1.3792	6.0410
n-Butane	12.5673	1.2136	5.3154	1.5652	6.8555	2.7787	12.1709
2,2 Dimethylpropane	0.0097	0.0009	0.0041	0.0012	0.0053	0.0021	0.0094
Isopentane	3.7358	0.3607	1.5801	0.4653	2.0379	0.8260	3.6180
n-Pentane	3.4367	0.3319	1.4536	0.4280	1.8748	0.7599	3.3284
2,2 Dimethylbutane	0.0175	0.0017	0.0074	0.0022	0.0095	0.0039	0.0169
Cyclopentane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2,3 Dimethylbutane	0.0288	0.0028	0.0122	0.0036	0.0157	0.0064	0.0279
2-Methylpentane	0.1959	0.0189	0.0828	0.0244	0.1069	0.0433	0.1897
3-Methylpentane	0.1329	0.0128	0.0562	0.0165	0.0725	0.0294	0.1287
n-Hexane	4.9391	0.4769	2.0890	0.6151	2.6943	1.0921	4.7834
Methylcyclopentane	0.0296	0.0029	0.0125	0.0037	0.0162	0.0065	0.0287
Benzene	0.0054	0.0005	0.0023	0.0007	0.0030	0.0012	0.0053
Cyclohexane	0.0498	0.0048	0.0211	0.0062	0.0272	0.0110	0.0483
2-Methylhexane	0.0565	0.0055	0.0239	0.0070	0.0308	0.0125	0.0547
3-Methylhexane	0.1704	0.0165	0.0721	0.0212	0.0930	0.0377	0.1650
2,2,4 Trimethylpentane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Heptane	0.3483	0.0336	0.1473	0.0434	0.1900	0.0770	0.3373
Methylcyclohexane	0.1841	0.0178	0.0779	0.0229	0.1004	0.0407	0.1783
Toluene	0.0297	2.87E-03	1.26E-02	0.0037	0.0162	0.0066	0.0287
Octane	0.4490	0.0434	0.1899	0.0559	0.2449	0.0993	0.4348
Ethylbenzene	0.0228	2.20E-03	9.64E-03	0.0028	0.0124	0.0050	0.0221
m & p-Xylene	0.0209	2.02E-03	8.84E-03	0.0026	0.0114	0.0046	0.0202
o-Xylene	0.0263	2.54E-03	0.0111	0.0033	0.0143	0.0058	0.0254
Nonane	0.1322	0.0128	0.0559	0.0165	0.0721	0.0292	0.1280
C10+	0.0168	1.62E-03	0.0071	0.0021	0.0092	0.0037	0.0163
Total VOCs	65.597	6.3344	27.744	8.1697	35.7833	14.5041	63.528
Total CO_{2e}		1.5614	6.8391	2.0139	8.8207	3.5753	15.660
CH_4		0.0618	0.2708	0.0798	0.3493	0.1416	0.6201
Total TAPs (Benzene)		5.26E-04	2.30E-03	0.0007	0.0030	0.0012	0.0053
Toluene		2.87E-03	1.26E-02	0.0037	0.0162	0.0066	0.0287
Ethylbenzene		2.20E-03	9.64E-03	0.0028	0.0124	0.0050	0.0221
Xylenes		4.55E-03	0.0199	0.0059	0.0257	0.0104	0.0457
n-Hexane		0.4769	2.0890	0.6151	2.6943	1.0921	4.7834
Total HAPs		0.4871	2.1335	0.6282	2.7516	1.1153	4.8851
Total	100.00	9.6565	42.2956	12.4545	54.5506	22.1110	96.846

Table 7

Uncontrolled Working and Breathing Losses
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Produced Water Tank Information	
Number of Tanks	4
Maximum Working Losses (lbs/hr)	0.1984
Maximum Breathing Losses (lbs/hr)	0.0167

	Produced Water Tank W/B Losses						
	Vapor Mass Fraction	Working Losses		Breathing Losses		Max W/B Losses	
	wt%	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
Water	91.1878	0.1809	0.7926	0.0152	0.0667	0.1962	0.8593
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nitrogen	0.0064	1.27E-05	5.58E-05	1.07E-06	4.70E-06	1.38E-05	6.05E-05
Carbon Dioxide	3.9753	0.0079	0.0346	0.0007	0.0029	0.0086	0.0375
Methane	3.0980	0.0061	0.0269	0.0005	0.0023	0.0067	0.0292
Ethane	1.5997	0.0032	0.0139	0.0003	0.0012	0.0034	0.0151
Propane	0.0754	1.50E-04	0.0007	1.26E-05	5.52E-05	1.62E-04	0.0007
Isobutane	0.0519	1.03E-04	4.51E-04	8.66E-06	3.79E-05	1.12E-04	4.89E-04
n-Butane	0.0044	8.83E-06	3.87E-05	7.43E-07	3.25E-06	9.57E-06	4.19E-05
2,2 Dimethylpropane	0.0000	1.28E-09	5.59E-09	1.08E-10	4.71E-10	1.38E-09	6.07E-09
Isopentane	0.0003	5.30E-07	2.32E-06	4.46E-08	1.95E-07	5.75E-07	2.52E-06
n-Pentane	0.0000	5.49E-08	2.41E-07	4.62E-09	2.03E-08	5.96E-08	2.61E-07
2,2 Dimethylbutane	0.0000	1.52E-10	6.64E-10	1.28E-11	5.59E-11	1.64E-10	7.20E-10
Cyclopentane	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2,3 Dimethylbutane	0.0000	9.41E-10	4.12E-09	7.92E-11	3.47E-10	1.02E-09	4.47E-09
2-Methylpentane	1.23E-06	2.44E-09	1.07E-08	2.06E-10	9.01E-10	2.65E-09	1.16E-08
3-Methylpentane	4.46E-06	8.86E-09	3.88E-08	7.45E-10	3.26E-09	9.60E-09	4.21E-08
n-Hexane	5.19E-06	1.03E-08	4.51E-08	8.67E-10	3.80E-09	1.12E-08	4.89E-08
Methylcyclopentane	2.10E-06	4.16E-09	1.82E-08	3.50E-10	1.54E-09	4.51E-09	1.98E-08
Benzene	2.49E-04	4.95E-07	2.17E-06	4.16E-08	1.82E-07	5.36E-07	2.35E-06
Cyclohexane	7.99E-05	1.59E-07	6.95E-07	1.33E-08	5.85E-08	1.72E-07	7.53E-07
2-Methylhexane	5.48E-08	1.09E-10	4.77E-10	9.16E-12	4.01E-11	1.18E-10	5.17E-10
3-Methylhexane	2.15E-07	4.27E-10	1.87E-09	3.59E-11	1.57E-10	4.63E-10	2.03E-09
2,2,4 Trimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heptane	6.18E-08	1.23E-10	5.37E-10	1.03E-11	4.52E-11	1.33E-10	5.82E-10
Methylcyclohexane	3.88E-06	7.71E-09	3.38E-08	6.49E-10	2.84E-09	8.36E-09	3.66E-08
Toluene	2.66E-04	5.29E-07	2.32E-06	4.45E-08	1.95E-07	5.73E-07	2.51E-06
Octane	4.20E-09	8.33E-12	3.65E-11	7.02E-13	3.07E-12	9.04E-12	3.96E-11
Ethylbenzene	5.60E-05	1.11E-07	4.86E-07	9.35E-09	4.09E-08	1.20E-07	5.27E-07
m & p-Xylene	3.28E-05	6.50E-08	2.85E-07	5.47E-09	2.40E-08	7.05E-08	3.09E-07
o-Xylene	7.82E-05	1.55E-07	6.80E-07	1.31E-08	5.72E-08	1.68E-07	7.37E-07
Nonane	4.35E-10	8.64E-13	3.78E-12	7.27E-14	3.18E-13	9.36E-13	4.10E-12
C10+	6.58E-10	1.30E-12	5.72E-12	1.10E-13	4.81E-13	1.41E-12	6.20E-12
Total VOCs	0.1328	2.64E-04	0.0012	2.22E-05	9.71E-05	2.86E-04	0.0013
Total CO_{2e}		0.1616	0.7077	0.0136	0.0596	0.1752	0.7673
CH_4		0.0061	0.0269	0.0005	0.0023	0.0067	0.0292
Total TAPs (Benzene)		4.95E-07	2.17E-06	4.16E-08	1.82E-07	5.36E-07	2.35E-06
Toluene		5.29E-07	2.32E-06	4.45E-08	1.95E-07	5.73E-07	2.51E-06
Ethylbenzene		1.11E-07	4.86E-07	9.35E-09	4.09E-08	1.20E-07	5.27E-07
Xylenes		2.20E-07	9.64E-07	1.85E-08	8.12E-08	2.39E-07	1.05E-06
n-Hexane		1.03E-08	4.51E-08	8.67E-10	3.80E-09	1.12E-08	4.89E-08
Total HAPs		1.37E-06	5.98E-06	1.15E-07	5.03E-07	1.48E-06	6.48E-06
Total	100.00	0.1984	0.8691	0.0167	0.0732	0.2151	0.9423

Enter any notes here:	Vapor mass fractions, working losses and breathing losses from Promax output

Table 8

Loading Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Annual Loading	Oil Truck Loading	Water Truck Loading
RVP	3.54	1.0333
Annual Average Temp (F)	72.1	72.1
S (saturation factor)	0.6	0.6
P (true vapor pressure)	2.30	0.45
M (MW of vapor)	41.54	18.51
Collection Efficiency (%)	0.00	0.00
Total Hydrocarbon Loading Loss (lb/10^3 gal)*	1.34	0.12
Maximum Throughput (gallons/hr)**	10,080	10,080
Average Throughput (gallons/yr)	18,396,000	61,320,000
Total Hydrocarbon Loading Emissions (lbs/hr)	13.52	1.19
Total Hydrocarbon Loading Emissions (tpy)	12.34	3.61

	Condensate Tank Loading Losses			Produced Water Tank Loading Losses		
	Vapor Mass Fraction	Loading Losses		Vapor Mass Fraction	Loading Losses	
	wt%	lbs/hr	tpy	wt%	lbs/hr	tpy
H2S	0.0000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nitrogen	0.0001	8.00E-06	7.30E-06	0.0064	7.63E-05	2.32E-04
Carbon Dioxide	0.1612	0.0218	1.99E-02	3.9753	4.72E-02	1.44E-01
Methane	0.6403	0.0866	7.90E-02	3.0980	3.68E-02	1.12E-01
Ethane	33.6016	4.5423	4.1448	1.5997	1.90E-02	5.78E-02
Propane	32.7534	4.4276	4.04E+00	0.0754	8.95E-04	2.72E-03
Isobutane	6.2377	0.8432	7.69E-01	0.0519	6.16E-04	1.87E-03
n-Butane	12.5673	1.6989	1.55E+00	0.0044	5.28E-05	1.61E-04
2,2 Dimethylpropane	0.0097	0.0013	1.19E-03	0.0000	7.64E-09	2.32E-08
Isopentane	3.7358	0.5050	4.61E-01	0.0003	3.17E-06	9.65E-06
n-Pentane	3.4367	0.4646	4.24E-01	0.0000	3.29E-07	1.00E-06
2,2 Dimethylbutane	0.0175	0.0024	2.16E-03	0.0000	9.08E-10	2.76E-09
Cyclopentane	0.0000	0.0000	0.00E+00	0.0000	0.00E+00	0.00E+00
2,3 Dimethylbutane	0.0288	0.0039	3.56E-03	0.0000	5.63E-09	1.71E-08
2-Methylpentane	0.1959	0.0265	2.42E-02	1.23E-06	1.46E-08	4.45E-08
3-Methylpentane	0.1329	0.0180	1.64E-02	4.46E-06	5.30E-08	1.61E-07
n-Hexane	4.9391	0.6677	6.09E-01	5.19E-06	6.16E-08	1.88E-07
Methylcyclopentane	0.0296	0.0040	3.65E-03	2.10E-06	2.49E-08	7.58E-08
Benzene	0.0054	0.0007	6.72E-04	0.0002	2.96E-06	9.00E-06
Cyclohexane	0.0498	0.0067	6.15E-03	0.0001	9.49E-07	2.89E-06
2-Methylhexane	0.0565	0.0076	6.97E-03	0.0000	6.51E-10	1.98E-09
3-Methylhexane	0.1704	0.0230	2.10E-02	0.0000	2.55E-09	7.77E-09
2,2,4 Trimethylpentane	0.0000	0.0000	0.00E+00	0.0000	0.00E+00	0.00E+00
Heptane	0.3483	0.0471	4.30E-02	6.18E-08	7.34E-10	2.23E-09
Methylcyclohexane	0.1841	0.0249	2.27E-02	3.88E-06	4.61E-08	1.40E-07
Toluene	0.0297	0.0040	3.66E-03	0.0003	3.16E-06	9.62E-06
Octane	0.4490	0.0607	5.54E-02	4.20E-09	4.99E-11	1.52E-10
Ethylbenzene	0.0228	0.0031	2.81E-03	5.60E-05	6.64E-07	2.02E-06
m & p-Xylene	0.0209	0.0028	2.58E-03	3.28E-05	3.89E-07	1.18E-06
o-Xylene	0.0263	0.0035	3.24E-03	7.82E-05	9.28E-07	2.82E-06
Nonane	0.1322	0.0179	1.63E-02	4.35E-10	5.17E-12	1.57E-11
C10+	0.0168	0.0023	2.07E-03	6.58E-10	7.81E-12	2.37E-11
Total VOCs	65.5966	8.8674	8.0915	0.1328	1.58E-03	4.80E-03
Total CH_4		0.0866	0.0790		0.0368	0.1119
Total CO_{2e}		2.1858	1.9946		0.9667	2.9404
Total TAPs (Benzene)		0.0007	6.72E-04		2.96E-06	9.00E-06
Toluene		0.0040	3.66E-03		3.16E-06	9.62E-06
Ethylbenzene		0.0031	2.81E-03		6.64E-07	2.02E-06
Xylenes		0.0064	5.82E-03		1.32E-06	4.01E-06
n-Hexane		0.6677	6.09E-01		6.16E-08	1.88E-07
Total HAPs		0.6819	6.22E-01		8.17E-06	2.48E-05
Total	100.0000	13.5181	12.3352	100.0000	1.1872	3.6112

Enter any notes here

Vapor mass fractions and loading losses from Promax output

Using equation L_L = 12.46 SPM/T from AP-42, Chapter 5, Section 5.2-4

MW was obtained by Promax; RVP was taken from laboratory reports

Annual Average Temp (F) obtained from Charleston, WV (preset in Promax)

S (saturation factor) is based on submerged loading, dedicated service as it was most representative

True vapor pressure (TVP) equation from AP-42, Chapter 7, Figure 7.1-13a

** Maximum throughput in gallons per hour obtained from actual transfer rate of 200 barrels in 50 minutes. (10,080 gal/hr = 200 bbl / 50 min x 42 gal/bbl x 60 min/hr)

Loading emissions are vented to the atmosphere.

Table 9

Gas Production Unit Heater and Line Heater Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Gas Production Unit Heater Emissions

Number of Units	8
GPU Heater Rating (MMBtu/hr)	1.50
Operating hours/year	8760
Fuel Heat Value (Btu/scf)	1,225.77

Pollutant	Emission Factors (lb/MMscf)	lb/hr	tpy
NOx	100	0.979	4.288
CO	84	0.822	3.602
CO_2	120,000	1174.774	5145.512
Lead	0.0005	4.89E-06	2.14E-05
N_2O	2.2	0.022	0.094
PM (Total)	7.6	0.074	0.326
SO_2	0.6	0.006	0.026
TOC	11	0.108	0.472
Methane	2.3	0.023	0.099
VOC	5.5	0.054	0.236
HAPS			
2-Methylnaphthalene	2.40E-05	2.35E-07	1.03E-06
Benzene	2.10E-03	2.06E-05	9.00E-05
Dichlorobenzene	1.20E-03	1.17E-05	5.15E-05
Fluoranthene	3.00E-06	2.94E-08	1.29E-07
Fluorene	2.80E-06	2.74E-08	1.20E-07
Formaldehyde	7.50E-02	7.34E-04	3.22E-03
Hexane	1.80E+00	1.76E-02	7.72E-02
Naphthalene	6.10E-04	5.97E-06	2.62E-05
Phenanathrene	1.70E-05	1.66E-07	7.29E-07
Toluene	3.40E-03	3.33E-05	1.46E-04

Line Heater Emissions

Number of Units	8
Line Heater Rating (MMBtu/hr)	2.00
Operating hours/year	8760
Fuel Heat Value (Btu/scf)	1,225.77

Pollutant	Emission Factors (lb/MMscf)	lb/hr	tpy
NOx	100	1.305	5.717
CO	84	1.096	4.802
CO_2	120,000	1566.366	6860.682
Lead	0.0005	6.53E-06	2.86E-05
N_2O	2.2	0.029	0.126
PM (Total)	7.6	0.099	0.435
SO_2	0.6	0.008	0.034
TOC	11	0.144	0.629
Methane	2.3	0.030	0.131
VOC	5.5	0.072	0.314
HAPS			
2-Methylnaphthalene	2.40E-05	3.13E-07	1.37E-06
Benzene	2.10E-03	2.74E-05	1.20E-04
Dichlorobenzene	1.20E-03	1.57E-05	6.86E-05
Fluoranthene	3.00E-06	3.92E-08	1.72E-07
Fluorene	2.80E-06	3.65E-08	1.60E-07
Formaldehyde	7.50E-02	9.79E-04	4.29E-03
Hexane	1.80E+00	2.35E-02	1.03E-01
Naphthalene	6.10E-04	7.96E-06	3.49E-05
Phenanathrene	1.70E-05	2.22E-07	9.72E-07
Toluene	3.40E-03	4.44E-05	1.94E-04

	lb/hr	tpy
TOTAL Uncontrolled VOC	0.126	0.550
TOTAL Uncontrolled HAPs	0.043	0.188
TOTAL Uncontrolled TAPs (Benzene)	4.80E-05	2.10E-04
TOTAL Uncontrolled Toluene	7.77E-05	3.40E-04
TOTAL Uncontrolled Hexane	0.041	0.180
TOTAL Uncontrolled TAPs (Formaldehyde)	0.002	0.008
TOTAL CH_4	0.053	0.230
TOTAL CO_{2e} Emissions	2,757.43	12,077.54

Enter any notes here:
All Emission Factors based off AP-42 Sec 1.4 Natural Gas Combustion

Table 10

Enclosed Combustor Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

General Information	
Unit Name:	EC001, EC002, EC003

Pollutant	Emission Factor (lb/MMscf)
NOx	100
CO	84
PM10	7.6
PM2.5	5.7
SO_2	0.6
CO_2	120,000
VOC	5.5
benzene	2.10E-03
Hexane	1.80E+00
Toluene	3.40E-03
Formaldehyde	7.50E-02
N_2O	2.20
Lead	5.00E-04

Pollutant	Emission Factor[2] (lb/MMBtu)
NO_x	0.068
CO	0.31

Constants	
Btu/MMBtu	1,000,000
scf/MMscf	1,000,000
lb/ton	2,000
H_2S molecular wei	34.08
SO_2 molecular	64.06
seconds/hour	3,600
inches/ft	12

Destruction Efficiency	
VOC percent destruction efficiency (%)	98
H_2S percent destruction efficiency (%)	98

Enclosed Combustor operating hours	8760
No. of Enclosed Combustors	3
Maximum Design Heat Input Per Enclosed Combustor (MMBtu/hr)	12

Stream Information							
	1	2	3	4	5	6	Total
Stream Sent to Enclosed/Vapor Combustor (Enter Name of Each Stream Here)	pilot(s)	added fuel stream(s)	Oil Tank Flash Emissions	Water Tank Flash Emissions	Oil Tank W/B Emissions	Water Tank W/B Emissions	-
Maximum Expected Hourly Volumetric Flow Rate of Stream (scf/hr)	51	--	554.99	388.92	201.98	4.41	1,201.30
Maximum Expected Annual Volumetric Flow Rate of Stream (scf/yr)	446,760.00	--	4,861,742.13	3,406,958.41	1,769,321.71	38,628.30	10,523,410.55
Heating Content (Btu/ft3)	1,226		2,322.92	1,200.71	2,371.19	102.07	1,860.95

Mass Flow Rates of the Vapors Sent to this Control Device, Hourly Basis (lb/hr)							
	1	2	3	4	5	6	Total
Stream Sent to Enclosed Combustor/Vapor Combustor	pilot(s)	added fuel stream(s)	Oil Tank Flash Emissions	Water Tank Flash Emissions	Oil Tank W/B Emissions	Water Tank W/B Emissions	-
H2S	-	-	0.000	0.000	0.000	0.000	0.000
Total VOC	-	-	40.923	2.684	14.504	0.000	58.11
Benzene	-	-	0.006	0.003	0.001	0.000	0.010
Toluene	-	-	0.030	0.015	0.007	0.000	0.051
Ethylbenzene	-	-	0.021	0.010	0.005	0.000	0.036
Xylenes	-	-	0.050	0.024	0.010	0.000	0.084
n-Hexane	-	-	3.441	0.029	1.092	0.000	4.562
HAPs	-	-	3.547	0.081	1.115	0.000	4.744
Total Mass Flow	-	-	60.757	18.975	22.111	0.215	102.057
Mass Flow Rates of the Vapors Sent to this Control Device, Annual Basis (tpy)							
H2S	-	-	0.000	0.000	0.000	0.000	0.000
Total VOC	-	-	179.243	11.756	63.528	0.001	254.528
Benzene	-	-	0.025	0.013	0.005	0.000	0.044
Toluene	-	-	0.131	0.064	0.029	0.000	0.224
Ethylbenzene	-	-	0.092	0.045	0.022	0.000	0.159
Xylenes	-	-	0.218	0.105	0.046	0.000	0.369
n-Hexane	-	-	15.072	0.126	4.783	0.000	19.982
HAP	-	-	15.538	0.354	4.885	0.000	20.777
Total Mass Flow	-	-	266.114	83.109	96.846	0.942	447.011

