

6320 Rothway, Suite 100, Houston, Texas 77040 Telephone: (713) 734-3090 Fax: (713) 734-3391 www.CRAworld.com

Reference No. 082715

March 13, 2015

Mr. Jay Fedczak Assistant Director for Permitting Division of Air Quality WV Department of Environmental Protection 601 57th Street, SE Charleston, West Virginia 25304

Dear Mr. Jay Fedczak:

Re: New Source Review Permit Application 45CSR13 Pearl Jean Well pad Antero Resources Corporation

Conestoga-Rovers & Associates (CRA) would like to submit this 45CSR13 New Source Review permit application that we prepared on behalf of Antero Resources Corporation for an oil and gas facility identified as Pearl Jean Well pad.

A G70A permit has been previously issued to the Pearl Jean Well pad. A permit revision is requested due to the following operational changes: 1) removal of a 24 HP Kubota engine; 2) change of GPUs from 1.5 to 1.0 MMBTU/hr; 3) change of enclosed combustor from Cimarron to Abutec; and 4) addition of diesel engines from a nearby Fresh Water Impoundment (FWI) pond. The FWI operates independently; however, we are voluntarily aggregating its emissions whose water pumps are driven by two diesel engines. Since a G70A permit does not allow diesel engines, we are submitting a 45CSR13 permit application.

Enclosed are the following documents:

- Original copy of the 45CSR 13 New Source Review Permit Application
- Two CD copies of the 45CSR13 New Source Review Permit Application
- The application fee with check no. 398080 in the amount of \$2,000.00

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

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Manuel Bautista

Encl.

cc: Barry Schatz, Antero Resources Corporation

Equal Employment Opportunity Employer



www.CRAworld.com



New Source Review Air Permit Application 45CSR13

(Convert G70A to 45CSR 13 - removal of Kubota engine; reduce

GPU from 1.5 to 1.0 MMBtu/hr; replace combustor with Abutec;

added a Fresh Water Impoundment)

Pearl Jean Well Pad

Prepared for: Antero Resources Corporation

Conestoga-Rovers & Associates 6320 Rothway, Suite 100

Houston, Texas 77040

March 2015 • 082715 • Report No. 156



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WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF AIR QUALITY 601 57 th Street, SE Charleston, WV 25304 (304) 926-0475 WWW.dep.wv.gov/dag	APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)		
PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN)	PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):		
CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FACT	IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION		
	on Guidance" in order to determine your Title V Revision options to operate with the changes requested in this Permit Application.		
Section	I. General		
1. Name of applicant (as registered with the WV Secretary of S Antero Resources Corporation	tate's Office): 2. Federal Employer ID No. (FEIN): 80-0162034		
3. Name of facility (<i>if different from above</i>):	4. The applicant is the:		
Pearl Jean Well Pad			
5A. Applicant's mailing address:	5B. Facility's present physical address:		
1615 Wynkoop St.	19 Antioch Rd		
Denver, CO, 80202	Salem, WV 26426		
 6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? XES NO If YES, provide a copy of the Certificate of Incorporation/Organization/Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A. If NO, provide a copy of the Certificate of Authority/Authority of L.L.C./Registration (one page) including any name change amendments or other Business Certificate as Attachment A. 			
7. If applicant is a subsidiary corporation, please provide the na	me of parent corporation: N/A		
8. Does the applicant own, lease, have an option to buy or othe	rwise have control of the proposed site? \Box YES \Box NO		
 If YES, please explain: Antero is leasing the mineral rights for this site 			
 If NO, you are not eligible for a permit for this source. 			
9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.):10. North American Industry Classification System (NAICS) code for the facility:			
Dil and Natural Gas Production Facility 211111			
	ist all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):		
017-001100 N/A			
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.			

12A.

 For Modifications, Administrative Updates or Temporary permits at an existing facility, please provide directions to the present location of the facility from the nearest state road; 				
 For Construction or Relocation permits, please p road. Include a MAP as Attachment B. 	provide directions to the proposed new s	site location from the nearest state		
At the intersection of Co Rte 50/22 and Co Rte 50/30, turn left to on Antioch Road and go for 255 ft. Entrance to the facility will be		JS-50E and go for 3.1 miles. Turn left		
12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:		
19 Antioch Rd Salem, WV 26426	Smithburg	Doddridge		
12.E. UTM Northing (KM): 4348.4714	12F. UTM Easting (KM): 528.2034	12G. UTM Zone: 17 N		
 Briefly describe the proposed change(s) at the facilit Removal of Kubota engine, change in GPU heater rating from of diesel engines for a fresh water impoundment (FWI). Describe the data of activitizated installation or shown 	1.5 to 1.0 MMBTU/hr, and change in Flare	I from Cimarron to Abutec, and addition		
 14A. Provide the date of anticipated installation or change If this is an After-The-Fact permit application, providence did happen: 		14B. Date of anticipated Start-Up if a permit is granted: Upon the issuance of permit		
14C. Provide a Schedule of the planned Installation of/ application as Attachment C (if more than one uni	•	units proposed in this permit		
15. Provide maximum projected Operating Schedule o Hours Per Day 24 Days Per Week 7	15. Provide maximum projected Operating Schedule of activity/activities outlined in this application:			
16. Is demolition or physical renovation at an existing facility involved? YES NO				
17. Risk Management Plans. If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed				
changes (for applicability help see www.epa.gov/ceppo), submit your Risk Management Plan (RMP) to U. S. EPA Region III.				
18. Regulatory Discussion. List all Federal and State air pollution control regulations that you believe are applicable to the				
proposed process (if known). A list of possible applicable requirements is also included in Attachment S of this application				
(Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (if known). Provide this				
information as Attachment D.				
Section II. Additional attachments and supporting documents.				
 Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13). 				
20. Include a Table of Contents as the first page of your application package.				
 Provide a Plot Plan, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as Attachment E (Refer to Plot Plan Guidance). 				
 Indicate the location of the nearest occupied structure (e.g. church, school, business, residence). 				
22. Provide a Detailed Process Flow Diagram(s) showing each proposed or modified emissions unit, emission point and control device as Attachment F.				
23. Provide a Process Description as Attachment G.				
 Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable). 				
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.				
24. Provide Material Safety Data Sheets (MSDS) for all materials processed, used or produced as Attachment H.				
 For chemical processes, provide a MSDS for each compound emitted to the air. 				

25. Fill out the Emission Units Table and provide it as Attachment I.				
26. Fill out the Emission Points Data Su	26. Fill out the Emission Points Data Summary Sheet (Table 1 and Table 2) and provide it as Attachment J.			
27. Fill out the Fugitive Emissions Data	Summary Sheet and provide it a	as Attachment K.		
28. Check all applicable Emissions Unit	Data Sheets listed below:			
Bulk Liquid Transfer Operations	Haul Road Emissions	Quarry		
Chemical Processes	Hot Mix Asphalt Plant	Solid Materials Sizing, Handling and Storage		
Concrete Batch Plant	Incinerator	Facilities		
Grey Iron and Steel Foundry	Indirect Heat Exchanger	Storage Tanks		
General Emission Unit, specify				
Fill out and provide the Emissions Unit D				
29. Check all applicable Air Pollution Co	ontrol Device Sheets listed below	V:		
Absorption Systems	Baghouse	⊠ Flare		
Adsorption Systems	Condenser	Mechanical Collector		
Afterburner	Electrostatic Precipitat	or 🗌 Wet Collecting System		
Other Collectors, specify				
Fill out and provide the Air Pollution Con	trol Device Sheet(s) as Attachn	nent M.		
 Provide all Supporting Emissions C Items 28 through 31. 	alculations as Attachment N, o	r attach the calculations directly to the forms listed in		
31. Monitoring, Recordkeeping, Reporting and Testing Plans. Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as Attachment O .				
Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.				
32. Public Notice. At the time that the application is submitted, place a Class I Legal Advertisement in a newspaper of general				
circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and Example Legal				
Advertisement for details). Please submit the Affidavit of Publication as Attachment P immediately upon receipt.				
33. Business Confidentiality Claims. Does this application include confidential information (per 45CSR31)?				
🗌 YES 🛛 NO				
If YES, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "Precautionary Notice – Claims of Confidentiality" guidance found in the General Instructions as Attachment Q.				
Section III. Certification of Information				
34. Authority/Delegation of Authority. Only required when someone other than the responsible official signs the application. Check applicable Authority Form below:				
Authority of Corporation or Other Business Entity				
Authority of Governmental Agency		Authority of Limited Partnership		
Submit completed and signed Authority Form as Attachment R.				
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.				

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official** / **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE Bary Scheck, (Please use blue ink)		ATE: <u>3-13-2015</u> (Please use blue ink)
35B. Printed name of signee: Barry Schatz		35C. Title: Sr. Environmental and
		Regulatory Manager
35D. E-mail: bschatz@anteroresources.com	36E. Phone: (303)357-7276	36F. FAX: (303) 357-7315
36A. Printed name of contact person (if different from above):		36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDE	ED WITH THIS PERMIT APPLICATION:
 Attachment A: Business Certificate Attachment B: Map(s) Attachment C: Installation and Start Up Schedule Attachment D: Regulatory Discussion Attachment E: Plot Plan Attachment F: Detailed Process Flow Diagram(s) Attachment G: Process Description Attachment H: Material Safety Data Sheets (MSDS) Attachment I: Emission Units Table Attachment J: Emission Points Data Summary Sheet 	 Attachment K: Fugitive Emissions Data Summary Sheet Attachment L: Emissions Unit Data Sheet(s) Attachment M: Air Pollution Control Device Sheet(s) Attachment N: Supporting Emissions Calculations Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans Attachment P: Public Notice Attachment Q: Business Confidential Claims Attachment R: Authority Forms Attachment S: Title V Permit Revision Information Application Fee
Please mail an original and three (3) copies of the complete address listed on the first page of this	permit application with the signature(s) to the DAQ, Permitting Section, at the s application. Please DO NOT fax permit applications.
FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:	
Forward 1 copy of the application to the Title V Permittin	g Group and:

For Title V Administrative Amendments:

NSR permit writer should notify Title V permit writer of draft permit,

For Title V Minor Modifications:

☐ Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
 ☐ NSR permit writer should notify Title V permit writer of draft permit.

For Title V Significant Modifications processed in parallel with NSR Permit revision:

- NSR permit writer should notify a Title V permit writer of draft permit,
 - □ Public notice should reference both 45CSR13 and Title V permits,
 - EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Attachment A

Current Business 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

til E. Ya

Secretary of State

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

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

APPLICATION FOR AMENDED CERTIFICATE OF AUTHORITY

E-mail: <u>business@wwsos.com</u> Office Hours: Monday -- Friday 8:30 a.m. -- 5:00 p.m. ET

Penney Barker, Manager

Website: www.wvsos.com

IN THE OFFICE OF Corporations Division

CRETARY OF STATE Tel: (304)558-8000 Fax: (304)558-8381

FILED

JUN 1 0 2013

Antero Resources Appalachian Corporation

Antero Resources Corporation

Antero Resources Corporation

**** 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:

6/25/2008

1. Name under which the corporation was authorized to transact business in WV:

2. Date Certificate of Authority was issued in West Virginia:

 Corporate name has been changed to: (Attach one <u>Certified Conv of Name Change</u> as filed in home State of incorporation.)

 Name the corporation elects to use in WV: (due to home state name not being available)

 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:
 Alayn A. Schopp
 Title/Capacity:
 Authorized Person

 Signature:
 Alayn A. Schopp
 Date:
 June 10, 2013

*<u>Important Legal Notice Regariting Signature</u>: Fer West Virginia Code <u>\$311)-1-129</u>. 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.

Issued by the Office of the Secretary of State

WV032 - 04/16/2013 Wolters Kluwer Online

Form CF-4

Delaware

PAGE 1

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.

AUTHENT CATION: 0496546

DATE: 06-10-13

4520810 8100

130754186 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 "<u>Corporation</u>"), 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 <u>10th</u> day of <u>June</u>, 2013.

By:

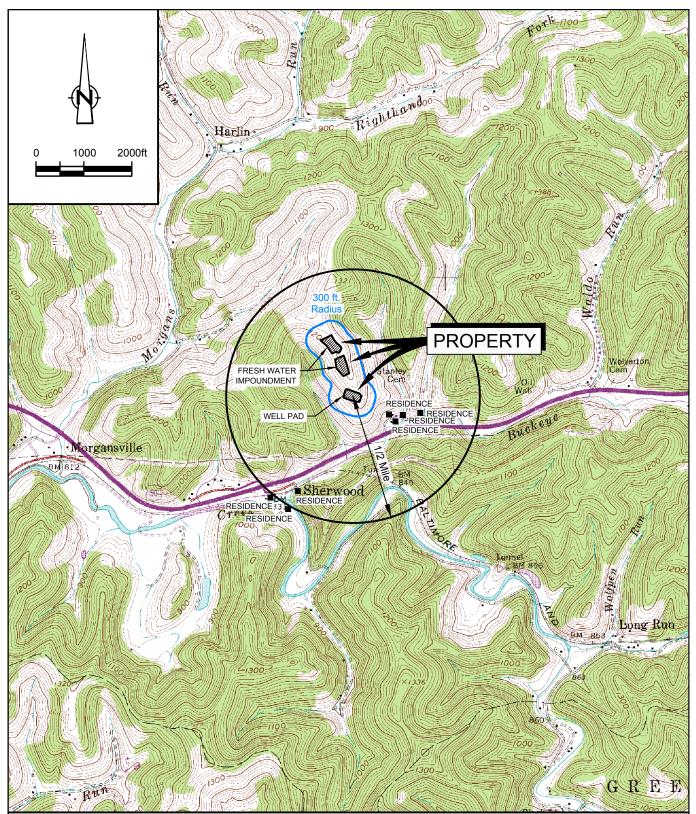
ANTERO RESOURCES APPALACHIAN CORPORATION

Name: Alvyn A. Schopp V' Title: Vice President of Accounting & Administration / Treasurer

Attachment B

Site Location Map





SOURCE: USGS QUADRANGLE MAP; SMITHBURG, WEST VIRGINIA

SITE COORDINATES: LAT: 39.285147, LONG: -80.672978 NAD 83 SITE ELEVATION: 1141 ft AMSL



Attachment B AREA MAP PEARL JEAN WELL PAD ANTERO RESOURCES Doddridge County, West Virginia

82715-00(156)GN-WA003 FEB 13/2015

Attachment C

Installation and Start-up Schedule



Attachment C

Installation and Start-up Schedule Pearl Jean Well Pad Antero Resources Corporation Doddridge County, West Virginia

Proposed Changes	Date	
Remove 24 HP Kubota Engine 9/21/2014		
Change GPU from 1.5 to 1.0 MMBtu/hr	9/21/2014	
Replace enclosed combustor with Abutec 1/26/2014		
FWI engines	Upon issuance of permit	
Startup	Upon installation	



Attachment D

Regulatory Discussions



Attachment D

Regulatory Requirements Pearl Jean Well Pad Antero Resources Corporation Doddridge County, West Virginia

Below are the applicable State and Federal regulations. Each emission source and corresponding air pollutant emissions were evaluated to determine regulatory applicability.

STATE REGULATORY APPLICABILITY

45CSR2 (To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 (To Prevent and Control Particulate Air Pollution from Combustion of Indirect Heat Exchangers) is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units.

45CSR2 defines fuel burning unit as any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. Indirect heat exchangers are devices that combust any fuel and produce steam or heats water or any heat transfer medium. 45CSR2.10(a), (b) and (c) provide the three categories of fuel burning units for the purpose of this rule. The Facility's gas production unit heaters, (H001-008) do not belong to any of the three categories and therefore are not subject to this rule. Also, the gas production unit heaters will only be using natural gas, not liquid fuel, and will not result in any significant particulate matters emissions.

45CSR6 (To Prevent and Control Air Pollution from Combustion of Refuse)

The purpose of this rule is to prevent and control air pollution from combustion of refuse.

The Facility has one (1) enclosed combustor on site. The vapor combustor, which meets the definition of an Incinerator under Section 4, is subject to the emission standards for incinerators. The vapor combustor will comply with the general control device requirements of 40 CGR 60.18. The facility will demonstrate compliance with emission limits by maintaining records of gas flow to the vapor combustor and the hours of operation. The facility will also monitor the flame of the vapor combustor and record any malfunctions that may cause no flame to be present during operation.



45CSR10 (To Prevent and Control Air Pollution from the Emission of Sulfur Oxides)

45CSR10 establishes emission limitations for SO2 emission which are discharged from stacks of fuel burning units. Fuel burning units less than 10 MMBtu/hr are exempt.

The gas production unit heaters at this facility, H001-008 are process heaters which are not classified as fuel burning units under 45CSR10 (refer to definitions in Section 2). These are therefore exempt from compliance with Section 3 of this rule.

The vapor combustor at this facility, EC001, is also exempt from compliance with Section 5 of this rule. This section only applies to process gas streams that contain hydrogen sulfide in a concentration greater than 50 grains per 100 cubic feet of gas. The process gas stream from the Facility has zero H2S concentration.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that the Facility has a "stationary source", the vapor combustor, as defined in 45CSR13 Section 2.24.a which is any building, structure, facility, installation, or emission unit or combination thereof which is subject to any substantive requirement of an emission control rule promulgated by the Secretary. Antero Resources has published the required Class I legal advertisement notifying the public of their permit application, and paid the appropriate application fee (construction).

Pearl Jean potential to emit, with the vapor combustor, will not exceed the major source threshold of 100 TPY of any air pollutant and 10 TPY of any hazardous air pollutant (HAP) or 25 TPY of any combination of HAPs. Pearl Jean 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 nearest 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 Lockhart Heirs Pad. This pad operates independently and is approximately 3,440 feet southeast of the Facility. A fresh water impoundment (FWI) which supplies water to multiple nearby well pads is located adjacent to the Pearl Jean well pad. Although this FWI operates independently from the well pad, emissions from the diesel engines were included in the well pad's potential to emit.



FEDERAL REGULATORY APPLICABILITY

40 CFR §60 New Source Performance Standards

40 CFR §60 NSPS may apply to the Site if there are affected stationary sources constructed after the date of publication of the applicable parts of this standard.

Subpart A General Provisions

This subpart contains requirements for control devices such as combustors and is therefore applicable. The Site is subject to the requirements of this subpart, specifically the requirement to obtain a permit for the facility emission sources (§60.1), notification and recordkeeping (§60.7), performance tests (§60.8), design and operation of a flare (§60.18), and reporting of excess emissions (§60.19).

Subpart K Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978

The tanks at this site will be built after July 23, 1984; therefore this rule does not apply.

Subpart Ka Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984

The tanks at this site were built after July 23, 1984; therefore this rule does not apply.

Subpart Kb Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

This subpart applies to storage vessels constructed after July 23, 1984 with a capacity greater than 75 m³. However for petroleum and condensate liquids which have a storage capacity less than 1,590 m³ (420,000 gallons or 10,000 bbl) that were used prior to custody transfer are exempt from this regulation under 60.110b(d)(4).

There will be eight (8) and two (2) 400-bbl fixed roof atmospheric tanks storing condensate and produced water, respectively. These tanks are not required to comply with this subpart since they are less than the 10,000 bbl exemption and are used for storage prior to custody transfer.

Subpart KKK Equipment Leaks of Volatile Organic Compounds from Onshore Natural Gas Processing Plants

This subpart applies to facilities involved in onshore natural gas processing plants. The site is not considered a natural gas processing plant; therefore this rule does not apply.



Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines)

This subpart applies to stationary compression ignition (CI) internal combustion engines (ICE) specified in 40 CFR 60.4200(a)(2) through (a)(4). The Facility has two stationary ICE (FWIENG001 and FWIENG002) with maximum engine power of 600 HP (447.8 kW) and a displacement of 13.5 L. These are subject to 40 CFR 60.4204 (b), which covers stationary CI ICE with a displacement of less than 30 liters. The manufacturer has submitted these engines to EPA for certificate of conformity with the emission standards. The actual EPA emission test results were used in determining emissions from the diesel engines. The Facility will comply with the requirements specified in 40 CFR 60.4211 as applicable.

Subpart OOOO Crude Oil and Natural Gas Production, Transmission and Distribution

This subpart establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The site will demonstrate continuous compliance, if applicable, with the standards for all affected facilities as follows: 1) comply with the reporting and recordkeeping requirement in 40 CFR 60.5420 for each gas well; 2) determine the VOC emissions for each storage tanks and minimize emissions using good engineering practices, 3) operate and maintain an enclosed combustor with a destruction efficiency of 98% to reduce VOC emissions from the storage vessels by 95% or greater, 4) demonstrate initial compliance with standards that apply to storage tanks as required by 40 CFR 50.5410, 5) demonstrate continuous compliance with standards that apply to storage tanks as required by 40 CFR 60.5420. Based on enclosed combustor's efficiency of 98%, the annual emissions from each storage tank will be less than 6 TPY.

40 CFR §61 National Emissions Standards for Hazardous Air Pollutants

40 CFR §61 applies to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, and control devices.

The site will not handle a fluid that is at least 10 percent by weight a VHAP, therefore this section does not apply.

40 CFR §63 National Emission Standards for Hazardous Air Pollutants for Source Categories

40 CFR §63 may apply to the site since it has the potential to emit hazardous air pollutants (HAP) and may be subject to a standard, limitation, prohibition, or other federally enforceable requirement of this part.



Subpart A General Provisions

The site HAP emissions are less than 25 tpy for total HAPs and less than 10 tpy for any single HAP, therefore the site is not a major source of HAPs. There are HAP emissions from the site and is therefore considered an area source of HAPs.

A copy of this applicability determination will be kept as specified in 40 CFR §63.10(b)(3) pertaining to recordkeeping.

Subpart HH National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities

This subpart applies to oil and gas production facilities located at area sources and major sources of HAP emissions. For area sources of HAP emissions, the rule applies to triethylene glycol (TEG) dehydration units for which controls are required at certain trigger levels. The site is not a major source of HAPS and does not operate a dehydration unit; therefore this section does not apply.

Subpart HHH National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities

This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline and that are major sources of hazardous air pollutants (HAP) emissions. The site is not a natural gas transmission and storage facility, therefore this section does not apply.

Subpart ZZZZ National Emission Standard for Reciprocating Ignition Internal Combustion Engines)

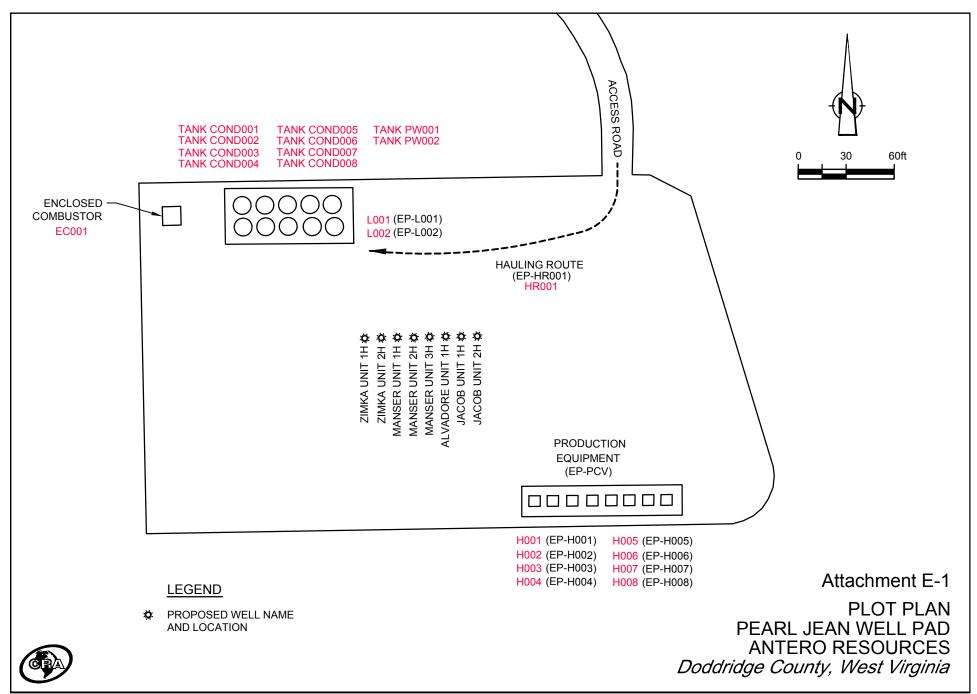
This subpart establishes emission standards for hazardous air pollutants (HAPs) emitted from stationary internal combustion engines located at major and area sources of HAP emissions. The two engines in the Facility (FWIENG001 and FWIENG002) are subject to the area source requirements. However, since these engines are already subject to 40 CFR 60 Subpart IIII, no further requirements apply to these engines under this subpart. The Facility will demonstrate compliance through 40 CFR 60 Subpart IIII.



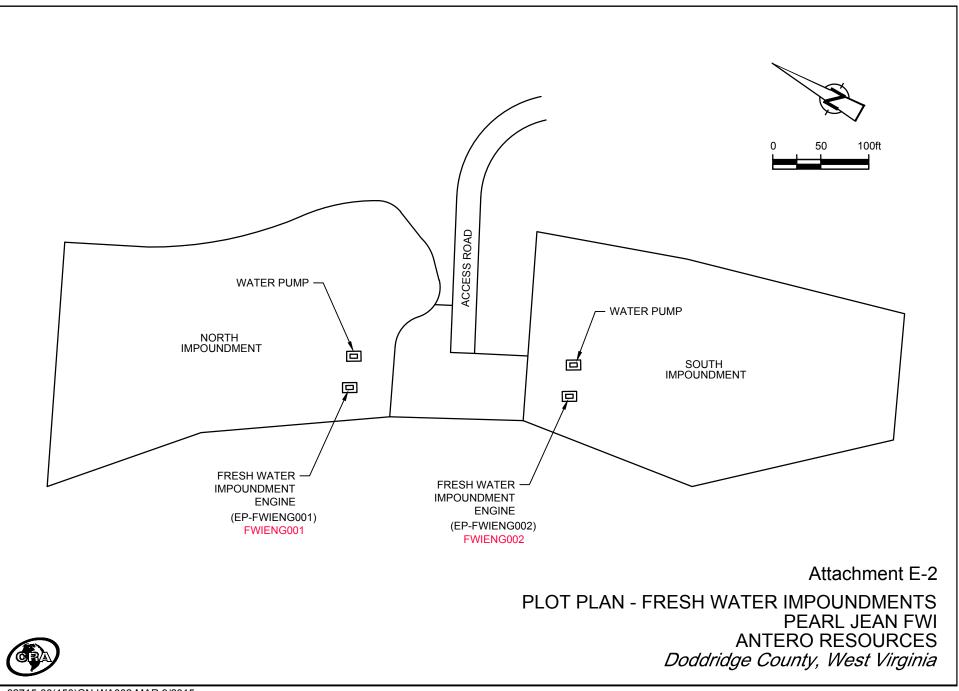
Attachment E

Plot Plan





82715-00(156)GN-WA002 FEB 23/2015

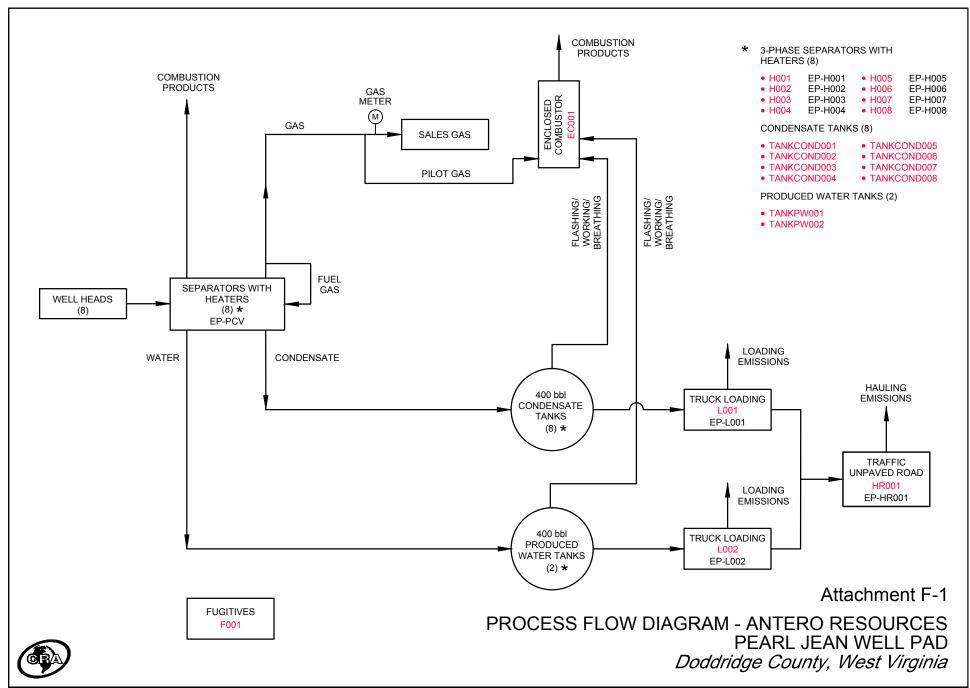


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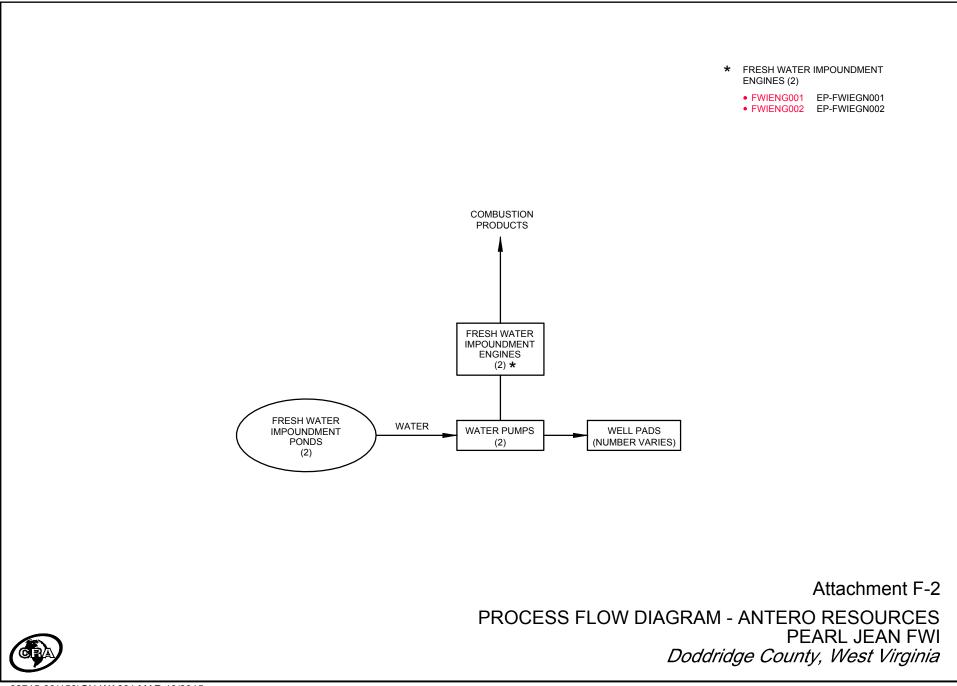
Attachment F

Process Flow Diagram





82715-00(156)GN-WA001 MAR 3/2015



82715-00(156)GN-WA001 MAR 13/2015

Attachment G

Process Description



Attachment G

Process Description Pearl Jean Well Pad Antero Resources Corporation Doddridge County, West Virginia

A mixture of condensate and entrained gas from the wells enters the Facility through a number of low pressure separators where the gas phase is separated from the liquid phase. Gas Processing Units (GPU) heaters (H001-H008) are used in conjunction with the separators to help separate the gas from the liquid phases. These heaters are fueled by a slip stream of the separated gas. The separated gas from the low pressure separators is then metered and sent to the sales gas pipeline. The separated condensate and water from the separators flow to their respective storage tanks (TANKCOND001-008 and TANKPW001-002).

The Facility has eight (8) tanks (TANKCOND001-008) on site to store condensate and two (2) tanks (TANKPW001-002) to store produced water prior to removal from the site. Flashing, working, and breathing losses from the tanks are routed to the enclosed combustor (EC001) to control the emissions. The enclosed combustor that will be used to control emissions is 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 gas and extended analysis of the condensate from Moore No. 1H, one of the wells in the Moore Pad. This extended analysis is considered representative of the materials from Pearl Jean, being in the same Marcellus rock formation.

Pearl Jean 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 nearest 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 Powell Pad. This operates independently and is approximately 1.2 miles southwest of the Facility. Although a nearby fresh water impoundment (FWI)pond operates independently providing water requirements of other nearby well pads, the emissions from the FWI were included in the potential to emit.



Attachment G

Process Description Pearl Jean Fresh Water Impoundment Antero Resources Corporation Doddridge County, West Virginia

The Fresh Water Impoundment (FWI) collects and stores water for use in the nearby natural gas and oil production facilities. The FWI has two diesel engines (FWIENG001) that drive the water pumps. The pumps feed water into the water impoundment and then out into the water distribution system supplying water requirements of various natural gas and oil production facilities.

The air contaminants from the FWI are the products of diesel combustion from the engines (NOx, CO, SO2, VOC) and particulate matter (PM) emissions from unpaved roads when service vehicles enter the site. The air contaminants are released into the atmosphere. The engines use off the road low sulfur diesel fuel oil. The potential to emit was calculated using actual emissions for NOx, CO, and PM from certification tests conducted by EPA for diesel engine at the FWI. The certification emission test results were obtained from the EPA website. Other air contaminants such as SO2, VOC and HAPs were calculated using AP-42 emission factors for non-road diesel engines. The engines that drive the water pumps operate only as needed based on water requirement of the well pads; however, for purposes of determining potential to emit, the total of 8760 hours per year was used in the calculation. Calculations are in Table 13 of Attachment N. The road emission calculations are in Table 12 of Attachment N.

The FWI operates independently serving multiple nearby natural gas and oil production facilities.



Attachment H

Material Safety Data Sheets



Attachment H

Description of Material Safety Data Sheets (MSDS) Pearl Jean Well Pad Antero Resources Corporation Doddridge County, West Virginia

Three generic Material Safety Data Sheets (MSDS), and analysis of the condensate and produced water of a similar well with the same formation are provided. Antero Resources Corporation has developed its own MSDS for these materials.