Table 10

Enclosed Combustor Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Controlled Emissions							
Hourly (lb/hr)							
	1	2	3	4	5	6	Total
Stream Sent to Enclosed Combustor/Vapor Combustor	pilot(s)	added fuel stream(s)	Oil Tank Flash Emissions	Water Tank Flash Emissions	Oil Tank W/B Emissions	Water Tank W/B Emissions	-
NOx	0.005	-	2.448				2.45
CO	0.004	-	11.160				11.16
PM2.5	0.000	-	0.003	0.002	0.001	0.000	0.01
PM10	0.000	-	0.004	0.003	0.002	0.000	0.01
H2S	0.000	-	0.000	0.000	0.000	0.000	0.00
SO_2	0.000	-	0.000	0.000	0.000	0.000	0.00
CO_2	6.120	-	-	-	-	-	6.12
Total VOC	0.000	-	0.818	0.054	0.290	0.000	1.16
Benzene	0.000	-	0.000	0.000	0.000	0.000	0.00
Toluene	0.000	-	0.001	0.000	0.000	0.000	0.00
Ethylbenzene	0.000	-	0.000	0.000	0.000	0.000	0.00
Xylenes	0.000	-	0.001	0.000	0.000	0.000	0.00
n-Hexane	0.000	-	0.069	0.001	0.022	0.000	0.09
HAP	0.000	-	0.071	0.002	0.022	0.000	0.09
N_2O	0.000	-	0.001	0.001	0.000	0.000	0.00
Lead	0.000	-	0.000	0.000	0.000	0.000	0.00
Formaldehyde	0.000	-	-	-	-	-	0.00
Annual (tpy)							
	1	2	3	4	5	6	Total
Stream Sent to Enclosed Combustor/Vapor Combustor	pilot(s)	added fuel stream(s)	Oil Tank Flash Emissions	Water Tank Flash Emissions	Oil Tank W/B Emissions	Water Tank W/B Emissions	-
NOx	0.022	-	10.722				10.74
CO	0.019	-	48.881				48.90
PM2.5	0.001	-	0.014	0.010	0.005	0.000	0.03
PM10	0.002	-	0.018	0.013	0.007	0.000	0.04
H_2S	0.000	-	0.000	0.000	0.000	0.000	0.00
SO_2	0.000	-	0.000	0.000	0.000	0.000	0.00
CO_2	26.806	-	-	-	-	-	26.81
Total VOC	0.001	-	3.585	0.235	1.271	0.000	5.09
Benzene	0.000	-	0.001	0.000	0.000	0.000	0.00
Toluene	0.000	-	0.003	0.001	0.001	0.000	0.00
Ethylbenzene	0.000	-	0.002	0.001	0.000	0.000	0.00
Xylenes	0.000	-	0.004	0.002	0.001	0.000	0.01
n-Hexane	0.000	-	0.301	0.003	0.096	0.000	0.40
HAP	0.000	-	0.311	0.007	0.098	0.000	0.42
N_2O	0.000	-	0.005	0.004	0.002	0.000	0.01
Lead	0.000	-	0.000	0.000	0.000	0.000	0.00
Formaldehyde	0.000	-	-	-	-	-	0.00

Enclosed Combustor/Vapor Combustor Total Emissions		
	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
Total VOC	1.16	5.09
NOx	2.453	10.745
CO	11.164	48.900
PM2.5	0.007	0.030
PM10	0.009	0.040
H_2S	1.63E-05	7.13E-05
SO_2	3.06E-05	1.34E-04
Benzene (TAPs)	1.99E-04	8.73E-04
Toluene	1.02E-03	4.48E-03
Ethylbenzene	7.24E-04	3.17E-03
Xylenes	1.68E-03	0.007
Hexanes	0.091	0.400
Formaldehyde (TAPs)	3.83E-06	1.68E-05
HAPs	0.09	0.42
CH_4	0.28	1.25
CO_2e	309.15	1354.06
N_2O	0.003	0.01158
Lead	6.01E-07	2.63E-06

Enter any notes here as needed
1. Emission Factors from AP-42 Tables 1.4-1, 1.4-2, and 1.4.3
2. Emission Factors from AP-42 Tables 13.5-1 and 13.5-2 for industrial flares

Table 11

Enclosed Combustor GHG Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Enclosed Combustor CO_2 and CH_4 Emissions

Components	Mole fraction of oil flash gas constituents[a]	Volume of oil flash gas sent to Enclosed Combustor *scf/year*	Mole fraction of water flash gas constituents[a]	Volume of water flash gas sent to Enclosed Combustor *scf/year*	Mole fraction of oil tank vapors constituents[a]	Volume of oil tank vapor sent to Enclosed Combustor *scf/year*	Mole fraction of water tank vapors constituents[a]	Volume of water tank vapors sent to Enclosed Combustor *scf/year*	Component volume of gas sent to Enclosed Combustor *scf/year*	Number of carbon atoms	Combustion Efficiency	Combusted CO_2 Volume[b] *scf/year*	Uncombusted CO_2 and CH_4 Volume[b] *scf/year*	Volume GHGs Emitted *scf/year*
CO_2	0.002	4,861,742	0.0139	3,406,958	0.0015	1,769,322	0.017	38,628	60,061	1	0	--	60,061	22,294,169
Methane	0.089	4,861,742	0.7285	3,406,958	0.0166	1,769,322	0.036	38,628	2,943,287	1	0.98	2,884,421	58,866	58,866
Ethane	0.390	4,861,742	0.1674	3,406,958	0.4650	1,769,322	0.010	38,628	3,288,394	2	0.98	6,445,252	--	
Propane	0.296	4,861,742	0.0344	3,406,958	0.3091	1,769,322	0.000	38,628	2,101,275	3	0.98	6,177,748	--	
i-Butane	0.045	4,861,742	0.0134	3,406,958	0.0447	1,769,322	0.000	38,628	344,277	4	0.98	1,349,566	--	
n-Butane	0.089	4,861,742	0.0068	3,406,958	0.0900	1,769,322	0.000	38,628	614,427	4	0.98	2,408,555	--	
Pentane	0.046	4,861,742	0.0017	3,406,958	0.0414	1,769,322	0.000	38,628	304,589	5	0.98	1,492,488	--	
Hexane	0.029	4,861,742	0.0004	3,406,958	0.0254	1,769,322	0.000	38,628	186,095	6	0.98	1,094,237	--	
Benzene	0.000	4,861,742	0.0000	3,406,958	0.0000	1,769,322	0.000	38,628	436	6	0.98	2,563	--	
Heptanes	0.004	4,861,742	0.0001	3,406,958	0.0025	1,769,322	0.000	38,628	22,586	7	0.98	154,939	--	
Toluene	0.000	4,861,742	0.0002	3,406,958	0.0001	1,769,322	0.000	38,628	1,893	7	0.98	12,989	--	
Octane	0.003	4,861,742	0.0001	3,406,958	0.0024	1,769,322	0.000	38,628	18,734	8	0.98	146,877	--	
Ethyl benzene	0.000	4,861,742	0.0001	3,406,958	0.0001	1,769,322	0.000	38,628	1,164	8	0.98	9,125	--	
Xylenes	0.000	4,861,742	0.0002	3,406,958	0.0002	1,769,322	0.000	38,628	2,705	8	0.98	21,207	--	
Nonane	0.001	4,861,742	0.0000	3,406,958	0.0004	1,769,322	0.000	38,628	3,340	9	0.98	29,457	--	
Decane plus	0.000	4,861,742	0.0000	3,406,958	0.0000	1,769,322	0.000	38,628	478	10	0.98	4,683	--	
Subtotal												**22,234,108**	--	

Pollutant	Volume Emitted *scf/year*	Density of GHG[c] *lb/scf*	Conversion Factor *lb/ton*	GWF	Emissions[c] *lbs/hr*	Emissions[c] *(tons/yr)*
CO_2	22,294,169	0.12	2000	1	295.13	1,292.65
CH_4	58,866	0.04	2000	25	0.28	1.25
				CO_2e Emissions	**302.2**	**1323.80**

GHG Emissions Summary

Notes

a Flashing/Working/Breathing Losses from ProMax output reports

b 40 CFR 98.233 (n)(4): Eqns: W-19, W-20 and W-21

c 40 CFR 98.233(v) Eqn W-36 - density at 60°F and 14.7 psia

Table 12

Haul Road Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

	PM	PM10
Particle Size Multiplier (k)	0.8	0.36
Silt Content of Road Surface Material (s) (%)	5.1	5.1
Days per Year with Precipitation > 0.01 in (p)	150	150
Control Efficiency for Watering [1] (%)	50	50

Tanker Truck Trip Calculation	
Condensate Production (bbl/day)	1,200
PW Production (bbl/day)	4,000
Truck Capacity (bbl)	200

Pick Up Truck Trip Calculation	
No of Trips Per day	2
Trips Per Year	730

	# of Wheels	Mean Vehicle Weight (W) (tons)	Mean Vehicle Speed (S) (mph)	Miles Per Trip (miles)	Maximum Trips per Hour	Maximum Trips per Year	Vehicle Miles Travelled (miles/hr)	Vehicle Miles Travelled (miles/year)	PM (lbs/VMT)	PM10 (lbs/VMT)
Tanker Trucks Condensate	10	40	10	2.0000	1	2190	2.0000	4380.0000	3.8175	1.7179
Tanker Trucks PW	10	40	10	2.0000	1	7300	2.0000	14600.0000	3.8175	1.7179
Pick Up Truck	4	3	10	0.5000	1	730	0.5000	365.0000	0.3467	0.1560

	Uncontrolled Emissions						Controlled Emissions					
	PM			PM10			PM			PM10		
	(lbs/hr)	(lbs/year)	(tpy)	(lbs/hr)	(lbs/year)	(tpy)	(lbs/hr)	(lbs/year)	(tpy)	(lbs/hr)	(lbs/year)	(tpy)
Tanker Trucks Condensate	7.6351	16720.7787	8.3604	3.4358	7524.3504	3.7622	3.8175	8360.3894	4.1802	1.7179	3762.1752	1.8811
Tanker Trucks PW	7.6351	55735.9291	27.8680	3.4358	25081.1681	12.5406	3.8175	27867.9646	13.9340	1.7179	12540.5841	6.2703
Pick Up Truck	0.1733	126.5381	0.0633	0.0780	56.9421	0.0285	0.0867	63.2690	0.0316	0.0390	28.4711	0.0142
Total Emissions	15.4435	72,583.2459	36.2916	6.9496	32,662.4607	16.3312	7.7217	36,291.6230	18.1458	3.4748	16,331.2303	8.1656

Enter any notes here:	1 EPA, AP-42, Volume I, Section 13.2.2 Unpaved Roads (11/06); assume 2:1 moisture ratio Section 13.2.2 Unpaved Roads (11/06) Source: Attachment L, Fugitive Emissions from Unpaved Haul Roads, Rev 03/2007, West Virginia Department of Environmental Protection

Table 13

Engine Emissions
Oxford 97 Well Pad
Doddridge County, West Virginia
Antero Resources Corporation

Ford MSG425 2.5L Engine

Power (hp) [1]	76
Fuel consumption (lbs/BHP-hr) [1]	0.3864
Heat Content of Fuel (Btu/scf)	1225.7673
Density of NG (lb/scf)	0.056
Operating Hours/year	8760
No. of Engines	4

Pollutant	Emission Factors (g/hp-hr)	Emission Factors (lb/MMBtu)	lb/hr	tpy
NOx[2]	0.3731		0.2501	1.0953
CO[2]	2.4627		1.6505	7.2293
CO_2		110.000	282.8286	1,238.79
$PM_{2.5}$		9.500E-03	0.0244	0.1070
PM_{10}		9.500E-03	0.0244	0.1070
PM (Total)		9.910E-03	0.0255	0.1116
SO_2		5.880E-04	0.0015	0.0066
TOC		0.358	0.9205	4.0317
Methane		0.230	0.5914	2.5902
VOC[3]		0.0296	0.0761	0.3333
HAPS				
Benzene		0.002	4.06E-03	0.018
Ethylbenzene		2.48E-05	6.38E-05	2.79E-04
Formaldehyde		0.021	0.053	0.231
Naphthalene		9.71E-05	2.50E-04	1.09E-03
Toluene		5.58E-04	1.43E-03	6.28E-03
Xylene		1.95E-04	5.01E-04	2.20E-03

	lb/hr	tpy
TOTAL Uncontrolled VOC	0.076	0.333
TOTAL Uncontrolled NOx	0.250	1.095
TOTAL Uncontrolled HAPs	0.059	0.259
TOTAL Uncontrolled TAPs (Benzene)	4.06E-03	0.018
TOTAL Uncontrolled Toluene	1.43E-03	6.28E-03
TOTAL Uncontrolled Ethylbenzene	6.38E-05	2.79E-04
TOTAL Uncontrolled Xylenes	5.01E-04	2.20E-03
TOTAL Uncontrolled TAPs (Formaldehyde)	0.053	0.231
TOTAL CH_4 Emissions	0.591	2.590
TOTAL CO_{2e} Emissions	297.613	1303.544

Enter Any Notes Here:

1. Engines were manufactured in 2015 for MSG-425. Engine ratings were taken from manufacturer engine specifications. Please see copies of manufacturer engine specifications in Appendix N.
2. Emission factors used for the 76 HP engine NOX and CO emissions are certification levels indicated on MSG-425 CARB document. See MSG-425 CARB document in Appendix N.
3. Emission factors for all other contaminants including VOCs were obtained from AP-42, Section 3.2 "Natural Gas-fired Reciprocating Engines", Table 3.2-3.
4. Hours of operation was calculated based on the 100% operation of the VRU.

Bryan Research & Engineering, Inc.

ProMax® 3.2

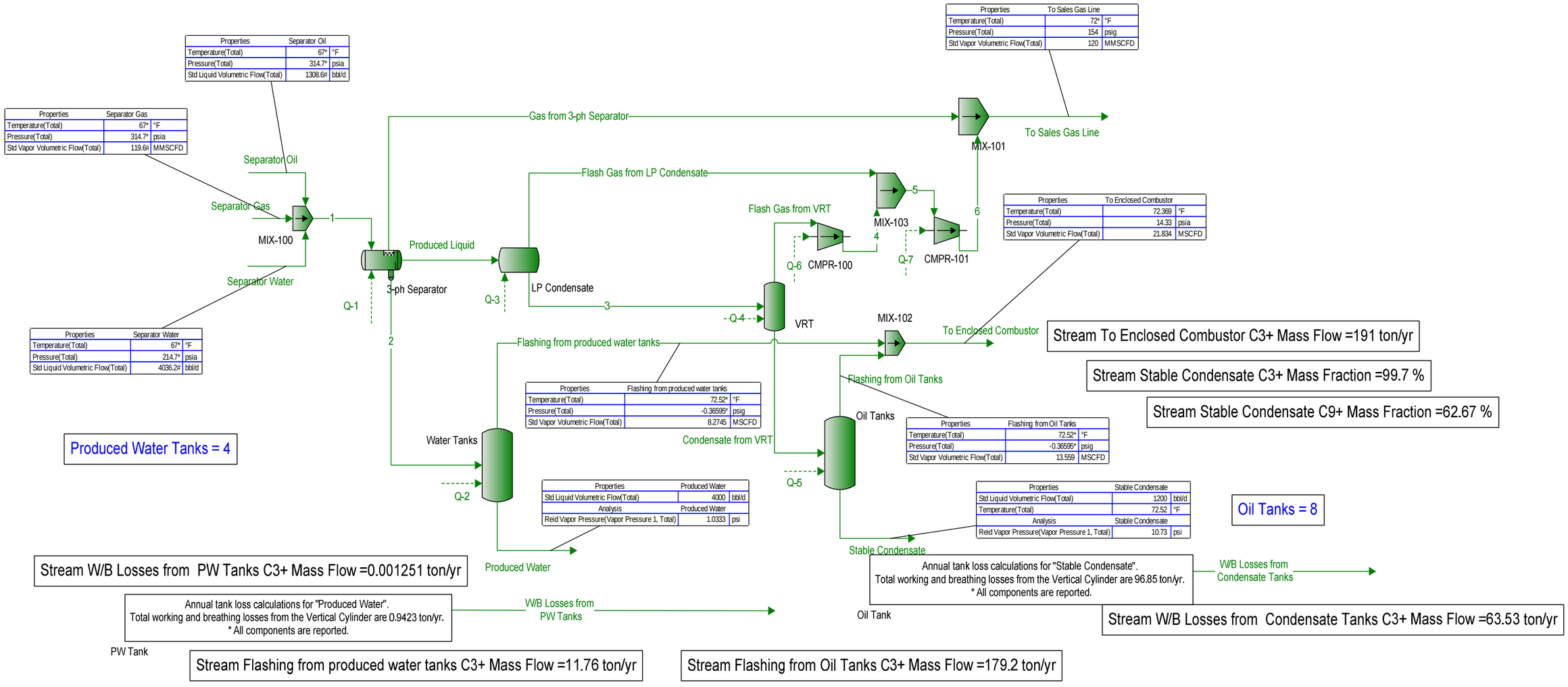
with

TSWEET® & PROSIM®

Simulation Report	
Client Name:	Antero Resources
Location:	Doddridge County, WV
Job:	Oxford 97 Well Pad

Project Name:	Antero Promax Model- VRT
File Name:	I:\Air Quality\6-chars\08----\0827--\082715\ANTERO RESOURCES \ProMax\Antero WV_VRT\ProMax Model\Antero Promax Model-VRT.pmx
ProMax Version:	4.0.16071.0

Report Created:	9/20/2017 10:39


Properties | Separator Oil
Temperature(Total) 67* °F
Pressure(Total) 314.7* psia
Std Liquid Volumetric Flow(Total) 1308.6# bbl/d
Properties | Separator Gas
Temperature(Total) 67* °F
Pressure(Total) 314.7* psia
Std Vapor Volumetric Flow(Total) 119.6# MMSCFD
Properties | Separator Water
Temperature(Total) 67* °F
Pressure(Total) 214.7* psia
Std Liquid Volumetric Flow(Total) 4036.2# bbl/d
Properties | To Sales Gas Line
Temperature(Total) 72* °F
Pressure(Total) 154 psig
Std Vapor Volumetric Flow(Total) 120 MMSCFD
Properties | To Enclosed Combustor
Temperature(Total) 72.369 °F
Pressure(Total) 14.33 psia
Std Vapor Volumetric Flow(Total) 21.834 MSCFD
Gas from 3-ph Separator
To Sales Gas Line
MIX-101
Separator Oil
Separator Gas
Separator Water
MIX-100
1
3-ph Separator
Produced Liquid
Flash Gas from LP Condensate
LP Condensate
Q-1
Q-3
2
3
Flash Gas from VRT
MIX-103
4
5
6
Q-6
CMPR-100
Q-7
CMPR-101
Q-4
VRT
MIX-102
To Enclosed Combustor
Flashing from produced water tanks
Flashing from Oil Tanks
Properties | Flashing from produced water tanks
Temperature(Total) 72.52* °F
Pressure(Total) -0.36595* psig
Std Vapor Volumetric Flow(Total) 8.2745 MSCFD
Properties | Flashing from Oil Tanks
Temperature(Total) 72.52* °F
Pressure(Total) -0.36595* psig
Std Vapor Volumetric Flow(Total) 13.559 MSCFD
Water Tanks
Condensate from VRT
Oil Tanks
Q-2
Q-5
Properties | Produced Water
Std Liquid Volumetric Flow(Total) 4000 bbl/d
Analysis | Produced Water
Reid Vapor Pressure(Vapor Pressure 1, Total) 1.0333 psi
Properties | Stable Condensate
Std Liquid Volumetric Flow(Total) 1200 bbl/d
Temperature(Total) 72.52 °F
Analysis | Stable Condensate
Reid Vapor Pressure(Vapor Pressure 1, Total) 10.73 psi
Produced Water
Stable Condensate
Stream To Enclosed Combustor C3+ Mass Flow =191 ton/yr
Stream Stable Condensate C3+ Mass Fraction =99.7 %
Stream Stable Condensate C9+ Mass Fraction =62.67 %
Produced Water Tanks = 4
Oil Tanks = 8
Stream W/B Losses from PW Tanks C3+ Mass Flow =0.001251 ton/yr
Annual tank loss calculations for "Produced Water".
Total working and breathing losses from the Vertical Cylinder are 0.9423 ton/yr.
* All components are reported.
W/B Losses from PW Tanks
PW Tank
Annual tank loss calculations for "Stable Condensate".
Total working and breathing losses from the Vertical Cylinder are 96.85 ton/yr.
* All components are reported.
W/B Losses from Condensate Tanks
Oil Tank
Stream W/B Losses from Condensate Tanks C3+ Mass Flow =63.53 ton/yr
Stream Flashing from produced water tanks C3+ Mass Flow =11.76 ton/yr
Stream Flashing from Oil Tanks C3+ Mass Flow =179.2 ton/yr

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks
Composition	Status:	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102
Mole Fraction		%	%	%	%	%
Water		0.0274935	0.444657	0.642348	0.639066	2.77349
H2S		0	0	0	0	0
Nitrogen		4.63935E-05	0.139868	0.0219018	0.00297294	0.241206
CO2		0.00537997	0.273521	0.265702	0.193025	1.39171
Methane		0.166063	56.9727	24.7307	8.84161	72.9839
Ethane		1.71213	26.1678	38.5677	38.9185	16.7710
Propane		3.79449	10.0838	21.6957	29.5149	3.45014
Isobutene		1.68848	1.31053	3.10978	4.66985	1.39336
n-Butane		4.08353	2.43564	5.81967	8.86970	0.685377
2,2-Dimethylpropane		0.00358768	0.00168598	0.00404592	0.00621308	0.000236797
Isopentane		2.62070	0.631435	1.51704	2.39659	0.126250
n-Pentane		3.26118	0.583393	1.39925	2.23526	0.0458176
2,2-Dimethylbutane		0.0224372	0.00248915	0.00596703	0.00960378	0.000184322
Cyclopentane		0	0	0	0	0
2,3-Dimethylbutane		0.0508582	0.00414168	0.00987802	0.0160419	0.000687109
2-Methylpentane		0.386908	0.0282304	0.0670084	0.109509	0.00305154
3-Methylpentane		0.292600	0.0191731	0.0454885	0.0744351	0.00495340
n-Hexane		13.7653	0.689111	1.61887	2.68217	0.0368842
Methylcyclopentane		0.0928210	0.00476441	0.0112994	0.0185748	0.00198488
Benzene		0.0271883	0.00127363	0.00301223	0.00497082	0.00419263
Cyclohexene		0.250686	0.00857045	0.0201015	0.0334340	0.0154422
2-Methylhexane		1.13048	0.0250405	0.0577434	0.0971217	0.00194823
3-Methylhexane		1.03565	0.0206327	0.0474382	0.0801317	0.00193250
2,2,4-Trimethylpentane		0	0	0	0	0
n-Heptane		2.89834	0.0440068	0.100329	0.170568	0.00175582
Methylcyclohexane		1.53224	0.0235581	0.0541714	0.0917392	0.00973956
Toluene		0.436004	0.00557886	0.0128025	0.0217387	0.0175797
n-Octane		11.0928	0.0512904	0.113379	0.197818	0.000844181
Ethylbenzene		0.867476	0.00342750	0.00762063	0.0132853	0.0105581
p-Xylene		0.889624	0.00337003	0.00749426	0.0130438	0.00981661
o-Xylene		1.51807	0.00474379	0.0105067	0.0183831	0.0151066
n-Nonane		9.82124	0.0137277	0.0294133	0.0528093	0.000245278
C10+		36.5262	0.00184062	0.00361192	0.00692653	0.000561454
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Water		0.0290347	0.0310144	0.0249512	0.00951446	0.0251978
H2S		0	0	0	0	0
Nitrogen		4.89943E-05	0.00975568	0.000850747	4.42614E-05	0.00219141
CO2		0.00568157	0.0190778	0.0103208	0.00287378	0.0126440
Methane		0.175372	3.97379	0.960633	0.131634	0.663076
Ethane		1.80811	1.82517	1.49811	0.579421	0.152368
Propane		4.00721	0.703334	0.842743	0.439420	0.0313453
Isobutene		1.78314	0.0914082	0.120795	0.0695251	0.0126590
n-Butane		4.31245	0.169884	0.226058	0.132053	0.00622680
2,2-Dimethylpropane		0.00378881	0.000117596	0.000157159	9.25007E-05	2.15136E-06
Isopentane		2.76761	0.0440420	0.0589276	0.0356806	0.00114701
n-Pentane		3.44400	0.0406911	0.0543522	0.0332787	0.000416263
2,2-Dimethylbutane		0.0236950	0.000173616	0.000231782	0.000142982	1.67461E-06
Cyclopentane		0	0	0	0	0
2,3-Dimethylbutane		0.0537093	0.000288878	0.000383699	0.000238833	6.24254E-06
2-Methylpentane		0.408598	0.00196904	0.00260285	0.00163037	2.77239E-05
3-Methylpentane		0.309003	0.00133730	0.00176694	0.00110820	4.50027E-05
n-Hexane		14.5370	0.0480648	0.0628830	0.0399324	0.000335101
Methylcyclopentane		0.0980245	0.000332313	0.000438910	0.000276543	1.80331E-05
Benzene		0.0287125	8.88343E-05	0.000117006	7.40059E-05	3.80910E-05
Cyclohexene		0.264739	0.000597780	0.000780819	0.000497768	0.000140296
2-Methylhexane		1.19385	0.00174655	0.00224297	0.00144595	1.77001E-05
3-Methylhexane		1.09371	0.00143911	0.00184268	0.00119301	1.75572E-05
2,2,4-Trimethylpentane		0	0	0	0	0
n-Heptane		3.06082	0.00306943	0.00389716	0.00253943	1.59521E-05
Methylcyclohexane		1.61814	0.00164316	0.00210422	0.00136582	8.84862E-05
Toluene		0.460446	0.000389120	0.000497298	0.000323647	0.000159716
n-Octane		11.7146	0.00357745	0.00440408	0.00294512	7.66958E-06
Ethylbenzene		0.916105	0.000239065	0.000296014	0.000197792	9.59231E-05
p-Xylene		0.939495	0.000235056	0.000291105	0.000194197	8.91862E-05
o-Xylene		1.60317	0.000330875	0.000408120	0.000273689	0.000137247
n-Nonane		10.3718	0.000957496	0.00114252	0.000786228	2.22841E-06
C10+		38.5738	0.000128381	0.000140301	0.000103123	5.10093E-06
Mass Fraction		%	%	%	%	%
Water		0.00407463	0.313095	0.334357	0.282119	2.39238
H2S		0	0	0	0	0
Nitrogen		1.06916E-05	0.153143	0.0177274	0.00204078	0.323530
CO2		0.00194780	0.470487	0.337862	0.208164	2.93262
Methane		0.0219161	35.7230	11.4632	3.47574	56.0609
Ethane		0.423522	30.7536	33.5075	28.6761	24.1457
Propane		1.37647	17.3792	27.6420	31.8920	7.28439
Isobutene		0.779339	2.87389	5.04128	6.42037	3.74316
n-Butane		1.95252	5.53307	9.77326	12.6327	1.90736
2,2-Dimethylpropane		0.00212942	0.00475436	0.00843423	0.0109845	0.000818026
Isopentane		1.55548	1.78061	3.16247	4.23709	0.436136
n-Pentane		1.93563	1.64513	2.91692	3.95186	0.158279
2,2-Dimethylbutane		0.0159063	0.00838387	0.0148573	0.0202801	0.000760541
Cyclopentane		0	0	0	0	0
2,3-Dimethylbutane		0.0360548	0.0139499	0.0245953	0.0338753	0.00283511
2-Methylpentane		0.274289	0.0950847	0.166844	0.231247	0.0125911
3-Methylpentane		0.207432	0.0645781	0.113262	0.157183	0.0204384
n-Hexane		9.75862	2.32104	4.03083	5.66389	0.152190
Methylcyclopentane		0.0642640	0.0156719	0.0274762	0.0383065	0.00799834
Benzene		0.0174710	0.00388839	0.00679837	0.00951458	0.0156807
Cyclohexene		0.169403	0.0275161	0.0477092	0.0672988	0.0607356
2-Methylhexane		0.931870	0.0980683	0.167178	0.238472	0.00934711
3-Methylhexane		0.853703	0.0808058	0.137342	0.196755	0.00927166
2,2,4-Trimethylpentane		0	0	0	0	0
n-Heptane		2.38916	0.172348	0.290471	0.418812	0.00842400
Methylcyclohexane		1.23764	0.0904068	0.153681	0.220724	0.0457879
Toluene		0.330483	0.0200908	0.0340829	0.0490817	0.0775558
n-Octane		10.4240	0.228992	0.374204	0.553713	0.00461713
Ethylbenzene		0.757629	0.0142223	0.0233761	0.0345619	0.0536698
p-Xylene		0.776973	0.0139838	0.0229884	0.0339336	0.0499005
o-Xylene		1.32584	0.0196842	0.0322290	0.0478240	0.0767910
n-Nonane		10.3624	0.0688151	0.108998	0.165970	0.00150624
C10+		52.0139	0.0124529	0.0180649	0.0293804	0.00465342
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h
Water		0.523069	0.558733	0.449503	0.171406	0.453946
H2S		0	0	0	0	0
Nitrogen		0.00137250	0.273290	0.0238323	0.00123991	0.0613889
CO2		0.250043	0.839605	0.454215	0.126473	0.556456
Methane		2.81341	63.7494	15.4109	2.11174	10.6374
Ethane		54.3683	54.8812	45.0468	17.4226	4.58157
Propane		176.700	31.0140	37.1613	19.3765	1.38219
Isobutene		100.045	5.12858	6.77739	3.90080	0.710252
n-Butane		250.649	9.87402	13.1390	7.67519	0.361916
2,2-Dimethylpropane		0.273358	0.00848438	0.0113388	0.00667381	0.000155218
Isopentane		199.680	3.17758	4.25155	2.57431	0.0827554
n-Pentane		248.481	2.93581	3.92145	2.40102	0.0300329
2,2-Dimethylbutane		2.04193	0.0149614	0.0199739	0.0123215	0.000144310
Cyclopentane		0	0	0	0	0
2,3-Dimethylbutane		4.62842	0.0248942	0.0330654	0.0205815	0.000537953
2-Methylpentane		35.2111	0.169683	0.224302	0.140498	0.00238912
3-Methylpentane		26.6285	0.115243	0.152267	0.0954991	0.00387813
n-Hexane		1252.73	4.14200	5.41897	3.44119	0.0288775
Methylcyclopentane		8.24969	0.0279673	0.0369385	0.0232737	0.00151766
Benzene		2.24278	0.00693901	0.00913958	0.00578074	0.00297536
Cyclohexene		21.7466	0.0491038	0.0641393	0.0408885	0.0115244
2-Methylhexane		119.626	0.175007	0.224750	0.144887	0.00177358
3-Methylhexane		109.591	0.144202	0.184640	0.119541	0.00175927
2,2,4-Trimethylpentane		0	0	0	0	0
n-Heptane		306.700	0.307563	0.390503	0.254456	0.00159843
Methylcyclohexane		158.878	0.161335	0.206605	0.134104	0.00868811
Toluene		42.4248	0.0358529	0.0458203	0.0298203	0.0147160
n-Octane		1338.14	0.408647	0.503072	0.336417	0.000876085
Ethylbenzene		97.2583	0.0253803	0.0314263	0.0209986	0.0101837
p-Xylene		99.7415	0.0249547	0.0309051	0.0206169	0.00946845
o-Xylene		170.201	0.0351273	0.0433280	0.0290562	0.0145708
n-Nonane		1330.24	0.122804	0.146534	0.100838	0.000285805
C10+		6677.12	0.0222228	0.0242860	0.0178505	0.000882972

Process Streams	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor
Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
From Block:	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102
To Block:	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--
Mole Fraction	%	%	%	%	%	%	%	%
Water	0.225118	0.0729835	99.9965	0*	0*	100*	0.0187484	1.44796
H2S	0	0	0	0*	0*	0*	0	0
Nitrogen	0.502294	0.00914902	2.81682E-06	0.5035*	0.0180005*	0*	4.54579E-06	0.0932568
CO2	0.190922	0.0301208	0.000683943	0.1918*	0.0150005*	0*	0.00269677	0.647294
Methane	79.7246	4.38740	0.00175350	79.9271*	4.77714*	0*	0.0420085	33.1498
Ethane	13.2537	4.40595	0.000610965	13.2821*	4.94815*	0*	1.18011	30.5252
Propane	3.91395	4.76819	8.90127E-05	3.9216*	4.86315*	0*	3.42671	19.6371
Isobutene	0.480271	1.71325	0.000155843	0.4842*	1.36904*	0*	1.64585	3.42815
n-Butane	0.891197	4.04274	1.62019E-05	0.8942*	3.81511*	0*	4.01509	5.76806
2,2-Dimethylpropane	0.000621866	0.00348908	2.69843E-09	0*	0.0710021*	0*	0.00355014	0.00394823
Isopentane	0.234373	2.46476	2.14320E-06	0.2342*	2.45607*	0*	2.62390	1.53619
n-Pentane	0.216153	3.03872	3.01562E-07	0.2124*	3.39110*	0*	3.27585	1.40552
2,2-Dimethylbutane	0.000929355	0.0206932	1.13015E-09	0*	0.121004*	0*	0.0226207	0.00603406
Cyclopentane	0	0	0	0*	0*	0*	0	0
2,3-Dimethylbutane	0.00155431	0.0466937	9.64979E-09	0*	0.214006*	0*	0.0513561	0.0102228
2-Methylpentane	0.0106335	0.354758	2.80912E-08	0*	1.49804*	0*	0.390875	0.0691644
3-Methylpentane	0.00722706	0.267984	1.13584E-07	0*	1.04403*	0*	0.295720	0.0481034
n-Hexane	0.262042	12.5771	1.67395E-07	0.3489*	2.75108*	0*	13.9238	1.67968
Methylcyclopentane	0.00178685	0.0848286	7.60945E-08	0*	0.276008*	0*	0.0938827	0.0122877
Benzene	0.000475223	0.0248300	1.44053E-05	0*	0.0760023*	0*	0.0275060	0.00467591
Cyclohexene	0.00323515	0.228495	4.65305E-06	0*	0.572017*	0*	0.253792	0.0266156
2-Methylhexane	0.00977574	1.02849	1.27092E-08	0*	2.05306*	0*	1.14525	0.0610535
3-Methylhexane	0.00805951	0.941902	1.51521E-08	0*	1.78305*	0*	1.04931	0.0504963
2,2,4-Trimethylpentane	0	0	0	0*	0*	0*	0	0
n-Heptane	0.0173791	2.63408	5.96069E-09	0*	4.42513*	0*	2.93735	0.106593
Methylcyclohexane	0.00915590	1.39259	3.74722E-07	0*	2.33607*	0*	1.55284	0.0606636
Toluene	0.00215586	0.396112	4.53853E-05	0*	0.617019*	0*	0.441928	0.0201626
n-Octane	0.0209947	10.0653	1.20367E-09	0*	11.9694*	0*	11.2486	0.123170
Ethylbenzene	0.00137829	0.787051	2.47037E-05	0*	0.908027*	0*	0.879690	0.0122518
p-Xylene	0.00135913	0.807127	1.61718E-05	0*	0.925028*	0*	0.902159	0.0118208
o-Xylene	0.00191510	1.37716	5.24395E-05	0*	1.53505*	0*	1.53952	0.0171414
n-Nonane	0.00583730	8.90730	3.75153E-10	0*	9.20628*	0*	9.96092	0.0328889
C10+	0.000869266	33.1207	1.65995E-08	0*	31.9660*	0*	37.0484	0.00451434
Molar Flow	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Water	29.6367	0.0850003	3239.09	0*	0*	3268.84*	0.0195203	0.0347123
H2S	0	0	0	0*	0*	0*	0	0
Nitrogen	66.1267	0.0106554	9.12424E-05	66.1178*	0.0217861*	0*	4.73295E-06	0.00223567
CO2	25.1348	0.0350802	0.0221543	25.1865*	0.0181551*	0*	0.00280779	0.0155178
Methane	10495.7	5.10980	0.0567995	10495.7*	5.78179*	0*	0.0437380	0.794710
Ethane	1744.84	5.13140	0.0197904	1744.16*	5.98876*	0*	1.22869	0.731790
Propane	515.269	5.55328	0.00288330	514.970*	5.88588*	0*	3.56779	0.470765
Isobutene	63.2273	1.99534	0.00504808	63.5834*	1.65695*	0*	1.71361	0.0821841
n-Butane	117.325	4.70839	0.000524812	117.423*	4.61744*	0*	4.18039	0.138279
2,2-Dimethylpropane	0.0818683	0.00406356	8.74077E-08	0*	0.0859341*	0*	0.00369630	9.46521E-05
Isopentane	30.8551	2.87058	6.94227E-05	30.7543*	2.97259*	0*	2.73193	0.0368276
n-Pentane	28.4564	3.53905	9.76819E-06	27.8916*	4.10426*	0*	3.41072	0.0336950
2,2-Dimethylbutane	0.122349	0.0241004	3.66080E-08	0*	0.146451*	0*	0.0235520	0.000144656
Cyclopentane	0	0	0	0*	0*	0*	0	0
2,3-Dimethylbutane	0.204624	0.0543819	3.12576E-07	0*	0.259013*	0*	0.0534705	0.000245075
2-Methylpentane	1.39989	0.413170	9.09931E-07	0*	1.81309*	0*	0.406967	0.00165810
3-Methylpentane	0.951438	0.312107	3.67923E-06	0*	1.26359*	0*	0.307895	0.00115320
n-Hexane	34.4976	14.6480	5.42226E-06	45.8163*	3.32964*	0*	14.4971	0.0402675
Methylcyclopentane	0.235237	0.0987957	2.46485E-06	0*	0.334054*	0*	0.0977479	0.000294577
Benzene	0.0625627	0.0289183	0.000466617	0*	0.0919858*	0*	0.0286385	0.000112097
Cyclohexene	0.425906	0.266117	0.000150722	0*	0.692314*	0*	0.264241	0.000638064
2-Methylhexane	1.28697	1.19784	4.11676E-07	0*	2.48483*	0*	1.19240	0.00146365
3-Methylhexane	1.06103	1.09699	4.90808E-07	0*	2.15803*	0*	1.09251	0.00121056
2,2,4-Trimethylpentane	0	0	0	0*	0*	0*	0	0
n-Heptane	2.28795	3.06779	1.93079E-07	0*	5.35575*	0*	3.05828	0.00255538
Methylcyclohexane	1.20537	1.62188	1.21380E-05	0*	2.82735*	0*	1.61677	0.00145431
Toluene	0.283817	0.461333	0.00147012	0*	0.746779*	0*	0.460123	0.000483363
n-Octane	2.76394	11.7226	3.89892E-08	0*	14.4865*	0*	11.7117	0.00295279
Ethylbenzene	0.181451	0.916640	0.000800205	0*	1.09899*	0*	0.915907	0.000293716
p-Xylene	0.178929	0.940022	0.000523839	0*	1.11956*	0*	0.939301	0.000283383
o-Xylene	0.252121	1.60391	0.00169862	0*	1.85787*	0*	1.60290	0.000410937
n-Nonane	0.768476	10.3739	1.21520E-08	0*	11.1424*	0*	10.3710	0.000788456
C10+	0.114438	38.5740	5.37692E-07	0*	38.6885*	0*	38.5737	0.000108224
Mass Fraction	%	%	%	%	%	%	%	%
Water	0.200659	0.0116448	99.9941	0*	0*	100*	0.00275243	0.784324
H2S	0	0	0	0*	0*	0*	0	0
Nitrogen	0.696195	0.00226991	4.37999E-06	0.698772*	0.00447011*	0*	1.03774E-06	0.0785498
CO2	0.415729	0.0117403	0.00167076	0.418182*	0.00585218*	0*	0.000967168	0.856538
Methane	63.2806	0.623370	0.00156144	63.5236*	0.679369*	0*	0.00549187	15.9901
Ethane	19.7181	1.17335	0.00101973	19.7859*	1.31895*	0*	0.289170	27.5980
Propane	8.53922	1.86216	0.000217869	8.56700*	1.90099*	0*	1.23136	26.0358
Isobutene	1.33323	0.851334	0.000485343	1.34588*	0.680918*	0*	0.752513	5.78324
n-Butane	2.56285	2.08107	5.22705E-05	2.57482*	1.96570*	0*	1.90173	10.0802
2,2-Dimethylpropane	0.00221990	0.00222950	1.08066E-08	0*	0.0454116*	0*	0.00208731	0.00856506
Isopentane	0.836652	1.57496	8.58304E-06	0.837116*	1.57086*	0*	1.54273	3.33253
n-Pentane	0.771610	1.94172	1.20768E-06	0.759195*	2.16889*	0*	1.92604	3.04905
2,2-Dimethylbutane	0.00396253	0.0157935	5.40591E-09	0*	0.0924375*	0*	0.0158855	0.0156348
Cyclopentane	0	0	0	0*	0*	0*	0	0
2,3-Dimethylbutane	0.00662718	0.0356376	4.61583E-08	0*	0.163485*	0*	0.0360651	0.0264883
2-Methylpentane	0.0453384	0.270759	1.34370E-07	0*	1.14439*	0*	0.274494	0.179211
3-Methylpentane	0.0308143	0.204531	5.43313E-07	0*	0.797560*	0*	0.207671	0.124640
n-Hexane	1.11728	9.59913	8.00706E-07	1.48955*	2.10162*	0*	9.77809	4.35220
Methylcyclopentane	0.00744043	0.0632285	3.55471E-07	0*	0.205917*	0*	0.0643874	0.0310937
Benzene	0.00183663	0.0171776	6.24579E-05	0*	0.0526272*	0*	0.0175088	0.0109820
Cyclohexene	0.0131485	0.166233	2.12158E-05	0*	0.416533*	0*	0.169889	0.0657369
2-Methylhexane	0.0484656	0.912737	7.06874E-08	0*	1.82366*	0*	0.935168	0.183944
3-Methylhexane	0.0399569	0.835890	8.42749E-08	0*	1.58383*	0*	0.856827	0.152137
2,2,4-Trimethylpentane	0	0	0	0*	0*	0*	0	0
n-Heptane	0.0861610	2.33762	3.31529E-08	0*	3.93069*	0*	2.39852	0.321147
Methylcyclohexane	0.0444793	1.21099	2.04224E-06	0*	2.03330*	0*	1.24248	0.179092
Toluene	0.00982806	0.323241	0.000232116	0*	0.503971*	0*	0.331822	0.0558580
n-Octane	0.118656	10.1829	7.63184E-09	0*	12.1203*	0*	10.4709	0.423037
Ethylbenzene	0.00723987	0.740034	0.000145577	0*	0.854569*	0*	0.761068	0.0391092
p-Xylene	0.00713923	0.758911	9.52992E-05	0*	0.870568*	0*	0.780507	0.0377334
o-Xylene	0.0100596	1.29489	0.000309021	0*	1.44467*	0*	1.33192	0.0547176
n-Nonane	0.0370420	10.1179	2.67074E-09	0*	10.4671*	0*	10.4109	0.126830
C10+	0.00744487	50.7766	1.59493E-07	0*	49.0514*	0*	52.2611	0.0234958
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water	533.913	1.53130	58353.1	0*	0*	58889.0*	0.351663	0.625352
H2S	0	0	0	0*	0*	0*	0	0
Nitrogen	1852.43	0.298495	0.00255601	1852.18*	0.610303*	0*	0.000132586	0.0626288
CO2	1106.17	1.54386	0.975000	1108.44*	0.798996*	0*	0.123570	0.682929
Methane	168377	81.9737	0.911203	168377*	92.7541*	0*	0.701665	12.7491
Ethane	52465.7	154.296	0.595078	52445.1*	180.076*	0*	36.9456	22.0042
Propane	22721.1	244.876	0.127141	22707.9*	259.541*	0*	157.324	20.7587
Isobutene	3547.45	111.951	0.283229	3567.43*	92.9656*	0*	96.1444	4.61105
n-Butane	6819.21	273.662	0.0305033	6824.89*	268.376*	0*	242.974	8.03711
2,2-Dimethylpropane	5.90670	0.293181	6.30636E-06	0*	6.20004*	0*	0.266684	0.00682903
Isopentane	2226.16	207.109	0.00500877	2218.89*	214.469*	0*	197.106	2.65707
n-Pentane	2053.09	255.338	0.000704763	2012.35*	296.117*	0*	246.080	2.43105
2,2-Dimethylbutane	10.5435	2.07686	3.15470E-06	0*	12.6205*	0*	2.02960	0.0124658
Cyclopentane	0	0	0	0*	0*	0*	0	0
2,3-Dimethylbutane	17.6336	4.68638	2.69364E-05	0*	22.3205*	0*	4.60784	0.0211195
2-Methylpentane	120.636	35.6050	7.84136E-05	0*	156.244*	0*	35.0706	0.142887
3-Methylpentane	81.9905	26.8960	0.000317059	0*	108.891*	0*	26.5330	0.0993773
n-Hexane	2972.85	1262.29	0.000467265	3948.24*	286.933*	0*	1249.29	3.47007
Methylcyclopentane	19.7975	8.31460	0.000207441	0*	28.1138*	0*	8.22642	0.0247914
Benzene	4.88689	2.25886	0.0364483	0*	7.18518*	0*	2.23700	0.00875609
Cyclohexene	34.9854	21.8598	0.0123808	0*	56.8692*	0*	21.7057	0.0524129
2-Methylhexane	128.957	120.026	4.12507E-05	0*	248.984*	0*	119.481	0.146661
3-Methylhexane	106.317	109.920	4.91799E-05	0*	216.239*	0*	109.472	0.121301
2,2,4-Trimethylpentane	0	0	0	0*	0*	0*	0	0
n-Heptane	229.257	307.398	1.93469E-05	0*	536.657*	0*	306.446	0.256054
Methylcyclohexane	118.350	159.246	0.00119178	0*	277.607*	0*	158.744	0.142793
Toluene	26.1504	42.5065	0.135455	0*	68.8071*	0*	42.3950	0.0445363
n-Octane	315.720	1339.06	4.45368E-06	0*	1654.78*	0*	1337.81	0.337293
Ethylbenzene	19.2638	97.3151	0.0849537	0*	116.674*	0*	97.2373	0.0311823
p-Xylene	18.9960	99.7974	0.0556133	0*	118.858*	0*	99.7209	0.0300854
o-Xylene	26.7665	170.279	0.180334	0*	197.241*	0*	170.172	0.0436271
n-Nonane	98.5610	1330.51	1.55855E-06	0*	1429.07*	0*	1330.14	0.101124
C10+	19.8093	6677.17	9.30744E-05	0*	6696.98*	0*	6677.10	0.0187335