- 1. Natural Gas: The MSDS for natural gas reflects pipeline quality odorized gas. This is essentially the same as the material delivered to the metering and downstream gathering lines from the Antero well pad.
- 2. Condensate: Condensate is the hydrocarbon liquid that has been separated from raw natural gas through the well pad gas production unit. The liquid is often characterized as having a gasoline-like odor and consistency.
- 3. Produced Water: Produced water is primarily groundwater with residual trace hydrocarbons that has been withdrawn from the ground during the gas extraction process and then separated from the natural gas and condensate in the gas production units.

A low sulfur diesel fuel is used by the Fresh Water Impoundment engines. Copy of MSDS is not included in the attachment.



Material Name: Dry Field Natural Gas

US GHS

SYNONYMS: CNG, Natural Gas, Methane.

* * * Section 1 – PRODUCT AND COMPANY IDENTIFICATION * * *

PRODUCT NAM		Dry Field Natural Gas CAS Reg. No. 68410-63-9	EMERGENCY PHONE: AFTER HOURS:	(800) 878-1373 (800) 878-1373
PRODUCER: ADDRESS:	16′	tero Resources I5 Wynkoop Street nver, Colorado 80202	CHEMTREC PHONE:	(800) 424-9300

* * * Section 2 – HAZARDS IDENTIFICATION * * *

GHS Classification:

Flammable Gas – Category 1.

Gases Under Pressure – Gas.

Specific Target Organ Systemic Toxicity (STOT) – Single Exposure Category 2.

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

Danger

Hazard Statements

Extremely flammable gas.

Contains gas under pressure, may explode if heated.

May cause damage to central nervous and respiratory systems.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Do not breathe fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

SAFETY DATA SHEET

Material Name: Dry Field Natural Gas

Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

If exposed to gas, or concerned about possible exposure: Call a POISON CENTER or doctor/physician.

Storage

Protect from sunlight. Store in a well-ventilated place. Store in a secure area.

Disposal

Dispose of contents/containers in accordance with local/regional/national/international regulations.

|--|

CAS #	Component	Percent
74-82-8	Methane	95.01
78-84-0	Ethane	3.99
74-98-6	Propane	0.32
106-97-8	Butanes	0.07
109-66-0	Pentanes	0.02
110-54-3	Hexanes	0.01
7727-37-9	Nitrogen	0.35
124-38-9	Carbon Dioxide	0.19
7782-44-7	Oxygen	0.03

Because natural gas is a natural product, composition can vary greatly.

* * * Section 4 – FIRST AID MEASURES * * *

First Aid: Eyes

In case of freeze burn, cover eyes to protect from light. Flush eyes with running water for at least fifteen (15) minutes. Following flushing, seek medical attention.

First Aid: Skin

Remove contaminated clothing. In case of blistering, frostbite or freeze burns, seek immediate medical attention.

SAFETY DATA SHEET

Material Name: Dry Field Natural Gas

First Aid: Ingestion

Risk of ingestion is extremely low. However, if oral exposure occurs, seek immediate medical assistance.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 – FIRE FIGHTING MEASURES * * *



NFPA 704 Hazard Class

Health: **1** Flammability: **4** Instability: **0** (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

General Fire Hazards

See Section 9 for Flammability Properties.

Forms a flammable mixture with air. If released, the resulting vapors will disperse with the prevailing wind. If a source of ignition is present where the vapor exists at a 5 - 15% concentration in air, the vapor will burn along the flame front toward the source of the fuel.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

Any extinguisher suitable for Class B fires, dry chemical, fire fighting foam, CO2, and other gaseous agents. However, fire should not be extinguished unless flow of gas can be immediately stopped.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment / Instructions

Gas fires should not be extinguished unless flow of gas can be immediately stopped. Shut off gas source and allow gas to burn out. If spill or leak has not ignited, determine

Material Name: Dry Field Natural Gas

if water spray may assist in dispersing gas or vapor to protect personnel attempting to stop leak. Use water to cool equipment, surfaces and piping exposed to fire and excessive heat. For large fire, the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Isolate area, particularly around piping. Let the fire burn unless leak can be stopped. Concentrate fire-fighting efforts on objects / materials ignited by the initial fire. Withdraw immediately in the event of a rising sound from a venting safety device.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH-approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

* * * Section 6 – ACCIDENTAL RELEASE MEASURES * * *

Recovery and Neutralization

Stop the source of the release, if safe to do so.

Materials and Methods for Clean-Up

Consider the use of water spray to disperse gas vapors. Do not use water spray to direct gas vapors toward sewer or drainage systems. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

Emergency Measures

Evacuate nonessential personnel and secure all ignition sources. No road flares, smoking or flames in hazard area. Consider wind direction. Stay upwind and uphill, if possible. Vapor cloud may be white, but color will dissipate as cloud disperses. Fire and explosion hazard is still present.

Personal Precautions and Protective Equipment

Cooling effect of expanding gas from leak may present frostbite / freeze burn hazard. Wear flame retardant (FR) clothing around un-ignited leak. Wear fire protective clothing around an active fire.

Environmental Precautions

Do not flush gas vapors toward sewer or drainage systems.

Prevention of Secondary Hazards

None.

Material Name: Dry Field Natural Gas

* * * Section 7 – HANDLING AND STORAGE * * *

Handling Procedures

Keep away from flame, sparks and excessive temperatures. Bond and ground containers. Use only in well ventilated areas.

Storage Procedures

Natural gas will be contained in the pipeline. Keep away from flame, sparks, excessive temperatures and open flames. Empty pipeline segments may contain explosive residues from natural gas liquids. Do not cut, heat, weld or expose containers to sources of ignition sections of pipeline unless the sections have been purged of natural gas residues.

Incompatibilities

Keep away from strong oxidizers, ignition sources and heat.

* * * Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION * * *

Component Exposure Limits

Methane (74-82-8)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases : Alkane C1-4)

Ethane (74-84-0)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases : Alkane C1-4)

Propane (74-98-6)

ACGIH: 2500 ppm TWA (listed under Aliphatic hydrocarbon gases : Alkane C1-4)

Butane (106-97-8)

ACGIH: 800 ppm TWA (listed under Aliphatic hydrocarbon gases : Alkane C1-4)

Pentanes (109-66-0)

ACGIH: 600 ppm TWA (listed under Pentane, all isomers)

Hexanes (110-54-3)

ACGIH: 50 ppm TWA (listed under n-Hexane)

Material Name: Dry Field Natural Gas

US GHS

Nitrogen (7727-37-9)

Simple Asphyxiant

Carbon Dioxide (124-38-9)

ACGIH: 5000 ppm TWA (listed under Carbon Dioxide)

Oxygen (7782-44-7)

N/A – Necessary for life

Engineering Measures

Use adequate ventilation to keep gas and vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified / controlled areas.

Personal Protective Equipment: Respiratory

Use a NIOSH approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere. CAUTION: Flammability limits (i.e., explosion hazard should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Personal Protective Equipment: Hands

Use cold-impervious, insulating flame-retardant (FR) gloves where contact with pressurized gas may occur.

Personal Protective Equipment: Eyes

Where there is a possibility of pressurized gas contact, wear splash-proof safety goggles and faceshield.

Personal Protective Equipment: Skin and Body

Where contact with pressurized gas may occur, wear flame-retardant (FR) and a faceshield.

Appearance:	Colorless	Odor:	Odorless to slight petroleum odor
Physical State:	Gas	pH:	ND
Vapor Pressure:	40 atm @ -187°F (-86°C)	Vapor Density:	0.6
Boiling Point:	-259°F (-162°C)	Melting Point:	ND
Solubility (H2O):	3.5%	Specific Gravity:	0.4 @ -263°F (-164°C)

*** Section 9 – PHYSICAL AND CHEMICAL PROPERTIES ***

Material Name: Dry Field Natural Gas

Evaporation Rate: ND Octanol / H2O Coeff.: ND Flash Point Method: N/A Lower Flammability Limit: 3.8 – 6.5 (LFL): Auto Ignition: 900-1170°F (482-632°C) VOC: ND Flash Point: Flammable Gas

Upper Flammability Limit: 13-17 (UFL): Burning Rate: ND

* * * Section 10 – CHEMICAL STABILITY & REACTIVITY INFORMATION * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Keep away from strong oxidizers, ignition sources and heat.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

*** Section 11 – TOXICOLOGICAL INFORMATION ***

Acute Toxicity

A: General Product Information

Methane and ethane, the main components of natural gas, are considered practically inert in terms of physiological effects. At high concentrations these materials act as simple asphyxiants and may cause death due to lack of oxygen.

B. Component Analysis – LD50/LC50

Methane (74-82-8)

Inhalation LC50 Mouse 326 g/m3 2h

Ethane (74-84-0)

Inhalation LC50 Rat 658 mg/l 4h

Propane (74-98-6)

Inhalation LC50 Rat 658 mg/l 4h

Material Name: Dry Field Natural Gas

Butanes (106-97-8) Inhalation LC50 Rat 658 g/m3 4h

Pentanes (109-66-0) Inhalation LD50 Rat 364 g/m3 4h

Hexanes (110-54-3) Inhalation LC50 Rat > 20 mg/l 4h

Nitrogen (7727-37-9) Simple Asphyxiant

Carbon Dioxide (124-38-9) Inhalation LC50 Human 100,000 ppm 1minute

Oxygen (7782-44-7) N/A – Necessary for life

Potential Health Effects: Skin Corrosion Property / Stimulativeness

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

This product is not reported to have any carcinogenic effects.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product may cause damage to the heart.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ repeat effects.

Aspiration Respiratory Organs Hazard

This product is not reported to have any aspiration hazard effects.

Page 8 of 11

Material Name: Dry Field Natural Gas

* * * Section 12 – ECOLOGICAL INFORMATION * * *

Ecotoxicity

A: General Product Information

Keep gas and vapors out of sewers, drainage areas, and waterways. Report spills and releases, as applicable under Federal and State regulations.

B: Component Analysis – Ecotoxicity – Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Persistance / Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 – DISPOSAL CONSIDERATIONS * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment Recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents / container in accordance with local / regional / national / international regulations.

* * * Section 14 – TRANSPORTATION INFORMATION * * *

DOT Information

Shipping Name: Natural Gas, Compressed UN #: 1971 Hazard Class: 2.1

Placard:



Material Name: Dry Field Natural Gas

*** Section 15 – REGULATORY INFORMATION ***

Regulatory Information Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A.

n-hexane is listed under SARA Section 313 (40 CFR 372.65). However the concentration of this component is approximately 0.01 % in compressed natural gas and is therefore far under the reporting threshold for the chemical.

n-hexane is listed under CERCLA (40 CFR 302.4). However the concentration of this component is approximately 0.01 % in compressed natural gas and is therefore far under the reporting threshold for the chemical.

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	<u>Fire</u>	Sudden Release of Pressure	Reactive
		Х	Х	

SARA Section 313 – Supplier Notification

This product contains one chemical (n-Hexane) that is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-know act (EPCRA) of 1986 and of 40 CFR 372. However the concentration of this component is approximately 0.01 % in compressed natural gas and is therefore far under the reporting threshold for the chemical.

State Regulations

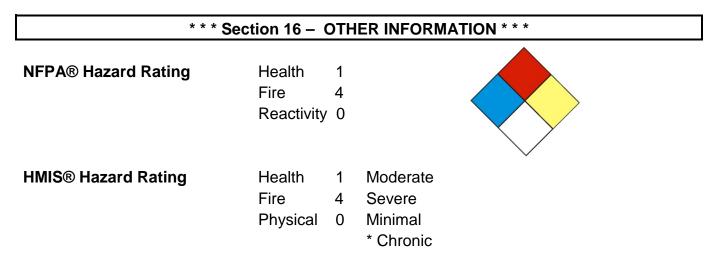
Component Analysis – State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Methane	74-82-8	No	No	Yes	Yes	Yes	No
Ethane	78-84-0	No	No	Yes	Yes	Yes	No
Propane	74-98-6	No	No	Yes	Yes	Yes	Yes
Butane	106-97-8	Yes	No	Yes	Yes	Yes	Yes
Pentanes	109-66-0	Yes	No	Yes	Yes	Yes	Yes
Hexanes	110-54-3	Yes	Yes	Yes	Yes	Yes	Yes
Nitrogen	7727-37-9	No	No	No	No	No	No
Carbon Dioxide	124-38-9	Yes	No	Yes	Yes	Yes	Yes
Oxygen	7782-44-7	No	No	No	No	No	No

Material Name: Dry Field Natural Gas

US GHS



Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act: ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

The information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Date of Preparation: January 30, 2014

Date of Last Revision: March 4, 2014



Material Name: Natural Gas Condensate

US GHS

SYNONYMS: Drips; Condensate; Field Condensate; Gas Well Condensate; High Pressure Inlet Liquids; Lease Condensate; Natural Gas Liquids; Pipeline Liquids

* * * Section 1 – PRODUCT AND COMPANY IDENTIFICATION * * *

PRODUCT NAM		EMERGENCY PHONE: AFTER HOURS:	(800) 878-1373 (800) 878-1373
ADDRESS:	Antero Resources 1615 Wynkoop Street Denver, Colorado 80202	CHEMTREC PHONE:	(800) 424-9300

* * * Section 2 – HAZARDS IDENTIFICATION * * *

GHS Classification:

Flammable Liquids – Category 2. Acute Toxicity Inhalation – Category 3 Germ Cell Mutagenicity – Category 1B Carcinogenicity – Category 1A Specific Target Organ Systemic Toxicity (STOT) – Single Exposure Category 3 Specific Target Organ Systemic Toxicity (STOT) – Repeat Exposure Category 1 Aspiration Toxicity – Category 1 Toxic to the Aquatic Environment Acute – Category 3

GHS LABEL ELEMENTS



Signal Word Danger

Material Name: Natural Gas Condensate

US GHS

Hazard Statements

Highly flammable liquid and vapor.
Toxic if inhaled.
May cause genetic defects.
May cause cancer.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause damage to organs (liver, kidneys, blood, nervous system, and skin) through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wear protective gloves/protective clothing/eye protection/face protection.

Do not breathe gas/mist/vapors/spray.

Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

Response

If on SKIN (or hair): Wash with plenty of soap and water. Remove / Take off all contaminated clothing immediately. Rinse skin with water/shower.

If INHALED: Remove victim to fresh air and keep comfortable for breathing. Call a poison center/doctor if the victim feels unwell.

If SWALLOWED: Immediately call a poison center or doctor / physician. Do not Induce vomiting.

If exposed or concerned: Get medical advice/attention.

In case of fire: Use water spray, fog or fire-fighting foam.

Storage

Store in a well-ventilated place. Keep cool. Store in a secure area.

Material Name: Natural Gas Condensate

Disposal

Dispose of contents/containers in accordance with local/regional/national/international regulations.

* * * Section 3 – COMPOSITION / INFORMATION ON INGREDIENTS * * *
--

CAS #	Component	Percent
111-65-9	Octanes	25 - 95
142-82-5 110-54-3	Heptanes Hexanes as n-Hexane	25 - 95 25 - 95
109-66-0 106-97-8	Pentanes as n-Pentane N-butane	5 - 70 0 - 45
74-98-6	Propane	0 - 15
78-84-0 71-43-2	Ethane Benzene	0 - 5 < 1
108-88-3	Toluene	< 1 < 1
1330-20-7	m-,o-,p-Xylene	< 1

Because natural gas condensate is a natural product, composition can vary greatly.

* * * Section 4 – FIRST AID MEASURES * * *

First Aid: Eyes

Flush eyes with clean running water for at least fifteen (15) minutes. Following flushing, seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops. Wash contaminated clothing before reuse.

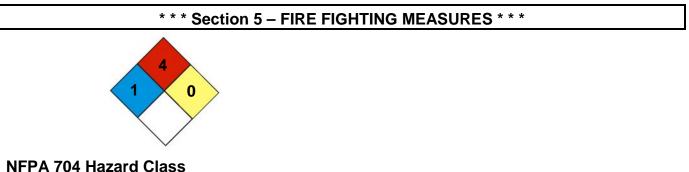
First Aid: Ingestion (swallowing)

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean the victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

Material Name: Natural Gas Condensate

First Aid: Inhalation (breathing)

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.



Health: 1 Flammability: 4 Instability: 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

General Fire Hazards

See Section 9 for Flammability Properties.

Extremely flammable. Vapors may be ignited rapidly when exposed to heat, spark, open flame, or other source of ignition (e.g., static electricity, pilot lights, mechanical / electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Flammable vapors can burn in the open or explode in confined spaces. Vapors are heavier than air, and may travel distances to an ignition source and flash back. Runoff to sewer systems may cause fire or explosion.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, firefighting foam, water spray, carbon dioxide (CO_2), or other gaseous extinguishing agents. Use caution when applying CO2 in confined spaces.

LARGE FIRES: Water spray, fog or fire-fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Material Name: Natural Gas Condensate

US GHS

Fire Fighting Equipment / Instructions

Small fires in the beginning stage may typically be extinguished using handheld portable fire extinguishers and other firefighting equipment. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied firefighting foam.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full face piece and full protective clothing.

* * * Section 6 – ACCIDENTAL RELEASE MEASURES * * *

Recovery and Neutralization

Contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

Emergency Measures

Evacuate nonessential personnel and secure all ignition sources. No road flares, smoking or flames in hazard area. Consider wind direction. Stay upwind and uphill, if possible. Vapor cloud may be white, but color will dissipate as cloud disperses. Fire and explosion hazard is still present.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8). Extremely flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of

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Material Name: Natural Gas Condensate

ignition and hot metal surfaces away from spill/release if safe to do so.

The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons downwind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of firefighting foam may be useful in certain situations to reduce vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Prevention of Secondary Hazards

None

* * * Section 7 – HANDLING AND STORAGE * * *

Handling Procedures

Keep away from flame, sparks and excessive temperatures. Bond and ground containers. Use non-sparking tools. Use only outdoors or in well ventilated areas. Wear protective gloves / clothing and eye / face protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Storage Procedures

Store only in approved containers. Bond and ground containers. Keep away from flame, sparks, excessive temperatures and open flames. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Material Name: Natural Gas Condensate

Incompatibilities

Keep away from strong oxidizers, ignition sources and heat.

* * * Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION * * *

Component Exposure Limits

Octanes (111-65-9)

ACGIH: 300 ppm TWA (listed under Octane, all isomers)

Heptanes (142-82-5)

ACGIH: 400 ppm TWA (listed under n-Heptane)

n-Hexane (110-54-3)

ACGIH: 20 ppm TWA (listed under n-Hexane)

n-Pentane (109-66-0)

ACGIH: 600 ppm TWA (listed under Pentane, all isomers)

n-Butane (106-97-8)

ACGIH: 600 ppm TWA (listed under n-Butane)

Propane (74-98-6)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases C1-C4)

Ethane (74-84-0)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases C1-C4)

Benzene (71-43-2)

ACGIH: 0.5 ppm (TWA); NIOSH: 0.1 ppm (TWA); OSHA 1 ppm (TWA)

Toluene (108-88-3)

ACGIH: 20 ppm TWA (listed under Toluene)

m-, o-, p-Xylene (1330-20-7)

ACGIH: 100 ppm TWA (listed under Xylene o, m & p isomers)

Material Name: Natural Gas Condensate

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces. Use explosion-proof equipment and lighting in classified / controlled areas.

Personal Protective Equipment: Respiratory

Use a NIOSH-approved positive-pressure, supplied air respirator with escape bottle or self-contained breathing apparatus (SCBA) for gas concentrations above occupational exposure limits, for potential for uncontrolled release, if exposure levels are not known, or in an oxygen-deficient atmosphere (oxygen content less than 19.5 percent). A respiratory program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant the use of a respirator.

If benzene concentrations equal or exceed applicable exposure limits, OSHA requirements for personal protective equipment, exposure monitoring, and training may apply (29 CFR 1910.1028 – Benzene).

CAUTION: Flammability limits (i.e., explosion hazard should be considered when assessing the need to expose personnel to concentrations requiring respiratory protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile or neoprene are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying. Eye protection that meets or exceeds ANSI Z.87.1 is recommended. Depending on conditions of use, a face shield may be necessary.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

Hygiene Measures

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use gasoline or solvents (naphtha, kerosene, etc.) for washing this product from

Material Name: Natural Gas Condensate

* * * Section 9 – PHYSICAL AND CHEMICAL PROPERTIES * * *

Appearance: Physical State: Vapor Pressure:	Colorless to straw yellow Liquid 110 – 200 psia (Reid VP) @ 100°F/37.8°C	Odor: pH: Vapor Density (air = 1):	Aromatic, Gasoline; ND > 1
Boiling Point:	Approx. 85 - 437°F (39 – 200°C)	Melting Point:	ND
Solubility (H2O):	Insoluble to slightly soluble	Specific Gravity:	AP 0.62-0.76 (varies)
Evaporation Rate:	High	VOC:	ND
Octanol / H2O Coeff.:	ND	Flash Point:	-40°F -40°C
Flash Point Method:	Tag Closed Cup (TCC)		
Lower Flammability Limit: (LFL):	ND (NFPA Gasoline 1.4)	Upper Flammability Limit: (UFL):	ND (NFPA Gasoline 7.6)
Auto Ignition:	AP 480°F (250°C)	Burning Rate:	ND

* * * Section 10 - CHEMICAL STABILITY & REACTIVITY INFORMATION * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Keep away from ignition sources and high temperatures.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Material Name: Natural Gas Condensate

US GHS

*** Section 11 – TOXICOLOGICAL INFORMATION ***

Acute Toxicity

- A: General Product Information Harmful if swallowed.
- B. Component Analysis LD50/LC50 Octanes (111-65-9) Inhalation LC50 rat = 118,000 mg/m3 / 4H

Heptanes (142-82-5) Inhalation LC50 rat = 103,000 mg/m3 / 4H

Hexanes as n-Hexane (110-53-3) Inhalation LC50 rat = 48,000 ppm / 4H

Pentanes as n-Pentane (109-66-0)

Inhalation LC50 rat = 364,000 mg/m3 / 4H

Butanes as n-Butane (106-97-8)

Inhalation LC50 rat 658,000 mg/l / 4H

Propane (74-98-6) Inhalation LC50 Rat > 800,000 ppm / 0.25H

Ethane (74-84-0) Inhalation LC50 Rat 658,000 mg/l / 4H

Benzene (71-43-2) Inhalation LC50 Rat 44,700 mg/m3 /

Toluene (108-88-3) Inhalation LD50 Rat 12/5 mg/l / 4H

m-, o-, p-Xylene (1330-20-7) Inhalation LC50 Rat 5000 ppm / 4H

Potential Health Effects: Skin Corrosion Property / Stimulativeness

May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

Material Name: Natural Gas Condensate

Potential Health Effects: Eye Critical Damage / Stimulativeness

Contact with eyes may cause moderate irritation.

Potential Health Effects: Ingestion (swallowing)

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation (breathing)

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

Respiratory Organs Sensitization / Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

May cause genetic defects. Some crude oils and crude oil fractions have been positive in mutagenicity studies.

Carcinogenicity

A: General Product Information

May cause cancer.

This product contains benzene, although at very low concentrations. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

Exposure to light hydrocarbons in the same boiling range as this product have been associated in animal studies with effects to the central nervous system, peripheral nervous system, liver, and kidneys. The significance of these animal models to predict similar human response is uncertain. Observing good work practices and personal hygiene procedures (Sections 7 and 8) can minimize potential risks to humans.

B: Component Carcinogenicity

Benzene (71-43-2)

ACGIH:	A1 - Confirmed Human Carcinogen
OSHA:	5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028,
	15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH:	potential occupational carcinogen
NTP:	Known Human Carcinogen (Select Carcinogen)
• · -	

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Material Name: Natural Gas Condensate

US GHS

IARC: Monograph 100F [in preparation]; Supplement 7 [1987]; Monograph 29 [1982] (Group 1 (carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

May cause damage to organs (liver, kidneys, blood, nervous system and skin) through prolonged or repeated exposure.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - ECOLOGICAL INFORMATION * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable under Federal and State regulations.

B: Component Analysis – Ecotoxicity – Aquatic Toxicity Benzene (71-43-2)

Test and Species Conditions 96 Hr LC50 Pimephales promelas 10.7-14.7 mg/L [flow-through] 96 Hr LC50 Oncorhynchus mykiss 5.3 mg/L [flow-through] 96 Hr LC50 Lepomis macrochirus 22.49 mg/L [static] 96 Hr LC50 Poecilia reticulata 28.6 mg/L [static] 22330-41160 µg/L [static] 96 Hr LC50 Pimephales promelas 70000-142000 µg/L [static] 96 Hr LC50 Lepomis macrochirus 72 Hr EC50 Pseudokirchneriella subcapitata 29 mg/L 8.76 - 15.6 mg/L [static] 48 Hr EC50 Daphnia magna 48 Hr EC50 Daphnia magna 10 mg/L

Material Name: Natural Gas Condensate

Natural Gas condensates (68919-39-1)

Test and Species	Conditions
96 Hr LC50 Alburnus alburnus	119 mg/L [static]
96 Hr LC50 Cyprinodon variegatus	82 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	56 mg/L
24 Hr EC50 Daphnia magna	170 mg/L

Persistence / Degradability

No information available

Bioaccumulation

No information available

Mobility in Soil

No information available

* * * Section 13 - DISPOSAL CONSIDERATIONS * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment Recommendations.

Disposal of Contaminated Containers or Packaging

Recover or recycle if possible. It is the responsibility of the generator to determine the toxicity and physical properties of the material generated so as to properly classify the waste and ensure disposal methods comply with applicable regulations. This material, if discarded should be fully characterized for ignitability (D001), reactivity (D003) and benzene (D018) prior to disposal (40 CFR261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material. Do not dispose of by draining onto the ground. This will result in soil and groundwater contamination. Waste arising from spillage or tank cleaning should be disposed of in accordance with applicable regulations.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a qualified drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

US GHS

Material Name: Natural Gas Condensate

* * * Section 14 - TRANSPORTATION INFORMATION * * *

DOT Information

Shipping Name: Petroleum Products, n.o.s. (condensate)

UN #: 1268 Hazard Class: 3

Additional Info.: Dependent on the product's properties, the shipper may also elect to classify as Gasoline UN1203 or Petroleum Crude Oil UN1267 - reference 49 CFR 172.101 for further description (e.g., packing group determination).

Placard:



*** Section 15 - REGULATORY INFORMATION ***

Regulatory Information

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Benzene (71-43-2)

SARA 313: 0.1% de minimis concentration

CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	<u>Fire</u>	Sudden Release of Pressure	Reactive
Х	Х	Х		

SARA SECTION 313 – SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

Material Name: Natural Gas Condensate

US GHS

INGREDIENT NAME (CAS NUMBER)

CONCENTRATION PERCENT BY WEIGHT

Benzene (71-43-2) <0.1 to 2

Canadian Regulatory Information

DSL/NDSL Inventory	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the Regulations.
Workplace Hazardous Materials Information System	 B2 - Flammable Liquid D1A – Material Causing Immediate and Serious Toxic Effects - Very Toxic Material D2A: Material Causing Other Toxic Effects Very Toxic D2B - Material Causing Other Toxic Effects - Toxic Material

European Union Regulatory Information

Labeling	Product is dangerous as defined by the European Union Dangerous Substances / Preparations Directives. Contains: Low Boiling Point Naphtha
Symbol	 F+ Extremely Flammable T Toxic N Dangerous for the Environment
Risk Phrases	R12-45-38-65-67-51/53 Extremely flammable. May cause cancer. Irritating to skin. Harmful: may cause lung damage if swallowed. Vapors may cause drowsiness and dizziness. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases	S16-53-45-2-23-24-29-43-62 Keep away from sources of ignition – No smoking. Avoid exposure – obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Keep out of reach of children. Do not breathe vapor. Avoid contact with skin. Do not empty into drains. In case of fire use foam/dry powder/CO2. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Material Name: Natural Gas Condensate

State Regulations

Component Analysis – State

The following components appear on one or more of the following state hazardous substances lists

Component	CAS	СА	MA	MN	NJ	ΡΑ	RI
Octanes	111-65-9	Yes	No	Yes	Yes	Yes	Yes
Heptanes	142-82-5	Yes	No	Yes	Yes	Yes	Yes
n-Hexane	110-54-3	Yes	Yes	Yes	Yes	Yes	Yes
n-Pentane	109-66-0	Yes	No	Yes	Yes	Yes	Yes
n-Butane	106-97-8	Yes	No	Yes	Yes	Yes	Yes
Propane	74-98-6	No	No	Yes	Yes	Yes	Yes
Ethane	78-84-0	No	No	Yes	Yes	Yes	No
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	Yes
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	Yes
m-, o-, p-Xylene	1330-20-7	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.

WARNING! This product contains a chemical known to the state of California to cause Reproductive / developmental effects.

Component Analysis – WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act

Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Benzene	71-43-2	0.1%

* * * Section 16 – OTHER INFORMATION * * *						
NFPA® Hazard Rating	Health 1 Fire 4 Reactivity 0					
HMIS® Hazard Rating	Health 1 Slight Fire 4 Severe Physical 0 Minimal * Chronic					

Material Name: Natural Gas Condensate

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act: ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

The information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Date of Preparation: January 29, 2014

Date of Last Revision: March 4, 2014

End of Sheet



Material Name: Produced Water

US GHS

SYNONYMS: Produced Brine Water, Brine, Brine Water, Formation Water

* * * Section 1 – PRODUCT AND COMPANY IDENTIFICATION * * *

PRODUCT NAME:	Produced Water	EMERGENCY PHONE:	(800) 878-1373
PRODUCT CODES:	Mixture	AFTER HOURS:	(800) 878-1373
ADDRESS: 16	ntero Resources 15 Wynkoop Street enver, Colorado 80202	CHEMTREC PHONE:	(800) 424-9300

* * * Section 2 – HAZARDS IDENTIFICATION * * *

GHS Classification:

Eye Irritant – Category 2A.

GHS LABEL ELEMENTS Symbol(s)



Signal Word Warning

Hazard Statements

Causes serious eye irritation

Precautionary Statements

Prevention

Wear protective gloves/protective clothing/eye protection/face protection.

Response

If on SKIN (or hair): Rinse skin with water / shower. Remove / Take off all contaminated clothing immediately.

Material Name: Produced Water

US GHS

If in EYES: Rinse cautiously with water for at least fifteen (15) minutes. Remove Contact Lenses, if present and easy to do. Continue rinsing.

If EYE irritation persists, get medical advice / attention.

Storage

Store in a secure area.

Disposal

Dispose of contents/containers in accordance with regulations.

* * * Section 3 – COMPOSITION / INFORMATION ON INGREDIENTS * * *

CAS #	Component	Percent
7732-18-5	Water	80
7647-14-5	Sodium Chloride	20

Because brine water is a natural product, composition can vary greatly.

* * * Section 4 – FIRST AID MEASURES * * *

First Aid: Eyes

Flush eyes with clean running water for at least fifteen (15) minutes. If irritation or redness develops from exposure, following flushing, seek medical attention.

First Aid: Skin

First aid is not required, normally. However, it is a good practice to wash any chemical from the skin.

First Aid: Ingestion (Swallowing)

First aid is not required, normally. If spontaneous vomiting occurs, lean the victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. If symptoms develop, seek medical attention.

First Aid: Inhalation (Breathing)

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

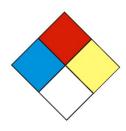
Material Name: Produced Water

US GHS

Most important symptoms and effects

None known or anticipated.

* * * Section 5 – FIRE FIGHTING MEASURES * * *



NFPA 704 Hazard Class

Health: 1 Flammability: 0 Instability: 0 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

General Fire Hazards

No fire hazards are expected.

General Fire Hazards

No unusual fire or explosion hazards are expected. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media

The material is non-flammable. Use extinguishing agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment / Instructions

Small fires in the beginning stage may typically be extinguished using handheld portable fire extinguishers and other firefighting equipment. Isolate area around container involved in fire and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from the immediate hazard area if it can be done safely. Cool equipment exposed to fire with water, if it can be done safely.

Hazardous Combustion Products

None Anticipated. See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

Material Name: Produced Water

* * * Section 6 – ACCIDENTAL RELEASE MEASURES * * *

Recovery and Neutralization

Contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios of this material. However, local conditions and regulations may influence or limit the choice of appropriate actions to be taken. See Section 13 for information on appropriate disposal.

Emergency Measures

The material is not considered hazardous. Nevertheless, evacuate nonessential personnel and secure the area. Stay upwind and uphill, if possible.

Personal Precautions and Protective Equipment

Stay upwind and away from the spill/release. Avoid direct contact with the material. For large spillages, notify persons downstream of the spill/release. Isolate the immediate hazard area and keep unauthorized personnel out. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking or absorbents, if possible. Do not flush down sewer or drainage systems. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If a spill occurs on water, notify appropriate authorities and advise shipping of any hazard.

Prevention of Secondary Hazards

None

Material Name: Produced Water

* * * Section 7 – HANDLING AND STORAGE * * *

Handling Procedures

Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8).

Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29 CFR 1910.146. Do not wear contaminated clothing or shoes.

Storage Procedures

Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well ventilated areas. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

Incompatibilities

Keep away from excessive heat to prevent rupture of container.

* * * Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION * * *

Component Exposure Limits

Water (7732-18-5) ACGIH: Not listed

Sodium Chloride (7647-14-5)

ACGIH: Not listed

Engineering Measures

If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Personal Protective Equipment: Respiratory

Emergencies or conditions that could result in significant airborne exposures may require the use of NIOSH approved respiratory protection. An industrial hygienist or other appropriate health and safety professional should be consulted for specific guidance under these situations.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR

Material Name: Produced Water

1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

Personal Protective Equipment: Skin and Hands

The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals.

Personal Protective Equipment: Eyes

Safety glasses or goggles that meet or exceed ANSI Z-87.1 are recommended where there is a possibility of splashing or spraying.

Hygiene Measures

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove contaminated clothing and launder before reuse.