Process Streams	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
From Block:	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
To Block:	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Mole Fraction	%	%	%	%	%	%	%	%	%
Water	0.225358	0.000428020*	93.7128*	19.7853	99.9693	0.0493066	0.642348	0.515371	0.515371
H2S	0	0*	0*	0	0	0	0	0	0
Nitrogen	0.501960	8.78127E-05*	0.00424595*	0.400324	7.04498E-05	0.000821754	0.0219018	0.0976717	0.0976717
CO2	0.190988	0.152185*	1.67233*	0.152557	0.00107398	0.0146154	0.265702	0.270724	0.270724
Methane	79.6964	1.65820*	3.57525*	63.5627	0.0222176	1.03754	24.7307	45.4397	45.4397
Ethane	13.2680	46.4234*	0.984987*	10.5931	0.00531336	3.01965	38.5677	30.6032	30.6032
Propane	3.92246	30.8573*	0.0316574*	3.15260	0.00105640	4.42957	21.6957	14.2374	14.2374
Isobutene	0.481485	4.61863*	0.0171162*	0.394881	0.000546497	1.73890	3.10978	1.95412	1.95412
n-Butane	0.893467	8.98247*	0.00141719*	0.738677	0.000208376	4.14512	5.81967	3.64611	3.64611
2,2-Dimethylpropane	0.000623439	0.00556234*	1.65183E-07*	0.000520135	6.90953E-08	0.00360394	0.00404592	0.00253014	0.00253014
Isopentane	0.234962	2.15105*	6.85527E-05*	0.204139	3.75429E-05	2.58155	1.51704	0.948218	0.948218
n-Pentane	0.216696	1.97886*	7.10497E-06*	0.193662	1.31487E-05	3.19513	1.39925	0.875227	0.875227
2,2-Dimethylbutane	0.000931666	0.00843172*	1.64233E-08*	0.000886427	5.28135E-08	0.0218529	0.00596703	0.00373319	0.00373319
Cyclopentane	0	0*	0*	0	0	0	0	0	0
2,3-Dimethylbutane	0.00155814	0.0139039*	1.01835E-07*	0.00156773	2.02311E-07	0.0494044	0.00987802	0.00619357	0.00619357
2-Methylpentane	0.0106594	0.0944274*	2.64510E-07*	0.0109741	8.83731E-07	0.375559	0.0670084	0.0421013	0.0421013
3-Methylpentane	0.00724467	0.0640517*	9.58872E-07*	0.00764818	1.50248E-06	0.283834	0.0454885	0.0285861	0.0285861
n-Hexane	0.262668	2.38103*	1.11557E-06*	0.297466	1.05096E-05	13.3344	1.61887	1.02169	1.02169
Methylcyclopentane	0.00179123	0.0146149*	4.61653E-07*	0.00202193	6.32632E-07	0.0899289	0.0112994	0.00710198	0.00710198
Benzene	0.000476393	0.00289570*	5.91001E-05*	0.000556764	1.55769E-05	0.0263306	0.00301223	0.00189553	0.00189553
Cyclohexene	0.00324295	0.0252107*	1.80115E-05*	0.00419038	8.98171E-06	0.242505	0.0201015	0.0126951	0.0126951
2-Methylhexane	0.00979797	0.0234270*	1.01299E-08*	0.0150399	5.58986E-07	1.09242	0.0577434	0.0367383	0.0367383
3-Methylhexane	0.00807778	0.0706452*	3.97483E-08*	0.0130620	5.57019E-07	1.00059	0.0474382	0.0302211	0.0302211
2,2,4-Trimethylpentane	0	0*	0*	0	0	0	0	0	0
n-Heptane	0.0174176	0.144397*	1.14170E-08*	0.0324168	4.98289E-07	2.79908	0.100329	0.0641533	0.0641533
Methylcyclohexane	0.00917680	0.0778896*	7.32347E-07*	0.0171132	3.10558E-06	1.47980	0.0541714	0.0345085	0.0345085
Toluene	0.00216081	0.0133812*	5.35435E-05*	0.00452004	5.03019E-05	0.420990	0.0128025	0.00816278	0.00816278
n-Octane	0.0210380	0.163296*	6.80784E-10*	0.0876830	2.37911E-07	10.7033	0.113379	0.0734997	0.0734997
Ethylbenzene	0.00138122	0.00891937*	9.75865E-06*	0.00665186	2.76573E-05	0.836971	0.00762063	0.00492739	0.00492739
p-Xylene	0.00136201	0.00817895*	5.71210E-06*	0.00677640	1.89199E-05	0.858329	0.00749426	0.00484527	0.00484527
o-Xylene	0.00191913	0.0102761*	1.36371E-05*	0.0112452	5.66607E-05	1.46459	0.0105067	0.00680519	0.00680519
n-Nonane	0.00584843	0.0428156*	6.28241E-11*	0.0674417	6.91508E-08	9.47385	0.0294133	0.0193385	0.0193385
C10+	0.000870589	0.00402919*	7.03324E-11*	0.234170	1.74026E-07	35.2305	0.00361192	0.00247422	0.00247422
Molar Flow	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Water	29.6926	2.27811E-06*	0.0108895*	3268.84	3239.12	0.0539859	0.0249512	0.0559656	0.0559656
H2S	0	0*	0*	0	0	0	0	0	0
Nitrogen	66.1373	4.67379E-07*	4.93384E-07*	66.1396	0.00228265	0.000899741	0.000850747	0.0106064	0.0106064
CO2	25.1642	0.000809998*	0.000194326*	25.2046	0.0347983	0.0160024	0.0103208	0.0293987	0.0293987
Methane	10500.6	0.00882568*	0.000415448*	10501.5	0.719875	1.13601	0.960633	4.93442	4.93442
Ethane	1748.17	0.247086*	0.000114457*	1750.15	0.172159	3.30623	1.49811	3.32329	3.32329
Propane	516.815	0.164236*	3.67863E-06*	520.856	0.0342286	4.84995	0.842743	1.54608	1.54608
Isobutene	63.4395	0.0245824*	1.98892E-06*	65.2404	0.0177071	1.90393	0.120795	0.212204	0.212204
n-Butane	117.721	0.0478087*	1.64679E-07*	122.041	0.00675162	4.53850	0.226058	0.395941	0.395941
2,2-Dimethylpropane	0.0821430	2.96053E-05*	1.91944E-11*	0.0859341	2.23876E-06	0.00394596	0.000157159	0.000274754	0.000274754
Isopentane	30.9581	0.0114489*	7.96590E-09*	33.7269	0.00121643	2.82654	0.0589276	0.102970	0.102970
n-Pentane	28.5514	0.0105324*	8.25606E-10*	31.9959	0.000426031	3.49836	0.0543522	0.0950433	0.0950433
2,2-Dimethylbutane	0.122754	4.48774E-05*	1.90841E-12*	0.146451	1.71122E-06	0.0239268	0.000231782	0.000405397	0.000405397
Cyclopentane	0	0*	0*	0	0	0	0	0	0
2,3-Dimethylbutane	0.205297	7.40030E-05*	1.18334E-11*	0.259013	6.55512E-06	0.0540930	0.000383699	0.000672577	0.000672577
2-Methylpentane	1.40446	0.000502585*	3.07364E-11*	1.81309	2.86339E-05	0.411201	0.00260285	0.00457190	0.00457190
3-Methylpentane	0.954542	0.000340912*	1.11422E-10*	1.26359	4.86820E-05	0.310770	0.00176694	0.00310424	0.00310424
n-Hexane	34.6086	0.0126729*	1.29631E-10*	49.1459	0.000340524	14.5999	0.0628830	0.110948	0.110948
Methylcyclopentane	0.236009	7.77868E-05*	5.36446E-11*	0.334054	2.04980E-05	0.0984634	0.000438910	0.000771223	0.000771223
Benzene	0.0627686	1.54122E-05*	6.86750E-09*	0.0919858	0.000504707	0.0288295	0.000117006	0.000205841	0.000205841
Cyclohexene	0.427284	0.000134183*	2.09296E-09*	0.692314	0.000291017	0.265519	0.000780819	0.00137860	0.00137860
2-Methylhexane	1.29096	0.000124689*	1.17711E-12*	2.48483	1.81118E-05	1.19609	0.00224297	0.00398952	0.00398952
3-Methylhexane	1.06431	0.000376006*	4.61880E-12*	2.15803	1.80480E-05	1.09555	0.00184268	0.00328179	0.00328179
2,2,4-Trimethylpentane	0	0*	0*	0	0	0	0	0	0
n-Heptane	2.29491	0.000768545*	1.32667E-12*	5.35575	1.61451E-05	3.06472	0.00389716	0.00696659	0.00696659
Methylcyclohexane	1.20912	0.000414564*	8.50995E-11*	2.82735	0.000100624	1.62024	0.00210422	0.00374738	0.00374738
Toluene	0.284703	7.12209E-05*	6.22182E-09*	0.746779	0.00162984	0.460943	0.000497298	0.000886418	0.000886418
n-Octane	2.77192	0.000869136*	7.91079E-14*	14.4865	7.70857E-06	11.7190	0.00440408	0.00798153	0.00798153
Ethylbenzene	0.181987	4.74729E-05*	1.13397E-09*	1.09899	0.000896128	0.916401	0.000296014	0.000535078	0.000535078
p-Xylene	0.179455	4.35320E-05*	6.63753E-10*	1.11956	0.000613025	0.939787	0.000291105	0.000526161	0.000526161
o-Xylene	0.252860	5.46941E-05*	1.58465E-09*	1.85787	0.00183587	1.60358	0.000408120	0.000738994	0.000738994
n-Nonane	0.770576	0.000227884*	7.30023E-15*	11.1424	2.24056E-06	10.3729	0.00114252	0.00210002	0.00210002
C10+	0.114707	2.14452E-05*	8.17270E-15*	38.6885	5.63863E-06	38.5739	0.000140301	0.000268682	0.000268682
Mass Fraction	%	%	%	%	%	%	%	%	%
Water	0.200802	0.000185613*	91.1878*	17.4432	99.9624	0.00749768	0.334357	0.322231	0.322231
H2S	0	0*	0*	0	0	0	0	0	0
Nitrogen	0.695489	5.92143E-05*	0.00642448*	0.548806	0.000109541	0.000194307	0.0177274	0.0949598	0.0949598
CO2	0.415726	0.161221*	3.97526*	0.328563	0.00262345	0.00542922	0.337862	0.413503	0.413503
Methane	63.2360	0.640340*	3.09795*	49.9016	0.0197832	0.140494	11.4632	25.2995	25.2995
Ethane	19.7324	33.6016*	1.59973*	15.5878	0.00886784	0.766404	33.5075	31.9369	31.9369
Propane	8.55478	32.7534*	0.0753994*	6.80306	0.00258555	1.64869	27.6420	21.7887	21.7887
Isobutene	1.33613	6.23774*	0.0518699*	1.08422	0.00170188	0.823509	5.04128	3.80513	3.80513
n-Butane	2.56848	12.5673*	0.00444905*	2.10106	0.000672232	2.03358	9.77326	7.35492	7.35492
2,2-Dimethylpropane	0.00222473	0.00966028*	6.43710E-07*	0.00183648	2.76698E-07	0.00219476	0.00843423	0.00633546	0.00633546
Isopentane	0.838458	3.73579*	0.000267147*	0.720770	0.000150344	1.57213	3.16247	2.37434	2.37434
n-Pentane	0.773277	3.43674*	2.76878E-05*	0.683776	5.26550E-05	1.94580	2.91692	2.19157	2.19157
2,2-Dimethylbutane	0.00397099	0.0174905*	7.64437E-08*	0.00373824	2.52614E-07	0.0158955	0.0148573	0.0111653	0.0111653
Cyclopentane	0	0*	0*	0	0	0	0	0	0
2,3-Dimethylbutane	0.00664115	0.0288419*	4.74001E-07*	0.00661143	9.67682E-07	0.0359360	0.0245953	0.0185238	0.0185238
2-Methylpentane	0.0454330	0.195877*	1.23118E-06*	0.0462800	4.22700E-06	0.273176	0.166844	0.125917	0.125917
3-Methylpentane	0.0308785	0.132867*	4.46314E-06*	0.0322539	7.18655E-06	0.206456	0.113262	0.0854956	0.0854956
n-Hexane	1.11955	4.93913*	5.19252E-06*	1.25447	5.02689E-05	9.69926	4.03083	3.05567	3.05567
Methylcyclopentane	0.00745606	0.0296074*	2.09853E-06*	0.00832742	2.95517E-06	0.0638827	0.0274762	0.0207438	0.0207438
Benzene	0.00184051	0.00544469*	0.000249346*	0.00212828	6.75345E-05	0.0173604	0.00679837	0.00513869	0.00513869
Cyclohexene	0.0131756	0.0498496*	7.99138E-05*	0.0168449	4.09507E-05	0.168142	0.0477092	0.0361923	0.0361923
2-Methylhexane	0.0485587	0.0565061*	5.48250E-08*	0.0737502	3.10890E-06	0.923945	0.167178	0.127762	0.127762
3-Methylhexane	0.0400335	0.170397*	2.15126E-07*	0.0640510	3.09795E-06	0.846278	0.137342	0.105097	0.105097
2,2,4-Trimethylpentane	0	0*	0*	0	0	0	0	0	0
n-Heptane	0.0863218	0.348287*	6.17910E-08*	0.158960	2.77132E-06	2.36740	0.290471	0.223101	0.223101
Methylcyclohexane	0.0445652	0.184091*	3.88386E-06*	0.0822282	1.69247E-05	1.22641	0.153681	0.117593	0.117593
Toluene	0.00984717	0.0296783*	0.000266468*	0.0203809	0.000257249	0.327412	0.0340829	0.0261026	0.0261026
n-Octane	0.118859	0.449008*	4.20031E-09*	0.490152	1.50840E-06	10.3198	0.374204	0.291384	0.291384
Ethylbenzene	0.00725269	0.0227939*	5.59588E-05*	0.0345593	0.000162975	0.750020	0.0233761	0.0181553	0.0181553
p-Xylene	0.00715181	0.0209017*	3.27548E-05*	0.0352064	0.000111488	0.769159	0.0229884	0.0178527	0.0178527
o-Xylene	0.0100772	0.0262611*	7.81990E-05*	0.0584236	0.000333882	1.31244	0.0322290	0.0250742	0.0250742
n-Nonane	0.0370996	0.132184*	4.35209E-10*	0.423296	4.92267E-07	10.2561	0.108998	0.0860801	0.0860801
C10+	0.00745359	0.0167887*	6.57582E-10*	1.98367	1.67201E-06	51.4750	0.0180649	0.0148642	0.0148642
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water	534.921	4.10408E-05*	0.196178*	58889.0	58353.6	0.972571	0.449503	1.00824	1.00824
H2S	0	0*	0*	0	0	0	0	0	0
Nitrogen	1852.73	1.30929E-05*	1.38214E-05*	1852.79	0.0639449	0.0252048	0.0238323	0.297122	0.297122
CO2	1107.46	0.0356476*	0.00855221*	1109.24	1.53146	0.704258	0.454215	1.29382	1.29382
Methane	168456	0.141586*	0.00666481*	168470	11.5486	18.2243	15.4109	79.1603	79.1603
Ethane	52565.7	7.42965*	0.00344160*	52625.2	5.17665	99.4151	45.0468	99.9280	99.9280
Propane	22789.3	7.24210*	0.000162211*	22967.5	1.50933	213.862	37.1613	68.1752	68.1752
Isobutene	3559.36	1.37923*	0.000111591*	3660.40	0.993481	106.823	6.77739	11.9060	11.9060
n-Butane	6842.22	2.77875*	9.57151E-06*	7093.27	0.392419	263.788	13.1390	23.0130	23.0130
2,2-Dimethylpropane	5.92652	0.00213598*	1.38485E-09*	6.20004	0.000161524	0.284696	0.0113388	0.0198232	0.0198232
Isopentane	2233.59	0.826021*	5.74730E-07*	2433.35	0.0877642	203.931	4.25155	7.42913	7.42913
n-Pentane	2059.95	0.759898*	5.95665E-08*	2308.46	0.0307376	252.402	3.92145	6.85726	6.85726
2,2-Dimethylbutane	10.5784	0.00386733*	1.64458E-10*	12.6205	0.000147465	2.06190	0.0199739	0.0349353	0.0349353
Cyclopentane	0	0*	0*	0	0	0	0	0	0
2,3-Dimethylbutane	17.6915	0.00637724*	1.01975E-09*	22.3205	0.000564890	4.66148	0.0330654	0.0579596	0.0579596
2-Methylpentane	121.030	0.0433104*	2.64872E-09*	156.244	0.00246753	35.4354	0.224302	0.393985	0.393985
3-Methylpentane	82.2580	0.0293782*	9.60183E-09*	108.891	0.00419519	26.7807	0.152267	0.267509	0.267509
n-Hexane	2982.41	1.09209*	1.11710E-08*	4235.17	0.0293447	1258.15	5.41897	9.56097	9.56097
Methylcyclopentane	19.8624	0.00654650*	4.51470E-09*	28.1138	0.00172510	8.28663	0.0369385	0.0649057	0.0649057
Benzene	4.90297	0.00120388*	5.36433E-07*	7.18518	0.0394236	2.25192	0.00913958	0.0160786	0.0160786
Cyclohexene	35.0987	0.0110222*	1.71923E-07*	56.8692	0.0239052	21.8107	0.0641393	0.113243	0.113243
2-Methylhexane	129.357	0.0124941*	1.17948E-10*	248.984	0.00181484	119.851	0.224750	0.399757	0.399757
3-Methylhexane	106.646	0.0376765*	4.62812E-10*	216.239	0.00180845	109.776	0.184640	0.328841	0.328841
2,2,4-Trimethylpentane	0	0*	0*	0	0	0	0	0	0
n-Heptane	229.955	0.0770097*	1.32935E-10*	536.657	0.00161777	307.091	0.390503	0.698065	0.698065
Methylcyclohexane	118.718	0.0407044*	8.35559E-09*	277.607	0.00987989	159.085	0.206605	0.367940	0.367940
Toluene	26.2321	0.00656218*	5.73268E-07*	68.8071	0.150171	42.4706	0.0458203	0.0816732	0.0816732
n-Octane	316.632	0.0992801*	9.03638E-12*	1654.78	0.000880538	1338.65	0.503072	0.911719	0.911719
Ethylbenzene	19.3206	0.00503996*	1.20387E-07*	116.674	0.0951374	97.2897	0.0314263	0.0568066	0.0568066
p-Xylene	19.0519	0.00462158*	7.04673E-08*	118.858	0.0650818	99.7724	0.0309051	0.0558599	0.0558599
o-Xylene	26.8449	0.00580660*	1.68234E-07*	197.241	0.194905	170.244	0.0433280	0.0784554	0.0784554
n-Nonane	98.8303	0.0292273*	9.36292E-13*	1429.07	0.000287364	1330.38	0.146534	0.269338	0.269338
C10+	19.8558	0.00371216*	1.41469E-12*	6696.98	0.000976046	6677.15	0.0242860	0.0465089	0.0465089

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks
Properties	Status:	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102
Property	**Units**					
Temperature	°F	65	70*	65*	72.52*	72.52*
Pressure	psia	19.6959	54.6959*	19.6959*	14.33*	14.33*
Mole Fraction Vapor	%	0	100	100	100	100
Mole Fraction Light Liquid	%	100	0	0	0	0
Mole Fraction Heavy Liquid	%	0	0	0	0	0
Molecular Weight	lb/lbmol	121.558	25.5853	34.6099	40.8089	20.8852
Mass Density	lb/ft^3	45.7406	0.251704	0.122884	0.103871	0.0525947
Molar Flow	lbmol/h	105.606	6.97490	3.88437	1.48881	0.908523
Mass Flow	lb/h	12837.2	178.455	134.438	60.7566	18.9747
Vapor Volumetric Flow	ft^3/h	280.652	708.986	1094.02	584.924	360.772
Liquid Volumetric Flow	gpm	34.9904	88.3931	136.397	72.9256	44.9793
Std Vapor Volumetric Flow	MMSCFD	0.961818	0.0635247	0.0353774	0.0135595	0.00827448
Std Liquid Volumetric Flow	sgpm	35.2583	0.947082	0.620571	0.258666	0.108755
Compressibility		0.00929623	0.978107	0.985217	0.985774	0.996352
Specific Gravity		0.733387	0.883389	1.19499	1.40902	0.721109
API Gravity		60.8346				
Enthalpy	Btu/h	-1.07586E+07	-252636	-154665	-62651.6	-33556.4
Mass Enthalpy	Btu/lb	-838.084	-1415.69	-1150.45	-1031.19	-1768.48
Mass Cp	Btu/(lb*°F)	0.488081	0.454512	0.415374	0.406908	0.470905
Ideal Gas CpCv Ratio		1.04563	1.21039	1.16190	1.13693	1.25415
Dynamic Viscosity	cP	0.667796	0.00998090	0.00897094	0.00858559	0.0106574
Kinematic Viscosity	cSt	0.911425	2.47548	4.55744	5.16007	12.6499

Process Streams	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor
Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
From Block:	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102
To Block:	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--
Temperature	70*	70	72.52	67*	67*	67*	72.52	72.3694
Pressure	168.696*	168.696	14.33	314.696*	314.696*	214.696*	14.33	14.33
Mole Fraction Vapor	100	0	0	100	0	0	0	100
Mole Fraction Light Liquid	0	100	100	0	100	100	100	0
Mole Fraction Heavy Liquid	0	0	0	0	0	0	0	0
Molecular Weight	20.2112	112.910	18.0157	20.1851	112.806	18.0153	122.712	33.2584
Mass Density	0.625503	45.1345	62.2561	1.21822	45.3894	62.3201	45.5867	0.0842637
Molar Flow	13164.9	116.465	3239.20	13131.6	121.030	3268.84	104.117	2.39733
Mass Flow	266079	13150.1	58356.6	265063	13653.0	58889.0	12776.4	79.7313
Vapor Volumetric Flow	425384	291.353	937.363	217583	300.797	944.944	280.267	946.212
Liquid Volumetric Flow	53034.9	36.3245	116.866	27127.2	37.5019	117.811	34.9424	117.969
Std Vapor Volumetric Flow	119.901	1.06072	29.5014	119.598*	1.10230	29.7713	0.948258	0.0218340
Std Liquid Volumetric Flow	1576.46	36.8259	116.667	1574.17	38.1667*	117.723*	34.9996	0.367421
Compressibility	0.958957	0.0742436	0.000726082	0.922560	0.138378	0.0109808	0.00675407	0.990603
Specific Gravity	0.697839	0.723669	0.998189	0.696935	0.727756	0.999216	0.730919	1.14832
API Gravity		62.7412	10.0027		62.0438	9.97462	60.5758	
Enthalpy	-4.47047E+08	-1.11753E+07	-3.98305E+08	-4.45790E+08	-1.15415E+07	-4.02241E+08	-1.06392E+07	-96208.0
Mass Enthalpy	-1680.13	-849.831	-6825.36	-1681.83	-845.350	-6830.49	-832.718	-1206.65
Mass Cp	0.502901	0.495227	0.981992	0.525138	0.490531	0.982071	0.492106	0.421874
Ideal Gas CpCv Ratio	1.25665	1.04871	1.32572	1.25764	1.04919	1.32599	1.04463	1.16597
Dynamic Viscosity	0.0107571	0.554189	0.964474	0.0109492	0.579266	1.03763	0.645069	0.00925500
Kinematic Viscosity	1.07361	0.766528	0.967137	0.561095	0.796715	1.03943	0.883380	6.85670

Process Streams	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
From Block:	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
To Block:	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Temperature	72*	75.9425*	75.9425*	60.7407	70	70	73.6626	70*	1250.88
Pressure	168.696	21.8078	0.473773	214.696	168.696	54.6959	54.6959	54.6959*	168.696*
Mole Fraction Vapor	100	100*	100*	79.4114	0	0	99.5441	99.9804	100
Mole Fraction Light Liquid	0	0	0	0.898731	100	100	0.455926	0.0196355	0
Mole Fraction Heavy Liquid	0	0	0	19.6898	0	0	0	0	0
Molecular Weight	20.2183	41.5429	18.5141	20.4343	18.0165	118.473	34.6099	28.8134	28.8134
Mass Density	0.623053	0.161214	0.00152670	1.04242	62.2680	45.4336	0.345816	0.285254	0.263944
Molar Flow	13175.8	0.532245	0.0116201	16521.5	3240.11	109.490	3.88437	10.8593	10.8593
Mass Flow	266392	22.1110*	0.215136*	337605	58375.5	12971.6	134.438	312.892	312.892
Vapor Volumetric Flow	427559	137.153	140.916	323867	937.489	285.508	388.756	1096.89	1185.45
Liquid Volumetric Flow	53306.1	17.0996	17.5687	40378.2	116.882	35.5957	48.4682	136.755	147.797
Std Vapor Volumetric Flow	120.000	0.00484748	0.000105831	150.472	29.5097	0.997195	0.0353774	0.0989021	0.0989021
Std Liquid Volumetric Flow	1578.03	0.0948973	0.000477922	1730.06	116.775	35.8789	0.620571	1.56765	1.56765
Compressibility	0.959442	0.977672	0.999550	0.753582	0.00858701	0.0250916	0.956421	0.971962	1.00320
Specific Gravity	0.698083	1.43436	0.639242		0.998380	0.728464			0.994848
API Gravity					10.0300	61.5024			
Enthalpy	-4.47188E+08	-22184.1	-1182.78	-8.59572E+08	-3.98462E+08	-1.09013E+07	-154700	-407336	-141023
Mass Enthalpy	-1678.68	-1003.31	-5497.84	-2546.09	-6825.83	-840.394	-1150.72	-1301.84	-450.708
Mass Cp	0.503445	0.407799	0.441075	0.589861	0.982129	0.492557	0.428042	0.441629	0.953630
Ideal Gas CpCv Ratio	1.25605	1.13446	1.32148	1.26184	1.32581	1.04644	1.15982	1.18943	1.07806
Dynamic Viscosity	0.0107902	0.00857692	0.0102871		0.995400	0.610025			0.0247432
Kinematic Viscosity	1.08114	3.32130	420.645		0.997958	0.838204			5.85226

Thermal Conductivity	Btu/(h*ft*°F)	0.0698920	0.0153173	0.0121769	0.0109881	0.0169101	0.0178101	0.0689508	0.348209	0.0182877	0.0691237	0.345689	0.0694657	0.0129738	0.0178868	0.0107683	0.0122416		0.346588	0.0692922			0.0784902
Surface Tension	lbf/ft	0.00160998						0.00146476?	0.00501316?		0.00138565	0.00505475	0.00158359?						0.00502991?	0.00155468			
Net Ideal Gas Heating Value	Btu/ft^3	6105.62	1374.94	1825.92	2136.60	1088.23	1104.37	5679.57	0.0402471	1105.36	5671.32	0	6162.38	1739.30	1104.72	2181.72	49.7350	920.105	0.345374	5953.79	1825.92	1536.26	1536.26
Net Liquid Heating Value	Btu/lb	18897.6	20290.2	19877.6	19711.8	19686.4	20677.9	18926.5	-1058.85	20725.9	18910.2	-1059.76	18893.7	19705.8	20677.2	19772.1	47.4658	16852.3	-1052.11	18907.8	19877.6	20112.9	20112.9
Gross Ideal Gas Heating Value	Btu/ft^3	6550.85	1508.07	1990.61	2322.92	1200.71	1218.42	6096.75	50.3522	1219.46	6087.24	50.3101	6611.31	1897.63	1218.81	2371.19	102.065	1023.80	50.6747	6389.07	1990.61	1680.67	1680.67
Gross Liquid Heating Value	Btu/lb	20287.0	22264.8	21683.1	21444.2	21730.1	22819.4	20328.1	0.917769	22871.1	20308.3	0	20281.5	21512.2	22818.4	21502.7	1120.08	18778.0	7.98074	20301.4	21683.1	22014.9	22014.9

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water			0.444657	0.642348	0.639066	2.77349	0.225118			0				1.44796	0.225358	0.000428020	93.7128	0.130009			0.645119	0.515465	0.515371
H2S			0	0	0	0	0			0				0	0	0	0	0			0	0	0
Nitrogen			0.139868	0.0219018	0.00297294	0.241206	0.502294			0.5035				0.0932568	0.501960	8.78127E-05	0.00424595	0.503956			0.0220015	0.0976907	0.0976717
CO2			0.273521	0.265702	0.193025	1.39171	0.190922			0.1918				0.647294	0.190988	0.152185	1.67233	0.191277			0.266853	0.270774	0.270724
Methane			56.9727	24.7307	8.84161	72.9839	79.7246			79.9271				33.1498	79.6964	1.65820	3.57525	79.9686			24.8418	45.4485	45.4397
Ethane			26.1678	38.5677	38.9185	16.7710	13.2537			13.2821				30.5252	13.2680	46.4234	0.984987	13.2697			38.7225	30.6085	30.6032
Propane			10.0838	21.6957	29.5149	3.45014	3.91395			3.9216				19.6371	3.92246	30.8573	0.0316574	3.89593			21.7525	14.2389	14.2374
Isobutene			1.31053	3.10978	4.66985	1.39336	0.480271			0.4842				3.42815	0.481485	4.61863	0.0171162	0.470696			3.10600	1.95399	1.95412
n-Butane			2.43564	5.81967	8.86970	0.685377	0.891197			0.8942				5.76806	0.893467	8.98247	0.00141719	0.867978			5.80374	3.64562	3.64611
2,2-Dimethylpropane			0.00168598	0.00404592	0.00621308	0.000236797	0.000621866			0				0.00394823	0.000623439	0.00556234	1.65183E-07	0.000602070			0.00402774	0.00252957	0.00253014
Isopentane			0.631435	1.51704	2.39659	0.126250	0.234373			0.2342				1.53619	0.234962	2.15105	6.85527E-05	0.220346			1.49809	0.947638	0.948218
n-Pentane			0.583393	1.39925	2.23526	0.0458176	0.216153			0.2124				1.40552	0.216696	1.97886	7.10497E-06	0.199215			1.37415	0.874453	0.875227
2,2-Dimethylbutane			0.00248915	0.00596703	0.00960378	0.000184322	0.000929355			0				0.00603406	0.000931666	0.00843172	1.64233E-08	0.000822904			0.00577516	0.00372736	0.00373319
Cyclopentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
2,3-Dimethylbutane			0.00414168	0.00987802	0.0160419	0.000687109	0.00155431			0				0.0102228	0.00155814	0.0139039	1.01835E-07	0.00133058			0.00943854	0.00617999	0.00619357
2-Methylpentane			0.0282304	0.0670084	0.109509	0.00305154	0.0106335			0				0.0691644	0.0106594	0.0944274	2.64510E-07	0.00897321			0.0636795	0.0419974	0.0421013
3-Methylpentane			0.0191731	0.0454885	0.0744351	0.00495340	0.00722706			0				0.0481034	0.00724467	0.0640517	9.58872E-07	0.00601752			0.0429681	0.0285070	0.0285861
n-Hexane			0.689111	1.61887	2.68217	0.0368842	0.262042			0.3489				1.67968	0.262668	2.38103	1.11557E-06	0.209837			1.50259	1.01794	1.02169
Methylcyclopentane			0.00476441	0.0112994	0.0185748	0.00198488	0.00178685			0				0.0122877	0.00179123	0.0146149	4.61653E-07	0.00143576			0.0104990	0.00707621	0.00710198
Benzene			0.00127363	0.00301223	0.00497082	0.00419263	0.000475223			0				0.00467591	0.000476393	0.00289570	5.91001E-05	0.000378673			0.00280254	0.00188841	0.00189553
Cyclohexene			0.00857045	0.0201015	0.0334340	0.0154422	0.00323515			0				0.0266156	0.00324295	0.0252107	1.80115E-05	0.00246805			0.0182503	0.0126299	0.0126951
2-Methylhexane			0.0250405	0.0577434	0.0971217	0.00194823	0.00977574			0				0.0610535	0.00979797	0.0234270	1.01299E-08	0.00695269			0.0491865	0.0364346	0.0367383
3-Methylhexane			0.0206327	0.0474382	0.0801317	0.00193250	0.00805951			0				0.0504963	0.00807778	0.0706452	3.97483E-08	0.00562576			0.0397446	0.0299426	0.0302211
2,2,4-Trimethylpentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
n-Heptane			0.0440068	0.100329	0.170568	0.00175582	0.0173791			0				0.106593	0.0174176	0.144397	1.14170E-08	0.0117003			0.0805241	0.0633873	0.0641533
Methylcyclohexane			0.0235581	0.0541714	0.0917392	0.00973956	0.00915590			0				0.0606636	0.00917680	0.0778896	7.32347E-07	0.00613037			0.0432066	0.0340911	0.0345085
Toluene			0.00557886	0.0128025	0.0217387	0.0175797	0.00215586			0				0.0201626	0.00216081	0.0133812	5.35435E-05	0.00143176			0.0101604	0.00805172	0.00816278
n-Octane			0.0512904	0.113379	0.197818	0.000844181	0.0209947			0				0.123170	0.0210380	0.163296	6.80784E-10	0.0123009			0.0629418	0.0706590	0.0734997
Ethylbenzene			0.00342750	0.00762063	0.0132853	0.0105581	0.00137829			0				0.0122518	0.00138122	0.00891937	9.75865E-06	0.000809910			0.00418535	0.00471718	0.00492739
p-Xylene			0.00337003	0.00749426	0.0130438	0.00981661	0.00135913			0				0.0118208	0.00136201	0.00817895	5.71210E-06	0.000799034			0.00406765	0.00463362	0.00484527
o-Xylene			0.00474379	0.0105067	0.0183831	0.0151066	0.00191510			0				0.0171414	0.00191913	0.0102761	1.36371E-05	0.00110523			0.00515485	0.00644253	0.00680519
n-Nonane			0.0137277	0.0294133	0.0528093	0.000245278	0.00583730			0				0.0328889	0.00584843	0.0428156	6.28241E-11	0.00314829			0.00804361	0.0170510	0.0193385
C10+			0.00184062	0.00361192	0.00692653	0.000561454	0.000869266			0				0.00451434	0.000870589	0.00402919	7.03324E-11	0.000449201			5.78426E-05	0.000554459	0.00247422
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Water			0.0310144	0.0249512	0.00951446	0.0251978	29.6367			0				0.0347123	29.6926	2.27811E-06	0.0108895	17.0572			0.0249446	0.0559648	0.0559656
H2S			0	0	0	0	0			0				0	0	0	0	0			0	0	0
Nitrogen			0.00975568	0.000850747	4.42614E-05	0.00219141	66.1267			66.1178				0.00223567	66.1373	4.67379E-07	4.93384E-07	66.1188			0.000850725	0.0106064	0.0106064
CO2			0.0190778	0.0103208	0.00287378	0.0126440	25.1348			25.1865				0.0155178	25.1642	0.000809998	0.000194326	25.0955			0.0103183	0.0293983	0.0293987
Methane			3.97379	0.960633	0.131634	0.663076	10495.7			10495.7				0.794710	10500.6	0.00882568	0.000415448	10491.8			0.960547	4.93441	4.93442
Ethane			1.82517	1.49811	0.579421	0.152368	1744.84			1744.16				0.731790	1748.17	0.247086	0.000114457	1740.98			1.49727	3.32321	3.32329
Propane			0.703334	0.842743	0.439420	0.0313453	515.269			514.970				0.470765	516.815	0.164236	3.67863E-06	511.144			0.841096	1.54594	1.54608
Isobutene			0.0914082	0.120795	0.0695251	0.0126590	63.2273			63.5834				0.0821841	63.4395	0.0245824	1.98892E-06	61.7551			0.120098	0.212148	0.212204
n-Butane			0.169884	0.226058	0.132053	0.00622680	117.325			117.423				0.138279	117.721	0.0478087	1.64679E-07	113.878			0.224411	0.395810	0.395941
2,2-Dimethylpropane			0.000117596	0.000157159	9.25007E-05	2.15136E-06	0.0818683			0				9.46521E-05	0.0821430	2.96053E-05	1.91944E-11	0.0789914			0.000155739	0.000274639	0.000274754
Isopentane			0.0440420	0.0589276	0.0356806	0.00114701	30.8551			30.7543				0.0368276	30.9581	0.0114489	7.96590E-09	28.9093			0.0579262	0.102886	0.102970
n-Pentane			0.0406911	0.0543522	0.0332787	0.000416263	28.4564			27.8916				0.0336950	28.5514	0.0105324	8.25606E-10	26.1370			0.0531337	0.0949406	0.0950433
2,2-Dimethylbutane			0.000173616	0.000231782	0.000142982	1.67461E-06	0.122349			0				0.000144656	0.122754	4.48774E-05	1.90841E-12	0.107965			0.000223306	0.000404685	0.000405397
Cyclopentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
2,3-Dimethylbutane			0.000288878	0.000383699	0.000238833	6.24254E-06	0.204624			0				0.000245075	0.205297	7.40030E-05	1.18334E-11	0.174572			0.000364956	0.000670971	0.000672577
2-Methylpentane			0.00196904	0.00260285	0.00163037	2.77239E-05	1.39989			0				0.00165810	1.40446	0.000502585	3.07364E-11	1.17728			0.00246227	0.00455972	0.00457190
3-Methylpentane			0.00133730	0.00176694	0.00110820	4.50027E-05	0.951438			0				0.00115320	0.954542	0.000340912	1.11422E-10	0.789496			0.00166143	0.00309504	0.00310424
n-Hexane			0.0480648	0.0628830	0.0399324	0.000335101	34.4976			45.8163				0.0402675	34.6086	0.0126729	1.29631E-10	27.5305			0.0581000	0.110519	0.110948
Methylcyclopentane			0.000332313	0.000438910	0.000276543	1.80331E-05	0.235237			0				0.000294577	0.236009	7.77868E-05	5.36446E-11	0.188371			0.000405962	0.000768274	0.000771223
Benzene			8.88343E-05	0.000117006	7.40059E-05	3.80910E-05	0.0625627			0				0.000112097	0.0627686	1.54122E-05	6.86750E-09	0.0496818			0.000108365	0.000205027	0.000205841
Cyclohexene			0.000597780	0.000780819	0.000497768	0.000140296	0.425906			0				0.000638064	0.427284	0.000134183	2.09296E-09	0.323807			0.000705678	0.00137124	0.00137860
2-Methylhexane			0.00174655	0.00224297	0.00144595	1.77001E-05	1.28697			0				0.00146365	1.29096	0.000124689	1.17711E-12	0.912191			0.00190188	0.00395576	0.00398952
3-Methylhexane			0.00143911	0.00184268	0.00119301	1.75572E-05	1.06103			0				0.00121056	1.06431	0.000376006	4.61880E-12	0.738097			0.00153679	0.00325091	0.00328179
2,2,4-Trimethylpentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
n-Heptane			0.00306943	0.00389716	0.00253943	1.59521E-05	2.28795			0				0.00255538	2.29491	0.000768545	1.32667E-12	1.53507			0.00311359	0.00688204	0.00696659
Methylcyclohexane			0.00164316	0.00210422	0.00136582	8.84862E-05	1.20537			0				0.00145431	1.20912	0.000414564	8.50995E-11	0.804302			0.00167065	0.00370132	0.00374738
Toluene			0.000389120	0.000497298	0.000323647	0.000159716	0.283817			0				0.000483363	0.284703	7.12209E-05	6.22182E-09	0.187846			0.000392868	0.000874186	0.000886418
n-Octane			0.00357745	0.00440408	0.00294512	7.66958E-06	2.76394			0				0.00295279	2.77192	0.000869136	7.91079E-14	1.61387			0.00243375	0.00767155	0.00798153
Ethylbenzene			0.000239065	0.000296014	0.000197792	9.59231E-05	0.181451			0				0.000293716	0.181987	4.74729E-05	1.13397E-09	0.106260			0.000161833	0.000512150	0.000535078
p-Xylene			0.000235056	0.000291105	0.000194197	8.91862E-05	0.178929			0				0.000283383	0.179455	4.35320E-05	6.63753E-10	0.104833			0.000157282	0.000503078	0.000526161
o-Xylene			0.000330875	0.000408120	0.000273689	0.000137247	0.252121			0				0.000410937	0.252860	5.46941E-05	1.58465E-09	0.145006			0.000199321	0.000699474	0.000738994
n-Nonane			0.000957496	0.00114252	0.000786228	2.22841E-06	0.768476			0				0.000788456	0.770576	0.000227884	7.30023E-15	0.413055			0.000311019	0.00185125	0.00210002
C10+			0.000128381	0.000140301	0.000103123	5.10093E-06	0.114438			0				0.000108224	0.114707	2.14452E-05	8.17270E-15	0.0589350			2.23658E-06	6.01984E-05	0.000268682
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water			0.313095	0.334357	0.282119	2.39238	0.200659			0				0.784324	0.200802	0.000185613	91.1878	0.116467			0.337893	0.322438	0.322231
H2S			0	0	0	0	0			0				0	0	0	0	0			0	0	0
Nitrogen			0.153143	0.0177274	0.00204078	0.323530	0.696195			0.698772				0.0785498	0.695489	5.92143E-05	0.00642448	0.702015			0.0179191	0.0950223	0.0949598
CO2			0.470487	0.337862	0.208164	2.93262	0.415729			0.418182				0.856538	0.415726	0.161221	3.97526	0.418599			0.341441	0.413771	0.413503
Methane			35.7230	11.4632	3.47574	56.0609	63.2806			63.5236				15.9901	63.2360	0.640340	3.09795	63.7938			11.5865	25.3161	25.2995
Ethane			30.7536	33.5075	28.6761	24.1457	19.7181			19.7859				27.5980	19.7324	33.6016	1.59973	19.8413			33.8517	31.9571	31.9369
Propane			17.3792	27.6420	31.8920	7.28439	8.53922			8.56700				26.0358	8.55478	32.7534	0.0753994	8.54269			27.8870	21.8011	21.7887
Isobutene			2.87389	5.04128	6.42037	3.74316	1.33323			1.34588				5.78324	1.33613	6.23774	0.0518699	1.31323			5.06653	3.80663	3.80513
n-Butane			5.53307	9.77326	12.6327	1.90736	2.56285			2.57482				10.0802	2.56848	12.5673	0.00444905	2.50864			9.80725	7.35732	7.35492
2,2-Dimethylpropane			0.00475436	0.00843423	0.0109845	0.000818026	0.00221990			0				0.00856506	0.00222473	0.00966028	6.43710E-07	0.00216005			0.00844866	0.00633696	0.00633546
Isopentane			1.78061	3.16247	4.23709	0.436136	0.836652			0.837116				3.33253	0.838458	3.73579	0.000267147	0.790538			3.14243	2.37398	2.37434
n-Pentane			1.64513	2.91692	3.95186	0.158279	0.771610			0.759195				3.04905	0.773277	3.43674	2.76878E-05	0.714726			2.88244	2.19064	2.19157
2,2-Dimethylbutane			0.00838387	0.0148573	0.0202801	0.000760541	0.00396253			0				0.0156348	0.00397099	0.0174905	7.64437E-08	0.00352631			0.0144692	0.0111530	0.0111653
Cyclopentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
2,3-Dimethylbutane			0.0139499	0.0245953	0.0338753	0.00283511	0.00662718			0				0.0264883	0.00664115	0.0288419	4.74001E-07	0.00570182			0.0236475	0.0184917	0.0185238
2-Methylpentane			0.0950847	0.166844	0.231247	0.0125911	0.0453384			0				0.179211	0.0454330	0.195877	1.23118E-06	0.0384520			0.159544	0.125664	0.125917
3-Methylpentane			0.0645781	0.113262	0.157183	0.0204384	0.0308143			0				0.124640	0.0308785	0.132867	4.46314E-06	0.0257863			0.107653	0.0852983	0.0854956
n-Hexane			2.32104	4.03083	5.66389	0.152190	1.11728			1.48955				4.35220	1.11955	4.93913	5.19252E-06	0.899194			3.76461	3.04586	3.05567
Methylcyclopentane			0.0156719	0.0274762	0.0383065	0.00799834	0.00744043			0				0.0310937	0.00745606	0.0296074	2.09853E-06	0.00600861			0.0256892	0.0206781	0.0207438
Benzene			0.00388839	0.00679837	0.00951458	0.0156807	0.00183663			0				0.0109820	0.00184051	0.00544469	0.000249346	0.00147085			0.00636452	0.00512175	0.00513869
Cyclohexene			0.0275161	0.0477092	0.0672988	0.0607356	0.0131485			0				0.0657369	0.0131756	0.0498496	7.99138E-05	0.0100813			0.0435855	0.0360230	0.0361923
2-Methylhexane			0.0980683	0.167178	0.238472	0.00934711	0.0484656			0				0.183944	0.0485587	0.0565061	5.48250E-08	0.0346431			0.143291	0.126764	0.127762
3-Methylhexane			0.0808058	0.137342	0.196755	0.00927166	0.0399569			0				0.152137	0.0400335	0.170397	2.15126E-07	0.0280314			0.115785	0.104177	0.105097
2,2,4-Trimethylpentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
n-Heptane			0.172348	0.290471	0.418812	0.00842400	0.0861610			0				0.321147	0.0863218	0.348287	6.17910E-08	0.0582989			0.234584	0.220538	0.223101
Methylcyclohexane			0.0904068	0.153681	0.220724	0.0457879	0.0444793			0				0.179092	0.0445652	0.184091	3.88386E-06	0.0299312			0.123338	0.116224	0.117593
Toluene			0.0200908	0.0340829	0.0490817	0.0775558	0.00982806			0				0.0558580	0.00984717	0.0296783	0.000266468	0.00655992			0.0272175	0.0257594	0.0261026
n-Octane			0.228992	0.374204	0.553713	0.00461713	0.118656			0				0.423037	0.118859	0.449008	4.20031E-09	0.0698712			0.209031	0.280252	0.291384
Ethylbenzene			0.0142223	0.0233761	0.0345619	0.0536698	0.00723987			0				0.0391092	0.00725269	0.0227939	5.59588E-05	0.00427569			0.0129185	0.0173888	0.0181553
p-Xylene			0.0139838	0.0229884	0.0339336	0.0499005	0.00713923			0				0.0377334	0.00715181	0.0209017	3.27548E-05	0.00421828			0.0125552	0.0170808	0.0178527
o-Xylene			0.0196842	0.0322290	0.0478240	0.0767910	0.0100596			0				0.0547176	0.0100772	0.0262611	7.81990E-05	0.00583477			0.0159109	0.0237489	0.0250742
n-Nonane			0.0688151	0.108998	0.165970	0.00150624	0.0370420			0				0.126830	0.0370996	0.132184	4.35209E-10	0.0200788			0.0299932	0.0759330	0.0860801
C10+			0.0124529	0.0180649	0.0293804	0.00465342	0.00744487			0				0.0234958	0.00745359	0.0167887	6.57582E-10	0.00386657			0.000291100	0.00333252	0.0148642
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water			0.558733	0.449503	0.171406	0.453946	533.913			0				0.625352	534.921	4.10408E-05	0.196178	307.290			0.449384	1.00822	1.00824
H2S			0	0	0	0	0			0				0	0	0	0	0			0	0	0
Nitrogen			0.273290	0.0238323	0.00123991	0.0613889	1852.43			1852.18				0.0626288	1852.73	1.30929E-05	1.38214E-05	1852.21			0.0238317	0.297122	0.297122
CO2			0.839605	0.454215	0.126473	0.556456	1106.17			1108.44				0.682929	1107.46	0.0356476	0.00855221	1104.44			0.454103	1.29381	1.29382
Methane			63.7494	15.4109	2.11174	10.6374	168377			168377				12.7491	168456	0.141586	0.00666481	168315			15.4095	79.1600	79.1603
Ethane			54.8812	45.0468	17.4226	4.58157	52465.7			52445.1				22.0042	52565.7	7.42965	0.00344160	52349.7			45.0214	99.9257	99.9280
Propane			31.0140	37.1613	19.3765	1.38219	22721.1			22707.9				20.7587	22789.3	7.24210	0.000162211	22539.2			37.0886	68.1692	68.1752
Isobutene			5.12858	6.77739	3.90080	0.710252	3547.45			3567.43				4.61105	3559.36	1.37923	0.000111591	3464.85			6.73828	11.9028	11.9060
n-Butane			9.87402	13.1390	7.67519	0.361916	6819.21			6824.89				8.03711	6842.22	2.77875	9.57151E-06	6618.87			13.0433	23.0053	23.0130
2,2-Dimethylpropane			0.00848438	0.0113388	0.00667381	0.000155218	5.90670			0				0.00682903	5.92652	0.00213598	1.38485E-09	5.69913			0.0112364	0.0198148	0.0198232
Isopentane			3.17758	4.25155	2.57431	0.0827554	2226.16			2218.89				2.65707	2233.59	0.826021	5.74730E-07	2085.77			4.17930	7.42312	7.42913
n-Pentane			2.93581	3.92145	2.40102	0.0300329	2053.09			2012.35				2.43105	2059.95	0.759898	5.95665E-08	1885.75			3.83353	6.84985	6.85726
2,2-Dimethylbutane			0.0149614	0.0199739	0.0123215	0.000144310	10.5435			0				0.0124658	10.5784	0.00386733	1.64458E-10	9.30390			0.0192435	0.0348739	0.0349353
Cyclopentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
2,3-Dimethylbutane			0.0248942	0.0330654	0.0205815	0.000537953	17.6336			0				0.0211195	17.6915	0.00637724	1.01975E-09	15.0438			0.0314503	0.0578211	0.0579596
2-Methylpentane			0.169683	0.224302	0.140498	0.00238912	120.636			0				0.142887	121.030	0.0433104	2.64872E-09	101.453			0.212187	0.392936	0.393985
3-Methylpentane			0.115243	0.152267	0.0954991	0.00387813	81.9905			0				0.0993773	82.2580	0.0293782	9.60183E-09	68.0351			0.143175	0.266716	0.267509
n-Hexane			4.14200	5.41897	3.44119	0.0288775	2972.85			3948.24				3.47007	2982.41	1.09209	1.11710E-08	2372.45			5.00679	9.52399	9.56097
Methylcyclopentane			0.0279673	0.0369385	0.0232737	0.00151766	19.7975			0				0.0247914	19.8624	0.00654650	4.51470E-09	15.8532			0.0341656	0.0646575	0.0649057
Benzene			0.00693901	0.00913958	0.00578074	0.00297536	4.88689			0				0.00875609	4.90297	0.00120388	5.36433E-07	3.88074			0.00846456	0.0160150	0.0160786
Cyclohexene			0.0491038	0.0641393	0.0408885	0.0115244	34.9854			0				0.0524129	35.0987	0.0110222	1.71923E-07	26.5987			0.0579670	0.112639	0.113243
2-Methylhexane			0.175007	0.224750	0.144887	0.00177358	128.957			0				0.146661	129.357	0.0124941	1.17948E-10	91.4033			0.190572	0.396374	0.399757
3-Methylhexane			0.144202	0.184640	0.119541	0.00175927	106.317			0				0.121301	106.646	0.0376765	4.62812E-10	73.9588			0.153989	0.325748	0.328841
2,2,4-Trimethylpentane			0	0	0	0	0			0				0	0	0	0	0			0	0	0
n-Heptane			0.307563	0.390503	0.254456	0.00159843	229.257			0				0.256054	229.955	0.0770097	1.32935E-10	153.817			0.311988	0.689594	0.698065
Methylcyclohexane			0.161335	0.206605	0.134104	0.00868811	118.350			0				0.142793	118.718	0.0407044	8.35559E-09	78.9712			0.164035	0.363418	0.367940
Toluene			0.0358529	0.0458203	0.0298203	0.0147160	26.1504			0				0.0445363	26.2321	0.00656218	5.73268E-07	17.3079			0.0361982	0.0805461	0.0816732
n-Octane			0.408647	0.503072	0.336417	0.000876085	315.720			0				0.337293	316.632	0.0992801	9.03638E-12	184.350			0.278003	0.876310	0.911719
Ethylbenzene			0.0253803	0.0314263	0.0209986	0.0101837	19.2638			0				0.0311823	19.3206	0.00503996	1.20387E-07	11.2811			0.0171810	0.0543724	0.0568066
p-Xylene			0.0249547	0.0309051	0.0206169	0.00946845	18.9960			0				0.0300854	19.0519	0.00462158	7.04673E-08	11.1296			0.0166979	0.0534093	0.0558599
o-Xylene			0.0351273	0.0433280	0.0290562	0.0145708	26.7665			0				0.0436271	26.8449	0.00580660	1.68234E-07	15.3946			0.0211609	0.0742597	0.0784554
n-Nonane			0.122804	0.146534	0.100838	0.000285805	98.5610			0				0.101124	98.8303	0.0292273	9.36292E-13	52.9764			0.0398898	0.237432	0.269338
C10+			0.0222228	0.0242860	0.0178505	0.000882972	19.8093			0				0.0187335	19.8558	0.00371216	1.41469E-12	10.2016			0.000387152	0.0104203	0.0465089