* * * Section 9 – PHYSICAL AND CHEMICAL PROPERTIES * * *				
Appearance:	Clear to Brown	Odor:	Salty	
Physical State:	Liquid	pH:	ND	
Vapor Pressure:	< 0.36 psia @ 70°F / 21.1°C	Vapor Density:	> 1	
Boiling Point:	212°F / 100°C	Melting Point:	2.4°F / -16.5°C	
Solubility (H2O):	Complete	Specific Gravity:	1.1 @ 68°F / 20°C	
Evaporation Rate:	Variable	VOC:	ND	
Octanol / H2O Coeff.:	ND	Flash Point:	ND	
Flash Point Method:	ND			
Lower Flammability Limit:	ND	Upper Flammability Limit:	ND	
(LFL):		(UFL):		
Auto Ignition:	ND	Burning Rate:	ND	

Material Name: Produced Water

*** Section 10 – CHEMICAL STABILITY & REACTIVITY INFORMATION ***

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will react with alkali and alkaline metals to form flammable hydrogen gas.

Conditions to Avoid

Avoid contact with alkali metals (lithium, sodium, potassium), alkaline metals (beryllium, magnesium, calcium, strontium, and barium), and metallic hydrides like lithium aluminum hydride.

Hazardous Decomposition Products

Not anticipated under normal conditions of use.

Hazardous Polymerization

Not known to occur.

*** Section 11 - TOXICOLOGICAL INFORMATION ***

Acute Toxicity

A: General Product Information

Unlikely to be harmful.

B. Component Analysis – D50/LC50

Water (7732-18-5) Oral LD50 Rat 90 g/kg

Sodium Chloride (7647-14-5)

Oral LD50 Rat 3 g/kg

Potential Health Effects: Skin Corrosion Property / Stimulativeness

May cause skin irritation with prolonged or repeated contact. Not expected to be a skin sensitizer.

Potential Health Effects: Eye Critical Damage / Stimulativeness

Contact with eyes may cause moderate irritation.

Material Name: Produced Water

Potential Health Effects: Ingestion

Ingestion may result in nausea, vomiting, diarrhea, abdominal cramps, and dehydration (thirst).

Potential Health Effects: Inhalation

No information available on the mixture. However, none of the components have been classified for respiratory sensitization (or are below the concentration threshold for classification).

Generative Cell Mutagenicity

Not expected to cause genetic effects.

Carcinogenicity

General Product Information

Not expected to cause cancer. This substance is not listed as a carcinogen by IARC, NTP or OSHA.

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity multiple exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - ECOLOGICAL INFORMATION * * *

Ecotoxicity

A: General Product Information

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable under Federal and State regulations.

Material Name: Produced Water

US GHS

Persistence / Degradability

No information available

Bioaccumulation

No information available

Mobility in Soil

No information available

* * * Section 13 – DISPOSAL CONSIDERATIONS * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment Recommendations.

Disposal of Contaminated Containers or Packaging

Recover or recycle if possible. It is the responsibility of the generator to determine the toxicity and physical properties of the material generated so as to properly classify the waste and ensure disposal methods comply with applicable regulations.

This material, if discarded as produced, is not a RCRA "listed" hazardous waste, and is not believed to exhibit characteristics of hazardous waste. Consult state and local regulations regarding the proper disposal of this material. Do not dispose of brine water by draining onto the ground. This will result in soil and groundwater contamination. Waste arising from spillage or tank cleaning should be disposed of in accordance with applicable regulations.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate should not be considered a RCRA hazardous waste but must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a qualified drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

* * * Section 14 – TRANSPORTATION INFORMATION * * *

DOT Information Shipping Description: Not Regulated UN #: Not Regulated

Material Name: Produced Water

*** Section 15 - REGULATORY INFORMATION ***

CERCLA/SARA – Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372,

CERCLA/SARA – Section 313 and 40 CFR 372):

This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):

This material does not contain any chemicals with CERCLA Reportable Quantities.

State Regulations

Component Analysis

The following components appear on one or more of the following state hazardous substances list.

California Proposition 65:

This material does not contain any chemicals that are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

National Chemical Inventories:

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.

U.S. Export control classification Number: EAR99.

* * * Section 16 – OTHER INFORMATION * * *

NFPA® Hazard Rating

	Health Fire Reactivit	0	
HMIS® Hazard Rating	Health Fire Physical	0	Minimal

Material Name: Produced Water

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act: ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

The information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

Date of Preparation: January 28, 2014

Date of Last Revision: March 4, 2014

End of Sheet

Emission Units Table



Emission Point ID2	Emission Unit	Year Installed/ Modified	Design Capacity	Type3 and Date of Change	Control Device 4
EP-H001, EP-H002, EP-H003, EP-H004, EP-H005, EP-H006, EP-H007, EP-H008	Gas Production Unit Heater	NEW	1 MMBtu/hr (each)	Modification	N/A
F001	Fugitives	2014	0	Existing	N/A
EC001	Condensate Tank	2014	400 bbl each	Existing	EC001
EC001	PW Tank	2014	400 bbl each	Existing	EC001
EP-L001	Loading (Condensate)	2014	200BBL capacity (each)	Existing	N/A
EP-L002	Loading (Water)	2014	capacity	Existing	N/A
EP-HR001	Haul Truck	2014	40 ton capacity	Existing	N/A
EC001	Enclosed Combustor	NEW	138 scf/min	NEW	N/A
EP-PCV	Pneumatic CV	2014	6.6 scf/day/PCV	Existing	N/A
EP-ENG001	Compressor Engine	2014	24 HP	Removal	N/A
EP-FWIENG001	Freshwater Inpoundment Engine	2015	600 HP	New	N/A
EP-FWIENG002	Freshwater Inpoundment Engine	2015	600 HP	New	N/A
	Point ID2 EP-H001, EP-H002, EP-H003, EP-H004, EP-H005, EP-H006, EP-H007, EP-H008 F001 EC001 EC001 EP-L001 EP-L002 EP-HR001 EC001 EP-PCV EP-ENG001 EP-FWIENG001	Point ID2DescriptionEP-H001, EP-H002, EP-H003, EP-H004, EP-H005, EP-H006, EP-H007, EP-H008Gas Production Unit HeaterF001FugitivesEC001Condensate TankEC001PW TankEP-L001Loading (Condensate)EP-L002Loading (Water)EP-HR001Haul TruckEC001Enclosed CombustorEP-PCVPneumatic CVEP-ENG001Freshwater Inpoundment EngineEP-FWIENG002Inpoundment	Point ID2DescriptionModifiedEP-H001, EP-H002, EP-H003, EP-H006, EP-H005, EP-H006, EP-H007, EP-H008Gas Production Unit HeaterNEWF001Fugitives2014EC001Condensate Tank2014EC001PW Tank2014EC001Loading (Condensate)2014EP-L001Loading (Water)2014EP-L002Loading (Water)2014EP-HR001Haul Truck2014EC001Compressor EngineNEWEP-ENG001Freshwater Inpoundment Engine2015EP-FWIENG002Inpoundment Inpoundment2015	Point ID2DescriptionModifiedCapacityEP-H001, EP-H002, EP-H003, EP-H006, EP-H005, EP-H006, EP-H007, EP-H008Gas Production Unit HeaterNEW1 MMBtu/hr (each)F001Fugitives20140EC001Condensate Tank2014400 bbl eachEC001PW Tank2014400 bbl eachEP-L001Loading (Condensate)2014200BBL capacity (each)EP-L002Loading (Water)2014200BBL capacity (each)EP-L002Loading (Water)201440 ton capacity (each)EP-HR001Haul Truck201440 ton 	Point ID2DescriptionModifiedCapacityof ChangeEP-H001, EP-H002, EP-H005, EP-H006, EP-H007, EP-H008Gas Production Unit HeaterNEW1 MIMBtu/hr (each)ModificationF001Fugitives20140ExistingEC001Condensate Tank2014400 bbl eachExistingEC001PW Tank2014400 bbl eachExistingEP-1001Loading (Condensate)2014200BBL capacity (each)ExistingEP-1002Loading (Water)2014200BBL capacity (each)ExistingEP-HR001Haul Truck201440 ton capacity (each)ExistingEC001Enclosed CombustorNEW138 scf/min scf/day/PCVNEWEP-PCVPneumatic CV201424 HPRemovalEP-FWIENG001Freshwater Inpoundment2015600 HPNew

2 For <u>E</u>mission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation. 3 New, modification, removal.

4 For <u>Control Devices use the following numbering system</u>: 1C, 2C, 3C,... or other appropriate designation.

Emission Points Data Summary Sheet



Attachment J:

Emission Points Data Summary Sheet

					Tab	le 1: Emissions Data						
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type1	Through (Must match	Unit Vented This Point Emission Units Plot Plan)	Air Pollutic Device (M Emission Un Plot F	ust match its Table &	All Regulated Pollutants - Chemical Name/CAS3 (Speciate VOCs & HAPS)		n Potential d Emissions 4	Maximum Controlled		Emission Form or Phase (At exit conditions, Solid, Liquid or	Est. Method Used 6
		ID No.	Source	ID No.	Device Type		lb/hr	ton/yr	lb/hr	ton/yr	– Gas/Vapor)	
EP-H001, EP-H002, EP-	Vertical Stack	H001, H002,	Gas Production	N/A		CO (630080)	0.54	2.36	0.54	2.36	Gas/Vapor	MB
H003, EP-H004, EP- H005, EP-H006, EP-		H003, H004, H005, H006,			NOx (10102439)	0.64	2.81	0.64	2.81	/Solid (for PM)	AP-42	
H007, EP-H008		H003, H008, H007, H008				CO2 Equivalent N20 (10024972), CO2 (124389), CH4 (74828)	774.39	3391.81	774.39	3391.81		
						PM, PM10, PM2.5	0.05	0.21	0.05	0.21		
						Hexane (110543)	0.01	0.05	0.01	0.05		
						Total VOCs	0.04	0.15	0.04	0.15		
F001	F001 n/a F001 Fugitives	N/A		Benzene (71432)	0.01	0.03	0.01	0.03	Gas/Vapor	MB		
						Toluene (108883)	0.02	0.09	0.02	0.09		
						Ethyl benzene (100414)	0.02	0.08	0.02	0.08		
						Hexane (110543)	0.25	1.08	0.25	1.08		
						o,m,p-xylenes (95476,108383,106423)	0.05	0.23	0.05	0.23		
						CO2 Equivalent CO2 (124389)), CH4	64.94	284.44	64.94	284.44		
						VOCs	3.01	13.17	3.01	13.17		
						TAPs (benzene)	0.01	0.03	0.01	0.03		
EP-L001, EP-L002	n/a	L001, L002	Loading	N/A		VOCs	3.59	0.07	3.59	0.07	Gas/Vapor	MB
			(Condensate), Loading (Water)			hexane (110543)	0.05	0.00	0.05	0.00		
						CO2 Equivalent CO2 (124389), CH4	4.09	0.27	4.09	0.27		
						benzene (71432)	0.00	0.00	0.00	0.00		
						TAPs (benzene)	0.00	0.00	0.00	0.00		
EP-HR001	n/a	HR001	Haul Truck	N/A		PM, PM10, PM2.5	2.09	0.34	1.04	0.17	Solid	MB

Attachment J:

Emission Points Data Summary Sheet

					Tab	le 1: Emissions Data							
Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type1	Through (Must match	Unit Vented This Point Emission Units Plot Plan)	Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		All Regulated Pollutants - Chemical Name/CAS3 (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions 4		Maximum Controlled		Emission Form or Phase (At exit conditions, Solid, Liquid or	Est. Method Used 6	
		ID No.	Source	ID No.	Device Type		lb/hr	ton/yr	lb/hr	ton/yr	– Gas/Vapor)		
EC001	n/a	TANKCOND001-	Condensate Tank	N/A	Enclosed	CO (630080)	0.00	0.00	0.03	0.13	Gas/Vapor/	MB	
		08 and	and PW Tank		Combustor	NOx (10102439)	0.00	0.00	0.03	0.15	Solid (for PM)		
		TANKPW001- 002and EC001	Combustor		and Enclosed Combustor		CO2 Equivalent N2O (10024972), CO2 (124389), CH4	92.84	406.63	107.93	472.72		
						Toluene (108883)	0.01	0.05	0.00	0.00	1		
						ethyl benzene (100414)	0.01	0.03	0.00	0.00			
						hexane (110543)	4.26	18.68	0.09	0.37			
						o,m,p-xylenes (95476,108383,106423)	0.02	0.08	0.00	0.00			
						VOCs	25.07	109.82	0.50	2.20			
EP-PCV	valve	PCV	Pneumatic CV	N/A		hexane (110543)	0.01	0.04	0.01	0.04	Gas/Vapor	MB	
						CO2 Equivalent CO2 (124389)), CH4	5.42	23.74	5.42	23.74			
						VOCs	0.07	0.30	0.07	0.30			
EP-FWIENG001, EP-FWIENG002	n/a	FWIENG001, FWIENG002	Freshwater Inpoundment	N/A		CO (630080)	1.18	5.19	1.18	5.19	Gas/Vapor/ Solid (for PM)	MB AP-42	
			Engine			NOx (10102439)	6.53	28.62	6.53	28.62			
						CO2 Equivalent	1380.00	6044.39	1380.00	6044.39	_		
						PM,PM10, PM2.5	0.20	0.86	0.20	0.86	_		
						Acetaldehyde (75070) Benzene (71432)	0.01	0.03	0.01	0.03	-		
						Formaldehyde (50000)	0.01	0.04	0.01	0.04	-1		
						Total VOCs	3.02	13.21	3.02	13.21	-		
						Total SO ₂	2.46	10.78	2.46	10.78	4		
						10101 302	2.40	10.76	2.40	10.78			

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

1 Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

2 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S,

Inorganics, Lead, Organics, O3, NO, NO2, SO2, SO3, all applicable Greenhouse Gases (including CO2 and methane), etc. DO NOT LIST H2, H2O, N2, O2, and Noble Gases.

4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20minute batch).

6 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m₃) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO, use units of ppmv (See 45CSR10).

Attachment J:

Emission Points Data Summary Sheet

			Table 2	2: Release	Parameter Data			
Emission Point ID No.	Inner Diameter		Exit Gas		Emission F	Point Elevation (ft)	UTM Coordin	ates (km)
(Must match Emission Units Table)	(ft.)	Temp. (oF)	Volumetric Flow 1	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height 2 (Release height of emissions above ground level)	Northing	Easting
EP-HOO1, EP-H002, EP-H003, EP-H004, EP-H005, EP-H006, EP-H007, EP-H008	0.96	71	90	2.0723	1220	13	4348.47	528.2
F001	N/A	N/A	N/A	N/A	1220	varies from 4 to 8	4348.47	528.2
EP-L001, EP-L002	N/A	N/A	N/A	N/A	1220	N/A	4348.47	528.2
EP-HR001	N/A	N/A	N/A	N/A	1220	N/A	4348.47	528.2
EC001	3.92	900	5.59	0.008	1220	20	4348.47	528.2
EP-PCV	N/A	N/A	N/A	N/A	1220	N/A	4348.47	528.2
EP-FWIENG001, EP-FWIENG002	N/A	N/A	N/A	N/A	1220	N/A	4348.47	528.2

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.

Fugitive Emissions Data Summary Sheet



Description of Fugitive Emissions Pearl Jean Well Pad Antero Resources Corporation Doddridge County, West Virginia

Sources of fugitive emissions include loading operations, haul road emissions, equipment leaks, and pneumatic control valves. Fugitive emissions were calculated using AP-42 factors. Routine equipment leaks are assumed to be occurring continuously throughout the year. Loading operations and haul road emissions only occur when tanker trucks are onsite. The fugitives emissions summary is also located in Attachment O.

Equipment Leaks

Equipment include valves, flanges, and connectors installed in various process equipment such as gas production unit heaters, compressor, pipelines, and separators. Emissions are assumed to be occurring throughout the year. Detailed calculations are shown on Table 4.

Pneumatic Control Valves

Pneumatic control valves are part of the gas production unit heaters. These are intermittent low bleed valves and their emissions are assumed to be occurring throughout the year. Detailed calculations are shown on Table 5.

Loading Operations

Loading emissions occur when condensate and produced water are transferred out of the well site via tanker trucks. Fugitive emissions were estimated using AP-42 loading loss formula, L= 12.46*SPM/T, and Bryan & Engineering (BR&E) software known as Promax. Detailed calculations are shown in Table 8.

Haul Road Emissions

Haul road emissions are emitted when tanker trucks or service vehicles enter the Facility. The Facility is flat and unpaved. Detailed calculations are shown on Table 12.



FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

	APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.)	Will there be haul road activities?
	Yes No
	If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.)	Will there be Storage Piles?
	□ Yes
	If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.)	Will there be Liquid Loading/Unloading Operations?
	Yes No
	If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.)	Will there be emissions of air pollutants from Wastewater Treatment Evaporation?
	□ Yes
	If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.)	Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)?
	⊠ Yes □ No
	If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.)	Will there be General Clean-up VOC Operations?
	□ Yes
	If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.)	Will there be any other activities that generate fugitive emissions?
	□ Yes
	If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
	ou answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions nmary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants ⁻ Chemical Name/CAS ¹	Maximum Uncontrolled	Potential Emissions ²	Maximum Po Controlled Em	otential issions ³	Est. Method
		lb/hr	ton/yr	lb/hr	ton/yr	Used ⁴
Haul Road/Road Dust Emissions Paved Haul Roads						
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks		Does not apply		Does not apply		
General Clean-up VOC Emissions						
Other						

¹ List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS₂, VOCs, H₂S, Inorganics, Lead, Organics, O₃, NO, NO₂, SO₂, SO₃, all applicable Greenhouse Gases (including CO₂ and methane), etc. DO NOT LIST H₂, H₂O, N₂, O₂, and Noble Gases.

O₂, and Noble Gases.
 ² Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
 ³ Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁴ Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

Attachment K Fugitive Emissions Data Summary Sheet

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants		m Potential ed Emissions 2	Maximum Controlled I		Est. Method
	Chemical Name/CAS 1	lb/hr	ton/yr	lb/hr	ton/yr	Used 4
Haul Road/Road Dust Emissions	n/a					
Paved Haul Roads						
Unpaved Haul Roads	PM, PM10, PM2.5	2.0856	0.3365	1.0428	0.1683	MB
Loading/Unloading Operations	VOCs	3.5911	0.0659	3.5911	0.0659	MB
	toluene (108883)	0.0002	0.0000	0.0002	0.0000	
	ethyl benzene (100414)	0.0003	0.0000	0.0003	0.0000	1
	hexane (110543)	0.0508	0.0009	0.0508	0.0009	
	o,m,p-xylenes (95476,108383,106423)	0.0008	0.0000	0.0008	0.0000	
	CO2 Equivalent CO2 (124389), CH4	4.0905	0.2694	4.0905	0.2694	
	benzene (71432)	0.0000	0.0000	0.0000	0.0000	1
	TAPs (benzene)	0.0000	0.0000	0.0000	0.0000	1
Equipment Leaks (Components)	Benzene (71432)		0.0279		0.0279	MB
	Toluene (108883)		0.0868		0.0868	
	Ethyl benzene (100414)		0.0803		0.0803	
	Hexane (110543)		1.0790		1.0790	
	o,m,p-xylenes (95476,108383,106423)	Does not apply	0.2303	Does not apply	0.2303	
	CO2 Equivalent CO2 (124389)), CH4		284.4389		284.4389	
	VOCs		13.1658		13.1658	
	TAPs (benzene)		0.0279		0.0279	
quipment Leaks (PCVs)	toluene (108883)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MB
	ethyl benzene (100414)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1
	hexane (110543)	0.0082	0.0358	0.0082	0.0358	1
	o,m,p-xylenes (95476,108383,106423)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	CO2 Equivalent CO2 (124389)), CH4	5.4196	23.7380	5.4196	23.7380	
	VOCs	0.0687	0.3009	0.0687	0.3009	
	TAPs (benzene)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

1 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS2, VOCs, H2S, Inorganics, Lead, Organics, O3, NO, NO2, SO2, SO3, all applicable Greenhouse Gases (including CO2 and methane), etc. DO NOT LIST H2, H2O, N2, O2, and Noble Gases.

2 Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

3 Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

4 Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other

(specify).

Emission Unit Data Sheets



EMISSIONS UNIT DATA SHEET BULK LIQUID TRANSFER OPERATIONS

Furnish the following information for each new or modified bulk liquid transfer area or loading rack, as shown on the *Equipment List Form* and other parts of this application. This form is to be used for bulk liquid transfer operations such as to and from drums, marine vessels, rail tank cars, and tank trucks.

Identification Numbe	er (as assigned on Equ	iipment	List Form):			EP-L001, E	EP-L002	
1. Loading Area Name:				CONDE	NSATE & PF	RODUCED WA	ATER		
2. Type of cargo vessels a Tank Trucks	accommodated at this rac	k or trans	fer point (ch	eck as many	v as apply):				
3. Loading Rack or Transf	fer Point Data: Tanks to Ha	auling Tru	icks						
Number of pumps			2						
Number of liquids loaded			2						
Maximum number of marine vessels, tank trucks, tan and/or drums loading at one time			2						
4. Does ballasting of ma	rine vessels occur at this lo	oading are	ea?						
Does not apply									
cleaned at the operator's materials include water, 6. Are cargo vessels pres	ation, compounds and pro s dispatch terminal. These steam, detergent, and sol ssure tested for leaks at th	trucks are vents whi	e in dedicate ch are applie	ed service ar ed using har	nd cleaned o	only prior to r	epair or leak		
Yes									
7. Projected Maximum C	Operating Schedule (for ra	ck or tran	isfer point as	a whole):					
Maximum	Jan Mar.	Apr Ju	ine		July - Sept	t.	Oct Deo	с.	
hours/day	5	5			5		5		
days/week	2	2			2		2		
weeks/quarter	13	13			13		13	13	
8. Bulk Liquid Data (add pages as necessa	ry):							
Pump ID No.			P1	P2					
Liquid Name		CON	IDENSATE	Produced Water	k				
Max. daily throughput	: (1000 gal/day)		1.008	12.096					
Max. annual throughp	ut (1000 gal/yr)	3	367.92	4,415.04	ŀ				
Loading Method 1			BF	BF					
Max. Fill Rate (gal/min	n)	1	168.00	168.00					
Average Fill Time (min/loading)			50.00	50.00					
Max. Bulk Liquid Temperature (_° F)			72.10	72.10					
True Vapor Pressure 2			0.84	0.45					
Cargo Vessel Condition	1 3		U	U					
Control Equipment or	Method 4		None	None					
Minimum control efficiency (%)			0.00	0.00					

EMISSIONS UNIT DATA SHEET BULK LIQUID TRANSFER OPERATIONS

Furnish the following information for each new or modified bulk liquid transfer area or loading rack, as shown on the *Equipment List Form* and other parts of this application. This form is to be used for bulk liquid transfer operations such as to and from drums, marine vessels, rail tank cars, and tank trucks.

Maximum	Loading (lb/hr)	5.07	1.16					
Emission Rate	Annual (lb/yr)	0.09	0.25					
Estimation Metho	od s	Promax	Promax					
1 BF = Bottom Fill	SP = Splash Fill SUB = Su	bmerged Fill	1	4		I		
2 At maximum bu	lk liquid temperature: 72.1F							
3 B = Ballasted Ve	ssel, C = Cleaned, U = Uncleane	ed (dedicated ser	vice), O = oth	er (describe))			
-	pply (complete and submit ap	propriate Air Pol	lution Control	Device Shee	rts):			
CA = Carbon Adso	rption apor Balance (closed system) E	CD - Enclosed C	ombustion Do	vico				
F = Flare	apor balance (closed system) E	CD – Eliciosed Co		VICE				
	dation or Incineration							
5 EPA = EPA Emiss	ion Factor as stated in AP-42							
MB = Material Ba	ance							
	rement based upon test data s	ubmittal						
MB, EFs	itaning December wing Decem		-					
	itoring, Recordkeeping, Repor nitoring, recordkeeping, and repor			nlianco with t	the propose	doporating	naramotors	
	ing in order to demonstrate comp	-		-	the propose	J Operating	parameters.	
r lease propose test		nunce with the pro		15 111103.				
MONITORING		R	ECORDKEEPING	ì				
1) Visual inspection	to ensure that loading connectior	s from storage 1) Maintain reco	rds of conden	sate transfe	rred from st	torage tanks.	
tanks to trucks are	eak-free.) Maintain reco	rds of produce	ed water tra	nsferred fro	om storage	
		ta	anks.					
REPORTING		T	TESTING					
N/A		Ν	/A					
	SE LIST AND DESCRIBE THE PROCESS PARA				ORED IN ORDEF	R TO DEMONST	TRATE	
COMPLIANCE WITH THE	OPERATION OF THIS PROCESS EQUIPMEN	OPERATION/AIR POL	LUTION CONTROL D	DEVICE.				
RECORDKEEPING. F	LEASE DESCRIBE THE PROPOSED RECORD	EEPING THAT WILL AC	COMPANY THE MC	DNITORING.				
REPORTING. PLEASE	DESCRIBE THE PROPOSED FREQUENCY OF	REPORTING OF THE RE	CORDKEEPING.					
TESTING. PLEASE DES	CRIBE ANY PROPOSED EMISSIONS TESTING	FOR THIS PROCESS EC	QUIPMENT/AIR POL	LUTION CONTRO	DEVICE.			
· · · · ·	10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty							
N/A								

Source Category	Pollutant	Number of Source Components (1)	Number of Components Monitored by Frequency2	Average Time to Repair (days) (3)	Estimated Annual Emission Rate (lb/yr) (4)
	light liquid VOC ^(6,7)				
Pumps (5)	heavy liquid VOC ⁸				
	Non-VOC ⁹				
	Gas VOC	400		First attempt within 5 days of detection and final repair within 15 days	6,624.61
Valves (10)	Light Liquid VOC	416		First attempt within 5 days of detection and final repair within 15 days	19,210.33
	Heavy Liquid VOC				
	Non-VOC				
Safety Relief	Gas VOC	See Valves		First attempt within 5 days of detection and final repair within 15 days	see Valves
Valves (11)	Non VOC	See Valves		First attempt within 5 days of detection and final repair within 15 days	see Valves
Open-ended	VOC				
Lines (12)	Non-VOC				
Sampling	VOC				
Connections (13)	Non-VOC				
Compressors	VOC				
compressors	Non-VOC				
Flanges	voc	104		First attempt within 5 days of detection and final repair within 15 days	149.27
Tunges	Non-VOC			First attempt within 5 days of detection and final repair within 15 days	632.40
Other	voc	472		First attempt within 5 days of detection and final repair within 15 days	347.42
	Non-VOC				1,471.85

Attachment L: Leak Source Data Sheet

EMISSIONS UNIT DATA SHEET STORAGE TANKS (CONDENSATE)

Provide the following information for <u>each</u> new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/tnn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (http://www.epa.gov/tnn/chief/).

	AL INFORMATION (required)						
1. Bulk S	Storage Area Name	CONDTANK	2. Tank Name:	TANKCOND001-08			
	nk Equipment Identification No. (as igned on <i>Equipment List Form</i>)	TANKCOND001-08	4. Emission Point Identification No. (as assigned on Equipment List Form)	EC001			
5. Date	of Commencement of Construction (fo	or existing tanks): 202	14				
6. Type	of change N/A						
7. Descr	iption of Tank Modification (if applical	ole)					
7A. Does	the tank have more than one mode of	f operation?	No				
(e.g. Is th	ere more than one product stored in t	he tank?)					
	, explain and identify which mode is conducted for each mode).	overed by this applic	ation (Note: A separate form must be				
7C. Provi	7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.):						
II. TANK	INFORMATION (required)						
8. Desig height. 4		Use the internal cro	oss-sectional area multiplied by internal				
9A. Tank	Internal Diameter (ft): 12		9B. Tank Internal Height (or Length) (ft): 2	20			
10A. M	laximum Liquid Height (ft): 18		10B. Average Liquid Height (ft): 10				
11A. M	laximum Vapor Space Height (ft): 18		11B. Average Vapor Space Height (ft): 1	10			
	nal Capacity (specify barrels or gallons els and overflow valve heights.: 400bl		as "working volume" and considers desig	n			
13A. M	laximum annual throughput (gal/yr):	367,920	13B. Maximum daily throughput (gal/day):	1,008			
14. Numl	per of Turnovers per year (annual net t	throughput/maximu	n tank liquid volume):	3			
15. Maxir	mum tank fill rate (gal/min)			168.00			
16. Tank	fill method Splash Fill						
17. Comp	olete 17A and 17B for Variable Vapor S	pace Tank Systems	Does Not Apply				
17A. Vo	olume Expansion Capacity of System (gal)	17B. Number of transfers into system p	ber year			
X Fixed I other External I Domed E Internal F	(describe) Floating Roof pontoon roof xternal (or Covered) Floating Roof Floating Roof vertical column s Vapor Space lifter roof ed spherical cylindrical pund	double deck r support self-su diaphragm	oof				

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS (CONDENSATE)

III. TANK CONSTRUCTION & OPERATION INFO	RMATION (optional if providing TANKS Sum	mary Sheets)						
19. Tank Shell Construction:								
Other (describe): steel 20A. Shell Color: Green	20B. Roof Color: Green	20C. Year Last Painted 2014						
21. Shell Condition (if metal and unlined):								
No Rust Light Rust Dense Rus	st Not applicable							
22A. Is the tank heated? NO								
22B. If YES, provide the operating temperature	re (°F)							
22C. If YES, please describe how heat is provided to tank.								
23. Operating Pressure Range (psig): 0 psig, at	tmospheric							
24. Complete the following section for Vertical	Fixed Roof Tanks							
24A. For dome roof, provide roof radius (ft)								
24B. For cone roof, provide slope (ft/ft)								
25. Complete the following section for Floating	Roof Tanks Does Not Apply							
25A. Year Internal Floaters Installed:								
25B. Primary Seal Type: Metallic (Mech	hanical) Shoe Seal Liquid Mounted Re	silient Seal						
(check one) Vapor Mounted Resili	ent Seal Other (describe):							
25C. Is the Floating Roof equipped with a Sec	condary Seal? YES NO							
25D. If YES, how is the secondary seal mount	ed? (check one) Shoe Rim	Other (describe):						
25E. Is the Floating Roof equipped with a wea	ather shield? YES NO							
25F. Describe deck fittings; indicate the numb								
	ACCESS HATCH							
BOLT COVER, GASKETED: UNBOLTED CO	OVER, GASKETED: UNBOLTED COVER, UNGA AUTOMATIC GAUGE FLOAT WELL	SKETED:						
BOLT COVER, GASKETED: UNBOLTED CO	OVER, GASKETED: UNBOLTED COVER, UNGA	SKETED.						
BOET COVER, GASKETED. ONBOETED CC	COLUMN WELL	SKILD.						
BUILT-UP COLUMN –	BUILT-UP COLUMN -	PIPE COLUMN – FLEXIBLE						
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	FABRIC SLEEVE SEAL:						
	LADDER WELL							
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGA	SKETED:						
	GAUGE-HATCH/SAMPLE PORT SLIDING COVER, UNGASKETED:							
SLIDING COVER, GASKETED:	ROOF LEG OR HANGER WELL							
WEIGHTED MECHANICAL								
ACTUATION, GASKETED:								
WEIGHTED MECHANICAL ACTUATION,	UNGASKETED:							
SAMPLE WELL-SLIT FABRIC SEAL								
(10% OPEN AREA)								
WEIGHTED MECHANICAL ACTUATION, GASKET	RIM VENT	BASKETED:						
WEIGHTED MECHANICAL ACTUATION GASKETE		GASKETED:						
	DECK DRAIN (3-INCH DIAMETER)							
OPEN:	90% CLOSED:							
	STUB DRAIN							
	1-INCH DIAMETER: OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)							
26. Complete the following section for Internal Floating Roof Tanks Does Not Apply								
26A. Deck Type: Bolted Weldec	1							
26B. For Bolted decks, provide deck construct	tion:							

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS (CONDENSATE)

26C. Deck seam:					
Continuous sheet construction 5 feet wide Continue	ous sheet constr	ruction 6	feet w	vide Continuous sheet construc	ction 7 feet wide
Continuous sheet construction 5 × 7.5 feet wide Co	ntinuous sheet o	construct	tion 5 ×	< 12 feet wide Other (describe))
		1			
26D. Deck seam length (ft)		26E.	Area o	f deck (ft2)	
For column supported tanks:		26G.	Diame	ter of each column:	
26F. Number of columns:					
IV. SITE INFORMATION (optional if providing TANK	S Summary She	ets)			
27. Provide the city and state on which the data in t	this section are I	based.: (Charles	ton, WV	
28. Daily Average Ambient Temperature (°F): 55.3					
29. Annual Average Maximum Temperature (°F): 65					
30. Annual Average Minimum Temperature (°F): 44	.6 65.9				
31. Average Wind Speed (miles/hr): 18.5mph					
32. Annual Average Solar Insulation Factor (BTU/(ft		1030.2			
33. Atmospheric Pressure (psia): 14.8 (based off loc	al conditions, co	ould not	find an	nual)	
V. LIQUID INFORMATION (optional if providing TAR	NKS Summary Sl	heets)			
34. Average daily temperature range of bulk liquid:					
34A. Minimum (°F):	39.5	34B.	Maxim	num (°F)	63.8
35. Average operating pressure range of tank:		4		a	tmosphere
35A. Minimum (psig)	0	35B.	Maxim	ium (psig)	0
36A. Minimum Liquid Surface Temperature	39.5	36B.	Corres	ponding Vapor Pressure	0.3705
(°F)		(psia)			
37A. Average Liquid Surface Temperature	51.7	37B.	Corres	ponding Vapor Pressure	0.5092
(°F)		(psia)			
38A. Maximum Liquid Surface Temperature	63.8	38B.	Corres	ponding Vapor Pressure	0.6879
(°F)		(psia)			
39. Provide the following for <u>each</u> liquid or gas to b	e stored in tank.	. Add add	ditional	I pages if necessary.	
39A. Material Name or Composition	Condensate				
39B. CAS Number	mix of HC				
39C. Liquid Density (lb/gal)	5.98				
39D. Liquid Molecular Weight (lb/lb-mole)	111.40				
39E. Vapor Molecular Weight (lb/lb-mole)	42.61				
Maximum Vapor Pressure	0.8389				
39F. True (psia)	0.0505				
39G. Reid (psia)	1.65				
Months Storage per Year	year round				
39H. From					
39І. То					

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS (CONDENSATE)

VI. EMISSIONS AND CONTRO)L DEVICE DATA (requir	ed)			
40. Emission Control Devices	(check as many as apply	/):			
Other1 (describe): Flare Comb	oustor				
1 Complete appropriate Air Po	ollution Control Device	Sheet.			
41. Expected Emission Rate (s	submit Test Data or Calo	ulations here	or elsewhere in	the application).	
Material Name & CAS No.	Breathing Loss	Working Lo	ss	Annual Loss	
	(lb/hr)	Amount	Units	(lb/yr)	1 Estimation Method
		Please see	Table 6 and 7		

1 EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

EMISSIONS UNIT DATA SHEET STORAGE TANKS (PRODUCED WATER)

Provide the following information for <u>each</u> new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/tnn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (http://www.epa.gov/tnn/chief/).