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Vapor**	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Property	**Units**																						
Temperature	°F		70	65	72.52	72.52	70			67				72.3694	72	75.9425	75.9425	60.7407			73.6626	70	1250.88
Pressure	psia		54.6959	19.6959	14.33	14.33	168.696			314.696				14.33	168.696	21.8078	0.473773	214.696			54.6959	54.6959	168.696
Mole Fraction Vapor	%		100	100	100	100	100			100				100	100	100	100	100			100	100	100
Mole Fraction Light Liquid	%		0	0	0	0	0			0				0	0	0	0	0			0	0	0
Mole Fraction Heavy Liquid	%		0	0	0	0	0			0				0	0	0	0	0			0	0	0
Molecular Weight	lb/lbmol		25.5853	34.6099	40.8089	20.8852	20.2112			20.1851				33.2584	20.2183	41.5429	18.5141	20.1100			34.3956	28.8001	28.8134
Mass Density	lb/ft^3		0.251704	0.122884	0.103871	0.0525947	0.625503			1.21822				0.0842637	0.623053	0.161214	0.00152670	0.817898			0.342138	0.285067	0.263944
Molar Flow	lbmol/h		6.97490	3.88437	1.48881	0.908523	13164.9			13131.6				2.39733	13175.8	0.532245	0.0116201	13120.0			3.86666	10.8571	10.8593
Mass Flow	lb/h		178.455	134.438	60.7566	18.9747	266079			265063				79.7313	266392	22.1110	0.215136	263842			132.996	312.687	312.892
Vapor Volumetric Flow	ft^3/h		708.986	1094.02	584.924	360.772	425384			217583				946.212	427559	137.153	140.916	322586			388.721	1096.89	1185.45
Liquid Volumetric Flow	gpm		88.3931	136.397	72.9256	44.9793	53034.9			27127.2				117.969	53306.1	17.0996	17.5687	40218.5			48.4639	136.755	147.797
Std Vapor Volumetric Flow	MMSCFD		0.0635247	0.0353774	0.0135595	0.00827448	119.901			119.598				0.0218340	120.000	0.00484748	0.000105831	119.492			0.0352161	0.0988826	0.0989021
Std Liquid Volumetric Flow	sgpm		0.947082	0.620571	0.258666	0.108755	1576.46			1574.17				0.367421	1578.03	0.0948973	0.000477922	1569.21			0.616175	1.56706	1.56765
Compressibility			0.978107	0.985217	0.985774	0.996352	0.958957			0.922560				0.990603	0.959442	0.977672	0.999550	0.945206			0.960716	0.972149	1.00320
Specific Gravity			0.883389	1.19499	1.40902	0.721109	0.697839			0.696935				1.14832	0.698083	1.43436	0.639242	0.694343			1.18759	0.994389	0.994848

API Gravity															
Enthalpy	Btu/h	-252636	-154665	-62651.6	-33556.4	-4.47047E+08	-4.45790E+08	-96208.0	-4.47188E+08	-22184.1	-1182.78	-4.45724E+08	-153346	-407152	-141023
Mass Enthalpy	Btu/lb	-1415.69	-1150.45	-1031.19	-1768.48	-1680.13	-1681.83	-1206.65	-1678.68	-1003.31	-5497.84	-1689.36	-1153.01	-1302.11	-450.708
Mass Cp	Btu/(lb*°F)	0.454512	0.415374	0.406908	0.470905	0.502901	0.525138	0.421874	0.503445	0.407799	0.441075	0.507867	0.426935	0.441584	0.953630
Ideal Gas CpCv Ratio		1.21039	1.16190	1.13693	1.25415	1.25665	1.25764	1.16597	1.25605	1.13446	1.32148	1.26024	1.16083	1.18952	1.07806
Dynamic Viscosity	cP	0.00998090	0.00897094	0.00858559	0.0106574	0.0107571	0.0109492	0.00925500	0.0107902	0.00857692	0.0102871	0.0106798	0.00920444	0.00965769	0.0247432
Kinematic Viscosity	cSt	2.47548	4.55744	5.16007	12.6499	1.07361	0.561095	6.85670	1.08114	3.32130	420.645	0.815163	1.67948	2.11497	5.85226
Thermal Conductivity	Btu/(h*ft*°F)	0.0153173	0.0121769	0.0109881	0.0169101	0.0178101	0.0182877	0.0129738	0.0178868	0.0107683	0.0122416	0.0176538	0.0126660	0.0142627	0.0784902
Surface Tension	lbf/ft														
Net Ideal Gas Heating Value	Btu/ft^3	1374.94	1825.92	2136.60	1088.23	1104.37	1105.36	1739.30	1104.72	2181.72	49.7350	1100.27	1815.30	1535.60	1536.26
Net Liquid Heating Value	Btu/lb	20290.2	19877.6	19711.8	19686.4	20677.9	20725.9	19705.8	20677.2	19772.1	47.4658	20706.7	19885.6	20113.6	20112.9
Gross Ideal Gas Heating Value	Btu/ft^3	1508.07	1990.61	2322.92	1200.71	1218.42	1219.46	1897.63	1218.81	2371.19	102.065	1214.03	1979.25	1679.97	1680.67
Gross Liquid Heating Value	Btu/lb	22264.8	21683.1	21444.2	21730.1	22819.4	22871.1	21512.2	22818.4	21502.7	1120.08	22853.3	21694.3	22015.9	22014.9

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Light Liquid**	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water		0.0274935						0.0729835	99.9965		0	100	0.0187484					0.0514904	99.9693	0.0493066	0.0372441	0.0390111	
H2S		0						0	0		0	0	0					0	0	0	0	0	
Nitrogen		4.63935E-05						0.00914902	2.81682E-06		0.0180005	0	4.54579E-06					0.0118700	7.04498E-05	0.000821754	0.000123098	0.000538740	
CO2		0.00537997						0.0301208	0.000683943		0.0150005	0	0.00269677					0.0405993	0.00107398	0.0146154	0.0144086	0.0147865	
Methane		0.166063						4.38740	0.00175350		4.77714	0	0.0420085					5.85801	0.0222176	1.03754	0.484071	0.858681	
Ethane		1.71213						4.40595	0.000610965		4.94815	0	1.18011					6.01069	0.00531336	3.01965	4.77004	3.70876	
Propane		3.79449						4.76819	8.90127E-05		4.86315	0	3.42671					6.50931	0.00105640	4.42957	9.30047	6.38421	
Isobutene		1.68848						1.71325	0.000155843		1.36904	0	1.64585					2.33048	0.000546497	1.73890	3.93525	2.62048	
n-Butane		4.08353						4.04274	1.62019E-05		3.81511	0	4.01509					5.49105	0.000208376	4.14512	9.29741	6.16762	
2,2-Dimethylpropane		0.00358768						0.00348908	2.69843E-09		0.0710021	0	0.00355014					0.00467367	6.90953E-08	0.00360394	0.00801594	0.00542660	
Isopentane		2.62070						2.46476	2.14320E-06		2.45607	0	2.62390					3.24344	3.75429E-05	2.58155	5.65439	3.90279	
n-Pentane		3.26118						3.03872	3.01562E-07		3.39110	0	3.27585					3.94548	1.31487E-05	3.19513	6.88045	4.81772	
2,2-Dimethylbutane		0.0224372						0.0206932	1.13015E-09		0.121004	0	0.0226207					0.0259181	5.28135E-08	0.0218529	0.0478581	0.0334150	
Cyclopentane		0						0	0		0	0	0					0	0	0	0	0	
2,3-Dimethylbutane		0.0508582						0.0466937	9.64979E-09		0.214006	0	0.0513561					0.0568632	2.02311E-07	0.0494044	0.105831	0.0753355	
2-Methylpentane		0.386908						0.354758	2.80912E-08		1.49804	0	0.390875					0.428177	8.83731E-07	0.375559	0.793807	0.571098	
3-Methylpentane		0.292600						0.267984	1.13584E-07		1.04403	0	0.295720					0.319256	1.50248E-06	0.283834	0.595760	0.431558	
n-Hexane		13.7653						12.5771	1.67395E-07		2.75108	0	13.9238					14.5572	1.05096E-05	13.3344	27.0076	20.1241	
Methylcyclopentane		0.0928210						0.0848286	7.60945E-08		0.276008	0	0.0938827					0.0980981	6.32632E-07	0.0899289	0.186045	0.138309	
Benzene		0.0271883						0.0248300	1.44053E-05		0.0760023	0	0.0275060					0.0281016	1.55769E-05	0.0263306	0.0487959	0.0381636	
Cyclohexene		0.250686						0.228495	4.65305E-06		0.572017	0	0.253792					0.247978	8.98171E-06	0.242505	0.424287	0.344951	
2-Methylhexane		1.13048						1.02849	1.27092E-08		2.05306	0	1.14525					1.05912	5.58986E-07	1.09242	1.92601	1.58332	
3-Methylhexane		1.03565						0.941902	1.51521E-08		1.78305	0	1.04931					0.956279	5.57019E-07	1.00059	1.72721	1.44787	
2,2,4-Trimethylpentane		0						0	0		0	0	0					0	0	0	0	0	
n-Heptane		2.89834						2.63408	5.96069E-09		4.42513	0	2.93735					2.57312	4.98289E-07	2.79908	4.42445	3.96492	
Methylcyclohexane		1.53224						1.39259	3.74722E-07		2.33607	0	1.55284					1.36241	3.10558E-06	1.47980	2.44817	2.16010	
Toluene		0.436004						0.396112	4.53853E-05		0.617019	0	0.441928					0.375404	5.03019E-05	0.420990	0.589675	0.573666	
n-Octane		11.0928						10.0653	1.20367E-09		11.9694	0	11.2486					8.66941	2.37911E-07	10.7033	11.1256	14.5377	
Ethylbenzene		0.867476						0.787051	2.47037E-05		0.908027	0	0.879690					0.668071	2.76573E-05	0.836971	0.757658	1.07527	
p-Xylene		0.889624						0.807127	1.61718E-05		0.925028	0	0.902159					0.683061	1.89199E-05	0.858329	0.755637	1.08253	
o-Xylene		1.51807						1.37716	5.24395E-05		1.53505	0	1.53952					1.15256	5.66607E-05	1.46459	1.17900	1.85344	
n-Nonane		9.82124						8.90730	3.75153E-10		9.20628	0	9.96092					7.22592	6.91508E-08	9.47385	4.69514	11.6668	
C10+		36.5262						33.1207	1.65995E-08		31.9660	0	37.0484					26.0160	1.74026E-07	35.2305	0.779588	9.77751	
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Water		0.0290347						0.0850003	3239.09		0	3268.84	0.0195203					0.0764549	3239.12	0.0539859	6.59587E-06	8.31825E-07	
H2S		0						0	0		0	0	0					0	0	0	0	0	
Nitrogen		4.89943E-05						0.0106554	9.12424E-05		0.0217861	0	4.73295E-06					0.0176251	0.00228265	0.000899741	2.18004E-08	1.14874E-08	
CO2		0.00568157						0.0350802	0.0221543		0.0181551	0	0.00280779					0.0602833	0.0347983	0.0160024	2.55174E-06	3.15288E-07	
Methane		0.175372						5.10980	0.0567995		5.78179	0	0.0437380					8.69820	0.719875	1.13601	8.57284E-05	1.83095E-05	
Ethane		1.80811						5.13140	0.0197904		5.98876	0	1.22869					8.92491	0.172159	3.30623	0.000844767	7.90809E-05	
Propane		4.00721						5.55328	0.00288330		5.88588	0	3.56779					9.66527	0.0342286	4.84995	0.00164710	0.000136129	
Isobutene		1.78314						1.99534	0.00504808		1.65695	0	1.71361					3.46038	0.0177071	1.90393	0.000696928	5.58758E-05	
n-Butane		4.31245						4.70839	0.000524812		4.61744	0	4.18039					8.15332	0.00675162	4.53850	0.00164656	0.000131511	
2,2-Dimethylpropane		0.00378881						0.00406356	8.74077E-08		0.0859341	0	0.00369630					0.00693964	2.23876E-06	0.00394596	1.41961E-06	1.15710E-07	
Isopentane		2.76761						2.87058	6.94227E-05		2.97259	0	2.73193					4.81599	0.00121643	2.82654	0.00100138	8.32183E-05	
n-Pentane		3.44400						3.53905	9.76819E-06		4.10426	0	3.41072					5.85841	0.000426031	3.49836	0.00121852	0.000102727	
2,2-Dimethylbutane		0.0236950						0.0241004	3.66080E-08		0.146451	0	0.0235520					0.0384842	1.71122E-06	0.0239268	8.47561E-06	7.12501E-07	
Cyclopentane		0						0	0		0	0	0					0	0	0	0	0	
2,3-Dimethylbutane		0.0537093						0.0543819	3.12576E-07		0.259013	0	0.0534705					0.0844327	6.55512E-06	0.0540930	1.87425E-05	1.60636E-06	
2-Methylpentane		0.408598						0.413170	9.09931E-07		1.81309	0	0.406967					0.635774	2.86339E-05	0.411201	0.000140582	1.21774E-05	
3-Methylpentane		0.309003						0.312107	3.67923E-06		1.26359	0	0.307895					0.474044	4.86820E-05	0.310770	0.000105508	9.20201E-06	
n-Hexane		14.5370						14.6480	5.42226E-06		3.32964	0	14.4971					21.6150	0.000340524	14.5999	0.00478300	0.000429101	
Methylcyclopentane		0.0980245						0.0987957	2.46485E-06		0.334054	0	0.0977479					0.145660	2.04980E-05	0.0984634	3.29483E-05	2.94914E-06	
Benzene		0.0287125						0.0289183	0.000466617		0.0919858	0	0.0286385					0.0417263	0.000504707	0.0288295	8.64169E-06	8.13754E-07	
Cyclohexene		0.264739						0.266117	0.000150722		0.692314	0	0.264241					0.368208	0.000291017	0.265519	7.51406E-05	7.35531E-06	
2-Methylhexane		1.19385						1.19784	4.11676E-07		2.48483	0	1.19240					1.57262	1.81118E-05	1.19609	0.000341093	3.37608E-05	
3-Methylhexane		1.09371						1.09699	4.90808E-07		2.15803	0	1.09251					1.41992	1.80480E-05	1.09555	0.000305887	3.08726E-05	
2,2,4-Trimethylpentane		0						0	0		0	0	0					0	0	0	0	0	
n-Heptane		3.06082						3.06779	1.93079E-07		5.35575	0	3.05828					3.82067	1.61451E-05	3.06472	0.000783564	8.45430E-05	
Methylcyclohexane		1.61814						1.62188	1.21380E-05		2.82735	0	1.61677					2.02296	0.000100624	1.62024	0.000433568	4.60592E-05	
Toluene		0.460446						0.461333	0.00147012		0.746779	0	0.460123					0.557415	0.00162984	0.460943	0.000104431	1.22321E-05	
n-Octane		11.7146						11.7226	3.89892E-08		14.4865	0	11.7117					12.8727	7.70857E-06	11.7190	0.00197033	0.000309984	
Ethylbenzene		0.916105						0.916640	0.000800205		1.09899	0	0.915907					0.991977	0.000896128	0.916401	0.000134180	2.29278E-05	
p-Xylene		0.939495						0.940022	0.000523839		1.11956	0	0.939301					1.01424	0.000613025	0.939787	0.000133822	2.30825E-05	
o-Xylene		1.60317						1.60391	0.00169862		1.85787	0	1.60290					1.71137	0.00183587	1.60358	0.000208799	3.95205E-05	
n-Nonane		10.3718						10.3739	1.21520E-08		11.1424	0	10.3710					10.7293	2.24056E-06	10.3729	0.000831504	0.000248767	
C10+		38.5738						38.5740	5.37692E-07		38.6885	0	38.5737					38.6296	5.63863E-06	38.5739	0.000138064	0.000208484	
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water		0.00407463						0.0116448	99.9941		0	100	0.00275243					0.00908988	99.9624	0.00749768	0.00824140	0.00727726	
H2S		0						0	0		0	0	0					0	0	0	0	0	
Nitrogen		1.06916E-05						0.00226991	4.37999E-06		0.00447011	0	1.03774E-06					0.00325844	0.000109541	0.000194307	4.23563E-05	0.000156273	
CO2		0.00194780						0.0117403	0.00167076		0.00585218	0	0.000967168					0.0175088	0.00262345	0.00542922	0.00778881	0.00673828	
Methane		0.0219161						0.623370	0.00156144		0.679369	0	0.00549187					0.920899	0.0197832	0.140494	0.0953857	0.142640	
Ethane		0.423522						1.17335	0.00101973		1.31895	0	0.289170					1.77107	0.00886784	0.766404	1.76175	1.15475	
Propane		1.37647						1.86216	0.000217869		1.90099	0	1.23136					2.81269	0.00258555	1.64869	5.03736	2.91501	
Isobutene		0.779339						0.851334	0.000485343		0.680918	0	0.752513					1.28129	0.00170188	0.823509	2.71198	1.52241	
n-Butane		1.95252						2.08107	5.22705E-05		1.96570	0	1.90173					3.12744	0.000672232	2.03358	6.63754	3.71192	
2,2-Dimethylpropane		0.00212942						0.00222950	1.08066E-08		0.0454116	0	0.00208731					0.00330429	2.76698E-07	0.00219476	0.00710373	0.00405411	
Isopentane		1.55548						1.57496	8.58304E-06		1.57086	0	1.54273					2.29312	0.000150344	1.57213	5.01092	2.91570	
n-Pentane		1.93563						1.94172	1.20768E-06		2.16889	0	1.92604					2.78946	5.26550E-05	1.94580	6.09746	3.59923	
2,2-Dimethylbutane		0.0159063						0.0157935	5.40591E-09		0.0924375	0	0.0158855					0.0218866	2.52614E-07	0.0158955	0.0506572	0.0298170	
Cyclopentane		0						0	0		0	0	0					0	0	0	0	0	
2,3-Dimethylbutane		0.0360548						0.0356376	4.61583E-08		0.163485	0	0.0360651					0.0480182	9.67682E-07	0.0359360	0.112021	0.0672235	
2-Methylpentane		0.274289						0.270759	1.34370E-07		1.14439	0	0.274494					0.361574	4.22700E-06	0.273176	0.840235	0.509603	
3-Methylpentane		0.207432						0.204531	5.43313E-07		0.797560	0	0.207671					0.269596	7.18655E-06	0.206456	0.630604	0.385089	
n-Hexane		9.75862						9.59913	8.00706E-07		2.10162	0	9.77809					12.2928	5.02689E-05	9.69926	28.5872	17.9572	
Methylcyclopentane		0.0642640						0.0632285	3.55471E-07		0.205917	0	0.0643874					0.0809012	2.95517E-06	0.0638827	0.192319	0.120529	
Benzene		0.0174710						0.0171776	6.24579E-05		0.0526272	0	0.0175088					0.0215099	6.75345E-05	0.0173604	0.0468169	0.0308678	
Cyclohexene		0.169403						0.166233	2.12158E-05		0.416533	0	0.169889					0.199608	4.09507E-05	0.168142	0.428091	0.293406	
2-Methylhexane		0.931870						0.912737	7.06874E-08		1.82366	0	0.935168					1.03995	3.10890E-06	0.923945	2.37048	1.64280	
3-Methylhexane		0.853703						0.835890	8.42749E-08		1.58383	0	0.856827					0.938970	3.09795E-06	0.846278	2.12581	1.50226	
2,2,4-Trimethylpentane		0						0	0		0	0	0					0	0	0	0	0	
n-Heptane		2.38916						2.33762	3.31529E-08		3.93069	0	2.39852					2.52654	2.77132E-06	2.36740	5.44550	4.11385	
Methylcyclohexane		1.23764						1.21099	2.04224E-06		2.03330	0	1.24248					1.31084	1.69247E-05	1.22641	2.95253	2.19615	
Toluene		0.330483						0.323241	0.000232116		0.503971	0	0.331822					0.338947	0.000257249	0.327412	0.667354	0.547316	
n-Octane		10.4240						10.1829	7.63184E-09		12.1203	0	10.4709					9.70410	1.50840E-06	10.3198	15.6100	17.1952	
Ethylbenzene		0.757629						0.740034	0.000145577		0.854569	0	0.761068					0.695016	0.000162975	0.750020	0.988001	1.18206	
p-Xylene		0.776973						0.758911	9.52992E-05		0.870568	0	0.780507					0.710611	0.000111488	0.769159	0.985366	1.19004	
o-Xylene		1.32584						1.29489	0.000309021		1.44467	0	1.33192					1.19905	0.000333882	1.31244	1.53744	2.03751	
n-Nonane		10.3624						10.1179	2.67074E-09		10.4671	0	10.4109					9.08153	4.92267E-07	10.2561	7.39650	15.4940	
C10+		52.0139						50.7766	1.59493E-07		49.0514	0	52.2611					44.1294	1.67201E-06	51.4750	1.65754	17.5252	
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water		0.523069						1.53130	58353.1		0	58889.0	0.351663					1.37736	58353.6	0.972571	0.000118827	1.49856E-05	
H2S		0						0	0		0	0	0					0	0	0	0	0	
Nitrogen		0.00137250						0.298495	0.00255601		0.610303	0	0.000132586					0.493739	0.0639449	0.0252048	6.10704E-07	3.21802E-07	
CO2		0.250043						1.54386	0.975000		0.798996	0	0.123570					2.65304	1.53146	0.704258	0.000112301	1.38757E-05	
Methane		2.81341						81.9737	0.911203		92.7541	0	0.701665					139.541	11.5486	18.2243	0.00137529	0.000293729	
Ethane		54.3683						154.296	0.595078		180.076	0	36.9456					268.363	5.17665	99.4151	0.0254013	0.00237789	
Propane		176.700						244.876	0.127141		259.541	0	157.324					426.196	1.50933	213.862	0.0726299	0.00600269	
Isobutene		100.045						111.951	0.283229		92.9656	0	96.1444					194.149	0.993481	106.823	0.0391021	0.00313499	
n-Butane		250.649						273.662	0.0305033		268.376	0	242.974					473.889	0.392419	263.788	0.0957016	0.00764369	
2,2-Dimethylpropane		0.273358						0.293181	6.30636E-06		6.20004	0	0.266684					0.500687	0.000161524	0.284696	0.000102423	8.34834E-06	
Isopentane		199.680						207.109	0.00500877		214.469	0	197.106					347.468	0.0877642	203.931	0.0722487	0.00600410	
n-Pentane		248.481						255.338	0.000704763		296.117	0	246.080					422.677	0.0307376	252.402	0.0879147	0.00741164	
2,2-Dimethylbutane		2.04193						2.07686	3.15470E-06		12.6205	0	2.02960					3.31639	0.000147465	2.06190	0.000730389	6.14000E-05	
Cyclopentane		0						0	0		0	0	0					0	0	0	0	0	
2,3-Dimethylbutane		4.62842						4.68638	2.69364E-05		22.3205	0	4.60784					7.27602	0.000564890	4.66148	0.00161514	0.000138429	
2-Methylpentane		35.2111						35.6050	7.84136E-05		156.244	0	35.0706					54.7881	0.00246753	35.4354	0.0121147	0.00104939	
3-Methylpentane		26.6285						26.8960	0.000317059		108.891	0	26.5330					40.8509	0.00419519	26.7807	0.00909221	0.000792986	
n-Hexane		1252.73						1262.29	0.000467265		286.933	0	1249.29					1862.68	0.0293447	1258.15	0.412177	0.0369779	
Methylcyclopentane		8.24969						8.31460	0.000207441		28.1138	0	8.22642					12.2587	0.00172510	8.28663	0.00277291	0.000248198	
Benzene		2.24278						2.25886	0.0364483		7.18518	0	2.23700					3.25932	0.0394236	2.25192	0.000675018	6.35638E-05	
Cyclohexene		21.7466						21.8598	0.0123808		56.8692	0	21.7057					30.2459	0.0239052	21.8107	0.00617232	0.000604191	
2-Methylhexane		119.626						120.026	4.12507E-05		248.984	0	119.481					157.579	0.00181484	119.851	0.0341782	0.00338290	
3-Methylhexane		109.591						109.920	4.91799E-05		216.239	0	109.472					142.279	0.00180845	109.776	0.0306505	0.00309349	
2,2,4-Trimethylpentane		0						0	0		0	0	0					0	0	0	0	0	
n-Heptane		306.700						307.398	1.93469E-05		536.657	0	306.446					382.838	0.00161777	307.091	0.0785146	0.00847137	
Methylcyclohexane		158.878						159.246	0.00119178		277.607	0	158.744					198.626	0.00987989	159.085	0.0425704	0.00452238	
Toluene		42.4248						42.5065	0.135455		68.8071	0	42.3950					51.3593	0.150171	42.4706	0.00962208	0.00112705	
n-Octane		1338.14						1339.06	4.45368E-06		1654.78	0	1337.81					1470.43	0.000880538	1338.65	0.225068	0.0354090	
Ethylbenzene		97.2583						97.3151	0.0849537		116.674	0	97.2373					105.313	0.0951374	97.2897	0.0142452	0.00243413	
p-Xylene		99.7415						99.7974	0.0556133		118.858	0	99.7209					107.676	0.0650818	99.7724	0.0142073	0.00245056	
o-Xylene		170.201						170.279	0.180334		197.241	0	170.172					181.687	0.194905	170.244	0.0221671	0.00419569	
n-Nonane		1330.24						1330.51	1.55855E-06		1429.07	0	1330.14					1376.09	0.000287364	1330.38	0.106645	0.0319057	
C10+		6677.12						6677.17	9.30744E-05		6696.98	0	6677.10					6686.78	0.000976046	6677.15	0.0238989	0.0360885	