I. GENI	ERAL INFORMATION (required)			
1. Bul	k Storage Area Name:	PWTANK	2. Tank Name:	TANKPW001-002
3. 1	Tank Equipment Identification No. (as	TANKPW001-002	4. Emission Point Identification No. (as	EC001
á	assigned on Equipment List Form)		assigned on Equipment List Form)	
5 0.1				
5. Dat	te of Commencement of Construction (fo	r existing tanks): 20	14	
6. Тур	be of change N/A			
7. Des	scription of Tank Modification (if applicab	ile)		
7A. Do	es the tank have more than one mode of	operation?	No	
(e.g. Is	there more than one product stored in the	he tank?)		
	'ES, explain and identify which mode is co	overed by this applic	ation (Note: A separate form must be	
· ·	eted for each mode).			
7C. Pro	vide any limitations on source operation	affecting emissions	, any work practice standards (e.g. produc	tion variation, etc.):
	K INFORMATION (required)			
	sign Capacity (specify barrels or gallons). . 400bbls	Use the internal cro	oss-sectional area multiplied by internal	
neight.	4000015			
9A. Tai	nk Internal Diameter (ft): 12		9B. Tank Internal Height (or Length) (ft): 2	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): 1	10
12. No	minal Capacity (specify barrels or gallons)). This is also knowr	as "working volume" and considers desig	;n
liquid l	evels and overflow valve heights.: 400			
13A.	Maximum annual throughput (gal/yr):	4,415,040	13B. Maximum daily throughput (gal/day):	12,096
14. Nu	mber of Turnovers per year (annual net t	hroughput/maximu	m tank liquid volume):	132
15. Ma	iximum tank fill rate (gal/min)			168.00
16. Tar	nk fill method Splash Fill			
17. Coi	mplete 17A and 17B for Variable Vapor S	pace Tank Systems	Does Not Apply	
17A.	Volume Expansion Capacity of System (g	gal)	17B. Number of transfers into system p	per year
18. Typ	be of tank (check all that apply):		•	
<u>X</u> Fixe	d Roof <u>X</u> vertical horizont	al <u>X</u> flat roof	cone roofdome roof	
	ner (describe)			
	al Floating Roofpontoon roof	double deck	roof	
	External (or Covered) Floating Roof			
	al Floating Roofvertical column s		upporting	
	· · · <u>—</u> —	_ diaphragm		
Pressu				
	ground			
other	(describe)			
1				

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS (PRODUCED WATER)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)
19. Tank Shell Construction:
Other (describe): steel
20A. Shell Color: Green 20B. Roof Color: Green 20C. Year Last Painted 2014
21. Shell Condition (if metal and unlined): No Rust
22A. Is the tank heated? NO
22B. If YES, provide the operating temperature (°F)
22C. If YES, please describe how heat is provided to tank.
23. Operating Pressure Range (psig): Opsig, atmospheric
24. Complete the following section for Vertical Fixed Roof Tanks
24A. For dome roof, provide roof radius (ft)
24B. For cone roof, provide slope (ft/ft):
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 (check one) 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; indicate the number of each type of fitting:
ACCESS HATCH
BOLT COVER, GASKETED: UNBOLTED COVER, GASKETED: UNBOLTED COVER, UNGASKETED:
BOLT COVER, GASKETED: UNBOLTED COVER, GASKETED: UNBOLTED COVER, UNGASKETED: COLUMN WELL
BUILT-UP COLUMN – BUILT-UP COLUMN – PIPE COLUMN – FLEXIBLE
SLIDING COVER, GASKETED: SLIDING COVER, UNGASKETED: FABRIC SLEEVE SEAL:
LADDER WELL
PIP COLUMN – SLIDING COVER, GASKETED: PIPE COLUMN – SLIDING COVER, UNGASKETED:
GAUGE-HATCH/SAMPLE PORT
SLIDING COVER, GASKETED: SLIDING COVER, UNGASKETED:
ROOF LEG OR HANGER WELL WEIGHTED MECHANICAL
ACTUATION, GASKETED:
WEIGHTED MECHANICAL ACTUATION, UNGASKETED:
SAMPLE WELL-SLIT FABRIC SEAL
(10% OPEN AREA)
VACUUM BREAKER
WEIGHTED MECHANICAL ACTUATION, GASKETED: WEIGHTED MECHANICAL ACTUATION, UNGASKETED:
RIM VENT WEIGHTED MECHANICAL ACTUATION GASKETED: WEIGHTED MECHANICAL ACTUATION, UNGASKETED:
DECK DRAIN (3-INCH DIAMETED)
OPEN: 90% CLOSED:
STUB DRAIN
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY) 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:

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS (PRODUCED WATER)

26C. Deck seam:				
Continuous sheet construction 5 feet wide Continu				
Continuous sheet construction 5×7.5 feet wide Co	ontinuous sheet			2)
26D. Deck seam length (ft)			of deck (ft2)	
For column supported tanks:		26G. Diame	eter of each column:	
26F. Number of columns:				
IV. SITE INFORMATION (optional if providing TAN				
27. Provide the city and state on which the data in		based.: Charles	ston, WV	
28. Daily Average Ambient Temperature (°F):	55.3			
29. Annual Average Maximum Temperature (°F):	75.94			
30. Annual Average Minimum Temperature (°F):	65.9			
31. Average Wind Speed (miles/hr): 18.5mph				
32. Annual Average Solar Insolation Factor (BTU/(f	t2·day))	1030.236		
33. Atmospheric Pressure (psia): 14.8				
V. LIQUID INFORMATION (optional if providing TA		Sheets)		
34. Average daily temperature range of bulk liquid	: 51.7			
34A. Minimum (°F):	39.5	34B	. Maximum (°F):	63.8
35. Average operating pressure range of tank: atm	osphere	•	i	atmosphere
35A. Minimum (psig):	0	35B. Maxim	num (psig):	0
36A. Minimum Liquid Surface Temperature (°F):	39.5	36B. Corres (psia):	sponding Vapor Pressure	0.1834
37A. Average Liquid Surface Temperature (°F):	51.7	37B. Corres (psia):	sponding Vapor Pressure	0.2592
38A. Maximum Liquid Surface Temperature (°F)	63.8	38B. Corr	esponding Vapor Pressure (psia):	0.3594
39. Provide the following for <u>each</u> liquid or gas to l	pe stored in tan	. Add additiona	l pages if necessary.	
39A. Material Name or Composition	Produced V	Vater		
39B. CAS Number	mix of HC a	ind water		
39C. Liquid Density (lb/gal)	8.33	8.33		
39D. Liquid Molecular Weight (lb/lb-mole)	18.0156	18.0156		
39E. Vapor Molecular Weight (lb/lb-mole)	18.4214			
Maximum Vapor Pressure	0.4460			
39F. True (psia)				
39G. Reid (psia)	1.022			
Months Storage per Year	year round			

Attachment L EMISSIONS UNIT DATA SHEET STORAGE TANKS (PRODUCED WATER)

VI. EMISSIONS AND CONTRO	DL DEVICE DATA (require	ed)			
40. Emission Control Devices	(check as many as apply):			
Other1 (describe): Flare Com	bustor				
1 Complete appropriate Air P	ollution Control Device S	heet.			
41. Expected Emission Rate (submit Test Data or Calc	ulations here o	or elsewhere in	the application).	
Material Name & CAS No.	Breathing Loss	Working Los	S	Annual Loss	
	(lb/hr)	Amount	Units	(lb/yr)	1 Estimation Method
		Please See	Table 6 and 7	•	·

1 EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L: Natural Gas Fired Fuel Burning Units

Emission Data Sheet

Complete the information on this data for each Gas Producing Unit(s), Heater Treater(s), and in-line heater(s) at the production pad. Reboiler information should be entered on the Glycol Dehydration Emission Unit Data Sheet.

, ,	,		, ,			-	
Emission Unit ID # ¹	Emission Point ID# ²	Emission Unit Description (Manufacturer / Model #)	Year Installed/	Type ³ and Date of	Control Device ⁴	Design Heat Input	Fuel Heating Value
	1 on te ib#	(Modified	Change	Device	(mmBtu/hr)⁵	(Btu/scf) ⁶
H001	EP-H001	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
H002	EP-H002	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
H003	EP-H003	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
H004	EP-H004	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
H005	EP-H005	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
H006	EP-H006	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
H007	EP-H007	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
H008	EP-H008	Gas Production Unit Heater	NEW	NA		1.00	1,247.06
ENG001	EP-ENG001	Engine (Kubota DG972-E2)	2014	Removal			1,247.06
EC001	EC001	Enclosed Combustor (Abutec-200)	NEW	NA	EC001	18.4	1,247.06

¹ Enter the appropriate Emission Unit (or <u>So</u>urces) 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 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 Complete appropriate air pollution control device sheet for any control device.

5 Enter design heat input capacity in mmBtu/hr.

⁶ Enter the fuel heating value in Btu/standard cubic foot.

Attachment L: Diesel Burning Units

Emission Data Sheet

Emission Unit ID # ¹	Emission Point ID# ²	Emission Unit Description (Manufacturer / Model #)	Year Installed/ Modified	Type ³ and Date of Change	Control Device ⁴	Design Capacity
FWIENG001	EP-FWIENG001	Freshwater Inpoundment Engine	2015	New		600 HP
FWIENG002	EP-FWIENG002	Freshwater Inpoundment Engine	2015	New		600 HP

Complete the information on this data for each Diesel Engine and Diesel fueled equipment

¹ Enter the appropriate Emission Unit (or <u>So</u>urces) 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 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.

³ New, modification, removal.

⁴ Complete appropriate air pollution control device sheet for any control device.

5 Enter design heat input capacity in mmBtu/hr.

Attachment L FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

PM-10

PM-10										
k =	Particle size mu	le size multiplier					0.80 0.36			
s = Silt content of road surface material (%)						5.1		5.1		
p =	Number of days	per year with pr	ecipitation >	•0.01 in.			150		150	
ltem Numbe r	e Des	cription	Number of Wheels	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximu m Trips per Hour	Maximu m Trips per Year	Device ID	Control Efficiency (%)
1	Tanker Trucks	Condensate	10	40	10	0.25	1.0	44	N/A	50
2	Tanker Trucks	PW	10	40	10	0.25	1.0	526	N/A	50
3	Well Pad Pick	Up Truck	4	3	10	0.21	1.0	730	N/A	50
4	FWI Pick Up 7	Fruck	4	3	10	0.30	1.0	730	N/A	50
5										
6										
7										
8										
	5.9 × (s ÷ 12) ×	ition — 13.2.2 Unµ (S ÷ 30) × (W ÷ 3) Л-10			5 – p) ÷ 36	5) = Ib,		ile Travelo	ed (VMT) W	here:
	Particle size mu					0.80 0.36				
		oad surface mate	rial (%)			5.1 5.1				
	Mean vehicle sp	· · · /					10		10	
	Mean vehicle w	8 (21		21	
		of wheels per veh		0.04 :		7			7	
-	-	per year with pr	-		/		150		150	
For Ib/I For TPY SUMM	/: [lb ÷ VMT] >	× [VMT ÷ trip] × < [VMT ÷ trip] × [1 ED HAULROAD EN	rips ÷ Hour	-	/hr 2000 lb] =	Tons/yea	ar			
			PM				PM-10			
		ncontrolled		ontrolled			ntrolled		Controll	
Item No	-,		lb/hr		TPY	lb/hr	TPY		o/hr	TPY
1			0.4772		0105	0.4295	0.0094		2147	0.0047
2			0.4772		1255	0.4295	0.1130		2147	0.0565
3			0.0364		0133	0.0328	0.0120		0164	0.0060
4		0 0.0380	0.0520	0.0	0190	0.0468	0.0171	0.	0234	0.0085
6			+							
7										
, 8										
TOTALS		6 0.3365	1.0428	3 0	1683	0.9385	0.1514	0	4693	0.0757
	2.005	0.000	1.0420	. 0		5.5505	0.1014	0.		2.07.57

EMISSIONS UNIT DATA SHEET CHEMICAL PROCESS EMERGENCY VENT SUMMARY SHEET

List below all emergency relief devices, rupture disks, safety relief valves, and similar openings that will vent only under abnormal conditions.

Emission Point ID1	Relief Vents (type) & Set Pressure (psig)	Name of Chemical(s) or Pollutants Controlled	Worst Case Emission per Release Event (lbs/lb)
EP-H001, EP-H002, EP-H003, EP-H004, EP-H005, EP-H006,	3 per heater	CO (630080)	0.54
ЕР-НОО7, ЕР-НОО8		NOx (10102439)	0.64
		Pb (7439-92-1)	0.00
		CO2 Equivalent N2O (10024972), CO2 (124389), CH4 (74828)	774.39
		SO2 (7446095)	0.0038
		PM, PM10, PM2.5	0.0488
		Benzene (71432)	1.35E-05
		Toluene (108883)	2.18E-05
		Hexane (110543)	0.0115
		Formaldehyde (50000)	0.0005
		2-Methylnaphthalene (91576)	1.54E-07
		Dichlorobenzene (95501)	7.70E-06
		Fluoranthene (206440)	1.92E-08
		Fluorene (86737)	1.80E-08
		Naphthalene (91203)	3.91E-06
		Phenanathrene (85018)	1.09E-07
		Total VOCs	0.0353
N/A Separator vents	2 valves per separator	N2	330.93
		CO2 Equivalent N2O (10024972), CO2 (124389), CH4 (74828)	744450.38
		H2S	0.00
		methane	29771.85
		ethane	10206.64
		propane	4746.93
		Isobutane	791.64
		n-butane	1658.20
		Isopentane	656.41
		n-pentane	516.07
		2-methylpentane	9.92
		3-methylpentane	7.11
		Hexane (110543)	1146.48
		methylcyclopentane	3.75
		Benzene (71432)	1.05
		2-methylhexane	12.71
		3-methylhexane	10.51
		heptane	22.60
		methylcyclohexane	14.45
		Toluene (108883)	3.26
		Octane	56.53
		Ethylbenzene (100414)	3.02
		m-xylene (108383)	4.03
		o-xylene (95476)	4.62
		Nonane	34.83
		C10+	93.36
		HAPs	1162.45
		Total VOCs	9797.48

EMISSIONS UNIT DATA SHEET CHEMICAL PROCESS EMERGENCY VENT SUMMARY SHEET

List below all emergency relief devices, rupture disks, safety relief valves, and similar openings that will vent only under abnormal conditions.

Emission Point ID1	Relief Vents (type) & Set Pressure (psig)	Name of Chemical(s) or Pollutants Controlled	Worst Case Emission per Release Event (Ibs/Ib)
N/A Tank vents		Propane	7.96
	(400bbls) tank	Isobutane	2.19
		n-Butane	5.36
		Isopentane	2.60
		n-Pentane	2.13
		2-Methylpentane	0.04
		3-Methylpentane	0.03
		Hexane (110543)	4.26
		Methylcyclopentane	0.02
		Benzene (71432)	0.00
		2-Methylhexane	0.04
		3-Methylhexane	0.04
		Heptane	0.08
		Methylcyclohexane	0.05
		Toluene (108883)	0.01
		Octane	0.15
		Ethylbenzene (100414)	0.01
		m-xylene (108383)	0.01
		o-xylene (95476)	0.01
		Nonane	0.05
		C10+	0.01
		CO2e	92.84
		HAPs	4.31
		Total VOCs	25.07

All routine vents (non-emergency) should be listed on the Emission Points Data Summary Sheet.

1 Indicate the emission point, if any, to which source equipment normally vents. Do <u>not</u> assign emission point ID numbers to each emergency relief vent or device.

2 List all emergency relief devices next to the piece of equipment from which they control releases.

Air Pollution Control Device



Attachment M Air Pollution Control Device Sheet (COMBUSTOR SYSTEM)

Control Device ID No. (must match Emission Units Table): EC001

Equipment Information						
1. Manufacturer: Model No	o. Abutec-200	2. Method: Enclosed Combustor				
	it describing capture system with due nood face velocity and hood collectio		r volume, capacity, horsepower of			
 Method of system used: Non-assisted 						
5. Maximum capacity of fla	re:	6. Dimensions of stack: Diameter: 3.92 ft. Height:	20 ft.			
200,000 scfd						
efficiency)	ficiency: (Waste gas destruction	8. Fuel used in burners: Natu	ral Gas			
Estimated: 98 % Minimum	•					
9. Number of burners: 1	Rating: 18.4 MMBTU/hr	11. Describe method of contri- - The vapor combustor is non-	assisted			
10. Will preheat be used?	No	 Pilot flame is monitored with 	a flare rectification system			
12. Flare height: 20ft		14. Natural gas flow rate to fla 12.6scf/hr	are pilot flame per pilot light:			
13. Flare tip inside diameter:	: 3.92 ft					
15. Number of pilot lights:		16. Will automatic re-ignition	be used?			
Total : 1		Yes				
17. If automatic re-ignition w	vill be used, describe the method: Ba	sed on monitoring system				
18. Is pilot flame equipped w If yes, what type? therm	vith a monitor? Yes ocouple					
19. Hours of unit operation p	per year: 8760					
Steam Injection						
20. Will steam injection be u	ised? No	21. Steam pressure PSIG Minimum Expected:				
22. Total Steam flow rate:	LB/hr	23. Temperature: °F				
24. Velocity	ft/sec	25. Number of jet streams				
26. Diameter of steam jets:	in	27. Design basis for steam injected:				
28. How will steam flow be c	controlled if steam injection is used?	LB steam/LB hydrocarbon				
Design Maximum:						
Characteristics of the Waste	e Gas Stream to be Burned	3				
29. Name	Quantity 3	Quantity	Source of Material			
	Grains of H ₂ S/100 ft	(scf/hr)				
TANKCOND001-08	0	302.1399	Condensate vapor			
TANKPW001-002	0	33.5112	Condensate vapor			
20 5 11 1 1 1 1			C514 (/)			
 Estimate total combustib (Maximum mass flow rate of 		335	.6511 scf/hr			
	t waste gas) to flare including materials to be	348	.2511 scf/hr			
burned, carrier gases, auxilia	•	540	00,7			
	ier gases: please see Tables 6 and 7 o	of Attachment N				

32. Give composition of carrier gases: please see Tables 6 and 7 of Attachment N

33. Temperature of emission stream: 900°F	34. Identify and describe all auxiliary fuels to be burned.
Heating value of emission stream: 2005.87 Btu/ft3	Natural gas
Mean molecular weight of emission stream: MW = 42.61 lb/lb-	1221 Btu/ft3
mole	

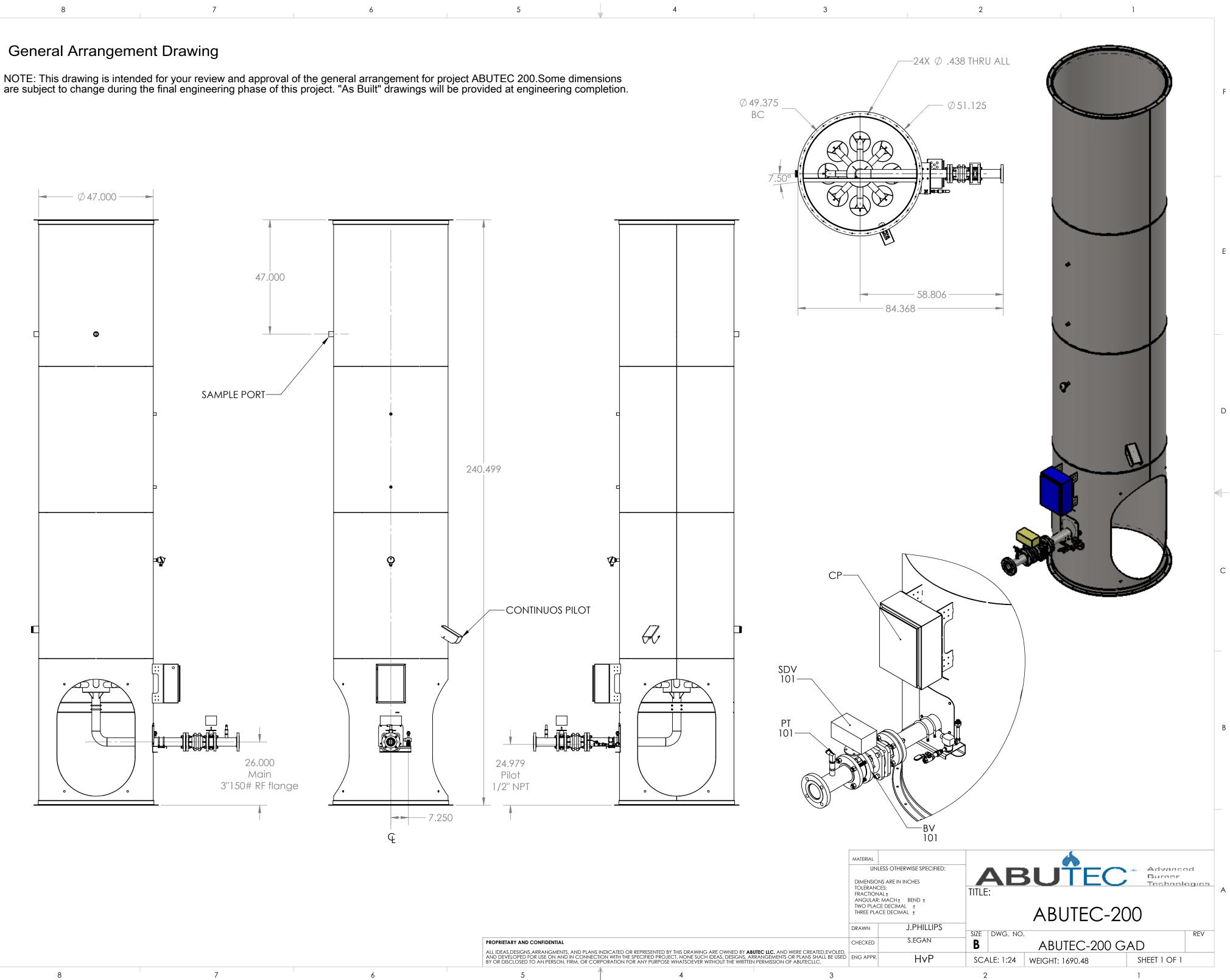
Attachment M Air Pollution Control Device Sheet

(COMBUSTOR SYSTEM)

(COMBO2	IOR SYSTEM)
Control Device ID No. (must match Emission Units Table):	EC001
35. Temperature of flare gas: 900 °F	36. Flare gas flow rate: 5.59 ascf/min
37. Flare gas heat content: 2005.87 Btu/ft3	38. Flare gas exit velocity: 0.08 scf/min
39. Maximum rate during emergency for one major piece of equipn	nent or process unit: 131 35.55 lbs/hr
40. Maximum rate during emergency for one major piece of equipn	nent or process unit: 2300
41. Describe any air pollution control device inlet and outlet gas cor humidification): n/a	iditioning processes (e.g., gas cooling, gas reheating, gas
42. Describe the collection material disposal system: Daily or as nee container and dispose/collect per guidelines.	eded, manually drain fuel gas scrubber and the Drip Pot into approved
43. Have you included <i>Flare Control Device</i> in the Emissions Points	Data Summary Sheet? YES
44. Proposed Monitoring, Recordkeeping, Reporting, and Testing Please propose monitoring, recordkeeping, and reporting in ord parameters. Please propose testing in order to demonstrate of proposed emissions limits.	compliance with the
MONITORING:	RECORDKEEPING:
1) Report any period when visible emissions exceeded 5 minutes during any two-hour period.	 Record the times and duration of periods when the pilot flame was not present.
2) Monitor the presence of pilot flame at all times with the Flame	Records of throughput to the vapor combustor.
rectification system, a thermocouple equivalent.	3) Records of vapor combustor malfunction or shutdown which
3) Monitor visible emissions from the vapor combustor.	resulted in excess emissions.
 Monitor throughput to the vapor combustor. 	 Records of vapor combustor inspection and maintenance activities conducted.
REPORTING:	TESTING:
 Report any period when visible emissions exceeded 5 minutes during any two-hour period. 	N/A
demonstrate compliance with the operation of this process equipm RECORDKEEPING: Please describe the proposed recordkeeping to REPORTING: Please describe any proposed emissions tes pollution control device.	hat will accompany the monitoring.
45. Manufacturer's Guaranteed Capture Efficiency for each air pollu NA	utant.
46. Manufacturer's Guaranteed Control Efficiency for each air pollu	itant.
98%	
47. Describe all operating ranges and maintenance procedures requ	uired by Manufacturer to maintain warranty.
Burner inspection and cleaning is recommended on a semi-annual s are clean and in good working order (replace any jets that are plugg	schedule. With burner assembly removed from ECD, verify that all jets ged, destroyed or missing.

D

С



3

Supporting Emission Calculations



Table 1

Facility Information Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

Oil and Gas Site General Information

Administrative Information								
Company Name	Antero Resources							
Company Name	Corporation							
Facility/Well Name	Pearl Jean Well Pad							
Nearest City/Town	Smithburg							
API Number/SIC Code	1311							
Latitude/Longitude	39.285147, -80.672978							
County	Doddridge County							

Technical Information						
Max Condensate Site Throughput (bbl/day):	24					
Max Produced Water Site Throughput (bbl/day): 28						
Are there any sour gas streams at this site?	No					
Is this site currently operational/producing?	Yes					

Equipment/Processes at Site								
Equipment/Process Types	How many for this site?							
Fugitives	8							
Turbines	0							
Diesel Engines	2							
Gas Processing Unit Heaters	8							
Condensate Tanks	8							
Produced Water Tanks	2							
Miscellaneous Tanks	0							
Loading Jobs	2							
Glycol Units	0							
Amine Units	0							
Enclosed Combustor-Vapor Combustion Control Device	1							

Table 2

Uncontrolled/Controlled Emissions Summary Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

		C	N	O _X	C	D _{2e}	C	CO SO ₂ PM _{2.5} PM ₁₀		Le	ad	Total HAPs		Benzene		Xylenes		Formaldehyde						
Emission Source	(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, Gas Production Unit Heaters)																								
Fugitive Emissions (Component Count, PCV and Hauling) ¹	3.0746	13.4667			70.360	308.18							0.9385	0.1514			0.3516	1.5400	0.0064	0.0279	5.26E-02	2.30E-01		
Flashing, Working and Breathing (F/W/B) Losses ²	25.07	109.8			92.8	406.6											4.306	18.858	0.0042	0.0185	0.0190	0.0832		
Engine Emissions ³	3.0169	13.2141	6.5349	28.6229	1,380.00	6,044.39	1.1846	5.1884	2.4604	10.7764			0.1974	0.8647			0.0372	0.1628	0.0092	0.0401	0.0028	0.0122	0.0116	0.0507
Gas Production Unit Heaters ⁴	0.0353	0.1545	0.6415	2.8098	774.39	3,391.81	0.5389	2.3602	0.0038	0.0169	0.0488	0.2135	0.0488	0.2135	3.21E-06	1.40E-05	0.0121	0.0529	1.35E-05	5.90E-05			0.0005	0.0021
TOTALS:	31.1997	136.6548	7.1764	31.4327	2317.5814	10151.0064	1.7234	7.5487	2.4642	10.7932	0.0488	0.2135	1.1847	1.2297	3.21E-06	1.40E-05	4.7064	20.6140	0.0198	0.0865	0.0744	0.3257	0.0121	0.0528
UNCONTROLLED (Truck Loading Emissions)																								
Truck Loading Emissions ⁵	3.591	0.066			4.091	0.269											0.0522	0.0010	3.94E-05	7.81E-07	0.0008	0.0000		
CONTROLLED EMISSIONS																								
Enclosed Combustor Emissions (from F/W/B losses) ⁶	0.5015	2.1967	0.0348	0.1525	107.9270	472.7201	0.0293	0.1281	7.56E-06	3.31E-05	0.0020	0.0087	0.0026	0.0116	1.74E-07	7.63E-07	0.0861	0.3773	8.45E-05	3.70E-04	0.0004	0.0017	9.45E-07	4.14E-06
Controlled Fugitive Emissions from Hauling													0.4693	0.0757										
TOTALS:	0.5015	2.1967	0.0348	0.1525	107.9270	472.7201	0.0293	0.1281	7.56E-06	3.31E-05	0.0020	0.0087	0.4719	0.0873	1.74E-07	7.63E-07	0.0861	0.3773	0.0001	0.0004	0.0004	0.0017	9.45E-07	4.14E-06

POTENTIAL TO EMIT ⁷	6.6283	29.0979	7.2112	31.5852	2332.6701	10217.3642	1.7527	7.6768	2.4642	10.7933	0.0507	0.2222	0.7181	1.1656	3.38E-06	1.48E-05	0.4870	2.1339	0.0156	0.0684	0.0557	0.2442	0.0121	0.0528
Enter any notes here:	1 - See Table 2 - See Table 3 - See Table 4 - See Table 5 - The maxir 0.015 pound 6 - See Table	es 4 and 5 for es 6 and 7 for e 13 for Fresh e 9 for gas pro mum emissio l per hour. e 10 and 11 fo	fugitive emis tanks emissi Water Impo duction unit n was calcula r enclosed co	ssion calcula on calculati undment (F heater emi ated based ombustor e	ations; Table : ions FWI) engines e ission calculat on tank truck emission calcu	12 for PM emi emission calcu cions capacity of 20	ssions from lations 0 barrels al	hauling. nd actual fil	l rate of 50	minutes pe	r tank trucł	k. At a pro	duction rat	e of 24 barr	rels per day	, VOC emissi	ons would b	pe 3.5911 po	ounds per h	our. Averag	e hourly VO	C emissions		
	PM 10 TF	PY is the sum	of uncontro	lled hauling	and other PM	/10 sources.																		

Table 3

Permit Summary

Pearl Jean Well Pad

Doddridge County, West Virginia

Antero Resources Corporation

		Emissio	ons		Threshold E	xceeded?
Pollutan	t	Uncontrolled	Controlled	Threshold	Uncontrolled	Controlled
VOC	lbs/hr	31.1997	6.6283	6	Yes	Yes
VUC	tons/yr	136.7207	29.0979	10	Yes	Yes
NO _x	lbs/hr	7.1764	7.2112	6	Yes	Yes
NOX	tons/yr	31.4327	31.5852	10	Yes	Yes
со	lbs/hr	1.7234	1.7527	6		
0	tons/yr	7.5487	7.6768	10		
SO ₂	lbs/hr	2.4642	2.4642	6		
302	tons/yr	10.7932	10.7933	10	Yes	Yes
PM _{2.5}	lbs/hr	4.88E-02	5.07E-02	6		
F 1V12.5	tons/yr	2.14E-01	2.22E-01	10		
PM ₁₀	lbs/hr	1.1847	0.7181	6		
F 10110	tons/yr	1.2297	1.1656	10		
Lead	lbs/hr	3.21E-06	3.38E-06	6		
Leau	tons/yr	1.40E-05	1.48E-05	10		
Total HAPs	lbs/hr	4.7064	0.4870	2	Yes	
Total HAPS	tons/yr	20.6149	2.1339	5	Yes	
Total TAPs	lbs/hr	0.0318	0.0277	1.14		
n-Hexane	lbs/hr	4.5299	0.3514			
II-HEXAIIE	tons/yr	19.8420	1.5399			
Toluene	lbs/hr	0.0350	0.0241			
Toluelle	tons/yr	0.1531	0.1054			
Ethylbenzene	lbs/hr	0.0257	0.0185			
	tons/yr	0.1124	0.0810			
Xylenes	lbs/hr	0.0744	0.0557			
Лутепез	tons/yr	0.3257	0.2442			
Benzene	lbs/hr	0.0198	0.0156			
Denzene	tons/yr	0.0865	0.0684			

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

Fugitive Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

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

	VOC frac	0.191
	Benzene frac	0.000
	Toluene	0.000
Gas Weight Fraction From Analysis:	Ethylbenzene	0.000
	Xylenes	0.000
	n-Hexane	0.023
	Methane	0.603

	Gas				
Number	Component	Pollutant	Emission Factor (kg/hr of THC per component)	kg/hr	lb/yr
400	Valves	Gas VOC	0.004500	0.34	6,624.61
		Non VOC	0.004500	1.46	28,064.99
472	Connectors	VOC	0.000200	0.02	347.42
		Non-VOC	0.000200	0.08	1,471.85
104	Flanges	VOC	0.000390	0.01	149.27
		Non-VOC	0.000390	0.03	632.40
			Total VOCs:	0.37	7,121.30
			Total THC:	1.93	37,290.55

	VOC frac	0.958
	Benzene frac	0.003
	Toluene	0.009
Light Liquid Weight Fraction From Analysis:	Ethylbenzene	0.008
	Xylenes	0.023
	n-hexane	0.065
	Methane	0.014

	Light Liquid				
Number	Component Pollutant (kg/hr of THC per kg/hr component)		lb/yr		
416	Valves	Light Liquid VOC	0.002500	1.00	19,210.33
	Light Liquid Non-VOC		0.04	832.55	
	Total VOC: 1.00 19,210.33				19,210.33
			Total THC:	1.04	20,042.88

	Fugitive Total Emissions				
	Annual Emissions (lb/yr)	Annual Emissions (lb/hr)	Annual Emissions (tpy)		
VOC	26,331.63	3.01	13.17		
Ethylbenzene		0.02	0.08		
Toluene		0.02	0.09		
Xylenes		0.05	0.23		
n-Hexane		0.25	1.08		
TAPs (Benzene)		0.01	0.03		
HAPs		0.34	1.50		
CO _{2e}	568,877.82	64.94	284.44		

	Fugitive emissions based on an estimated component count
	Global Warming Potentials from EPA site Reference to Emission factors used:
Enter Notes Here:	 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. Percent of speciated VOCs used in fugitive calculations are based on the total hydrocarbons, not of the total sample.

Pneumatic Control Valve Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

Number of PCVs	24
Bleed Rate (scf/day/PCV)	6.6
Total Bleed Rate (scf/day)	158.4

Component	Mol%	Molecular Weight	Component Flow	Component Moles	Compo	onent Emiss	ions
		(lb/lb-mole)	(scf/day)	(lb-moles)	(lbs/day)	(lbs/hr)	(tons/year)
H2S	0	34.08	0	0.00	0.00	0.00	0.00
Nitrogen	0.4946	14.01	0.7834464	0.00	0.03	0.00	0.01
Carbon Dioxide	0.1467	44.01	0.2323728	0.00	0.03	0.00	0.00
Methane	77.6927	16.04	123.0652368	0.32	5.20	0.22	0.95
Ethane	14.1987	30.07	22.4907408	0.06	1.78	0.07	0.33
Propane	4.4938	44.1	7.1181792	0.02	0.83	0.03	0.15
Isobutane	0.5666	58.12	0.8974944	0.00	0.14	0.01	0.03
n-Butane	1.1838	58.12	1.8751392	0.00	0.29	0.01	0.05
Isopentane	0.3749	72.15	0.5938416	0.00	0.11	0.00	0.02
n-Pentane	0.2914	72.15	0.4615776	0.00	0.09	0.00	0.02
2-Methylpentane	0	86.18	0	0.00	0.00	0.00	0.00
3-Methylpentane	0	86.18	0	0.00	0.00	0.00	0.00
n-Hexane	0.5451	86.18	0.8634384	0.00	0.20	0.01	0.04
Methylcyclopentane	0	84.16	0	0.00	0.00	0.00	0.00
Benzene	0	78.11	0	0.00	0.00	0.00	0.00
2-Methylhexane	0	100.2	0	0.00	0.00	0.00	0.00
3-Methylhexane	0	100.2	0	0.00	0.00	0.00	0.00
Heptane	0	100.21	0	0.00	0.00	0.00	0.00
Methylcyclohexane	0	98.186	0	0.00	0.00	0.00	0.00
Toluene	0	92.14	0	0.00	0.00	0.00	0.00
Octane	0	114.23	0	0.00	0.00	0.00	0.00
Ethylbenzene	0	106.17	0	0.00	0.00	0.00	0.00
m & p-Xylene	0	106.16	0	0.00	0.00	0.00	0.00
o-Xylene	0	106.16	0	0.00	0.00	0.00	0.00
Nonane	0	128.2	0	0.00	0.00	0.00	0.00
C10+	0	174.28	0	0.00	0.00	0.00	0.00

	lb/hr	tpy
VOC Emissions	0.0687	0.3009
Benzene Emissions	0.0000	0.0000
Toluene Emissions	0.0000	0.0000
Ethylbenzene Emissions	0.0000	0.0000
Xylene Emissions	0.0000	0.0000
n-Hexane Emissions	0.0082	0.0358
HAPs Emissions	0.0082	0.0358
TAPs Emissions	0.0000	0.0000
CO _{2e} emissions	5.4196	23.7380

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

Uncontrolled Flashing Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

# Hours Operational	8760

	Conde	ensate Tank Flashing Los	sses	Produced Water Tank Flashing Losses			
Component	Vapor Mass Fraction	Flashir	ng Losses	Vapor Mass Fraction	Flashing Losses		
	wt%	lbs/hr	tpy	wt%	lbs/hr	tpy	
Water	0.0808	0.0237	0.1040	2.6423	0.0000	0.0000	
H2S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Nitrogen	0.0339	0.0100	0.0437	0.3393	0.0055	0.0243	
Carbon Dioxide	0.1491	0.0438	0.1917	2.6311	0.0430	0.1884	
Methane	9.0285	2.6514	11.6133	57.8153	0.9451	4.1397	
Ethane	17.1837	5.0464	22.1032	21.1967	0.3465	1.5177	
Propane	22.1455	6.5035	28.4855	10.3894	0.1698	0.7439	
Isobutane	6.2734	1.8423	8.0694	0.5902	0.0096	0.0423	
n-Butane	15.3294	4.5018	19.7180	2.5657	0.0419	0.1837	
Isopentane	7.5490	2.2169	9.7102	0.6663	0.0109	0.0477	
n-Pentane	6.1973	1.8200	7.9715	0.5084	0.0083	0.0364	
2-Methylpentane	0.1251	0.0367	0.1609	0.0044	0.0001	0.0003	
3-Methylpentane	0.0897	0.0263	0.1154	0.0083	0.0001	0.0006	
n-Hexane	14.3415	4.2117	18.4473	0.3918	0.0064	0.0281	
Methylcyclopentane	0.0474	0.0139	0.0610	0.0123	0.0002	0.0009	
Benzene	0.0131	0.0039	0.0169	0.0202	0.0003	0.0014	
2-Methylhexane	0.1442	0.0423	0.1854	0.0043	0.0001	0.0003	
3-Methylhexane	0.1185	0.0348	0.1524	0.0037	0.0001	0.0003	
Heptane	0.2426	0.0712	0.3120	0.0078	0.0001	0.0006	
Methylcyclohexane	0.1590	0.0467	0.2046	0.0270	0.0004	0.0019	
Toluene	0.0344	0.0101	0.0443	0.0489	0.0008	0.0035	
Octane	0.4374	0.1284	0.5626	0.0084	0.0001	0.0006	
Ethylbenzene	0.0224	0.0066	0.0288	0.0312	0.0005	0.0022	
m & p-Xylene	0.0276	0.0081	0.0355	0.0381	0.0006	0.0027	
o-Xylene	0.0301	0.0088	0.0387	0.0428	0.0007	0.0031	
Nonane	0.1501	0.0441	0.1931	0.0044	0.0001	0.0003	
C10+	0.0461	0.0136	0.0594	0.0017	0.0000	0.0001	
Total VOCs	73.524	21.59	94.6	15.375	0.2513	1.1009	
Total CO _{2e}		66.33	290.5		23.67	103.7	
Total TAPs (Benzene)	-	0.0039	0.0169		0.0003	0.0014	
Toluene		0.0101	0.0443		0.0008	0.0035	
Ethylbenzene	-	0.0066	0.0288		0.0005	0.0022	
Xylenes		0.0169	0.0742		0.0013	0.0058	
n-Hexane	-	4.212	18.447		0.0064	0.0281	
Total HAPs		4.249	18.612		0.0094	0.0410	
Total	100.00	29.37	128.6	100.00	1.592	6.97	

Enter any notes here: V	/apor mass fractions and Flashing losses from Promax output
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Uncontrolled Working and Breathing Losses Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

Condensate Tank Information	
Number of Tanks	8
Maximum Working Losses (lbs/hr)	0.4422
Maximum Breathing Losses (lbs/hr)	4.1154

			Condensa	ate Tank W/B Losses			
	Vapor Mass Fraction	Worki	ng Losses	Breathi	ng Losses	Max W/B Losses	
	wt%	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
H2S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nitrogen	0.0018	0.0000	0.0000	0.0001	0.0003	0.0001	0.0004
Carbon Dioxide	0.1874	0.0008	0.0036	0.0077	0.0338	0.0085	0.0374
Methane	2.4566	0.0109	0.0476	0.1011	0.4428	0.1120	0.4904
Ethane	26.4930	0.1172	0.5132	1.0903	4.7755	1.2074	5.2886
Propane	28.2405	0.1249	0.5470	1.1622	5.0905	1.2871	5.6375
Isobutane	7.4320	0.0329	0.1440	0.3059	1.3396	0.3387	1.4836
n-Butane	17.9810	0.0795	0.3483	0.7400	3.2411	0.8195	3.5894
Isopentane	8.2278	0.0364	0.1594	0.3386	1.4831	0.3750	1.6425
n-Pentane	6.6470	0.0294	0.1287	0.2736	1.1982	0.3029	1.3269
2-Methylpentane	0.1293	0.0006	0.0025	0.0053	0.0233	0.0059	0.0258
3-Methylpentane	0.0924	0.0004	0.0018	0.0038	0.0167	0.0042	0.0184
n-Hexane	1.0037	0.0044	0.0194	0.0413	0.1809	0.0457	0.2004
Methylcyclopentane	0.0457	0.0002	0.0009	0.0019	0.0082	0.0021	0.0091
Benzene	0.0008	0.0000	0.0000	0.0000	0.0001	0.0000	0.0002
2-Methylhexane	0.0098	0.0000	0.0002	0.0004	0.0018	0.0004	0.0020
3-Methylhexane	0.1214	0.0005	0.0024	0.0050	0.0219	0.0055	0.0242
Heptane	0.2299	0.0010	0.0045	0.0095	0.0414	0.0105	0.0459
Methylcyclohexane	0.1490	0.0007	0.0029	0.0061	0.0269	0.0068	0.0298
Toluene	0.0044	0.0000	0.0001	0.0002	0.0008	0.0002	0.0009
Octane	0.3775	0.0017	0.0073	0.0155	0.0680	0.0172	0.0754
Ethylbenzene	0.0053	0.0000	0.0001	0.0002	0.0010	0.0002	0.0011
m & p-Xylene	0.0084	0.0000	0.0002	0.0003	0.0015	0.0004	0.0017
o-Xylene	0.0079	0.0000	0.0002	0.0003	0.0014	0.0004	0.0016
Nonane	0.1176	0.0005	0.0023	0.0048	0.0212	0.0054	0.0235
C10+	0.0296	0.0001	0.0006	0.0012	0.0053	0.0014	0.0059
Total VOCs	70.861	0.3134	1.373	2.9162	12.7730	3.2296	14.146
Total CO _{2e}		0.2724	1.1932	2.5352	11.1042	2.8076	12.297
Total TAPs (Benzene)		0.0000	0.0000	0.0000	0.0001	0.0000	0.0002
Toluene		0.0000	0.0001	0.0002	0.0008	0.0002	0.0009
Ethylbenzene		0.0000	0.0001	0.0002	0.0010	0.0002	0.0011
Xylenes		0.0001	0.0003	0.0007	0.0029	0.0007	0.0032
n-Hexane		0.0044	0.0194	0.0413	0.1809	0.0457	0.2004
Total HAPs		0.0046	0.0200	0.0424	0.1857	0.0470	0.2057
Total	100.00	0.4422	1.9369	4.1154	18.0254	4.5576	19.962

Uncontrolled Working and Breathing Losses Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

Produced Water Tank Information	
Number of Tanks	2
Maximum Working Losses (lbs/hr)	0.0269
Maximum Breathing Losses (lbs/hr)	0.0083

		Produced Water Tank W/B Losses										
Component	Vapor Mass Fraction	Worki	ng Losses	Breathi	ng Losses	Max W/B Losses						
	wt%	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy					
H2S	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Nitrogen	0.0067	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Carbon Dioxide	3.5216	0.0009	0.0042	0.0003	0.0013	0.0012	0.0054					
Methane	3.1916	0.0009	0.0038	0.0003	0.0012	0.0011	0.0049					
Ethane	1.0797	0.0003	0.0013	0.0001	0.0004	0.0004	0.0017					
Propane	0.1290	0.0000	0.0002	0.0000	0.0000	0.0000	0.0002					
Isobutane	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
n-Butane	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Isopentane	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
n-Pentane	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
2-Methylpentane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
3-Methylpentane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
n-Hexane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Methylcyclopentane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Benzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
2-Methylhexane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
3-Methylhexane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Heptane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Methylcyclohexane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Toluene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Octane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Ethylbenzene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
m & p-Xylene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
o-Xylene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Nonane	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
C10+	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Total VOCs	0.1366	0.0000	0.0002	0.0000	0.0000	0.0000	0.0002					
Total CO _{2e}		0.0224	0.0982	0.0069	0.0302	0.0293	0.1284					
Total TAPs (Benzene)		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Toluene		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Ethylbenzene		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Xylenes		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
n-Hexane		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Total HAPs		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Total	100.00	0.0269	0.1179	0.0083	0.0362	0.0352	0.1541					

				te			

Vapor mass fractions, working losses and breathing losses from Promax output

Loading Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

Annual Loading	Oil Truck Loading	Water Truck Loading
RVP	1.65	1.0220
Annual Average Temp (F)	72.1	72.1
S (saturation factor)	0.6	0.6
P (true vapor pressure)	0.84	0.45
M (MW of vapor)	42.61	18.42
Collection Efficiency (%)	0	0
Loading Loss (lb/10^3 gal)*	0.50	0.12
Maximum Throughput (gallons/hr)	10,080	10,080
Average Throughput (gallons/yr)	367,920	4,415,040
Loading Emissions (lbs/hr)	5.07	1.16
Loading Emissions (tpy)	0.09	0.25

	Con	densate Tank Loading Loss	es	Produced Water Tank Loading Losses			
Component	Vapor Mass Fraction	Loading	Losses	Vapor Mass Fraction	Loading	g Losses	
	wt%	lbs/hr	tpy	wt%	lbs/hr	tpy	
H2S	0.0000	0.00	0.00	0.0000	0.00E+00	0.00E+00	
Nitrogen	0.0018	0.00	0.00	0.0067	7.85E-05	1.72E-05	
Carbon Dioxide	0.1874	0.01	0.00	3.5216	4.10E-02	8.98E-03	
Methane	2.4566	0.12	0.00	3.1916	3.72E-02	8.14E-03	
Ethane	26.4930	1.34	0.02	1.0797	1.26E-02	2.75E-03	
Propane	28.2405	1.43	0.03	0.1290	1.50E-03	3.29E-04	
Isobutane	7.4320	0.38	0.01	0.0009	1.07E-05	2.34E-06	
n-Butane	17.9810	0.91	0.02	0.0060	6.99E-05	1.53E-05	
Isopentane	8.2278	0.42	0.01	0.0004	4.55E-06	9.96E-07	
n-Pentane	6.6470	0.34	0.01	0.0002	2.53E-06	5.54E-07	
2-Methylpentane	0.1293	0.01	0.00	0.0000	4.16E-09	9.11E-10	
3-Methylpentane	0.0924	0.00	0.00	0.0000	1.90E-08	4.17E-09	
n-Hexane	1.0037	0.05	0.00	0.0000	1.44E-08	3.16E-09	
Methylcyclopentane	0.0457	0.00	0.00	0.0000	6.11E-08	1.34E-08	
Benzene	0.0008	0.00	0.00	0.0000	3.07E-07	6.73E-08	
2-Methylhexane	0.0098	0.00	0.00	0.0000	6.65E-11	1.46E-11	
3-Methylhexane	0.1214	0.01	0.00	0.0000	8.55E-10	1.87E-10	
Heptane	0.2299	0.01	0.00	0.0000	1.34E-09	2.93E-10	
Methylcyclohexane	0.1490	0.01	0.00	0.0000	2.86E-08	6.26E-09	
Toluene	0.0044	0.00	0.00	0.0000	3.58E-07	7.84E-08	
Octane	0.3775	0.02	0.00	0.0000	2.82E-10	6.17E-11	
Ethylbenzene	0.0053	0.00	0.00	0.0000	1.28E-07	2.81E-08	
m & p-Xylene	0.0084	0.00	0.00	0.0000	1.75E-07	3.84E-08	
o-Xylene	0.0079	0.00	0.00	0.0000	2.06E-07	4.51E-08	
Nonane	0.1176	0.01	0.00	0.0000	6.96E-11	1.52E-11	
C10+	0.0296	0.00	0.00	0.0000	2.17E-12	4.75E-13	
Total VOCs	70.8611	3.590	0.066	0.1366	1.59E-03	3.48E-04	
Total CO _{2e}		3.121	0.0569		0.9700	0.2124	
Total TAPs (Benzene)		0.0000	0.0000		0.0000	0.0000	
Toluene		0.0002	0.0000		0.0000	0.0000	
Ethylbenzene		0.0003	0.0000		0.0000	0.0000	
Xylenes		0.0008	0.0000		0.0000	0.0000	
n-Hexane		0.0508	0.0009		0.0000	0.0000	
Total HAPs		0.0522	0.0010		0.0000	0.0000	
Total	100.0000	5.0655	0.0924	100.0000	1.1643	0.2550	

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

Osing equation L₁ = 12.46 SPM/FITOM 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 7.1-13b
 Loading emissions are vented to the atmosphere.

Gas Production Unit Heater Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

Number of Units	8
GPU Heater Rating (MMBtu/hr)	1.00
Operating hours/year	8760
Fuel Heat Value (Btu/scf)	1,247

Pollutant	Emission Factors (Ib/MMscf)	lb/hr	tpy
NOx	100	0.642	2.810
СО	84	0.539	2.360
CO ₂	120,000	769.811	3371.770
Lead	0.0005	3.21E-06	1.40E-05
N ₂ O	2.2	0.014	0.062
PM (Total)	7.6	0.049	0.214
SO ₂	0.6	0.004	0.017
ТОС	11	0.071	0.309
Methane	2.3	0.015	0.065
VOC	5.5	0.035	0.155
HAPS			
2-Methylnaphthalene	2.40E-05	1.54E-07	6.74E-07
Benzene	2.10E-03	1.35E-05	5.90E-05
Dichlorobenzene	1.20E-03	7.70E-06	3.37E-05
Fluoranthene	3.00E-06	1.92E-08	8.43E-08
Fluorene	2.80E-06	1.80E-08	7.87E-08
Formaldehyde	7.50E-02	4.81E-04	2.11E-03
Hexane	1.80E+00	1.15E-02	5.06E-02
Naphthalene	6.10E-04	3.91E-06	1.71E-05
Phenanathrene	1.70E-05	1.09E-07	4.78E-07
Toluene	3.40E-03	2.18E-05	9.55E-05

	lb/hr	tpy
TOTAL Uncontrolled VOC	0.035	0.155
TOTAL Uncontrolled HAPs	0.012	0.053
TOTAL Uncontrolled TAPs (Benzene)	0.000	0.000
TOTAL Uncontrolled TAPs (Formaldehyde)	0.000	0.002
TOTAL CO _{2e} Emissions	774.39	3,391.81

Enter any notes here:

All Emission Factors based off AP-42 Sec 1.4 Natural Gas Combustion

Enclosed Combustor Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

	General Info	ormation
Unit Name:	EC001	
Pollutant	Emission Factor (lb/MMscf)	
NOx	100	Btu/MMBtu
СО	84	scf/MMscf
PM10	7.6	lb/ton
PM2.5	5.7	H ₂ S molecular wei
SO ₂	0.6	SO ₂ molecular we
CO ₂	120,000	seconds/hour
VOC	5.5	inches/ft
benzene	2.10E-03	
Hexane	1.80E+00	
Toluene	3.40E-03	
Formaldehyde	7.50E-02	
N ₂ O	2.20	
Lead	5.00E-04	

Destruction Efficiency					
VOC percent destruction efficiency (%)	98				
H ₂ S percent destruction efficiency (%)	98				

8760

Enclosed Combustor

operating hours

Constants	
Btu/MMBtu	1,000,000
scf/MMscf	1,000,000
lb/ton	2,000
H ₂ S molecular weight	34.08
SO ₂ molecular weight	64.06
seconds/hour	3,600
inches/ft	12

	Stream Information						
	1	2	3	4	5	6	Total
Stream Sent to Enclosed 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)	12.6		261.55	32.79	40.59	0.72	348.25
Maximum Expected Annual Volumetric Flow Rate of Stream (scf/yr)	110,376.00		2,291,171.04	287,209.58	355,574.57	6,348.66	3,050,679.86
Heating Content (Btu/ft3)	1,247		2,192.39	1,078.40	2,192.39	1,078.40	2,005.87

	Mass Flov	w Rates of the	Vapors Sent to this Cont	rol Device, Hourly B	asis (lb/hr)		
	1	2	3	4	5	6	Total
Stream Sent to Enclosed 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	-	-	21.592	0.251	3.230	0.000	25.07
Benzene	-	-	0.004	0.000	0.000	0.000	0.004
Toluene	-	-	0.010	0.001	0.000	0.000	0.011
Ethylbenzene	-	-	0.007	0.001	0.000	0.000	0.007
Xylenes	-	-	0.017	0.001	0.001	0.000	0.019
n-Hexane	-	-	4.212	0.006	0.046	0.000	4.264
HAPs	-	-	4.249	0.009	0.047	0.000	4.306
Total Mass Flow	-	-	29.367	1.592	4.558	0.035	35.552
	Mass Flo	w Rates of the	Vapors Sent to this Con	trol Device, Annual	Basis (tpy)		
H2S	-	-	0.000	0.000	0.000	0.000	0.000
Total VOC	-	-	94.573	1.101	14.146	0.000	109.819
Benzene	-	-	0.017	0.001	0.000	0.000	0.019
Toluene	-	-	0.044	0.004	0.001	0.000	0.049
Ethylbenzene	-	-	0.029	0.002	0.001	0.000	0.032
Xylenes	-	-	0.074	0.006	0.003	0.000	0.083
n-Hexane	-	-	18.447	0.028	0.200	0.000	18.676
НАР	-	-	18.612	0.041	0.206	0.000	18.858
Total Mass Flow	-	-	128.629	6.971	19.962	0.154	155.716

Enclosed Combustor Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

			Controlled Emissio	ons			
			Hourly (lb/hr)				
	1	2	3	4	5	6	Total
Stream Sent to Enclosed 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	0.001	-	0.026	0.003	0.004	0.000	0.03
со	0.001	-	0.022	0.003	0.003	0.000	0.03
PM2.5	0.000	-	0.001	0.000	0.000	0.000	0.00
PM10	0.000	-	0.002	0.000	0.000	0.000	0.00
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	1.512	-	-	-	-	-	1.51
Total VOC	0.000	-	0.432	0.005	0.065	0.000	0.50
Benzene	0.000	-	0.000	0.000	0.000	0.000	0.00
Toluene	0.000	-	0.000	0.000	0.000	0.000	0.00
Ethylbenzene	0.000	-	0.000	0.000	0.000	0.000	0.00
Xylenes	0.000	-	0.000	0.000	0.000	0.000	0.00
n-Hexane	0.000	-	0.084	0.000	0.001	0.000	0.09
НАР	0.000	-	0.085	0.000	0.001	0.000	0.09
N ₂ O	0.000	-	0.001	0.000	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	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	0.006	-	0.115	0.014	0.018	0.000	0.15
со	0.005	-	0.096	0.012	0.015	0.000	0.13
PM2.5	0.000	-	0.007	0.001	0.001	0.000	0.01
PM10	0.000	-	0.009	0.001	0.001	0.000	0.01
H ₂ S	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	6.623	-	-	-	-	-	6.62
Total VOC	0.000	-	1.891	0.022	0.283	0.000	2.20
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	-	0.001	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	-	0.369	0.001	0.004	0.000	0.37
НАР	0.000	-	0.372	0.001	0.004	0.000	0.38
N ₂ O	0.000	-	0.003	0.000	0.000	0.000	0.00
Lead	0.000	- 1	0.000	0.000	0.000	0.000	0.00
Formaldehyde	0.000	-	-	-	-	-	0.00

Enclosed Combus	tor Total Emission	S
	Hourly	Annual
	Emissions	Emissions
	(lb/hr)	(tpy)
Total VOC	0.50	2.20
NOx	3.48E-02	1.53E-01
со	2.93E-02	1.28E-01
PM2.5	1.99E-03	8.69E-03
PM10	2.65E-03	1.16E-02
H ₂ S	4.02E-06	1.76E-05
SO ₂	7.56E-06	3.31E-05
Benzene (TAPs)	8.45E-05	3.70E-04
Formaldehyde (TAPs)	9.45E-07	4.14E-06
HAPs	0.09	0.38
CO ₂ e	107.93	472.72
N ₂ O	7.66E-04	3.36E-03
Lead	1.74E-07	7.63E-07

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

Enclosed Combustor GHG Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

Enclosed Combustor CO₂ and CH₄ Emissions

Components	Mole fraction of oil flash gas constituents ^a	Volume of oil flash gas sent to flare scf/year	Mole fraction of water flash gas constituents ^a	Volume of water flash gas sent to flare scf/year	Mole fraction of oil tank vapors constituents ^a	Volume of oil tank vapor sent to flare scf/year	Mole fraction of water tank vapors constituents ^a	Volume of water tank vapors sent to flare scf/year	Component volume of gas sent to flare 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	0.001	2,291,171	0.0119	287,210	0.0018	355,575	0.015	6,349	7,411	1	0		7,411	7,712,188
Methane	0.235	2,291,171	0.7195	287,210	0.0653	355,575	0.037	6,349	769,302	1	0.98	753,916	15,386	15,386
Ethane	0.239	2,291,171	0.1407	287,210	0.3754	355,575	0.007	6,349	721,370	2	0.98	1,413,886		
Propane	0.210	2,291,171	0.0470	287,210	0.2729	355,575	0.001	6,349	591,592	3	0.98	1,739,282		
i-Butane	0.045	2,291,171	0.0020	287,210	0.0545	355,575	0.000	6,349	123,355	4	0.98	483,552		
n-Butane	0.110	2,291,171	0.0088	287,210	0.1318	355,575	0.000	6,349	302,065	4	0.98	1,184,096		
Pentane	0.080	2,291,171	0.0033	287,210	0.0878	355,575	0.000	6,349	214,683	5	0.98	1,051,946		
Hexane	0.071	2,291,171	0.0009	287,210	0.0061	355,575	0.000	6,349	164,227	6	0.98	965,657		
Benzene	0.000	2,291,171	0.0001	287,210	0.0000	355,575	0.000	6,349	178	6	0.98	1,044		
Heptanes	0.002	2,291,171	0.0001	287,210	0.0018	355,575	0.000	6,349	6,015	7	0.98	41,265		
Toluene	0.000	2,291,171	0.0001	287,210	0.0000	355,575	0.000	6,349	396	7	0.98	2,715		
Octane	0.002	2,291,171	0.0001	287,210	0.0021	355,575	0.000	6,349	5,970	8	0.98	46,806		
Ethyl benzene	0.000	2,291,171	0.0001	287,210	0.0000	355,575	0.000	6,349	227	8	0.98	1,776		
Xylenes	0.000	2,291,171	0.0002	287,210	0.0001	355,575	0.000	6,349	587	8	0.98	4,605		
Nonane	0.000	2,291,171	0.0000	287,210	0.0004	355,575	0.000	6,349	1,263	9	0.98	11,138		
Decane plus	0.000	2,291,171	0.0000	287,210	0.0001	355,575	0.000	6,349	316	10	0.98	3,093		
											Subtotal	7,704,777		

	Volume Emitted	Density of GHG ^c	Conversion Factor	GWF	Emiss	sions ^c
Pollutant	scf/year	lb/scf	lb/ton		lbs/hr	(tons/yr)
CO ₂	7,712,188	0.12	2000	1	102.09	447.16
CH ₄	15,386	0.09	2000	25	0.16	0.72
				CO ₂ e Emissions	106.2	465.06

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 60F and 14.7 psia

Haul Road Emissions Pearl Jean 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)	24
PW Production (bbl/day)	288
Truck Capacity (bbl)	200

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

	# of Wheels	Mean Vehicle Weight (W)	Mean Vehicle Speed (S)	Miles Per Trip	Maximum Trips per Hour	Maximum Trips per Year	Vehicle Mi	les Travelled	РМ	PM10
		(tons)	(mph)	(miles)			(miles/hr)	(miles/year)	(lbs/VMT)	(lbs/VMT)
Tanker Trucks Condensate	10	40	10	0.2500	1	44	0.2500	11.0000	3.8175	1.7179
Tanker Trucks PW	10	40	10	0.2500	1	526	0.2500	131.5000	3.8175	1.7179
Well Pad Pick Up Truck	4	3	10	0.2100	1	730	0.2100	153.3000	0.3467	0.1560
FWI Pick Up Truck	4	3	10	0.3000	1	730	0.3000	219.0000	0.3467	0.1560

			Uncontrolled Er	nissions					Controlled	d Emissions		
		PM			PM10			PM			PM10	
	(lbs/hr)	(Ibs/year)	(tpy)	(lbs/hr)	(lbs/year)	(tpy)	(lbs/hr)	(lbs/year)	(tpy)	(lbs/hr)	(lbs/year)	(tpy)
Tanker Trucks Condensate	0.9544	41.9928	0.0210	0.4295	18.8968	0.0094	0.4772	20.9964	0.0105	0.2147	9.4484	0.0047
Tanker Trucks PW	0.9544	502.0051	0.2510	0.4295	225.9023	0.1130	0.4772	251.0026	0.1255	0.2147	112.9512	0.0565
Well Pad Pick Up Truck	0.0728	53.1460	0.0266	0.0328	23.9157	0.0120	0.0364	26.5730	0.0133	0.0164	11.9578	0.0060
FWI Pick Up Truck	0.1040	75.9229	0.0380	0.0468	34.1653	0.0171	0.0520	37.9614	0.0190	0.0234	17.0826	0.0085
Total Emission	s 2.0856	673.0668	0.3365	0.9385	302.8801	0.1514	1.0428	336.5334	0.1683	0.4693	151.4400	0.0757

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)
Enter any notes here.	Source: Attachment L, Fugitive Emissions from Unpaved Haul Roads, Rev 03/2007, West Virginia Department of Environmental Protection

Fresh Water Impoundment (FWI) Engine Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

FWIENG001

Manufacturer	John Deere
Model	6135HF485
Power (hp)	600
Operating Hours/Year	8760
Fuel Consumption (gal/I	35.7
Heat Value (Btu/gal)	137380

Pollutant	Emissic	on Factors	Engine E	missions
POllulall	g/hp-hr	lb/MMBtu	lb/hr	tpy
NOx	2.47		3.27	14.31
СО	0.45		0.59	2.59
SO2	0.93		1.23	5.39
PM	0.07		0.10	0.43
VOC	1.14		1.51	6.61
CO2 _e	521.63		690.00	3022.20
	HA	APS		
Benzene		9.33E-04	4.58E-03	2.00E-02
1,3-Butadiene		3.91E-05	1.92E-04	8.40E-04
Toluene		4.09E-04	2.01E-03	8.79E-03
Xylenes		2.85E-04	1.40E-03	6.12E-03
Formaldehyde		1.18E-03	5.79E-03	2.53E-02
Acetaldehyde		7.67E-04	3.76E-03	1.65E-02
Acrolein		9.25E-05	4.54E-04	1.99E-03
Napthelene		8.48E-05	4.16E-04	1.82E-03

	lb/hr	tpy
TOTAL Uncontrolled VOC	3.0169	13.2141
TOTAL Uncontrolled NOx	6.5349	28.6229
TOTAL Uncontrolled HAPs	0.0372	0.1628
TOTAL Uncontrolled TAPs (Benzene)	0.0092	0.0401
TOTAL Uncontrolled TAPs (Formaldehyde)	0.0116	0.0507
TOTAL CO2e Emissions	1380.00	6044.39

FWIENG002	
Manufacturer	
Model	
a (1)	

Model	6135HF485
Power (hp)	600
Operating Hours/Year	8760
Fuel Consumption (gal/	35.7
Heat Value (Btu/gal)	137380

Pollutant	Emissi	on Factors	Engine E	missions
Pollutalit	g/hp-hr	lb/MMBtu	lb/hr	tpy
NOx	2.47		3.27	14.31
CO	0.45		0.59	2.59
SO2	0.93		1.23	5.39
PM	0.07		0.10	0.43
VOC	1.14		1.51	6.61
CO2 _e	521.63		690.00	3022.20
	H.	APS		
Benzene		9.33E-04	4.58E-03	2.00E-02
1,3-Butadiene		3.91E-05	1.92E-04	8.40E-04
Toluene		4.09E-04	2.01E-03	8.79E-03
Xylenes		2.85E-04	1.40E-03	6.12E-03
Formaldehyde		1.18E-03	5.79E-03	2.53E-02
Acetaldehyde		7.67E-04	3.76E-03	1.65E-02
Acrolein		9.25E-05	4.54E-04	1.99E-03
Napthelene		8.48E-05	4.16E-04	1.82E-03

John Deere

Notes:

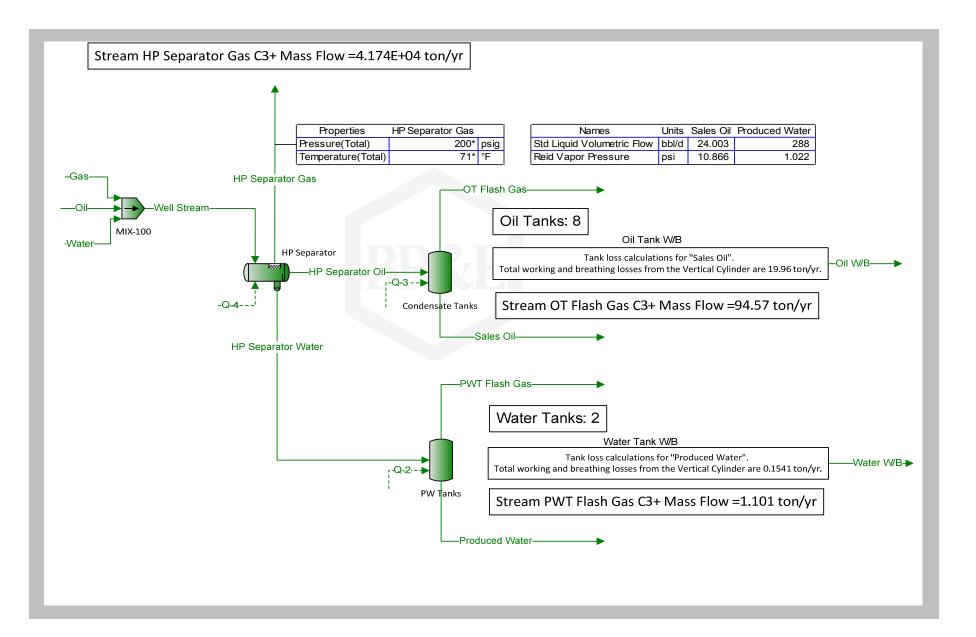
1. Emissions for NOx, CO, and PM are based on EPA certification actual test results (in g/kw-hr) for nonroad diesel fueled engines manufactured in 2010 (http://www.epa.gov/otaq/certdata.htm#early-Igeng). Everything else is based on AP-42 Emission factors for diesel fueled nonroad industrial engines