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Light Liquid**	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Property	**Units**																						
Temperature	°F	65						70	72.52		67	67	72.52					60.7407	70	70	73.6626	70	
Pressure	psia	19.6959						168.696	14.33		314.696	214.696	14.33					214.696	168.696	54.6959	54.6959	54.6959	
Mole Fraction Vapor	%	0						0	0		0	0	0					0	0	0	0	0	
Mole Fraction Light Liquid	%	100						100	100		100	100	100					100	100	100	100	100	
Mole Fraction Heavy Liquid	%	0						0	0		0	0	0					0	0	0	0	0	
Molecular Weight	lb/lbmol	121.558						112.910	18.0157		112.806	18.0153	122.712					102.049	18.0165	118.473	81.4136	96.5743	
Mass Density	lb/ft^3	45.7406						45.1345	62.2561		45.3894	62.3201	45.5867					44.4546	62.2680	45.4336	41.1975	43.3771	
Molar Flow	lbmol/h	105.606						116.465	3239.20		121.030	3268.84	104.117					148.484	3240.11	109.490	0.0177099	0.00213228	

Mass Flow	lb/h	12837.2						13150.1	58356.6		13653.0	58889.0	12776.4					15152.6	58375.5	12971.6	1.44182	0.205923	
Vapor Volumetric Flow	ft^3/h	280.652						291.353	937.363		300.797	944.944	280.267					340.857	937.489	285.508	0.0349978	0.00474728	
Liquid Volumetric Flow	gpm	34.9904						36.3245	116.866		37.5019	117.811	34.9424					42.4964	116.882	35.5957	0.00436337	0.000591868	
Std Vapor Volumetric Flow	MMSCFD	0.961818						1.06072	29.5014		1.10230	29.7713	0.948258					1.35233	29.5097	0.997195	0.000161295	1.94199E-05	
Std Liquid Volumetric Flow	sgpm	35.2583						36.8259	116.667		38.1667	117.723	34.9996					43.5836	116.775	35.8789	0.00439598	0.000597621	
Compressibility		0.00929623						0.0742436	0.000726082		0.138378	0.0109808	0.00675407					0.0882484	0.00858701	0.0250916	0.0188851	0.0214234	
Specific Gravity		0.733387						0.723669	0.998189		0.727756	0.999216	0.730919					0.712767	0.998380	0.728464	0.660545	0.695491	
API Gravity		60.8346						62.7412	10.0027		62.0438	9.97462	60.5758					66.9187	10.0300	61.5024	80.3511	70.4941	
Enthalpy	Btu/h	-1.07586E+07						-1.11753E+07	-3.98305E+08		-1.15415E+07	-4.02241E+08	-1.06392E+07					-1.32977E+07	-3.98462E+08	-1.09013E+07	-1354.18	-183.665	
Mass Enthalpy	Btu/lb	-838.084						-849.831	-6825.36		-845.350	-6830.49	-832.718					-877.584	-6825.83	-840.394	-939.215	-891.909	
Mass Cp	Btu/(lb*°F)	0.488081						0.495227	0.981992		0.490531	0.982071	0.492106					0.497020	0.982129	0.492557	0.530135	0.509687	
Ideal Gas CpCv Ratio		1.04563						1.04871	1.32572		1.04919	1.32599	1.04463					1.05474	1.32581	1.04644	1.06749	1.05713	
Dynamic Viscosity	cP	0.667796						0.554189	0.964474		0.579266	1.03763	0.645069					0.479133	0.995400	0.610025	0.286891	0.401902	
Kinematic Viscosity	cSt	0.911425						0.766528	0.967137		0.796715	1.03943	0.883380					0.672851	0.997958	0.838204	0.434735	0.578413	
Thermal Conductivity	Btu/(h*ft*°F)	0.0698920						0.0689508	0.348209		0.0691237	0.345689	0.0694657					0.0689097	0.346588	0.0692922	0.0675060	0.0694978	
Surface Tension	lbf/ft	0.00160998						0.00146476	0.00501316?		0.00138565	0.00505475	0.00158359?					0.00139078	0.00502991?	0.00155468	0.00117927	0.00136182	
Net Ideal Gas Heating Value	Btu/ft^3	6105.62						5679.57	0.0402471		5671.32	0	6162.38					5148.51	0.345374	5953.79	4144.42	4884.39	
Net Liquid Heating Value	Btu/lb	18897.6						18926.5	-1058.85		18910.2	-1059.76	18893.7					18982.5	-1052.11	18907.8	19140.9	19022.3	
Gross Ideal Gas Heating Value	Btu/ft^3	6550.85						6096.75	50.3522		6087.24	50.3101	6611.31					5532.26	50.6747	6389.07	4469.89	5256.50	
Gross Liquid Heating Value	Btu/lb	20287.0						20328.1	0.917769		20308.3	0	20281.5					20408.9	7.98074	20301.4	20656.6	20483.5	

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Heavy Liquid**	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water																		99.9584					
H2S																		0					
Nitrogen																		9.62683E-05					
CO2																		0.00150184					
Methane																		0.0299597					
Ethane																		0.00732490					
Propane																		0.00143368					
Isobutene																		0.000763421					
n-Butane																		0.000270589					
2,2-Dimethylpropane																		9.33575E-08					
Isopentane																		4.81884E-05					
n-Pentane																		1.51742E-05					
2,2-Dimethylbutane																		6.34571E-08					
Cyclopentane																		0					
2,3-Dimethylbutane																		2.42578E-07					
2-Methylpentane																		9.66889E-07					
3-Methylpentane																		1.65220E-06					
n-Hexane																		1.06323E-05					
Methylcyclopentane																		6.84188E-07					
Benzene																		1.77569E-05					
Cyclohexene																		9.19371E-06					
2-Methylhexane																		5.58280E-07					
3-Methylhexane																		5.56835E-07					
2,2,4-Trimethylpentane																		0					
n-Heptane																		4.32577E-07					
Methylcyclohexane																		2.82207E-06					
Toluene																		4.66639E-05					
n-Octane																		1.70171E-07					
Ethylbenzene																		2.30837E-05					
p-Xylene																		1.52223E-05					
o-Xylene																		4.60178E-05					
n-Nonane																		5.11567E-08					
C10+																		1.23577E-07					
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Water																		3251.70					
H2S																		0					
Nitrogen																		0.00313166					
CO2																		0.0488557					
Methane																		0.974605					
Ethane																		0.238283					
Propane																		0.0466383					
Isobutene																		0.0248345					
n-Butane																		0.00880242					
2,2-Dimethylpropane																		3.03697E-06					
Isopentane																		0.00156760					
n-Pentane																		0.000493626					
2,2-Dimethylbutane																		2.06430E-06					
Cyclopentane																		0					
2,3-Dimethylbutane																		7.89122E-06					
2-Methylpentane																		3.14534E-05					
3-Methylpentane																		5.37470E-05					
n-Hexane																		0.000345874					
Methylcyclopentane																		2.22570E-05					
Benzene																		0.000577643					
Cyclohexene																		0.000299077					
2-Methylhexane																		1.81612E-05					
3-Methylhexane																		1.81142E-05					
2,2,4-Trimethylpentane																		0					
n-Heptane																		1.40720E-05					
Methylcyclohexane																		9.18036E-05					
Toluene																		0.00151800					
n-Octane																		5.53575E-06					
Ethylbenzene																		0.000750926					
p-Xylene																		0.000495191					
o-Xylene																		0.00149699					
n-Nonane																		1.66416E-06					
C10+																		4.02002E-06					
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water																		99.9493					
H2S																		0					
Nitrogen																		0.000149682					
CO2																		0.00366851					
Methane																		0.0266764					
Ethane																		0.0122248					
Propane																		0.00350886					
Isobutene																		0.00237736					
n-Butane																		0.000872915					
2,2-Dimethylpropane																		3.73850E-07					
Isopentane																		0.000192970					
n-Pentane																		6.07652E-05					
2,2-Dimethylbutane																		3.03517E-07					
Cyclopentane																		0					
2,3-Dimethylbutane																		1.16026E-06					
2-Methylpentane																		4.62465E-06					
3-Methylpentane																		7.90252E-06					
n-Hexane																		5.08544E-05					
Methylcyclopentane																		3.19593E-06					
Benzene																		7.69847E-05					
Cyclohexene																		4.19164E-05					
2-Methylhexane																		3.10490E-06					
3-Methylhexane																		3.09687E-06					
2,2,4-Trimethylpentane																		0					
n-Heptane																		2.40580E-06					
Methylcyclohexane																		1.53793E-05					
Toluene																		0.000238639					
n-Octane																		1.07889E-06					
Ethylbenzene																		0.000136021					
p-Xylene																		8.96979E-05					
o-Xylene																		0.000271161					
n-Nonane																		3.64164E-07					
C10+																		1.18728E-06					
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water																		58580.4					
H2S																		0					
Nitrogen																		0.0877285					
CO2																		2.15011					
Methane																		15.6351					
Ethane																		7.16495					
Propane																		2.05654					
Isobutene																		1.39337					
n-Butane																		0.511616					
2,2-Dimethylpropane																		0.000219114					
Isopentane																		0.113100					
n-Pentane																		0.0356145					
2,2-Dimethylbutane																		0.000177891					
Cyclopentane																		0					
2,3-Dimethylbutane																		0.000680028					
2-Methylpentane																		0.00271051					
3-Methylpentane																		0.00463167					
n-Hexane																		0.0298058					
Methylcyclopentane																		0.00187314					
Benzene																		0.0451208					
Cyclohexene																		0.0245672					
2-Methylhexane																		0.00181978					
3-Methylhexane																		0.00181507					
2,2,4-Trimethylpentane																		0					
n-Heptane																		0.00141004					
Methylcyclohexane																		0.00901384					
Toluene																		0.139867					
n-Octane																		0.000632340					
Ethylbenzene																		0.0797220					
p-Xylene																		0.0525720					
o-Xylene																		0.158927					
n-Nonane																		0.000213437					
C10+																		0.000695866					

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Heavy Liquid**	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Property	**Units**																						
Temperature	°F																	60.7407					

Pressure	psia																	214.696					
Mole Fraction Vapor	%																	0					
Mole Fraction Light Liquid	%																	0					
Mole Fraction Heavy Liquid	%																	100					
Molecular Weight	lb/lbmol																	18.0169					
Mass Density	lb/ft^3																	62.3443					
Molar Flow	lbmol/h																	3253.06					
Mass Flow	lb/h																	58610.1					
Vapor Volumetric Flow	ft^3/h																	940.102					
Liquid Volumetric Flow	gpm																	117.208					
Std Vapor Volumetric Flow	MMSCFD																	29.6276					
Std Liquid Volumetric Flow	sgpm																	117.273					
Compressibility																		0.0111096					
Specific Gravity																		0.999604					
API Gravity																		10.0421					
Enthalpy	Btu/h																	-4.00551E+08					
Mass Enthalpy	Btu/lb																	-6834.17					
Mass Cp	Btu/(lb*°F)																	0.982972					
Ideal Gas CpCv Ratio																		1.32625					
Dynamic Viscosity	cP																	1.12240					
Kinematic Viscosity	cSt																	1.12391					
Thermal Conductivity	Btu/(h*ft*°F)																	0.342002					
Surface Tension	lbf/ft																	0.00509853?					
Net Ideal Gas Heating Value	Btu/ft^3																	0.464615					
Net Liquid Heating Value	Btu/lb																	-1049.47					
Gross Ideal Gas Heating Value	Btu/ft^3																	50.8007					
Gross Liquid Heating Value	Btu/lb																	10.7396					

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate	To Enclosed Combustor	To Sales Gas Line	W/B Losses from Condensate Tanks	W/B Losses from PW Tanks	1	2	3	4	5	6
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Mixed Liquid	From Block:	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water																		95.5973					
H2S																		0					
Nitrogen																		0.000610216					
CO2																		0.00320852					
Methane																		0.284365					
Ethane																		0.269384					
Propane																		0.285515					
Isobutene																		0.102460					
n-Butane																		0.239954					
2,2-Dimethylpropane																		0.000204104					
Isopentane																		0.141629					
n-Pentane																		0.172243					
2,2-Dimethylbutane																		0.00113144					
Cyclopentane																		0					
2,3-Dimethylbutane																		0.00248242					
2-Methylpentane																		0.0186917					
3-Methylpentane																		0.0139377					
n-Hexane																		0.635459					
Methylcyclopentane																		0.00428283					
Benzene																		0.00124367					
Cyclohexene																		0.0108335					
2-Methylhexane																		0.0462330					
3-Methylhexane																		0.0417439					
2,2,4-Trimethylpentane																		0					
n-Heptane																		0.112322					
Methylcyclohexane																		0.0594745					
Toluene																		0.0164318					
n-Octane																		0.378437					
Ethylbenzene																		0.0291847					
p-Xylene																		0.0298315					
o-Xylene																		0.0503555					
n-Nonane																		0.315425					
C10+																		1.13565					
Molar Flow		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
Water																		3251.78					
H2S																		0					
Nitrogen																		0.0207568					
CO2																		0.109139					
Methane																		9.67280					
Ethane																		9.16319					
Propane																		9.71191					
Isobutene																		3.48522					
n-Butane																		8.16212					
2,2-Dimethylpropane																		0.00694268					
Isopentane																		4.81755					
n-Pentane																		5.85890					
2,2-Dimethylbutane																		0.0384863					
Cyclopentane																		0					
2,3-Dimethylbutane																		0.0844406					
2-Methylpentane																		0.635806					
3-Methylpentane																		0.474098					
n-Hexane																		21.6154					
Methylcyclopentane																		0.145682					
Benzene																		0.0423040					
Cyclohexene																		0.368507					
2-Methylhexane																		1.57264					
3-Methylhexane																		1.41994					
2,2,4-Trimethylpentane																		0					
n-Heptane																		3.82068					
Methylcyclohexane																		2.02305					
Toluene																		0.558933					
n-Octane																		12.8727					
Ethylbenzene																		0.992728					
p-Xylene																		1.01473					
o-Xylene																		1.71286					
n-Nonane																		10.7293					
C10+																		38.6296					
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Water																		79.4192					
H2S																		0					
Nitrogen																		0.000788295					
CO2																		0.00651163					
Methane																		0.210371					
Ethane																		0.373534					
Propane																		0.580581					
Isobutene																		0.265097					
n-Butane																		0.643144					
2,2-Dimethylpropane																		0.000679077					
Isopentane																		0.471215					
n-Pentane																		0.573071					
2,2-Dimethylbutane																		0.00449627					
Cyclopentane																		0					
2,3-Dimethylbutane																		0.00986502					
2-Methylpentane																		0.0742798					
3-Methylpentane																		0.0553878					
n-Hexane																		2.52528					
Methylcyclopentane																		0.0166216					
Benzene																		0.00447983					
Cyclohexene																		0.0410377					
2-Methylhexane																		0.213633					
3-Methylhexane																		0.192889					
2,2,4-Trimethylpentane																		0					
n-Heptane																		0.519015					
Methylcyclohexane																		0.269290					
Toluene																		0.0698174					
n-Octane																		1.99346					
Ethylbenzene																		0.142881					
p-Xylene																		0.146048					
o-Xylene																		0.246529					
n-Nonane																		1.86556					
C10+																		9.06525					
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water																		58581.7					
H2S																		0					
Nitrogen																		0.581468					
CO2																		4.80315					
Methane																		155.176					
Ethane																		275.528					
Propane																		428.253					
Isobutene																		195.543					
n-Butane																		474.401					
2,2-Dimethylpropane																		0.500906					
Isopentane																		347.581					
n-Pentane																		422.712					
2,2-Dimethylbutane																		3.31657					
Cyclopentane																		0					
2,3-Dimethylbutane																		7.27670					
2-Methylpentane																		54.7908					
3-Methylpentane																		40.8555					
n-Hexane																		1862.71					
Methylcyclopentane																		12.2605					
Benzene																		3.30444					
Cyclohexene																		30.2705					
2-Methylhexane																		157.581					
3-Methylhexane																		142.280					
2,2,4-Trimethylpentane																		0					
n-Heptane																		382.840					
Methylcyclohexane																		198.635					
Toluene																		51.4992					
n-Octane																		1470.43					
Ethylbenzene																		105.393					
p-Xylene																		107.729					
o-Xylene																		181.846					
n-Nonane																		1376.09					
C10+																		6686.78					