Change in Regulated Air Pollutants Emissions Pearl Jean Well Pad Doddridge County, West Virginia Antero Resources Corporation

	Potential E	missions ¹	Initial Permit Appli	cation Emissions	Change ir	n Emissions
Pollutant	Hourly PTE (lb/hr)	Yearly PTE (tpy)	Hourly PTE (lb/hr)	Yearly PTE (tpy)	Hourly PTE (lb/hr)	Yearly PTE (tpy)
PM	1.2916	1.2581	1.0639	0.4696	0.2277	0.7885
PM10	0.7181	1.1656	0.5239	0.3975	0.1942	0.7681
VOC	6.6283	29.0979	3.6590	16.0923	2.9693	13.0056
СО	1.7527	7.6768	6.4820	28.3913	-4.7293	-20.7145
NOx	7.2112	31.5852	1.3129	5.7503	5.8984	25.8349
SO2	2.4642	10.7933	0.0059	0.0259	2.4583	10.7673
Pb	3.38E-06	1.48E-05	4.99E-06	2.18E-05	-1.60E-06	-7.02E-06
HAPs	0.4870	2.1339	0.4641	2.0335	0.0229	0.1004
TAPs	0.0277	0.1212	0.0125	0.0547	0.0152	0.0665

Notes: 1) Change in emissions from the removal of the Kubota engine and reduction in GPU heater rating and installation of FWI engines

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	Simulation Report
Client Name:	Antero Resources Corporation
	Antelo Resources Corporation
Location:	West Virginia
Location: Job:	
	West Virginia
	West Virginia
Job:	West Virginia Pearl Jean
Job: Project Name:	West Virginia Pearl Jean PROMAX SCENARIO 3
Job: Project Name: File Name:	West Virginia Pearl Jean PROMAX SCENARIO 3 ProMax@C:\ProMax\Antero\Scenario 3\PROMAX SCENARIO 3.PMX



r	Process Streams		Well Stream	HP Separator Gas	HP Separator Water	HP Separator Oil	OT Flash Gas	Sales Oil	Gas	Water	Oil	Produced Water	PWT Flash Gas	Oil W/B	Water W/B
H	Phase: Total	Status	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
	Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%
	Water		9.03689	0.185594	99.9640	0.0459879	0.187689	0.00343211	0	100	0	99.9969	3.02987	9.78097E-05	94.1389
-	H2S		0 0.449186	0 0.493515	0 8.78105E-05	0 0.0117652	0 0.0506765	0 7.93114E-05	0 0.494658	0	0 0.0260031	0 2.93164E-06	0 0.250239	0 0.00275262	0 0.00443362
-	Nitrogen Carbon Dioxide		0.449186	0.493515	0.00101751	0.0345979	0.0506765	7.93114E-05 0.00243917	0.494658	0	0.0200031	2.93164E-06 0.000598796	1.23503	0.181432	0.00443362
⊢	Methane		70.5649	77.5228	0.0270437	5.52520	23.5429	0.114117	77.7018	0	7.70392	0.00179196	74.4479	6.52482	3.66485
	Ethane		12.9068	14.1729	0.00534776	6.10283	23.9062	0.756116	14.2004	0	7.91695	0.000408437	14.5623	37.5416	0.661466
	Propane		4.09328	4.48871	0.00180167	6.74374	21.0089	2.45961	4.49433	0	7.59591	0.000150813	4.86714	27.2884	0.0538805
	Isobutane		0.517892	0.566368	7.34093E-05	2.08915	4.51515	1.36057	0.566666	0	2.04725	2.26127E-06	0.209758	5.44835	0.000290740
	n-Butane		1.08480	1.18394	0.000330946	6.25028	11.0330	4.81392	1.18394	0	5.95771	2.16479E-05	0.911880	13.1817	0.00190216
_	Isopentane		0.345941 0.271980	0.374074 0.292584	6.78130E-05 5.17180E-05	4.73993 4.91928	4.37697 3.59325	4.84893 5.31752	0.374944 0.291434	0	3.34340 4.47754	3.10372E-06 2.34471E-06	0.190776 0.145562	4.85912 3.92556	9.97269E-05 5.54938E-05
	n-Pentane 2-Methylpentane		0.271980	0.292564	3.64179E-07	4.91928	0.0607291	0.215980	0.291434	0	2.66232	8.05234E-09	0.145562	0.0639455	7.64162E-08
	3-Methylpentane		0.00313585	0.00326403	7.13445E-07	0.142837	0.0435404	0.172657	0	0	1.90723	4.12383E-08	0.00198181	0.0456810	3.49713E-07
	n-Hexane		0.505866	0.520162	3.24328E-05	28.0740	6.96184	34.4144	0.545164	0	6.60779	5.72822E-07	0.0939288	0.496277	2.64759E-07
	Methylcyclopentane		0.00169537	0.00173656	1.21668E-06	0.0992891	0.0235624	0.122031	0	0	1.03112	1.89237E-07	0.00302925	0.0231283	1.14954E-06
	Benzene		0.000509761	0.000521001	1.84292E-05	0.0293709	0.00704077	0.0360771	0	0	0.310037	1.66246E-05	0.00533684	0.000421421	6.22418E-06
	2-Methylhexane		0.00482464	0.00457226	3.04633E-07	0.573858	0.0601864	0.728125	0	0	2.93435	5.71602E-09	0.000881261	0.00417526	1.05048E-09
	3-Methylhexane		0.00398929 0.00857714	0.00375533 0.00780375	2.61483E-07 5.56458E-07	0.494403	0.0494659	0.628027	0	0	2.42629 5.21663	5.12399E-09 1.09640E-08	0.000755791 0.00160821	0.0516387	1.35028E-08 2.10956E-08
-	Heptane Methodeusleheurene		0.00857714	0.00780375	5.56458E-07 2.16357E-06	1.27589 0.828736	0.101273	1.62866	0	0	5.21663 3.40241	1.09640E-08 2.35027E-07	0.00160821	0.0977779	2.10956E-08 4.60790F-07
	Methylcyclohexane Toluene		0.00134511	0.00117582	3.19324E-05	0.235453	0.0156385	0.301468	0	0	0.818098	2.82238E-05	0.0109618	0.00204969	4.00790E-07 6.14998E-06
	Octane		0.0188168	0.0128712	5.24850E-07	6.14500	0.160174	7.94236	0	0	11.4444	6.86949E-09	0.00152709	0.140805	3.90299E-09
	Ethylbenzene		0.00108036	0.000693282	1.61764E-05	0.387579	0.00883101	0.501325	0	0	0.657079	1.41241E-05	0.00606470	0.00211940	1.91363E-06
	m-Xylene		0.00144213	0.000859050	2.03747E-05	0.569728	0.0108778	0.737563	0	0	0.877105	1.78671E-05	0.00741058	0.00336243	2.61042E-06
	o-Xylene		0.00165590	0.000935913	2.99714E-05	0.693424	0.0118464	0.898117	0	0	1.00712	2.71548E-05	0.00833092	0.00316647	3.06825E-06
	Nonane		0.0103251	0.00406259	2.47162E-07	5.73438	0.0489707	7.44183	0	0	6.27975	5.10475E-09	0.000713629	0.0390630	8.58737E-10
	C10+		0.0219131	0.00112596	7.72335E-08	18.0732	0.0119147	23.4973	0 Ibmol/h	0 Ibmol/h	13.3276	1.99451E-09	0.000221818 Ibmol/h	0.00779214	2.11970E-11
	Molar Flow Water		237.665	4.44238	233.221	0.00139785	0.00131762	8.02282E-05	niiomdi	237.665	niiomai	233.219	0.00239772	1.04621E-07	0.00179786
	H2S		0	0	0	0	0	0	0	0	0	0	0	0	0
	Nitrogen		11.8133	11.8128	0.000204867	0.000357614	0.000355760	1.85396E-06	11.8122	0	0.00112441	6.83735E-06	0.000198029	2.94430E-06	8.46731E-08
	Carbon Dioxide		3.50449	3.50106	0.00237390	0.00105164	0.000994621	5.70175E-05	3.50354	0	0.000951423	0.00139655	0.000977354	0.000194066	2.81518E-05
	Methane		1855.82 339 440	1855.58 339.242	0.0630944 0.0124766	0.167944 0.185502	0.165276 0.167827	0.00266758	1855.48 339.098	0	0.333128 0.342339	0.00417932 0.000952582	0.0589151 0.0115240	0.00697917 0.0401558	6.99911E-05 1.26326E-05
-	Ethane Propane		339.440 107.651	107.442	0.00420340	0.204983	0.167827	0.0574953	107.322	0	0.328457	0.000952582	0.00385166	0.0291887	1.26326E-05 1.02901E-06
	Isobutane		13.6203	13.5566	0.000171268	0.0635018	0.0316974	0.0318044	13.5317	0	0.0885256	5.27388E-06	0.000165994	0.00582774	5.55254E-09
	n-Butane		28.5295	28.3388	0.000772113	0.189983	0.0774543	0.112529	28.2719	0	0.257619	5.04885E-05	0.000721625	0.0140997	3.63274E-08
	Isopentane		9.09806	8.95382	0.000158211	0.144075	0.0307273	0.113347	8.95348	0	0.144573	7.23869E-06	0.000150973	0.00519748	1.90458E-09
	n-Pentane		7.15292	7.00328	0.000120661	0.149526	0.0252254	0.124301	6.95931	0	0.193615	5.46848E-06	0.000115192	0.00419891	1.05982E-09
-	2-Methylpentane		0.115122 0.0824711	0.109646 0.0781278	8.49648E-07 1.66451E-06	0.00547503 0.00434166	0.000426333 0.000305663	0.00504870 0.00403599	0	0	0.115122 0.0824711	1.87802E-08 9.61784E-08	8.30868E-07 1.56833E-06	6.83983E-05 4.88620E-05	1.45939E-12 6.67880E-12
-	3-Methylpentane n-Hexane		13 3040	12 4506	7.56674E-05	0.853337	0.0488737	0.804463	13.0183	0	0.285730	1.33597E-06	7.43315E-05	0.000530835	5.05636E-12
	Methylcyclopentane		0.0445872	0.0415663	2.83857E-06	0.00301799	0.000165413	0.00285258	0	0	0.0445872	4.41349E-07	2.39722E-06	2.47388E-05	2.19538E-11
	Benzene		0.0134064	0.0124707	4.29963E-05	0.000892756	4.94278E-05	0.000843329	0	0	0.0134064	3.87730E-05	4.22336E-06	4.50766E-07	1.18869E-10
	2-Methylhexane		0.126885	0.109442	7.10726E-07	0.0174430	0.000422522	0.0170205	0	0	0.126885	1.33313E-08	6.97394E-07	4.46600E-06	2.00621E-14
_	3-Methylhexane		0.104916 0.225574	0.0898875 0.186790	6.10053E-07 1.29825E-06	0.0150279 0.0387821	0.000347262 0.000710960	0.0146806 0.0380711	0	0	0.104916 0.225574	1.19505E-08 2.55709E-08	5.98103E-07 1.27268E-06	5.52345E-05 0.000104587	2.57875E-13 4.02884E-13
-	Heptane Methylcyclohexane		0.147125	0.121929	5.04772E-06	0.0251902	0.000710980	0.0247146	0	0	0.147125	2.55/09E-06 5.48145E-07	4 49957E-06	6.91821E-05	4.02004E-13 8.80015E-12
F	Toluene		0.0353756	0.0281443	7.45001E-05	0.00715682	0.000109786	0.00704704	0	0	0.0353756	6.58253E-05	8.67473E-06	2.19242E-06	1.17452E-10
	Octane		0.494870	0.308085	1.22450E-06	0.186783	0.00112446	0.185659	0	0	0.494870	1.60215E-08	1.20848E-06	0.000150610	7.45391E-14
	Ethylbenzene		0.0284130	0.0165944	3.77404E-05	0.0117808	6.19957E-05	0.0117188	0	0	0.0284130	3.29411E-05	4.79936E-06	2.26698E-06	3.65463E-11
	m-Xylene		0.0379272 0.0435492	0.0205622 0.0224020	4.75352E-05 6.99248E-05	0.0173175 0.0210773	7.63644E-05 8.31647E-05	0.0172411 0.0209942	0	U	0.0379272 0.0435492	4.16708E-05 6.33320E-05	5.86443E-06 6.59275E-06	3.59658E-06 3.38697E-06	4.98538E-11 5.85973E-11
-	o-Xylene Nonane		0.0435492 0.271545	0.0224020	6.99248E-05 5.76643E-07	0.0210773	0.000343786	0.0209942	0	0	0.0435492 0.271545	6.33320E-05 1.19056E-08	6.59275E-06 5.64737E-07	3.38697E-06 4.17832E-05	1.64001E-14
	C10+		0.576303	0.0269510	1.80190E-07	0.549352	8.36443E-05	0.549268	0	0	0.576303	4.65173E-09	1.75538E-07	8.33475E-06	4.04819E-16
	Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%
	Water		7.85000	0.159860	99.9574	0.00911423	0.0808291	0.000585314	0	100	0	99.9952	2.64231	4.13544E-05	92.0637
	H2S		U	U	U	U	υ	0 2.10324E-05	0 0.663391	U	0 0.00826557	0 4.55856E-06	0 0.339344	0 0.00180972	0 0.00674222
-	Milessen		0 606729	0 660007	0.000126524										10.000/4222
	Nitrogen Carbon Dioxide		0.606738 0.282771	0.660997 0.307772	0.000136534 0.00248551	0.00362577 0.0167507	0.0339359 0.149053		0.309119	0			2.63114		3.52163
	Nitrogen Carbon Dioxide Methane			0.660997 0.307772 59.4612	0.000136534 0.00248551 0.0240806		0.0339359 0.149053 9.02855	0.00101619 0.0173305		0	0.0109876 1.40238	0.00146277 0.00159570		0.187396 2.45662	3.52163 3.19157
F	Carbon Dioxide		0.282771 54.5844 18.7131	0.307772 59.4612 20.3757	0.00248551 0.0240806 0.00892527	0.0167507 0.975111 2.01877	0.149053 9.02855 17.1837	0.00101619 0.0173305 0.215226	0.309119 59.6762 20.4417	0 0 0	0.0109876 1.40238 2.70121	0.00146277 0.00159570 0.000681705	2.63114 57.8153 21.1967	0.187396 2.45662 26.4930	3.19157 1.07971
	Carbon Dioxide Methane Ethane Propane		0.282771 54.5844 18.7131 8.70314	0.307772 59.4612 20.3757 9.46347	0.00248551 0.0240806 0.00892527 0.00440962	0.0167507 0.975111 2.01877 3.27138	0.149053 9.02855 17.1837 22.1455	0.00101619 0.0173305 0.215226 1.02671	0.309119 59.6762 20.4417 9.48766	0	0.0109876 1.40238 2.70121 3.80064	0.00146277 0.00159570 0.000681705 0.000369136	2.63114 57.8153 21.1967 10.3894	0.187396 2.45662 26.4930 28.2405	3.19157 1.07971 0.128975
	Carbon Dioxide Methane Ethane Propane Isobutane		0.282771 54.5844 18.7131 8.70314 1.45141	0.307772 59.4612 20.3757 9.46347 1.57389	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823	0.0167507 0.975111 2.01877 3.27138 1.33582	0.149053 9.02855 17.1837 22.1455 6.27338	0.00101619 0.0173305 0.215226 1.02671 0.748601	0.309119 59.6762 20.4417 9.48766 1.57677	0 0 0 0 0	0.0109876 1.40238 2.70121 3.80064 1.35019	0.00146277 0.00159570 0.000681705 0.000369136 7.29536E-06	2.63114 57.8153 21.1967 10.3894 0.590173	0.187396 2.45662 26.4930 28.2405 7.43199	3.19157 1.07971 0.128975 0.000917329
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane		0.282771 54.5844 18.7131 8.70314 1.45141 3.04018	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823 0.00106765	0.0167507 0.975111 2.01877 3.27138 1.33582 3.99647	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435		0.0109876 1.40238 2.70121 3.80064 1.35019 3.92919	0.00146277 0.00159570 0.000681705 0.000369136 7.29536E-06 6.98408E-05	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566	0.187396 2.45662 26.4930 28.2405 7.43199 17.9810	3.19157 1.07971 0.128975 0.000917329 0.00600160
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane		0.282771 54.5844 18.7131 8.70314 1.45141 3.04018 1.20349	0.307772 59.4612 20.3757 9.46347 1.57389	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823	0.0167507 0.975111 2.01877 3.27138 1.33582	0.149053 9.02855 17.1837 22.1455 6.27338	0.00101619 0.0173305 0.215226 1.02671 0.748601	0.309119 59.6762 20.4417 9.48766 1.57677	0 0 0 0 0 0 0 0	0.0109876 1.40238 2.70121 3.80064 1.35019	0.00146277 0.00159570 0.000681705 0.000369136 7.29536E-06	2.63114 57.8153 21.1967 10.3894 0.590173	0.187396 2.45662 26.4930 28.2405 7.43199	3.19157 1.07971 0.128975 0.000917329
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane		0.282771 54.5844 18.7131 8.70314 1.45141 3.04018 1.20349 0.946184 0.0181889	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823 0.00106765 0.000271564 0.000207110 1.74192E-06	0.0167507 0.975111 2.01877 3.27138 1.33582 3.99647 3.76215 3.90450 0.170761	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294 7.54901 6.19732 0.125103	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867 3.31178 3.63182 0.176191	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435 1.29507	0 0 0 0 0 0 0 0 0 0	0.0109876 1.40238 2.70121 3.80064 1.35019 3.92919 2.73715 3.66564 2.60330	0.00146277 0.00159570 0.000681705 0.000369136 7.29536E-06 6.98408E-05 1.24298E-05 9.39009E-06 3.85174E-08	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566 0.666304 0.508390 0.00437986	0.187396 2.45662 26.4930 28.2405 7.43199 17.9810 8.22782 6.64705 0.129328	3.19157 1.07971 0.128975 0.000917329 0.00600160 0.000390589 0.000217346 3.57476E-07
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane		0.282771 54.5844 18.7131 8.70314 1.45141 1.20349 0.946184 0.0181889 0.0130301	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0134484	0.00248551 0.0240806 0.0082527 0.00440962 0.000236823 0.00106765 0.000271564 0.000271564 0.00027110 1.74192E-06 3.41251E-06	0.0167507 0.975111 2.01877 3.27138 1.33582 3.99647 3.76215 3.90450 0.170761 0.135412	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867 3.31178 3.63182 0.176191 0.140849	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435 1.29507 1.00663 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0.0109876 1.40238 2.70121 3.80064 1.35019 3.92919 2.73715 3.66564 2.60330 1.86495	0.00146277 0.00159570 0.000861705 0.000369136 7.29536E-06 6.98408E-05 1.24298E-05 9.39009E-06 3.385174E-08 1.97258E-07	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566 0.666304 0.508390 0.00437986 0.00826732	0.187396 2.45662 26.4930 28.2405 7.43199 17.9810 8.22782 6.64705 0.129328 0.0923884	3.19157 1.07971 0.128975 0.0000117329 0.00600160 0.000390589 0.000217346 3.57476E-07 1.63596E-06
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane		0.282771 54.5844 18.7131 8.70314 1.45141 3.04018 1.20349 0.946184 0.0181889 0.0130301 2.10198	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0134484 2.14316	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823 0.00106765 0.000271564 0.00027110 1.74192E-06 3.41251E-06 0.000155131	0.0167507 0.975111 2.01877 3.27138 1.33582 3.99647 3.76215 3.90450 0.170761 0.135412 26.6147	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939 14.3415	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867 3.31178 3.63182 0.176191 0.140649 28.0744	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435 1.29507		0.0109876 1.40238 2.70121 3.80064 1.35019 3.92919 2.73715 3.66564 2.60330 1.86495 6.46131	0.00146277 0.00159570 0.000681705 0.000369136 7.29536E-06 6.98408E-05 1.24298E-05 9.39009E-06 3.85174E-08 1.97258E-07 2.74003E-06	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566 0.666304 0.508390 0.00437986 0.00826732 0.391833	0.187396 2.45662 26.4930 28.2405 7.43199 17.9810 8.22782 6.64705 0.129328 0.0923884 1.00370	3.19157 1.07971 0.128975 0.000917329 0.0060160 0.000390589 0.000217346 3.57476E-07 1.63596E-06 1.23855E-06
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane n-Pentane 2-Methylpentane n-Hexane Methylycopentane		0.282771 54.5844 18.7131 1.45141 1.45141 1.20349 0.046184 0.0181889 0.0130301 2.10198 0.00687980	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0138484 2.14316 0.00698758	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823 0.00106765 0.000271564 0.00027110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06	0.0167507 0.975111 2.01877 3.27138 1.33582 3.99647 3.76215 3.90450 0.170761 0.135412 26.6147 0.0919263	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939 14.3415 0.0474034	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867 3.31178 3.63182 0.176191 0.140849 28.0744 0.0972213	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435 1.29507 1.00663 0 0		0.0109876 1.40238 2.70121 3.80064 1.35019 3.92919 2.73715 3.66564 2.60330 1.86495 6.46131 0.984680	0.00146277 0.00159570 0.000681705 0.000369136 7.29536E-06 6.98408E-05 1.24298E-05 9.39009E-06 3.85174E-08 1.97258E-07 2.74003E-06 8.84015E-07	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566 0.666304 0.508390 0.00437986 0.00826732 0.391833 0.0123412	0.187396 2.45662 26.4930 28.2405 7.43199 17.9810 8.22782 6.64705 0.129328 0.0923884 1.00370 0.0456820	3.19157 1.07971 0.128975 0.000917329 0.00600160 0.000390589 0.000217346 3.57476E-07 1.63596E-06 1.23855E-06 5.25175E-06
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane n-Butane 2.Methylpentane 3.Methylpentane n-Hexane Methylpcyclopentane Berzene		0.282771 54.5844 18.7131 1.45141 3.04018 1.20349 0.0496184 0.0181889 0.0130301 2.10198 0.00687980 0.00087980	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0134484 2.14316 0.00698758 0.00194576	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823 0.00106765 0.0002711664 0.000207116 1.741928-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05	0.0167507 0.975111 2.01877 3.27138 1.33582 3.99647 3.376215 3.90450 0.170761 0.135412 26.6147 0.0919263 0.0252388	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939 14.3415 0.0474034 0.0131469	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867 3.31178 3.63182 0.776191 0.140849 28.0744 0.0972213 0.0266769	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435 1.29507 1.00663 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0109876 1.40238 2.70121 3.30064 1.35019 3.32219 2.73715 3.366564 2.60330 1.86495 6.46131 0.984680 0.9274797	0.00146277 0.00159570 0.000681705 0.000681705 0.000369136 7.29536E-06 6.98408E-05 1.24298E-05 9.39009E-06 3.86174E-08 1.97258E-07 2.74003E-06 8.84015E-07 7.20809E-05	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566 0.666304 0.068390 0.00437986 0.00826732 0.391833 0.0123412 0.0123412	0.187396 2.45662 26.4930 28.2405 7.43199 17.9810 8.22782 6.64705 0.129328 0.0923884 1.00370 0.0456820 0.000772558	3.19157 1.07971 0.128975 0.000917329 0.00600160 0.000390589 0.000217346 3.57476E-07 1.63596E-06 1.23855E-06 5.25175E-06 2.63923E-05
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane sopentane n-Pentane 2-Methylpentane 3-Methylpentane Benzene Benzene 2-Methylhexane		0.282771 54.5844 18.7131 1.45141 1.45141 1.20349 0.046184 0.0181889 0.0130301 2.10198 0.00687980	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0138484 2.14316 0.00698758	0.00248551 0.0240806 0.00892527 0.00440962 0.000236823 0.00106765 0.000271564 0.00027110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06	0.0167507 0.975111 2.01877 3.27138 1.33582 3.99647 3.76215 3.90450 0.170761 0.135412 26.6147 0.0919263	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939 14.3415 0.0474034	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867 3.31178 3.63182 0.176191 0.140849 28.0744 0.0972213	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435 1.29507 1.00663 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0109876 1.40238 2.70121 3.80064 1.35019 3.92919 2.73715 3.66564 2.60330 1.86495 6.46131 0.984680	0.00146277 0.00159570 0.000681705 0.000369136 7.29536E-06 6.98408E-05 1.24298E-05 9.39009E-06 3.85174E-08 1.97258E-07 2.74003E-06 8.84015E-07	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566 0.666304 0.508390 0.00437986 0.00826732 0.391833 0.0123412	0.187396 2.45662 26.4930 28.2405 7.43199 17.9810 8.22782 6.64705 0.129328 0.0923884 1.00370 0.0456820	3.19157 1.07971 0.128975 0.000917329 0.00600160 0.000390589 0.000217346 3.57476E-07 1.63596E-06 1.23855E-06 5.25175E-06
	Carbon Dioxide Methane Ethane Propane Isobutane n-Butane n-Butane 2.Methylpentane 3.Methylpentane n-Hexane Methylpcyclopentane Berzene		0.282771 54.5844 18.7131 8.70314 1.45141 3.04018 1.20349 0.946184 0.0181889 0.0130301 2.10198 0.00087980 0.00197996 0.00233104	0.307772 59.4612 20.3757 9.46347 1.57389 3.29007 1.29039 1.00928 0.0184738 0.0184738 0.0134444 2.14316 0.00698758 0.00194576 0.00194576	0.00248551 0.0240806 0.00892527 0.00440962 0.00226823 0.00106765 0.00027164 0.000271164 0.00027110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.68427E-06	0.0167507 0.975111 2.01877 3.327138 1.33582 3.99647 3.376215 3.90450 0.170761 0.135412 26.6147 0.0312963 0.0252388 0.632561	0.149053 9.02855 17.1837 22.1455 6.27338 15.3294 7.54901 6.19732 0.125103 0.08966339 14.3415 0.0474034 0.0131469 0.144166	0.00101619 0.0173305 0.215226 1.02671 0.748601 2.64867 3.31178 3.63182 0.176191 0.140849 28.0744 0.0972213 0.0266769 0.0590667	0.309119 59.6762 20.4417 9.48766 1.57677 3.29435 1.29507 1.00663 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0109876 1.40238 2.70121 3.30064 1.35019 3.92319 2.73715 3.66564 2.60330 1.86495 6.46131 0.984660 0.274797 3.33634	0.00146277 0.00156570 0.000881705 0.000369136 7.293368-06 6.98408E-05 1.24298E-05 9.39009E-06 3.38174E-08 1.97258E-07 2.74003E-06 8.84015E-07 7.20809E-05 3.17922E-08	2.63114 57.8153 21.1967 10.3894 0.590173 2.56566 0.506330 0.00437966 0.00826732 0.391833 0.0123412 0.0021799 0.00427464	0.187396 2.45662 26.4930 26.2405 7.43199 17.9810 8.22782 6.64705 0.129328 0.0923884 1.00370 0.0456820 0.00972558 0.00981879	3.19157 1.07971 0.128975 0.000917329 0.00600160 0.000390589 0.000217346 3.57476E-07 1.63596E-06 1.23855E-06 5.25175E-06 2.63923E-05 5.71405E-09

	.000144347 0.048			07604E-05
				42019E-08
				10285E-05
m-Xylene 0.00738236 0.00436047 0.000120061 0.665402 0.0276063 0.741254 0 0 1.05661 0.0	.000105290 0.038	80849 0.0	0837787 1.	50443E-05
o-Xylene 0.00847666 0.00475062 0.000176611 0.809870 0.0300647 0.902611 0 0 1.21323 0.1	.000160022 0.042	28147 0.0	0788962 1.	76828E-05
	.63413E-08 0.004	443063 0.1	17581 5.	97879E-09
				86409E-10
Mass Flow Iblh Iblh Iblh Iblh Iblh Iblh Iblh Iblh	lb/h	lb/h	lb/h	lb/h
mass i for				0323890
Water 40.100 000000 40.100 000000 0000000 0000000 6 6 60.000 6 7 6 7 6 7 <th7< th=""> <th7< th=""> <th7< th=""> <th7< td="" th7<="" th<=""><td>0.040</td><td>01000</td><td>0.04112-00</td><td>0020000</td></th7<></th7<></th7<></th7<>	0.040	01000	0.04112-00	0020000
	.000191537 0.005	1554747 8.2	24798E-05 2.	37198E-06
				00123895
				00123895 00112283
				000379851
				53747E-05
				22726E-07
				11143E-06
				37413E-07
				64646E-08
				25764E-10
				75548E-10
n-Hexane 1146.48 1072.93 0.00652067 73.5366 4.21171 69.3249 1121.85 0 24.6229 0.0				35734E-10
				84762E-09
Benzene 1.04720 0.974107 0.00335852 0.0697348 0.00386090 0.0658739 0 0 0 1.04720 0.0	.00302863 0.000	0329895 3.5	52102E-05 9.	28508E-09
				01026E-12
	.19746E-06 5.993	311E-05 0.0	00553461 2.	58396E-11
				03697E-11
			0679272 8.	64052E-10
				08218E-08
				51449E-12
				87994E-09
				29273E-09
				22098E-09
				10340E-12
				55806E-12
<u>C10+</u> 3.3011 4.3000 2.91907E-05 06.990 0.13300 0.9014 0 0 9.3011 1.	.53500E=07 2.043	IS72E-05 0.0	0135025 6.	33000E-14
Process Streams Well Stream HP Separator Gas HP Separator Water HP Separator Oil OT Flash Gas Sales Oil Gas Water Oil	Produced Water PV	WT Flash Gas	Oil W/B	Water W/B
Phase Total Status Solved Solv	Solved	Solved	Solved	Solved
Property Units Canad Coned Con	Goived	001/60	001460	CONED
	5.94 75.94	4 75	9425 75	5.9425
Temperature psig 200 200 200 0 0 0 300 200 0 0	0.01			4.2249
1000 100 100 100 100 0 100 0 0 0 0 0 0	100			10
	00 0	100	0 10	10
	0	0	0	
	8.0156 20.65	677 42	.6090 18	3.4214
	2.2170 0.053			00151027
	33.220 0.075			
Mass Flow lb/h 54542.7 50063.1 4203.3 276.3 29.4 246.9 49880.0 4281.6 381.1 42	004 74			00190980
	201.71 1.634	476 4.5	55761 0.	00190980 0351810
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1	.0675330 0.030	476 4.5 08404 0.0	55761 0. 0223741 0.	00190980 0351810 0232945
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow MbbV/d 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.2	.0675330 0.030 .288675 0.131	1476 4.5 108404 0.0 11830 0.0	55761 0./ 0223741 0./ 0956399 0./	00190980 0351810 0232945 0995742
Vagor Volumetric Flow MCFH 74 9 59 9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow MbOld 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.2 Sid Vapor Volumetric Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 21.7 2.2 0.0 2.2	.0675330 0.030 .288675 0.131 .12414 0.000	1476 4.5 108404 0.0 11830 0.0 10720741 0.0	55761 0. 0223741 0. 0956399 0. 000974183 1.	00190980 0351810 0232945 0995742 73937E-05
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow Mbb/d 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 0.3 Sid Vapor Volumetric Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sid Liquid Volumetric Flow Mbb/d 10.3 10.0 0.3 0.0 0.0 10.0 0.3 0.0 20.3 20.0 2.3	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.000	1476 4.5 108404 0.0 11830 0.0 10720741 0.0 10321898 0.0	55761 0. 0223741 0. 0956399 0. 000974183 1. 000654534 2.	00190980 0351810 0232945 0995742 73937E-05 66021E-06
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liguid Volumetric Flow Mbb/dd 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.0 0.0 21.7 2.2 0.0 2.3 0.0	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.000 .000740328 0.996	1476 4.5 108404 0.0 11830 0.0 10720741 0.0 10321898 0.0 16395 0.9	35761 0. 1223741 0. 1956399 0. 100974183 1. 1000654534 2. 1071622 0.	00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow Mbb/d 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.2 Sid Vapor Volumetric Flow Mbb/d 10.3 10.0 0.3 0.0 1.2 0.0 21.7 2.2 0.0 2.2 Sid Liquid Volumetric Flow Mbb/d 10.3 10.0 0.3 0.0 0.0 10.0 0.3 0.0 0.0 0.0 0.3 0.0	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.000 .000740328 0.996 .997563 0.713	1476 4.5 108404 0.0 11830 0.0 10720741 0.0 10321898 0.0 16395 0.9	35761 0. 3223741 0. 1956399 0. 300974183 1. 300654534 2. 3071622 0.	00190980 0351810 0232945 0995742 73937E-05 66021E-06
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow Mbb/d 30.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 23 Sid Vapor Volumetric Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sid Liquid Volumetric Flow Mbb/d 10.3 10.0 0.3 0.0 0.0 10.0 0.3 0.0 2.5 Specific Gravity 0.908 0.944 0.011 0.800 9.865 0.066 0.964 0.008 0.169 0.1 Specific Gravity 0.722 0.998 0.685 1.444 0.704 0.721 0.920 0.91	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.000 .000740328 0.996 .997563 0.713 0.0154	1476 4.5 108404 0.0 11830 0.0 10720741 0.0 10321898 0.0 16395 0.9 13253 1.4	55761 0. 1223741 0. 1956399 0. 100974183 1. 1000654534 2. 1071622 0. 147117 0.	00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040
Vapor Volumetic Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MbD/d 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 25 Sid Vapor Volumetic Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sid Upor Volumetic Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sid Upor Volumetic Flow MMSCFD 24.0 0.3 0.0 0.0 0.0 10.0 0.3 0.0	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.000 .000740328 0.996 .997563 0.713 0.0154 28.6658 -0.00	1476 4.5 108404 0.0 11830 0.0 10720741 0.0 10321898 0.0 16395 0.9 3253 1.4 0296714 -0.0	55761 0. 1223741 0. 1956399 0. 000974183 1. 1000654534 2. 371622 0. 17117 0. 00482261 -0	00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040 .000194448
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow Mbbl/d 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 23 Sid Vapor Volumetric Flow Mbbl/d 10.3 10.0 0.3 0.0 1.2 0.0 21.7 2.2 0.0 2.3 Sid Vapor Volumetric Flow Mbbl/d 10.3 10.0 0.3 0.0 0.0 0.0 10.0 0.3 0.0	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.000 .00740328 0.996 .997563 0.713 0.0154 88.6658 .86.658 -0.00 .82.641 -1815	1476 4.5 108404 0.0 11830 0.0 10720741 0.0 00321898 0.0 16395 0.9 3253 1.4 0296714 -0.0 15.03 -10	55761 0. 1223741 0. 0956399 0. 000974183 1. 000654534 2. 171622 0. 17117 0. 00482261 -0 058.14 -5	00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040 .000194448 527.08
Vagor Volumetic Flow MCFH 74.9 99.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Ligud Volumetic Flow MbOld 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.0 2.1 Sid Vagor Volumetic Flow MbOld 10.3 10.0 0.3 0.0 1.2 0.0 21.7 2.2 0.0 2.2 Sid Uguid Volumetic Flow MbOld 10.3 10.0 0.3 0.0 0.0 0.0 10.0 0.3 0.0 0.0 0.0 10.0 0.3 0.0 <t< td=""><td>.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.096 .000740328 0.996 .997563 0.713 .0.0154 28.6658 .0.22241 -1816 .982241 -1815 .982243 0.475</td><td>1476 4.5 108404 0.0 11830 0.0 100720741 0.0 00321898 0.0 16395 0.9 13253 1.4 00296714 -0.0 15.03 -10 75802 0.4</td><td>55761 0. J223741 0. J9956399 0. J000974183 1. J000654534 2. J71622 0. I/117 0. 00482261 -0. J58.14 -5. H1587 0.</td><td>00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040 .000194448 527.08 442454</td></t<>	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.096 .000740328 0.996 .997563 0.713 .0.0154 28.6658 .0.22241 -1816 .982241 -1815 .982243 0.475	1476 4.5 108404 0.0 11830 0.0 100720741 0.0 00321898 0.0 16395 0.9 13253 1.4 00296714 -0.0 15.03 -10 75802 0.4	55761 0. J223741 0. J9956399 0. J000974183 1. J000654534 2. J71622 0. I/117 0. 00482261 -0. J58.14 -5. H1587 0.	00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040 .000194448 527.08 442454
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow MbD/d 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 23.3 0.3 0.1 0.2 Sid Vapor Volumetric Flow MbD/d 10.3 10.0 0.3 0.0 0.0 0.0 21.7 2.2 0.0 2.3 Sid Uppor Volumetric Flow MbD/d 10.3 10.0 0.3 0.0 0.0 0.0 10.0 0.3 0.0	.0675330 0.030 .288675 0.131 .12414 0.000 .288000 0.000 .00740328 9.99 .997563 0.713 .0154 . .86658 -0.00 .822.41 -1815 .982734 0.475 .32555 1.254	1476 4.5 108404 0.0 11830 0.0 00720741 0.0 10321898 0.0 66395 0.9 3253 1.4 0296714 -0.0 15.03 -10 5802 0.4 433 1.1	55761 0. 1223741 0. 0956399 0. 000974183 1. 1000654534 2. 171622 0. 00482261 -0. 058.14 -5. 111587 0.	00190980 0351810 0232945 0395742 73937E-05 66021E-06 999551 636040 .000194448 527.08 442454 32229
Vapor Volumetric Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.1 Liquid Volumetric Flow Mbbl/d 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 21.3 0.3 0.1 0.0 25.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 21.3 0.3 0.0 2.3 0.3 0.0 2.3 0.3 0.1 0.3 0.0 2.3 0.3 0.1 0.3 0.0 2.3 0.3 0.0 2.3 0.3 0.0 0.3 0.0 2.3 0.3 0.0 0.0 2.1 0.3 0.0 0.0 0.0 0.0 0.3 0.0	0.675330 0.33 288675 0.131 12414 0.000 288000 0.000 00740328 0.996 997563 0.713 0.0154 28 8822.41 -1615 982734 0.475 924235 1.254 924435 0.010	1476 4.5 008404 0.0 11830 0.0 00720741 0.0 00321898 0.0 06395 0.9 3253 1.4 0296714 -0.0 15502 0.4 433 1.1 07244 0.0	55761 0. 1223741 0. 1956399 0. 000974183 1. 1000654534 2. 171622 0. 00482261 -0 058.14 -5 111587 0. 12864 1. 10856685 0.	00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040 .000194448 527.08 442454 32229 0102639
Vapor Volumetic Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MbOld 320.3 256.3 0.3 0.0 1.2 0.0 221.3 0.3 0.1 0.0 2 Sid Vapor Volumetic Flow MMSCPD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sid Vapor Volumetic Flow MMSCPD 24.0 21.8 2.1 0.0 0.0 0.0 10.0 0.3 0.0 <t< td=""><td>0.675330 0.030 288675 0.131 12414 0.000 288000 0.000 0.03028 0.999 997563 0.713 0.0154 0.003 82658 -0.00 822241 -1815 924255 1.254 924435 0.477 32555 1.254 927569 12.63</td><td>1476 4.5 08404 0.0 11830 0.0 0720741 0.0 0720748 0.0 0321898 0.0 93253 1.4 0296714 -0.1 55.03 -10 75802 0.4 433 1.1 07244 0.0 305 2.6</td><td>55761 0. 223741 0. 966399 0. 900974183 1. 1000654534 2. 771622 0. 00482261 -0 00482261 -0 10285.14 -5 111587 0. 02964 1. 00850685 0. 07079 42</td><td>00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040 .000194448 527.08 442454 32229 0102639 14,266</td></t<>	0.675330 0.030 288675 0.131 12414 0.000 288000 0.000 0.03028 0.999 997563 0.713 0.0154 0.003 82658 -0.00 822241 -1815 924255 1.254 924435 0.477 32555 1.254 927569 12.63	1476 4.5 08404 0.0 11830 0.0 0720741 0.0 0720748 0.0 0321898 0.0 93253 1.4 0296714 -0.1 55.03 -10 75802 0.4 433 1.1 07244 0.0 305 2.6	55761 0. 223741 0. 966399 0. 900974183 1. 1000654534 2. 771622 0. 00482261 -0 00482261 -0 10285.14 -5 111587 0. 02964 1. 00850685 0. 07079 42	00190980 0351810 0232945 0995742 73937E-05 66021E-06 999551 636040 .000194448 527.08 442454 32229 0102639 14,266
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Vagar Volumetic Flow Liquid Volumetic Flow MMSCFD MCFH 24.0 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 1.2 0.0 21.3 0.3 0.0 2.5 Sid Ugar Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 10.0 0.3 0.0 <	0675330 0.03 288675 0.13 12414 0.00 288075 0.13 12414 0.00 288075 0.13 0.000 0.00 0.997663 0.713 0.0154 - 28658 -0.00 82241 -181 92736 0.47 32555 1.254 924435 0.016 927436 0.46 0.0499711 - 0.0349784 0.019 0.0349784 0.049971 0.03436 1190 7 2179 Produced Water PV	4776 4.5 108404 0.0 10830 0.0 07020741 0.0 03021898 0.0 80395 0.9 3253 1.4 0296714 -0.0 15.03 -10 5802 0.4 433 1.1 0.72244 0.0 3035 2.6 71551 0.0 8.40 223 23.9 19 9.0 214 WT Flash Gas WT Flash Gas	55761 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 00064534 2. 17162 0. 00482261 0. 00482261 0. 058.14 -5. 111587 0. 00482264 1. 109065085 0. 050709 42 1090650 0. 34.96 45 491.0 10 Oil W/B 0.	00190980 0351810 0232945 9096742 73972-05 66021E-06 999651 838040 0.00194448 827.08 442454 92209 0102639 9102250 9102250 33573 5.7522 5.5166 128.7
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Vagar Volumetic Flow Liquid Volumetic Flow MMSCFD MCFH 24.0 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 1.2 0.0 21.3 0.3 0.0 2.5 Sid Ugar Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 10.0 0.3 0.0 <	0675330 0.03 288675 0.13 12414 0.00 288075 0.13 12414 0.00 288075 0.13 0.000 0.00 0.997663 0.9154 286234 -0.00 82241 -181 927435 0.47 32555 1.254 924435 0.00 927436 0.16 927436 0.16 9039766 1.63 0.0499711 0.03 0.0349784 0.01 0.049971 0.03 0.059.04 1972 0.3436 1190 7.7 2179 Produced Water PV	4776 4.5 108404 0.0 10830 0.0 07020741 0.0 03021898 0.0 80395 0.9 3253 1.4 0296714 -0.0 15.03 -10 5802 0.4 433 1.1 0.72244 0.0 3035 2.6 71551 0.0 8.40 223 23.9 19 9.0 214 WT Flash Gas WT Flash Gas	55761 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 00064534 2. 17162 0. 00482261 0. 00482261 0. 058.14 -5. 111587 0. 00482264 1. 109065085 0. 050709 42 1090650 0. 34.96 45 491.0 10 Oil W/B 0.	00190980 0331810 0232945 9096742 73972-05 66021E-06 999551 000194448 638040 0.00194448 627.08 442454 92229 0102639 9102250 9102250 33573 5.7522 5.5166 28.7
Vapor Volumetric Flow Mobild MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetric Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 221.3 0.3 0.1 0.0 23.0 0.0 22.0 0.0 2.1 0.0 2.0 0.0 2.0 0.0 2.0 0.0 2.0 0.0 2.0 0.0 2.0 0.0 2.0 0.0 2.0 0.0	0675330 0.03 288675 0.131 12414 0.000 288075 0.131 0.000740328 0.905 997563 0.713 0.0154 28 826658 -0.00 822241 -1815 924435 0.015 297569 1.263 327569 1.263 3297744 0.017 0.0499711 0.0499711 0.324073 1078 0.059.04 1972 7 2179 Produced Water P Solved %	H76 4.5 108404 0.0 11830 0.0 0722741 0.0 08395 0.9 3253 1.4 0296714 0.0 15.03 -10 5602 0.4 433 1.1 07244 0.0 305 2.6 71551 0.0 8.40 222 23.9 197 90.7 212 WT Flash Gas 14 % 14	55761 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 171622 0. 17177 0. 00482251 -0 158.14 -5 158.14 -5 1090565 0. 00799 42 1199055 0. 34.96 45 751.4 -4 491.0 10 OH W/B Solved %	00190980 0031810 0232445 0985742 37337E-05 66021E-06 9993551 66021E-06 9993551 66021E-06 9993551 66021E-06 9993551 66021E-06 9993551 66021E-06 9993551 0102539 442654 442654 442654 01022250 0102639 442656 01022250 0102639 442656 01022250 0102639 442656 01022250 0102639 442656 01022250 0102639 442656 01022250 0102639 442656 01022550 0102639 442656 0102639 442656 0102639 442656 0102639 442656 0102639 10000000000000000000000000000
Vapor Volumetric Flow Ucquid Volumetric Flow Sit Vapor Volumetric Flow MMSCFD MCF.H 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Sit Vapor Volumetric Flow Sit Vapor Volumetric Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sit Uagor Volumetric Flow Compressionity Specific Gravity MMSUFD 10.3 10.0 0.3 0.0 0.0 0.0 10.0 0.3 0.0	06753300 0.03 288675 0.131 12414 0.002 288075 0.131 0.000740328 0.992 997563 0.713 0.0154 8 88658 -0.00 882241 -1815 924355 1.254 924435 0.01 927569 1.263 349784 0.01 0.0499711 0.0499714 0.03436 1190 7.7 2179 Produced Water PW Solved 2174	H76 4.5 108404 0.0 11830 0.0 0722741 0.0 08395 0.9 3253 1.4 0296714 0.0 15.03 -10 5602 0.4 433 1.1 07244 0.0 305 2.6 71551 0.0 8.40 222 23.9 197 90.7 212 WT Flash Gas 14 % 14	55761 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 171622 0. 17177 0. 00482251 -0 158.14 -5 158.14 -5 1090565 0. 00799 42 1199055 0. 34.96 45 751.4 -4 491.0 10 OH W/B Solved %	00190980 00351810 0025445 9096742 73937E-05 66021E-06 999551 56040 000194448 527.08 527.08 52040 00194448 32299 0102639 442544 44254 32299 0102639 44254 3229 0102639 44254 3259 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 528.7 5166 516 516 516 516 516 516 516 516 51
Vapor Volumetic Flow Liquid Volumetic Flow MMSCFD MCFH 240 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.3 0.3 0.0 2.5 Sit Liquid Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 10.0 0.3 0.0 0.0 0.0 10.0 0.0	0675330 0.03 288675 0.131 12414 0.000 288075 0.131 0.000740328 0.905 997563 0.713 0.0154 28 826658 -0.00 822241 -1815 924435 0.015 297569 1.263 327569 1.263 3297744 0.017 0.0499711 0.0499711 0.324073 1078 0.059.04 1972 7 2179 Produced Water P Solved %	H76 4.5 108404 0.0 11830 0.0 0722741 0.0 08395 0.9 3253 1.4 0296714 0.0 15.03 -10 5602 0.4 433 1.1 07244 0.0 305 2.6 71551 0.0 8.40 222 23.9 197 90.7 212 WT Flash Gas 14 % 14	55761 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 171622 0. 17177 0. 00482251 -0 158.14 -5 158.14 -5 1090565 0. 00799 42 1199055 0. 34.96 45 751.4 -4 491.0 10 OH W/B Solved %	00190900 00351810 0232445 0995742 73372-05 660212-06 999551 660212-06 999551 660212-06 999551 660212-06 999551 660212-06 999551 600194448 627.08 442454 42259 0102639 442654 0122250 0122550 3.3573 5.752 2.5166 128.7 Water W/B Solved %
Vapor Volumetic Flow Liquid Volumetic Flow MMSCFD MCFH 240 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.3 0.3 0.0 2.5 Sit Liquid Volumetic Flow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 10.0 0.3 0.0 0.0 0.0 10.0 0.0	0675330 0.03 288675 0.131 12414 0.000 288075 0.131 0.000740328 0.905 997563 0.713 0.0154 28 826658 -0.00 822241 -1815 924435 0.015 297569 1.263 327569 1.263 3297744 0.017 0.0499711 0.0499711 0.324073 1078 0.059.04 1972 7 2179 Produced Water P Solved %	4776 4.5 108404 0.0 10830 0.0 07020741 0.0 03021898 0.0 80395 0.9 3253 1.4 0296714 -0.0 1503 -10 5802 0.4 4333 1.1 007244 0.0 3035 2.6 71551 0.0 223 197 98.7 242 990.0 214 WT Flash Gas % 987 987 9.7	55761 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 00064534 2. 171622 0. 00482261 0. 00482261 0. 058.14 -5. 111587 0. 02964 1. 10685085 0. 07079 42 109065 0. 30.29 97 491.0 10 Oit W/B Solved % 1 % 0	00190900 00351810 0232445 0995742 73372-05 660212-06 999551 660212-06 999551 660212-06 999551 660212-06 999551 660212-06 999551 600194448 627.08 442454 42259 0102639 442654 0122250 0122550 3.3573 5.752 2.5166 128.7 Water W/B Solved %
Value Volumetic Flow MCFH 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.3 0.3 0.1 0.0 Std Liquid Volumetic Flow MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 10.0 0.3 0.0 0.0 0.0 10.0 0.3 0.0<	0675330 0.03 288675 0.131 12414 0.000 288075 0.131 288076 0.902 0.000740328 0.992 997563 0.713 0.0154 - 28.6658 -0.00 8.822.41 -1614 9.927569 12.63 9.94435 0.019 9.94435 0.019 0.0399711 0.0399711 0.0394073 1078 0.039504 1190 7 2197 Produced Water PV Solved - % 0.22987 0.250239 0.250	4476 4.5 1476 4.5 168404 0.0 07020741 0.0 03021898 0.9 3253 1.4 0296714 -0.0 0296720 -10 7502 -4 0305 -10 75802 0.4 433 1.1 007244 0.0 0305 2.6 71551 0.0 8.40 22 23.9 19 90.0 217 23.9 19 90.0 214 90.0 214 90.0 214 9987 9.7 0 0 0239 0.0	55761 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 17162 0. 00482261 0. 0048261 0. 0148261 0. 02964 1. 158.14 -55 111587 0. 02964 1. 109065085 0. 070709 42 1090650 0. 32.99 97 491.0 10 0 NWB Solved % % 0 002275262 0.	00190980 0331810 0232445 9095742 73372-05 66021E-06 999551 638040 .000194448 527.08 527.08 52950 01026339 939551 638040 .000194448 3229 944264 142646 1022250 01026339 24266 01022550 3.3573 5.7566 5.7522 5.7566 5.7522 5.7566 94 80 80 94 80 94 1.1399
Value Volumetic Flow Mbbild NCFH 223 74.9 256.3 9.9 256.3 0.1 0.0 0.3 0.0 21.2 0.0 21.3 0.3 0.1 0.0 Liquid Volumetic Flow Mbbild MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.3 0.3 0.0 0.2 SM Liquid Volumetic Flow Mbbild MMSCFD 24.0 21.8 2.1 0.0	06753300 0.03 288675 0.131 12414 0.000 288075 0.131 0.000740228 0.992 997563 0.713 0.0154 28 982734 0.415 9244355 0.26 927569 1.263 349784 0.011 0.0320173 1078 0059.71 0.2326 0.3436 1190 7.7 2179 Produced Water PV 50ved 0 02987 0.250239 0.250239 0.252 23503 1.235	4776 4.5 008404 0.0 1830 0.0 0722741 0.0 03021898 0.0 0321898 0.0 0321893 1.4 0296714 -0.0 03253 1.4 0296714 -0.0 1503 -10 5802 0.4 0305 2.6 1.1 07244 0.0305 2.6 3045 2.0 23.9 197 0.87 241 WT Flash Gas 50/bed	55761 0. 223741 0. 0965399 0. 000974183 1. 171622 0. 07462261 0. 00482261 0. 00482261 0. 0482261 0. 055.14 -5. 111587 0. 12964 1. 10805685 0. 0709 42 751.4 -4 30.29 97 91.0 10 Solved % 10 % 0. 92075262 0. 0181432 1.	00190980 00351810 0025245 0985742 73372-05 660212-06 9993551 000194448 527.08 527.08 52059 01022839 44254 527.08 5.3573 5.7522 5.3573 5.7566 1222.50 0122250 5.3573 5.7566 122.7 Water W/B 5.0kved % 1.1389 00443362 47407
Vapor Volumetic Flow MCP-H 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MMSCPD 24.0 21.8 21 0.0 0.0 0.0 22.13 0.3 0.1 0.2 Sti Liquid Volumetic Flow MMSCPD 24.0 21.8 21 0.0 0.0 0.0 21.7 22.0 0.0 2 Sti Liquid Volumetic Flow MMSCPD 24.0 21.8 21.0 0.0 <	0675330 0.03 288675 0.131 12414 0.002 288075 0.131 12414 0.002 288005 0.902 997563 0.713 0.0154	476 4.5 1830 0.0 0722741 0.0 03021898 0.0 0321898 0.0 03253 1.4 0296714 -0.0 03253 1.4 0296714 -0.0 15.03 -10 5502 0.4 0305 2.6 71551 0.0 8.40 222 23.9 19 9.87 24 VT Flash Gas 0 %00.2 21 9867 9.7 90.6239 0.0 5033 0.1 1479 6.5	55761 0. 1223741 0. 1223741 0. 1223741 0. 1023539 0. 000974183 1. 17172 0. 00482261 0. 0482261 0. 0482261 1. 10850685 0. 97079 42 980976 0. 34.96 44 751.4 -4 30.29 9. 91.0 1. Solved - %0077-05 94 900275262 0. 01814322 1. 52482 3.	00190980 00351810 023545 0985742 73377-05 66021-06 9999551 000194448 527.08 53040 000194448 527.08 52040 0102250 0102250 0102250 0102250 5.3573 5.752 5.166 128.7 Water W/B 5.0440 9.0 9.0 5.1516 5.0420 9.0 9.0 5.1516 5.0 9.0 5.0 9.0 5.1516 5.0 9.0 5.1516 5.0 9.0 5.0 5.0 5.1516 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0
Vapor Volumetic Flow MCP-H 74.9 59.9 0.1 0.0 0.3 0.0 51.8 0.1 0.0 0.0 Liquid Volumetic Flow MMSCPD 24.0 21.8 2.1 0.0 0.0 22.1 0.3 0.1 0.2 Sti Liquid Volumetic Flow MMSCPD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sti Liquid Volumetic Flow MMSCPD 24.0 21.8 2.1 0.0	06753300 0.03 288675 0.131 12414 0.000 288075 0.131 0.000740228 0.992 997563 0.713 0.0154 28 982734 0.415 9244355 0.26 927569 1.263 349784 0.011 0.0320173 1078 0059.71 0.2326 0.3436 1190 7.7 2179 Produced Water PV 50ved 0 02987 0.250239 0.250239 0.252 23503 1.235	476 4.5 1830 0.0 0722741 0.0 03021898 0.0 0321898 0.0 03253 1.4 0296714 -0.0 03253 1.4 0296714 -0.0 15.03 -10 5502 0.4 0305 2.6 71551 0.0 8.40 222 23.9 19 9.87 24 VT Flash Gas 0 %00.2 21 9867 9.7 90.6239 0.0 5033 0.1 1479 6.5	55761 0. 1223741 0. 1223741 0. 1223741 0. 1023539 0. 000974183 1. 17172 0. 00482261 0. 0482261 0. 0482261 1. 10850685 0. 97079 42 980976 0. 34.96 44 751.4 -4 30.29 9. 91.0 1. Solved - %0077-05 94 900275262 0. 01814322 1. 52482 3.	00190980 00351810 00351810 00351810 0025245 9095742 37337E-05 966021E-06 9993551 666021E-06 9993551 666021E-06 9993551 666021E-06 9993551 601922450 0102259 0102539 222259 0102539 222259 0102539 222259 0102539 222259 0102539 22259 0102539 22259 0102539 22259 0102539 22259 0102539 22259 0102539 22259 0102539 22259 0102545 0102545 0102545 0102545 0102545 0102545 0102545 0102545 010255 010000000000
Varger Volumetre Friew Legard Volumetre Frow Legard Volumetre Frow MMSCFD MCFH 24.0 7.4.9 69.9 0.1 0.0 0.3 0.0 1.2 0.0 51.8 0.1 0.0 0.0 Sidt Upper Volumetre Frow MMSCFD MMSCFD 24.0 21.8 2.1 0.0 0.0 0.0 21.7 2.2 0.0 2.2 Sidt Upper Volumetre Frow Compression MMSCFD 0.06 0.944 0.011 0.080 0.985 0.006 0.964 0.008 0.169 0.0 Compression 0.722 0.998 0.685 1.444 0.704 0.721 0.920 0.169 0.0 API Gravity -107.4 42.6 -28.7 -0.3 0.0 -0.2 -78.8 28.3 -0.3 0.108.4 49.37 -157.9 46.98.5 49.4 -9.6 0.0 1.0 1.0 1.0 1.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 0.0 <	0675330 0.03 288675 0.131 12414 0.002 288075 0.131 12414 0.002 288005 0.902 997563 0.713 0.0154	4776 4.5 1476 4.5 16830 0.0 07022741 0.0 07020741 0.0 08395 0.9 3253 1.4 0296714 -0.0 0296714 -0.0 1503 -10 5802 0.4 4333 1.1 07244 0.0 0305 2.6 71551 0.0 223 197 98.40 223 239 197 98.7 242 90.0 214 WT Flash Gas 1 % 0 90.0 21 WT Flash Gas 0 % 0 9367 0 92637 0 9233 0	55761 0. 1223741 0. 1223741 0. 1223741 0. 1223741 0. 000974183 1. 17162 0. 00482261 0. 00482261 0. 11587 0. 02964 1. 12964 1. 109065 0. 97079 42 109065 0. 9751.4 -4. 30.29 97 491.0 10 0 0. 900725262 0. 181432 1. 181432 1. 5416 0.	00190980 00351810 0235145 0985742 73377-05 66021E-06 9999551 000194448 527.08 536040 000194448 527.08 52229 0102639 22229 0102639 22229 0102639 22250 012250 012250 0000000000

Isobutane	1	0.553356	0.566368	0.566368	0.566368	4.51515	4.51515	0.566666		1.79108	0.209758	0.209758	5.44835	0.000290740
n-Butane Isopentane		1.15907	1.18394	1.18394	1.18394	11.0330	11.0330	1.18394		4.19985	0.911880	0.911880	13.1817	0.00190216
		0.369630	0.374074	0.374074	0.374074	4.37697	4.37697	0.374944		1.32070	0.190776	0.190776	4.85912	9.97269E-05
n-Pentane		0.290604	0.292584	0.292584	0.292584	3.59325	3.59325	0.291434		1.48948	0.145562	0.145562	3.92556	5.54938E-05
2-Methylpentane		0.00467712	0.00458082	0.00458082	0.00458082	0.0607291	0.0607291	0		0.499410	0.00104992	0.00104992	0.0639455	7.64162E-08
3-Methylpentane		0.00335058	0.00326403	0.00326403	0.00326403	0.0435404	0.0435404	0		0.332124	0.00198181	0.00198181	0.0456810	3.49713E-07
n-Hexane		0.540508	0.520162	0.520162	0.520162	6.96184	6.96184	0.545164		1.01953	0.0939288	0.0939288	0.496277	2.64759E-07
Methylcyclopentane		0.00181145	0.00173656	0.00173656	0.00173656	0.0235624	0.0235624	0		0.149109	0.00302925	0.00302925	0.0231283	1.14954E-06
Benzene		0.000544340	0.000521001	0.000521001	0.000521001	0.00704077	0.00704077	0		0.0444180	0.00533684	0.00533684	0.000421421	6.22418E-06
2-Methylhexane		0.00515504	0.00457226	0.00457226	0.00457226	0.0601864	0.0601864	0		0.277396	0.000881261	0.000881261	0.00417526	1.05048E-09
3-Methylhexane		0.00426248	0.00375533	0.00375533	0.00375533	0.0494659	0.0494659	0		0.217756	0.000755791	0.000755791	0.0516387	1.35028E-08
Heptane		0.00916452	0.00780375	0.00780375	0.00780375	0.101273	0.101273	0		0.398348	0.00160821	0.00160821	0.0977779	2.10956E-08
Methylcyclohexane		0.00597726	0.00509398	0.00509398	0.00509398	0.0677577	0.0677577	0		0.245557	0.00568587	0.00568587	0.0646783	4.60790E-07
Toluene		0.00143652	0.00117582	0.00117582	0.00117582	0.0156385	0.0156385	0		0.0512701	0.0109618	0.0109618	0.00204969	6.14998E-06
Octane		0.0201054	0.0128712	0.0128712	0.0128712	0.160174	0.160174	0		0.426001	0.00152709	0.00152709	0.140805	3.90299E-09
Ethylbenzene		0.00115401	0.000693282	0.000693282	0.000693282	0.00883101	0.00883101	0		0.0205727	0.00606470	0.00606470	0.00211940	1.91363E-06
m-Xylene		0.00154036	0.000859050	0.000859050	0.000859050	0.0108778	0.0108778	0		0.0249653	0.00741058	0.00741058	0.00336243	2.61042E-06
o-Xylene		0.00176844	0.000935913	0.000935913	0.000935913	0.0118464	0.0118464	0		0.0262369	0.00833092	0.00833092	0.00316647	3.06825E-06
Nonane		0.0110322	0.00406259	0.00406259	0.00406259	0.0489707	0.0489707	0		0.115133	0.000713629	0.000713629	0.0390630	8.58737E-10
C10+ Molar Flow		0.0234138	0.00112596	0.00112596	0.00112596	0.0119147	0.0119147	0 Ibmol/h	lbmol/h	0.0490340	0.000221818	0.000221818	0.00779214	2.11970E-11
Water		lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	IDMOI/N	ibmoi/n	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h
		69.1407	4.44238	0	0	0.00131762	0	0		0	0	0.00239772	1.04621E-07	0.00179786
H2S		0	0	0	0	0	0	0		0	0	0	0	0
Nitrogen Carbon Dioxide		11.8132 3.50372	11.8128 3.50106	0	0	0.000355760	0	11.8122		0.000793409	0	0.000198029 0.000977354	2.94430E-06	8.46731E-08 2.81518E-05
				0	0		0	3.50354		0.000315224	0			
Methane		1855.79	1855.58	0	0	0.165276	0	1855.48		0.171621	0	0.0589151	0.00697917	6.99911E-05
		339.435	339.242	0	0	0.167827	0	339.098		0.0811564	0	0.0115240	0.0401558	1.26326E-05
Propane		107.650	101112	0	0	0.147487	0	107.322		0.0388298	0	0.00385166	0.0291887	1.02901E-06
loobdiano		13.6202	13.5566	0	0	0.0316974	0	13.5317		0.00600532	0	0.000165994	0.00582774	5.55254E-09
n-Butane		28.5292	28.3388	0	0	0.0774543	0	28.2719		0.0140817	0	0.000721625	0.0140997	3.63274E-08
Isopentane n-Pentane		9.09801	8.95382	0	0	0.0307273	0	8.95348		0.00442820	0	0.000150973	0.00519748	1.90458E-09
		7.15288	7.00328	0	0	0.0252254	0	6.95931		0.00499410	0	0.000115192	0.00419891	1.05982E-09
2-Methylpentane		0.115122	0.109646	0	0	0.000426333	0	0		0.00167448	0	8.30868E-07	6.83983E-05	1.45939E-12
3-Methylpentane n-Hexane		0.0824705	0.0781278	0	0	0.000305663	0	0		0.00111358	0	1.56833E-06	4.88620E-05	6.67880E-12
		13.3040		0	0	0.0488737	0	13.0183		0.00341838	0	7.43315E-05	0.000530835	5.05636E-12
Methylcyclopentane Benzene		0.0445867 0.0133983	0.0415663 0.0124707	0	0	0.000165413 4.94278E-05	0	0		0.000499948 0.000148930	0	2.39722E-06 4.22336E-06	2.47388E-05 4.50766E-07	2.19538E-11 1.18869E-10
2-Methylhexane		0.0133983	0.0124707	0	0	4.94278E-05 0.000422522	0	0		0.000148930	0	4.22336E-06 6.97394E-07	4.50766E-07 4.46600E-06	2.00621E-14
3-Methylhexane		0.126885	0.109442	-	0	0.000422522	0	0		0.000930085	0	6.97394E-07 5.98103E-07	4.4000UE-00 5.52345E-05	2.00621E-14 2.57875E-13
Heptane		0.104916	0.0898875	0	0	0.000347262	0	0		0.000730118	0	1.27268E-06	0.000104587	4.02884E-13
Methylcyclohexane		0.225574	0.121929	0	0	0.000710980	0	0		0.00133363	0	4.49957E-06	6.91821E-05	4.02004E-13 8.80015E-12
Toluene		0.0353581		0	0	0.0004/56/5	0	0		0.000823332	0	4.49957E-06 8.67473E-06	2.19242E-06	1.17452E-10
Octane		0.494869	0.308085	0	0	0.000109786	0	0		0.000171904	0	0.07473E-06 1.20848E-06	0.000150610	7.45391E-14
Ethylbenzene		0.494009	0.0165944	0	0	6.19957E-05	0	0		6.89783E-05	0	4.79936E-06	2.26698E-06	3.65463E-11
m-Xylene		0.0204040	0.0205622	0	0	7.63644E-05	0	0		8.37065E-05	0	4.75530E-00 5.86443E-06	3.59658E-06	4.98538E-11
o-Xylene		0.0435280	0.0203022	ő	ů.	8.31647E-05	°	ů.		8.79699E-05	0	6.59275E-06	3.38697E-06	5.85973E-11
Nonane		0.271544	0.0224020	0	0	0.000343786	0	0		0.000386032	0	5.64737E-07	4.17832E-05	1.64001E-14
C10+		0.576302	0.0269510	0	0	8.36443E-05	0	0		0.000164407	0	1.75538E-07	8.33475E-06	4.04819E-16
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%
Water		2.41834	0.159860	0.159860	0.159860	0.0808291	0.0808291	0		0	2.64231	2.64231	4.13544E-05	92.0637
H2S		0	0	0	0	0	0	0		0	0	0	0	0
Nitrogen		0.642505	0.660997	0.660997	0.660997	0.0339359	0.0339359	0.663391		0.221388	0.339344	0.339344	0.00180972	0.00674222
Carbon Dioxide		0.299377	0.307772	0.307772	0.307772	0.149053	0.149053	0.309119		0.138184	2.63114	2.63114	0.187396	3.52163
Methane		57.8018	59.4612	59.4612	59.4612	9.02855	9.02855	59.6762		27.4241	57.8153	57.8153	2.45662	3.19157
					20.3757	17.1837	17.1837	20.4417		24.3071	21.1967	21.1967	26.4930	1.07971
Ethane		19.8161	20.3757	20.3757	20.3/5/									1
		19.8161 9.21618	20.3757 9.46347	20.3757 9.46347	9.46347	22.1455	22.1455	9.48766		17.0550	10.3894	10.3894	28.2405	0.128975
Ethane							22.1455 6.27338	9.48766 1.57677		17.0550 3.47672	10.3894 0.590173	10.3894 0.590173	28.2405 7.43199	0.128975 0.000917329
Ethane Propane		9.21618	9.46347	9.46347	9.46347	22.1455								
Ethane Propane Isobutane		9.21618 1.53698	9.46347 1.57389	9.46347 1.57389	9.46347 1.57389	22.1455 6.27338	6.27338	1.57677		3.47672	0.590173	0.590173	7.43199	0.000917329
Ethane Propane Isobutane n-Butane		9.21618 1.53698 3.21940	9.46347 1.57389 3.29007	9.46347 1.57389 3.29007	9.46347 1.57389 3.29007	22.1455 6.27338 15.3294	6.27338 15.3294	1.57677 3.29435		3.47672 8.15247	0.590173 2.56566	0.590173 2.56566	7.43199 17.9810	0.000917329 0.00600160
Ethane Propane Isobutane n-Butane Isopentane		9.21618 1.53698 3.21940 1.27444	9.46347 1.57389 3.29007 1.29039	9.46347 1.57389 3.29007 1.29039	9.46347 1.57389 3.29007 1.29039	22.1455 6.27338 15.3294 7.54901	6.27338 15.3294 7.54901	1.57677 3.29435 1.29507		3.47672 8.15247 3.18235	0.590173 2.56566 0.666304	0.590173 2.56566 0.666304	7.43199 17.9810 8.22782	0.000917329 0.00600160 0.000390589
Ethane Propane Isobutane n-Butane Isopentane n-Pentane		9.21618 1.53698 3.21940 1.27444 1.00196	9.46347 1.57389 3.29007 1.29039 1.00928	9.46347 1.57389 3.29007 1.29039 1.00928	9.46347 1.57389 3.29007 1.29039 1.00928	22.1455 6.27338 15.3294 7.54901 6.19732	6.27338 15.3294 7.54901 6.19732	1.57677 3.29435 1.29507		3.47672 8.15247 3.18235 3.58903	0.590173 2.56566 0.666304 0.508390	0.590173 2.56566 0.666304 0.508390	7.43199 17.9810 8.22782 6.64705	0.000917329 0.00600160 0.000390589 0.000217346
Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane		9.21618 1.53698 3.21940 1.27444 1.00196 0.0192612	9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0134484	9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738	9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738	22.1455 6.27338 15.3294 7.54901 6.19732 0.125103	6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939	1.57677 3.29435 1.29507		3.47672 8.15247 3.18235 3.58903 1.43732	0.590173 2.56566 0.666304 0.508390 0.00437986	0.590173 2.56566 0.666304 0.508390 0.00437986	7.43199 17.9810 8.22782 6.64705 0.129328	0.000917329 0.00600160 0.000390589 0.000217346 3.57476E-07
Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane		9.21618 1.53698 3.21940 1.27444 1.00196 0.0192612 0.0137983	9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0134484	9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0134484	9.46347 1.57389 3.29007 1.29039 1.00928 0.0188738 0.0134484	22.1455 6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939	6.27338 15.3294 7.54901 6.19732 0.125103 0.0896939	1.57677 3.29435 1.29507 1.00663 0 0		3.47672 8.15247 3.18235 3.58903 1.43732 0.955866 2.93424	0.590173 2.56566 0.666304 0.508390 0.00437986 0.00826732	0.590173 2.56566 0.666304 0.508390 0.00437986 0.00826732	7.43199 17.9810 8.22782 6.64705 0.129328 0.0923884 1.00370	0.000917329 0.00600160 0.000390589 0.000217346 3.57476E-07 1.63596E-06