Process Streams		Condensate from VRT	Flash Gas from LP Condensate	Flash Gas from VRT	Flashing from Oil Tanks	Flashing from produced water tanks	Gas from 3-ph Separator	Produced Liquid	Produced Water	Separator Gas	Separator Oil	Separator Water	Stable Condensate To Enclosed Combustor	To Sales Gas Line	W/B Losses from	Condensate Tanks	W/B Losses from	PW Tanks	1	2	3	4	5	6
Properties	**Status:**	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Mixed Liquid**	**From Block:**	VRT	LP Condensate	VRT	Oil Tanks	Water Tanks	3-ph Separator	3-ph Separator	Water Tanks	--	--	--	Oil Tanks	MIX-102	MIX-101	--	--	--	MIX-100	3-ph Separator	LP Condensate	CMPR-100	MIX-103	CMPR-101
	To Block:	Oil Tanks	MIX-103	CMPR-100	MIX-102	MIX-102	MIX-101	LP Condensate	--	MIX-100	MIX-100	MIX-100	--	--	--	--	--	--	3-ph Separator	Water Tanks	VRT	MIX-103	CMPR-101	MIX-101
Property	**Units**																							
Temperature	°F																		60.7407					
Pressure	psia																		214.696					
Mole Fraction Vapor	%																		0					
Mole Fraction Light Liquid	%																		4.36519					
Mole Fraction Heavy Liquid	%																		95.6348					
Molecular Weight	lb/lbmol																		21.6851					
Mass Density	lb/ft^3																		57.5840					
Molar Flow	lbmol/h																		3401.54					
Mass Flow	lb/h																		73762.7					
Vapor Volumetric Flow	ft^3/h																		1280.96					
Liquid Volumetric Flow	gpm																		159.704					
Std Vapor Volumetric Flow	MMSCFD																		30.9799					
Std Liquid Volumetric Flow	sgpm																		160.856					
Compressibility																			0.0144768					
Specific Gravity																			0.923278					
API Gravity																			21.7299					
Enthalpy	Btu/h																		-4.13849E+08					
Mass Enthalpy	Btu/lb																		-5610.54					
Mass Cp	Btu/(lb*°F)																		0.883146					
Ideal Gas CpCv Ratio																			1.26819					
Dynamic Viscosity	cP																		0.951233					
Kinematic Viscosity	cSt																		1.03125					
Thermal Conductivity	Btu/(ft*s*°F)																		0.269333					
Surface Tension	lbf/ft																		0.00411191?					
Net Ideal Gas Heating Value	Btu/ft^3																		225.187					
Net Liquid Heating Value	Btu/lb																		3065.57					
Gross Ideal Gas Heating Value	Btu/ft^3																		290.077					
Gross Liquid Heating Value	Btu/lb																		4201.01					

November 6, 2014

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: Antero Resources Appalachian Corp.
1615 Wynkoop Street
Denver, Colorado 80202

Sample: Nero No. 2H
First Stage Separator Hydrocarbon Liquid
Sampled @ 168 psig & 81 °F

Date Sampled: 10/14/14 Job Number: 45832.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.018	0.004	0.005
Carbon Dioxide	0.015	0.005	0.006
Methane	4.777	1.626	0.682
Ethane	4.948	2.658	1.324
Propane	4.863	2.691	1.908
Isobutane	1.369	0.900	0.708
n-Butane	3.815	2.416	1.973
2,2 Dimethylpropane	0.071	0.055	0.046
Isopentane	2.456	1.804	1.576
n-Pentane	3.391	2.469	2.177
2,2 Dimethylbutane	0.121	0.101	0.093
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.214	0.176	0.164
2 Methylpentane	1.498	1.249	1.149
3 Methylpentane	1.044	0.856	0.801
n-Hexane	2.751	2.273	2.109
Heptanes Plus	68.649	80.716	85.281
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity	0.7559	(Water=1)
°API Gravity	55.70	@ 60°F
Molecular Weight	139.6	
Vapor Volume	17.18	CF/Gal
Weight	6.30	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.7154	(Water=1)
°API Gravity	66.29	@ 60°F
Molecular Weight	112.4	
Vapor Volume	20.20	CF/Gal
Weight	5.96	Lbs/Gal

Base Conditions: 14.850 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: XG
Processor: XGdjv
Cylinder ID: W-872

David Dannhaus 361-661-7015

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.015	0.005	0.006
Nitrogen	0.018	0.004	0.005
Methane	4.777	1.626	0.682
Ethane	4.948	2.658	1.324
Propane	4.863	2.691	1.908
Isobutane	1.369	0.900	0.708
n-Butane	3.887	2.471	2.019
Isopentane	2.456	1.804	1.576
n-Pentane	3.391	2.469	2.177
Other C-6's	2.877	2.383	2.206
Heptanes	9.109	8.235	7.991
Octanes	14.305	13.813	13.908
Nonanes	9.207	10.205	10.397
Decanes Plus	31.967	45.408	49.244
Benzene	0.076	0.043	0.053
Toluene	0.617	0.415	0.506
E-Benzene	0.908	0.704	0.858
Xylenes	2.460	1.894	2.324
n-Hexane	2.751	2.273	2.109
2,2,4 Trimethylpentane	0.000	0.000	0.000
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.7154	(Water=1)
°API Gravity	66.29	@ 60°F
Molecular Weight	112.4	
Vapor Volume	20.20	CF/Gal
Weight	5.96	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.7759	(Water=1)
Molecular Weight	173.1	

Characteristics of Atmospheric Sample:

°API Gravity	59.77	@ 60°F
Reid Vapor Pressure (ASTM D-5191)	3.54	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W-872*	W-298
Pressure, PSIG	168	154	150
Temperature, °F	81	70	70

* Sample used for analysis

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.018	0.004	0.005
Carbon Dioxide	0.015	0.005	0.006
Methane	4.777	1.626	0.682
Ethane	4.948	2.658	1.324
Propane	4.863	2.691	1.908
Isobutane	1.369	0.900	0.708
n-Butane	3.815	2.416	1.973
2,2 Dimethylpropane	0.071	0.055	0.046
Isopentane	2.456	1.804	1.576
n-Pentane	3.391	2.469	2.177
2,2 Dimethylbutane	0.121	0.101	0.093
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.214	0.176	0.164
2 Methylpentane	1.498	1.249	1.149
3 Methylpentane	1.044	0.856	0.801
n-Hexane	2.751	2.273	2.109
Methylcyclopentane	0.276	0.196	0.207
Benzene	0.076	0.043	0.053
Cyclohexane	0.572	0.391	0.428
2-Methylhexane	2.053	1.918	1.831
3-Methylhexane	1.783	1.644	1.590
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	0.995	0.907	0.878
n-Heptane	3.430	3.179	3.058
Methylcyclohexane	2.336	1.886	2.041
Toluene	0.617	0.415	0.506
Other C-8's	8.334	8.186	8.173
n-Octane	3.635	3.740	3.694
E-Benzene	0.908	0.704	0.858
M & P Xylenes	0.925	0.721	0.874
O-Xylene	1.535	1.172	1.450
Other C-9's	6.075	6.665	6.824
n-Nonane	3.131	3.540	3.573
Other C-10's	7.205	8.687	9.057
n-decane	2.282	2.813	2.888
Undecanes(11)	6.933	8.576	9.068
Dodecanes(12)	4.501	6.014	6.448
Tridecanes(13)	3.174	4.548	4.943
Tetradecanes(14)	2.056	3.156	3.476
Pentadecanes(15)	1.432	2.354	2.624
Hexadecanes(16)	0.949	1.667	1.874
Heptadecanes(17)	0.752	1.397	1.586
Octadecanes(18)	0.575	1.124	1.283
Nonadecanes(19)	0.436	0.889	1.020
Eicosanes(20)	0.329	0.698	0.806
Heneicosanes(21)	0.255	0.568	0.660
Docosanes(22)	0.213	0.494	0.578
Tricosanes(23)	0.164	0.395	0.464
Tetracosanes(24)	0.142	0.355	0.419
Pentacosanes(25)	0.103	0.267	0.317
Hexacosanes(26)	0.089	0.238	0.283
Heptacosanes(27)	0.071	0.198	0.237
Octacosanes(28)	0.054	0.156	0.188
Nonacosanes(29)	0.047	0.140	0.169
Triacontanes(30)	0.035	0.107	0.130
Hentriacontanes Plus(31+)	0.168	0.566	0.726
Total	100.000	100.000	100.000

November 6, 2014

FESCO, Ltd.
1100 Fesco Avenue - Alice, Texas 78332

For: Antero Resources Appalachian Corp.
1615 Wynkoop Street
Denver, Colorado 80202

Date Sampled: 10/14/14

Date Analyzed: 10/24/14

Sample: Nero No. 2H

Job Number: J45832

FLASH LIBERATION OF HYDROCARBON LIQUID		
	First Stage Separator HC Liquid	**Stock Tank**
Pressure, psig	168	0
Temperature, °F	81	70
Gas Oil Ratio (1)	------	112
Gas Specific Gravity (2)	------	1.194
Separator Volume Factor (3)	1.0721	1.000

STOCK TANK FLUID PROPERTIES	
Shrinkage Recovery Factor (4)	0.9328
Oil API Gravity at 60 °F	59.77
Reid Vapor Pressure, psi (5)	3.54

Quality Control Check			
	Sampling Conditions	**Test Samples**	
Cylinder No.	------	W-872*	W-298
Pressure, psig	168	154	150
Temperature, °F	81	70	70

(1) - Scf of flashed vapor per barrel of stock tank oil
(2) - Air = 1.000
(3) - Separator volume / Stock tank volume
(4) - Fraction of first stage separator liquid
(5) - Absolute pressure at 100 deg F
Analyst: T. G.
* Sample used for flash study
Base Conditions: 14.85 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

October 28, 2014

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: Antero Resources Appalachian Corp.
1615 Wynkoop Street
Denver, Colorado 80202

Sample: Nero No. 2H
Gas Evolved from Hydrocarbon Liquid Flashed
From 168 psig & 81 °F to 0 psig & 70 °F

Date Sampled: 10/14/14 Job Number: 45832.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.132	
Carbon Dioxide	0.650	
Methane	34.713	
Ethane	29.751	8.019
Propane	18.532	5.146
Isobutane	2.953	0.974
n-Butane	6.222	1.977
2-2 Dimethylpropane	0.064	0.025
Isopentane	1.702	0.627
n-Pentane	1.747	0.638
Hexanes	1.654	0.687
Heptanes Plus	1.880	0.832
Totals	100.000	18.925

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.543	(Air=1)
Molecular Weight	101.49	
Gross Heating Value	5409	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.194	(Air=1)
Compressibility (Z)	0.9890	
Molecular Weight	34.21	
Gross Heating Value		
Dry Basis	2005	BTU/CF
Saturated Basis	1971	BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stain Tube Method (GPA 2377)
Results: <0.013 Gr/100 CF, <0.2 PPMV or <0.001 Mol %

Base Conditions: 14.850 PSI & 60 Deg F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: MR
Processor: IM
Cylinder ID: FL-7S

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001		< 0.001
Nitrogen	0.132		0.108
Carbon Dioxide	0.650		0.836
Methane	34.713		16.278
Ethane	29.751	8.019	26.150
Propane	18.532	5.146	23.887
Isobutane	2.953	0.974	5.017
n-Butane	6.222	1.977	10.571
2,2 Dimethylpropane	0.064	0.025	0.135
Isopentane	1.702	0.627	3.590
n-Pentane	1.747	0.638	3.684
2,2 Dimethylbutane	0.059	0.025	0.149
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.094	0.039	0.237
2 Methylpentane	0.497	0.208	1.252
3 Methylpentane	0.315	0.130	0.794
n-Hexane	0.689	0.286	1.736
Methylcyclopentane	0.060	0.021	0.148
Benzene	0.026	0.007	0.059
Cyclohexane	0.100	0.034	0.246
2-Methylhexane	0.198	0.093	0.580
3-Methylhexane	0.203	0.093	0.595
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.191	0.084	0.554
n-Heptane	0.309	0.144	0.905
Methylcyclohexane	0.214	0.087	0.614
Toluene	0.064	0.022	0.172
Other C8's	0.333	0.156	1.073
n-Octane	0.086	0.044	0.287
Ethylbenzene	0.002	0.001	0.006
M & P Xylenes	0.016	0.006	0.050
O-Xylene	0.002	0.001	0.006
Other C9's	0.067	0.034	0.247
n-Nonane	0.006	0.003	0.022
Other C10's	0.003	0.002	0.012
n-Decane	0.000	0.000	0.000
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	18.925	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.194	(Air=1)
Compressibility (Z)	0.9890	
Molecular Weight	34.21	
Gross Heating Value		
Dry Basis	2005	BTU/CF
Saturated Basis	1971	BTU/CF

Gas Analytical Labs

Stonewood, West Virginia
8444 Water Street
Stonewood, WV 26301-8006

Report Date: Jul 20, 2017 10:58a

Client:	ANTERO RESOURCES	Date Sampled:	Jul 17, 2017
Client Code:	9569	Analysis Date:	Jul 19, 2017 12:00a
Site:	OXFORD 1A	Collected By:	SC
Field:	190 - RESOURCES	Date Effective:	Aug 1, 2017 12:00a
Meter:	5017	Source Pressure (PSI):	257.0
Source Laboratory	Stonewood, WV	Source Temp (°F):	73
Lab File No:	**516696469**	Field H2O (lb/MMSCFD):	0.0000000000
Cylinder No:	185		
Analysis Status:	good		
Sample Type:	Spot		
Measurement Analyst:	Holly Van Schoick		

Component	Mol %	Liquid Recovery GPM
H2S (H2S)		
Helium (He)	0.0000	
Nitrogen (N2)	0.5035	0.0000
Oxygen (O2)		
CO2 (CO2)	0.1918	0.0000
Methane (C1)	79.9271	0.0000
Ethane (C2)	13.2821	3.5631
Propane (C3)	3.9216	1.0837
I-Butane (IC4)	0.4842	0.1589
N-Butane (NC4)	0.8942	0.2828
I-Pentane (IC5)	0.2342	0.0859
N-Pentane (NC5)	0.2124	0.0772
Hexanes Plus (C6+)	0.3489	0.1527
TOTAL	100.0000	5.4043

Analytical Results at Base Conditions (Real)

BTU/SCF (Dry):	1,225.7673	BTU/ft³
BTU/SCF (Saturated):	1,204.8619	BTU/ft³
PSIA:	14.696	PSI
Temperature (°F):	60.0	°F
Z Factor (Dry):	0.99667	
Z Factor (Saturated):	0.99628	

Analytical Results at Contract Conditions (Real)

BTU/SCF (Dry):	1,228.6126	BTU/ft³
BTU/SCF (Saturated):	1,207.7082	BTU/ft³
PSIA:	14.730	PSI
Temperature (°F):	60.0	°F
Z Factor (Dry):	0.99667	
Z Factor (Saturated):	0.99628	

Calculated Specific Gravities

Ideal Gravity:	0.6981	Real Gravity:	0.7001
Molecular Wt:	20.2193	lb/lbmol	

Methods, standards, and uncertainties based on GPA 2261-13.
Analytical Calculations performed in accordance with GPA 2172-09.

Attachment U
Facility-wide Emissions Summary Sheet(s)

ATTACHMENT U – FACILITY-WIDE CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID#	NOx		CO		VOC		SO2		PM10		PM2.5		CH_4		GHG (CO2e)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EP-HR001									3.4748	8.1656						
EP-PCV					0.0731	0.3203							0.2973	1.3022	7.4344	32.5627
F001					2.9119	12.7543							2.7496	12.0433	68.7402	301.0820
EP-L001					8.8674	8.0915							0.0866	0.0790	2.1858	1.9946
EP-L002					0.0016	0.0048							0.0368	0.1119	0.9667	2.9404
EP-ENG001(emissions per EPN)	0.0625	0.2738	0.4126	1.8073	0.0190	0.0833	0.0004	0.0017	0.0061	0.0267	0.0061	0.0267	0.1478	0.6475	74.4032	325.8861
EP-GPU001, EP-GPU002, EP-GPU003, EP-GPU004, EP-GPU005, EP-GPU006, EP-GPU007, EP-GPU008 (emissions per EPN)	0.1224	0.5360	0.1028	0.4502	0.0067	0.0295	0.0007	0.0032	0.0093	0.0407	0.0093	0.0407	0.0028	0.0123	146.8468	643.1890
EP-LH001, EP-LH002, EP-LH003, EP-LH004, EP-LH005, EP-LH006, EP-LH007, EP-LH008 (emissions per EPN)	0.1632	0.7147	0.1371	0.6003	0.0090	0.0393	0.0010	0.0043	0.0124	0.0543	0.0124	0.0543	0.0038	0.0164	195.7957	857.5853
EP-EC001 -003 (emissions per EPN)	0.8177	3.5815	3.7214	16.2999	0.3875	1.6973	1.02E-05	4.47E-05	0.0030	0.0133	0.0023	0.0100	0.0949	0.4155	103.0490	451.3546
TOTAL	4.9875	21.8451	14.7336	64.5332	10.2332	14.0717	0.0152	0.0668	0.2072	0.9074	0.2049	0.8974	1.0518	4.2575	3351.0526	14668.7372

Annual emissions shall be based on 8760 hours per year of operation for all emission units except emergency generators.

According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, fugitive emissions shall not be included in the PTE above

ATTACHMENT U – FACILITY-WIDE CONTROLLED EMISSIONS SUMMARY SHEET

List all sources of emissions in this table. Use extra pages if necessary.

Emission Point ID#	Formaldehyde		Benzene		Toluene		Ethylbenzene		Xylenes		Hexane		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EP-HR001														
EP-PCV			0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.0070	0.0305	0.0070	0.0305
F001			0.0013	0.0056	0.0122	0.0534	0.0207	0.0905	0.0560	0.2451	0.1149	0.5033	0.2050	0.8979
EP-L001			0.0007	0.0007	0.0040	0.0037	0.0031	0.0028	0.0064	0.0058	0.6677	0.6093	0.6819	0.6222
EP-L002			2.96E-06	9.00E-06	3.16E-06	9.62E-06	6.64E-07	2.02E-06	1.32E-06	4.01E-06	6.16E-08	1.88E-07	8.17E-06	2.48E-05
EP-ENG001(emissions per EPN)	0.0132	0.0577	0.0010	0.0044	3.59E-04	0.0016	1.59E-05	6.98E-05	1.25E-04	5.49E-04			0.0148	0.0646
EP-GPU001, EP-GPU002, EP-GPU003, EP-GPU004, EP-GPU005, EP-GPU006, EP-GPU007, EP-GPU008 (emissions per EPN)	9.18E-05	4.02E-04	2.57E-06	1.13E-05	4.16E-06	1.82E-05			0.00E+00	0.00E+00	0.0022	0.0096	0.0023	0.0101
EP-LH001, EP-LH002, EP-LH003, EP-LH004, EP-LH005, EP-LH006, EP-LH007, EP-LH008 (emissions per EPN)	1.22E-04	5.36E-04	3.43E-06	1.50E-05	5.55E-06	2.43E-05			0.00E+00	0.00E+00	0.0029	0.0129	0.0031	0.0135
EP-EC001 -003 (emissions per EPN)	1.28E-06	5.58E-06	6.64E-05	2.91E-04	3.41E-04	0.0015	2.41E-04	0.0011	0.0006	0.0025	0.0304	0.1333	0.0317	0.1386
TOTAL	0.0544	0.2384	0.0050	0.0196	0.0065	0.0148	0.0039	0.0063	0.0086	0.0154	0.8001	1.1894	0.8789	1.4850

Annual emissions shall be based on 8760 hours per year of operation for all emission units except emergency generators.

According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, fugitive emissions shall not be included in the PTE above

Attachment V
Class I Legal Advertisement

Attachment V

Air Quality Permit Notice
Notice of Application
Oxford 97 Well Pad
Antero Resources Corporation
Doddridge County, West Virginia

Notice is given that Antero Resources Corporation has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a G70-D General Permit Registration for an Oil and Natural Gas Production facility located at approximately one mile west of Co Rte 11/4 & Left Fork Run Rd intersection, in Doddridge County, West Virginia.

The latitude and longitude coordinates are: 39.232919 and -80.803928

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be:

Pollutants	TOTALS (tpy):
NO_X	21.8451
CO	64.5332
$PM_{2.5}$	0.8974
PM_{10}	0.9074
VOC	14.0717
SO_2	0.0668
CO_{2e}	14,668.74
Formaldehyde	0.2384
Benzene	0.0196
Toluene	0.0148
Ethylbenzene	0.0063
Xylenes	0.0154
Hexane	1.1894
Total HAPs	1.4850

Proposed new equipment will be installed by January 1, 2018 and the facility is expected to begin the operations by November 01, 2018. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.
Dated this the __ day of _____, 2017

By: Antero Resources Corporation
Barry Schatz
Senior Environmental & Regulatory Manager
1615 Wynkoop Street
Denver, CO 80202

www.ghd.com