				1	I		I	I	L.	I.				l	I
	Benzene		0.00203193	0.00194576	0.00194576	0.00194576	0.0131469	0.0131469	0		0.115875			0.000772558	2.63923E-05
	2-Methylhexane		0.0246848	0.0219049	0.0219049	0.0219049	0.144166	0.144166	0		0.928303	0.00427464	0.00427464	0.00981879	5.71405E-09
	3-Methylhexane		0.0204108	0.0179911	0.0179911	0.0179911	0.118487	0.118487	0		0.728720	0.00366604	0.00366604	0.121437	7.34475E-08
	Heptane		0.0438841	0.0373864	0.0373864	0.0373864	0.242582	0.242582	0		1.33307	0.00780079	0.00780079	0.229941	1.14749E-07
M	Nethylcyclohexane		0.0280462	0.0239133	0.0239133	0.0239133	0.159036	0.159036	0		0.805223	0.0270250	0.0270250	0.149041	2.45602E-06
	Toluene		0.00632517	0.00517981	0.00517981	0.00517981	0.0344448	0.0344448	0		0.157768	0.0488924	0.0488924	0.00443228	3.07604E-05
	Octane		0.109751	0.0702956	0.0702956	0.0702956	0.437375	0.437375	0		1.62517	0.00844421	0.00844421	0.377478	2.42019E-08
	Ethylbenzene		0.00585480	0.00351904	0.00351904	0.00351904	0.0224119	0.0224119	0		0.0729432			0.00528072	1.10285E-05
	m-Xylene		0.00781493	0.00436047	0.00436047	0.00436047	0.0276063	0.0276063	0		0.0885180	0.0380849	0.0380849	0.00837787	1.50443E-05
	o-Xylene		0.00897207	0.00475062	0.00475062	0.00475062	0.0300647	0.0300647	0		0.0930265	0.0428147	0.0428147	0.00788962	1.76828E-05
	Nonane		0.0676173	0.0249121	0.0249121	0.0249121	0.150141	0.150141	0		0.493161	0.00443063	0.00443063	0.117581	5.97879E-09
	C10+		0.181262	0.00872111	0.00872111	0.00872111	0.0461411	0.0461411	0		0.265293	0.00173953	0.00173953	0.0296258	1.86409E-10
	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
	Water				10/11			15/11	-	10/11	-				
			1245.59	80.0307	0	0	0.0237373	0	0		0	0	0.0431955	1.88477E-06	0.0323890
	H2S		0	0	0	0	0	0	0		0	0	0	0	0
	Nitrogen		330.928	330.916	0	0	0.00996606	0	330.900		0.0222261	0	0.00554747	8.24798E-05	2.37198E-06
	Carbon Dioxide		154.197	154.080	0	0	0.0437728	0	154.189		0.0138728	0	0.0430129	0.00854076	0.00123895
	Methane		29771.4	29768.1	0	0	2.65144	0	29766.5		2.75323	0	0.945143	0.111963	0.00112283
	Ethane		10206.5	10200.7	0	0	5.04639	0	10196.4		2.44030	0	0.346516	1.20745	0.000379851
	Propane		4746.88	4737.71	ő	ő	6.50354	ő	4732.45		1.71223	ő	0.169841	1.28709	4.53747E-05
	Isobutane							č							
			791.636	787.938	U	U	1.84232	U	786.494		0.349042	U	0.00964793	0.338721	3.22726E-07
_	n-Butane		1658.18	1647.11	0	0	4.50182	0	1643.22		0.818461	0		0.819503	2.11143E-06
	Isopentane		656.410	646.007	0	0	2.21694	0	645.983		0.319489	0	0.0108925	0.374992	1.37413E-07
	n-Pentane		516.071	505.278	0	0	1.81998	0	502.106		0.360318	0	0.00831098	0.302946	7.64646E-08
	2-Methylpentane		9.92066	9.44881	0	0	0.0367394	0	0		0.144299	0	7.16004E-05	0.00589425	1.25764E-10
	3-Methylpentane		7.10692	6.73269	0	0	0.0263407	0	0		0.0959634	0	0.000135151	0.00421070	5.75548E-10
	n-Hexane		1146.47	1072.93	0	-	4.21171	0	1121.85		0.294580	-	0.00640554	0.0457449	4.35734E-10
					0	0		0	1121.00			0			
M	fethylcyclopentane		3.75239	3.49820	0	0	0.0139211	0	0		0.0420753	0	0.000201749	0.00208201	1.84762E-09
	Benzene		1.04656	0.974107	0	0	0.00386090	0	0		0.0116332	0	0.000329895	3.52102E-05	9.28508E-09
	2-Methylhexane		12.7141	10.9663	0	0	0.0423376	0	0		0.0931963	0	6.98803E-05	0.000447502	2.01026E-12
	3-Methylhexane		10.5128	9.00691	0	0	0.0347964	0	0		0.0731593	0	5.99311E-05	0.00553461	2.58396E-11
	Heptane														
			22.6029	18,7168	0	0	0.0712396	0	0		0.133832	0	0.000127525	0.0104798	4.03697E-11
M			22.6029	18.7168	0	0	0.0712396	0	0		0.133832	0		0.0104798	4.03697E-11 8.64052E-10
M	Methylcyclohexane		14.4454	11.9718	0	0	0.0467046	0	0		0.0808398	0	0.000441795	0.00679272	8.64052E-10
M	Methylcyclohexane Toluene		14.4454 3.25784	11.9718 2.59317	0 0	0 0 0	0.0467046 0.0101155	0 0	0 0 0		0.0808398 0.0158390	0 0 0	0.000441795 0.000799276	0.00679272 0.000202006	8.64052E-10 1.08218E-08
M	Vethylcyclohexane Toluene Octane		14.4454 3.25784 56.5282	11.9718 2.59317 35.1921	0 0 0 0	0 0 0	0.0467046 0.0101155 0.128445	0 0 0	0 0 0		0.0808398 0.0158390 0.163158	0 0 0 0	0.000441795 0.000799276 0.000138043	0.00679272 0.000202006 0.0172040	8.64052E-10 1.08218E-08 8.51449E-12
M	Vethylcyclohexane Toluene Octane Ethylbenzene		14.4454 3.25784 56.5282 3.01557	11.9718 2.59317 35.1921 1.76174	0 0 0 0	0 0 0 0	0.0467046 0.0101155 0.128445 0.00658178	0 0 0 0 0	0 0 0 0		0.0808398 0.0158390 0.163158 0.00732308	0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524	0.00679272 0.000202006 0.0172040 0.000240674	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09
	Vethylcyclohexane Toluene Octane		14.4454 3.25784 56.5282	11.9718 2.59317 35.1921	0 0 0 0 0	0 0 0 0 0	0.0467046 0.0101155 0.128445	0 0 0 0 0	0 0 0 0 0 0		0.0808398 0.0158390 0.163158	0 0 0 0 0	0.000441795 0.000799276 0.000138043	0.00679272 0.000202006 0.0172040	8.64052E-10 1.08218E-08 8.51449E-12
	Vethylcyclohexane Toluene Octane Ethylbenzene		14.4454 3.25784 56.5282 3.01557	11.9718 2.59317 35.1921 1.76174	0 0 0 0 0	0 0 0 0 0 0	0.0467046 0.0101155 0.128445 0.00658178	0 0 0 0 0 0	0 0 0 0 0 0		0.0808398 0.0158390 0.163158 0.00732308	0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524	0.00679272 0.000202006 0.0172040 0.000240674	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09
	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene		14.4454 3.25784 56.5282 3.01557 4.02515 4.62115	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831			0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918	0 0 0 0 0 0			0.0808398 0.0158390 0.163158 0.00732308 0.00888670 0.00933933	0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000699920	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09
	Vethylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane		14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718	0 0 0 0 0 0 0		0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918 0.0440923	0 0 0 0 0 0 0			0.0808398 0.0158390 0.163158 0.00732308 0.00888670 0.00933933 0.0495105		0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000699920 7.24304E-05	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578 0.00535890	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12
	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene		14.4454 3.25784 56.5282 3.01557 4.02515 4.62115	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0		0.0808398 0.0158390 0.163158 0.00732308 0.00888670 0.00933933	0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000699920	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09
	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+		14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606			0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918 0.0440923 0.0135504			Webs	0.0808398 0.0158390 0.163158 0.00732308 0.00888670 0.00933933 0.0495105 0.0266339		0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000699920 7.24304E-05 2.84372E-05	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578 0.00535890 0.00135023	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14
	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams		14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610 Well Stream	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918 0.0440923 0.0135504 OT Flash Gas	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Water	0.0808398 0.0158390 0.163158 0.00732308 0.0088670 0.00933933 0.0495105 0.0266339 Oil	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000699920 7.24304E-05 2.84372E-05 PWT Flash Gas	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578 0.00535890 0.00135023 OH W/B	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B
	Vethylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor	Status	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606	0 0 0 0 0 0 0 0 HP Separator Water Solved	0 0 0 0 0 0 0 HP Separator Oil Solved	0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918 0.0440923 0.0135504	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	Water Solved	0.0808398 0.0158390 0.163158 0.00732308 0.00888670 0.00933933 0.0495105 0.0266339	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000699920 7.24304E-05 2.84372E-05	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578 0.00535890 0.00135023	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14
	Vethylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property	Status Units	14.4454 3.25784 56.5282 3.01557 4.62515 4.62515 4.62515 34.8270 93.3610 Well Stream Solved	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved	Solved	Solved	0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918 0.0440923 0.0135504 OT Flash Gas Solved	Solved	Solved		0.0808398 0.0158390 0.163188 0.00732308 0.0088670 0.0088670 0.00933933 0.0495105 0.0266339 0.0495105 0.0266339	Solved	0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000622598 0.000699920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved	0.00679272 0.00202006 0.0172040 0.000240674 0.000341831 0.000359578 0.00535890 0.00135023 OII W/B Solved	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved
	Wethylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature		14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610 Well Stream Solved 168.5	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0	Solved 71.0	Solved 71.0	0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918 0.0440923 0.0135504 OT Flash Gas		Solved 200.0		0.0808398 0.0158390 0.163188 0.00732308 0.00886670 0.0083933 0.0495105 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339		0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000699920 7.24304E-05 2.84372E-05 PWT Flash Gas	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578 0.0003555890 0.00035555890 0.0003555555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000555555 0.000555555 0.000555555 0.00055555555	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425
	Vethylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property		14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200	Solved 71.0 200	Solved 71.0 200	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00410722 0.00882918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0	Solved	Solved		0.0608398 0.0158390 0.163158 0.00732308 0.00732308 0.00888670 0.00933933 0.0495105 0.0266339 01 Solved 200.0 300	Solved	0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000622598 0.000699920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved	0.00679272 0.00202006 0.0172040 0.000240674 0.000341831 0.000359578 0.00535890 0.00135023 OII W/B Solved	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved
	Wethylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature	Units °F	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610 Well Stream Solved 168.5	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0	Solved 71.0	Solved 71.0	0.0467046 0.0101155 0.128445 0.00658178 0.00810722 0.00882918 0.0440923 0.0135504 OT Flash Gas Solved	Solved	Solved 200.0		0.0808398 0.0158390 0.163188 0.00732308 0.00886670 0.0083933 0.0495105 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339	Solved	0.000441795 0.000799276 0.000138043 0.000509524 0.000622598 0.000622598 0.000699920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved	0.00679272 0.000202006 0.0172040 0.000240674 0.000381831 0.000359578 0.0003555890 0.00035555890 0.0003555555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000355555 0.000555555 0.000555555 0.000555555 0.00055555555	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425
	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure	Units °F	14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200	Solved 71.0 200	Solved 71.0 200	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00410722 0.00882918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0	Solved 75.9 0	Solved 200.0 300		0.0608398 0.0158390 0.163158 0.00732308 0.00732308 0.00888670 0.00933933 0.0495105 0.0266339 01 Solved 200.0 300	Solved 75.94 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.000509524 0.000509524 2.84372E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0	0.00679272 0.000220206 0.0172040 0.000240674 0.000389878 0.00359878 0.00359878 0.00135023 0.0115023 0.0115023 75.9425 12.0035	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22038E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249
P Mile Mole	Wethylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Idel Fraction Vapor	Units °F	14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200	Solved 71.0 200	Solved 71.0 200	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00410722 0.00882918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0	Solved 75.9 0	Solved 200.0 300		0.0608398 0.0158390 0.163158 0.00732308 0.00732308 0.00888670 0.00933933 0.0495105 0.0266339 01 Solved 200.0 300	Solved 75.94 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.000509524 0.000509524 2.84372E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0	0.00679272 0.000220206 0.0172040 0.000240674 0.000389878 0.00359878 0.00359878 0.00135023 0.0115023 0.0115023 75.9425 12.0035	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22038E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249
P M Mole	wethylcyclohexane Toluene Octane Ethylberzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Preperty Temperature Pressure Praction Vapor Fraction Jupit Liquid Fraction Heavy Liquid	Units °F	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200 100 0	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0	71.0 200 100 0	Solved 71.0 200 100 0 0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.006802918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0	Solved 75.9 0 100 0 0 0	Solved 200.0 300		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 01 200.0 300 100 0 0	Solved 75.94 0 100 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.000699920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 100 0	0.00679272 0.0002202006 0.0172040 0.000240674 0.000381831 0.000389578 0.00535890 0.00135023 0.00135023 0.00135023 75.9425 12.0035 100 0 0	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 0
P M Mole	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Prosety Property Temperature Pressure foliole Fraction Vapor e Fraction Vapor e Fraction Vapor	Units °F psig % % % Ib/Ibmol	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.36100 93.36100 93.36100 93.36100 93.36100 93.36100000000000000000000000000000000000	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 20.9	Solved 71.0 200 100 0 0.20.9	Solved 71.0 200 100 0 0 20.9	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.006802918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 0	Solved 75.9 0 100 0 0 41.8	Solved 200.0 300 100 0 20.9		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00888670 0.00333933 0.0495105 0.0266339 01 50/266339 20.0 30/26339 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.	Solved 75.94 0 100 0 0 20.6577	0.000441795 0.000799276 0.000138043 0.000509524 0.000509920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 100 0 0 20.6577	0.00679272 0.000220206 0.0172040 0.000240674 0.000359578 0.00359578 0.00355890 0.00135023 0.0135023 0.0135023 75.9425 12.0035 100 0 0 0 42.6090	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22038E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214
P M Mole	Wethylcyclohexane Toluene Octane Ethylberzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Idel Fraction Light Liquid Kolecular Weight Mass Density	Units °F psig % % b/bmol lb/lbmol lb/lf*3	14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200 100 0 0 0 0 20.9 0,7	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.3600 4.710 71.0 200 100 0 20.9 0.8	Solved 71.0 200 100 0 20.9 0.8	Solved 71.0 200 100 0 20.9 0.8	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00682918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 41.8 0.1	Solved 75.9 0 100 0 0 41.8 0.1 1	Solved 200.0 300 100 0 20.9 1.0		0.0608398 0.0158390 0.163158 0.00732308 0.0088670 0.0088670 0.0088670 0.0266339 0.4495105 0.0266339 001 200.0 300 100 0 0 200.0 300 100 0 29.9 1.5	Solved 75.94 0 100 0 20.6577 0.0530072	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.0005095258 0.000509525 2843725-05 PWT Flash Gas Solved 75.94 0 100 0 0 0 0 0.0050072	0.00679272 0.0022006 0.0172040 0.00240674 0.00359578 0.00359578 0.00350523 0.0135020000000000000000000000000000000000	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027
P M Mole	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor a Fraction Light Liquid Fraction Heavy Liquid Molecular Weight Molar Flow	Units °F psig % % b/bmol lb/lbmol lb/lf^3 lbmol/h	14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200 100 0 0 20.9 0.7 2461.4	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 20.9 0.8 2393.6	71.0 200 100 0 20.9 0.8 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00882918 0.0440923 0.0135504 0 OT Flash Gas Solved 75.9 0 100 0 0 41.8 0.1 0.7	Solved 75.9 0 100 0 0 0 41.8 0.1 0.0 0 0	Solved 200.0 300 100 0 20.9 1.0 2388.0		0.0608398 0.0158390 0.163158 0.00732308 0.0088670 0.0088670 0.0088670 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339 0.01 0.02 0.03 0.04 0.03 0.04 0.05	Solved 75.94 0 100 0 20.6577 0.0530072	0.000441795 0.000799276 0.000138043 0.000629524 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062928 0.00062928 0.00062928 0.00069920 0.00000 0.00000 0.000000 0.000000 0.000000	0.00679272 0.0022006 0.0172040 0.00240674 0.00359578 0.00359578 0.00359578 0.0015923 0.0015923 0.01150200000000000000000000000000000000	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.00190980
P Mole Mole	Methylcyclohexane Toluene Octane Ethylberzene m-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor Eraction Vapor Eraction Vapor Eraction Vapor Molae Flow Molae Flow Molas Flow	Units °F psig % % b/bmol lb/lbmol lb/lft^3 lbmol/h lb/h	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 9.3.610 Well Stream Solved 168.5 200 100 0 20.9 20.9 20.9 0.7 2461.4 51506.0	11.9718 2.53317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 0 0 2.933.5 50063.1	Solved 71.0 200 100 0 20.9 0.8 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00410722 0.0082918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 0 41.8 0.1 0.7 29.4	Solved 75.9 0 100 0 0 41.8 0.1 0.0 0.0 0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 0.0266339 200.0 300 100 0 20.0 29.9 1.5 0.3	Solved 75.94 0 100 0 20.6577 0.0530072	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 100 0 20.6577 0.0530072 0.0791380 1.63476	0.00679272 0.002202006 0.0172040 0.000240674 0.000381831 0.000389578 0.00535890 0.00135023 0.00135023 0.00135023 75.9425 12.0035 100 0 0 42.6090 0.203700 0.106963 4.55761	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.00190880 0.0351810
P Mole Mole	Methylcyclohexane Toluene Octane Ethylberzene m-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor Eraction Vapor Eraction Vapor Eraction Vapor Molae Flow Molae Flow Molas Flow	Units °F psig % % b/bmol lb/lbmol lb/lf^3 lbmol/h	14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200 100 0 0 20.9 0.7 2461.4	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 20.9 0.8 2393.6	71.0 200 100 0 20.9 0.8 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00882918 0.0440923 0.0135504 0 OT Flash Gas Solved 75.9 0 100 0 0 41.8 0.1 0.7	Solved 75.9 0 100 0 0 0 41.8 0.1 0.0 0 0	Solved 200.0 300 100 0 20.9 1.0 2388.0		0.0608398 0.0158390 0.163158 0.00732308 0.0088670 0.0088670 0.0088670 0.0266339 0.0495105 0.0266339 0.0495105 0.0266339 0.01 0.01 0.02 0.03 0.01 0.029.9 1.5 0.3	Solved 75.94 0 100 0 20.6577 0.0530072	0.000441795 0.000799276 0.000138043 0.000629524 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062928 0.00062928 0.00062928 0.00069920 0.00000 0.00000 0.000000 0.000000 0.000000	0.00679272 0.0022006 0.0172040 0.00240674 0.00359578 0.00359578 0.00359578 0.0015923 0.0015923 0.01150200000000000000000000000000000000	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.00190980
P Mile Mole Vap	Methylcyclohexane Toluene Octane Ethylberzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor a Fraction Vapor a Fraction Vapor B Fraction Phase Util Molar Flow Mass Flow por Volumetric Flow	Units °F psig % % b/bmol lb/lbmol lb/lft^3 lbmol/h lb/h	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 9.3.610 Well Stream Solved 168.5 200 100 0 20.9 20.9 20.9 0.7 2461.4 51506.0	11.9718 2.53317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 0 0 2.933.5 50063.1	Solved 71.0 200 100 0 20.9 0.8 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00410722 0.0082918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 0 41.8 0.1 0.7 29.4	Solved 75.9 0 100 0 0 41.8 0.1 0.0 0.0 0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 0.0266339 200.0 300 100 0 20.0 29.9 1.5 0.3	Solved 75.94 0 100 0 20.6577 0.0530072	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 100 0 20.6577 0.0530072 0.0791380 1.63476	0.00679272 0.002202006 0.0172040 0.000240674 0.000381831 0.000389578 0.00535890 0.00135023 0.00135023 0.00135023 75.9425 12.0035 100 0 0 42.6090 0.203700 0.106963 4.55761	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.00190880 0.0351810
P M Mole Mole Var	Methylcyclohexane Toluene Octane Ethylberzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor a Fraction Vapor a Fraction Vapor B Fraction Phase Util Molar Flow Mass Flow por Volumetric Flow	Units °F psig % % % lb/lbmol lb/lt^3 lbmol/h lb/h MCFH Mbbl/d	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 33.8270 93.3610 93.3610 93.3610 93.3610 93.3610 93.3610 93.3610 93.3610 93.3610 90.07 20.9 0.7 2461.4 51506.0 74.9	11.9718 2.53317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 20.9 0.8 2393.6 59.9	Solved 71.0 200 0 0 20.9 0.8 0.0 0.0 0.0 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00610722 0.0082918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 41.8 0.1 0.0 41.8 0.1 0.7 29.4 0.3	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 0.0266390 0.0266390 0.0266390 0.0266390 0.0266390 0.0266390 0.0266390 0.0266390 0.0266390 0.0266390000000000000000000000000000000000	Solved 75.94 0 100 0 20.6577 0.0530072	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.000699920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 100 0 0 0 0.055707 0.0530072 0.0791360 1.83476 0.0308404	0.00679272 0.000220206 0.0172040 0.000240674 0.000389878 0.000359878 0.000359878 0.00135023 0.00135023 0.0135023 0.0135023 75.9425 12.0035 100 0 42.6090 0.203700 0.106963 4.55761 0.0223741	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22088E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.0351810 0.0351810 0.032845
Mile Mole Mole Stat Vag	Methylcyclohexane Toluene Octane Ethylberczne m-Xylene o-Xylene Nonane C10+ Process Streams Phose: Vapor Property Temperature Pressure fole Fraction Vapor e Fraction Light Liquid Fraction Light Liquid Molecular Weight Mass Density Molar Flow Mass Flow por Volumetric Flow guid Volumetric Flow	Units °F psig % % bib/bmol bib/bmol bib/h MCFH Mbbl/d MMSCFD	14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 Well Stream Solved 108.5 200 100 0 20.9 0 0 20.9 0 0 7 2461.4 51506.0 74.9 320.1 22.4	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 20.9 0.8 2393.6 5093.1 59.9 256.3 21.8	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00682918 0.0440923 0.0135504 0 OT Flash Gas Solved 75.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7		0.0608398 0.0158390 0.163158 0.00732308 0.0088670 0.0088670 0.0088670 0.0266339 0.4495105 0.0266339 0.0495105 0.0266339 0.0266339 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	Solved 75.94 0 100 0 20.6577 0.0530072	0.000441795 0.000799276 0.000138043 0.000509524 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062298 0.00062928 0.00062928 0.00062074 0.000410 0 0 0.000020741	0.00679272 0.0022006 0.0172040 0.00240674 0.00359578 0.00359578 0.00359578 0.0015023 0.0015023 0.0015023 0.0015023 0.0015023 0.0015023 0.0015023 0.001502 0.00251 0.00251 0.00251 0.00253741 0.025399 0.000974183	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.00190980 0.0351810 0.0322945 0.0995742 1.73937E-05
P P M Mole b Vaça	Methylcyclohexane Toluene Octane Ethylberzene m-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure tole Fraction Vapor Fraction Vapor Fraction Vapor Fraction Vapor Fraction Vapor Molar Flow Mol	Units °F psig % % % lb/lbmol lb/lt^3 lbmol/h lb/h MCFH Mbbl/d	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200 100 0 20.9 20.9 20.9 20.9 20.9 20.9 20.9	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 0 20.9 0.8 2393.5 50963.1 59.9 256.3 21.8 10.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.0040923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.0	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 200.0 300 200.0 300 100 0 29.9 1.5 0.3 10.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Solved 75.94 0 100 0 20.6577 0.0530072 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 100 0 20.6577 0.0530072 0.0791380 1.63476 0.0308404 0.131830 0.000720741 0.00072741	0.00679272 0.00220206 0.172040 0.00240674 0.000240674 0.000381831 0.000359578 0.00135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.0013502000000000000000000000000000000000	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22088E-09 2.10340E-12 6.55806E-14 Water W/B Solved 7 5.9425 -14.2249 100 0 18.4214 0.00151027 0.00190800 0.0351810 0.0323945 0.0935742 1.73337E-05 2.66021E-06
P Molec b Vaa Std L Std L	Methylcyclohexane Toluene Octane Ethylberczne m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor e Fraction Vapor e Fraction Vapor Streamy Light Light Molar Flow Mass Flow por Volumetric Flow ylapd Volumetric Flow Vapor Volumetric Flow Vapor Volumetric Flow Vapor Volumetric Flow Vapor Volumetric Flow Compressibility	Units °F psig % % bib/bmol bib/bmol bib/h MCFH Mbbl/d MMSCFD	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 33.8270 93.3610 Well Stream 5.0140 168.5 200 100 0 0 0 0 20.9 0.7 2461.4 51506.0 74.9 320.1 22.4 10.1 0.969	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 20.9 0.8 2393.6 59.9 256.3 21.8 59.9 256.3 21.8 10.0 0,944	Solved 71.0 200 0 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 0 20.9 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00680218 0.0440923 0.0135504 OT Flash Gas Solved 7 5.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0 0.964		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 0.0266359 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559000000000000000000000000000000000	Solved 75.94 0 100 0 20.6577 0.0530072 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 0 0 0 0.055707 0.0530072 0.0791360 1.63476 0.0303404 0.131830 0.000321988 0.996395	0.00679272 0.000220206 0.0172040 0.000240674 0.000349674 0.000359578 0.000359578 0.00135923 0.00135923 0.00135023 0.00135023 10.00135023 10.0015502 12.0035 10.0015 0.00154502 0.0005454 0.000054534 0.000054534 0.971622	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22088E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.0351810 0.0351810 0.0351810 0.035742 1.73337E-05 2.66021E-06 0.999551
P Molec b Vaa Std L Std L	Methylcyclohexane Toluene Octane Ethylberczene m-Xylene o-Xylene Nonane C10+ Process Streams Phose: Vapor Property Temperature Pressure fole Fraction Vapor faration Light Liquid Fraction Heavy Liquid Molacriar Veight Mass Flow Molar Flow Mass Flow por Volumetric Flow uid Volumetric Flow Liquid Vol	Units °F psig % % bib/bmol bib/bmol bib/h MCFH Mbbl/d MMSCFD	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.3610 Well Stream Solved 168.5 200 100 0 20.9 20.9 20.9 20.9 20.9 20.9 20.9	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 0 20.9 0.8 2393.5 50963.1 59.9 256.3 21.8 10.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.0040923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.0	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 0.0266359 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559000000000000000000000000000000000	Solved 75.94 0 100 0 20.6577 0.0530072 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 100 0 20.6577 0.0530072 0.0791380 1.63476 0.0308404 0.131830 0.000720741 0.00072741	0.00679272 0.00220206 0.172040 0.00240674 0.000240674 0.000381831 0.000359578 0.00135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.0135023 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.00135020 0.0013502000000000000000000000000000000000	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 7 5.9425 -14.2249 100 0 18.4214 0.00151027 0.00190800 0.0351810 0.032545 1.73937E-05 2.66021E-06
P Molec b Vaa Std L Std L	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Octane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Light Liquid Kolecular Weight Mass Density Molar Flow Mass Flow por Volumetric Flow Vapor Volumetric Flow Vapor Volumetric Flow Compressibility Speedic Gravity API Gravity	Units *F psig % % b/lb/lbmol lb/lbmol lb/lbmol/h lb/h MCFH Mbbl/d MMSCFD Mbbl/d	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 33.8270 93.3610 Well Stream 5.0140 168.5 200 100 0 0 0 0 20.9 0.7 2461.4 51506.0 74.9 320.1 22.4 10.1 0.969	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 20.9 0.8 2393.6 59.9 256.3 21.8 59.9 256.3 21.8 10.0 0,944	Solved 71.0 200 0 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 0 20.9 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00680218 0.0440923 0.0135504 OT Flash Gas Solved 7 5.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0 0.964 0.721		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 0.0266359 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559000000000000000000000000000000000	Solved 75.94 0 100 0 20.6577 0.0530072 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000198276 0.000509524 0.000509524 0.000509524 0.000509524 0.0005258 0.0005258 0.0005258 0.0005258 0.0005258 0.00052075 0.000720 0.000720 0.0308404 0.0308404 0.0308404 0.0308404 0.031883 0.000720741 0.031830 0.000720741 0.031898 0.996395 0.713253	0.00679272 0.0022006 0.0172040 0.00240674 0.003358578 0.00358580 0.00135023	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22088E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.0351810 0.0351810 0.0351810 0.035742 1.73337E-05 2.66021E-06 0.999551
P Molec b Vaa Std L Std L	Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Yapor Property Temperature Pressure fole Fraction Vapor e Fraction Light Liquid Molecular Weight Molar Flow Mass Density Molar Flow Mass Flow por Volumetric Flow ujud Volumetric Flow Ujud Volumetric Flow Specific Gravity API Gravity	Units °F psig % % bib/bmol bib/bmol bib/h MCFH Mbbl/d MMSCFD	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 33.8270 93.3610 Well Stream 5.0140 168.5 200 100 0 0 0 0 20.9 0.7 2461.4 51506.0 74.9 320.1 22.4 10.1 0.969	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 20.9 0.8 2393.6 59.9 256.3 21.8 59.9 256.3 21.8 10.0 0,944	Solved 71.0 200 0 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 0 20.9 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00680218 0.0440923 0.0135504 OT Flash Gas Solved 7 5.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0 0.964		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 0.0266359 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559 0.0266559000000000000000000000000000000000	Solved 75.94 0 100 0 20.6577 0.0530072 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 0 0 0 0.055707 0.0530072 0.0791360 1.63476 0.0303404 0.131830 0.000321988 0.996395	0.00679272 0.000220206 0.0172040 0.000240674 0.000349674 0.000359578 0.000359578 0.00135923 0.00135923 0.00135023 0.00135023 10.00135023 10.0015502 12.0035 10.0015 0.00154502 0.0005454 0.000054534 0.000054534 0.971622	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22088E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00151027 0.0351810 0.0351810 0.0351810 0.035742 1.73337E-05 2.66021E-06 0.999551
P P P P P P P P P P P P P P P P P P P	Methylcyclohexane Toluene Octane Ethylberczene m-Xylene -Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor Eraction Vapor Eraction Vapor Fraction Flow Molar Flow Molar Flow Molar Flow Molas Flow Molar Flow Molas Flow Molar Flow Molas Flow Molar Flow	Units *F psig % % b/lb/lbmol lb/lbmol lb/lbmol/h lb/h MCFH Mbbl/d MMSCFD Mbbl/d	14.4454 3.25784 56.5282 3.01557 4.62115 34.8270 93.3610 100 168.5 200 100 0 0 20.9 0.7 2461.4 51506.4 51506.4 51506.9 20.1 22.4 10.1 0.969 0.723	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36006 HP Separator Gas Solved 71.0 200 100 0 0 0 0 0 0 0 0 0 0 0 0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00682918 0.0440923 0.0135504 0.0135504 0.0135504 75.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.985 1.444	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0 0.964 0.721		0.0608398 0.0158390 0.163158 0.00732308 0.0088670 0.0088670 0.0088670 0.0266339 0.4495105 0.0266339 200.0 300 100 0 0 209.9 1.5 0.3 10.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Solved 75.94 0 100 0 20.6577 0.0530072 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000198276 0.000509524 0.000509524 0.000509524 0.000509524 0.0005258 0.0005258 0.0005258 0.0005258 0.0005258 0.00052075 0.000720 0.000720 0.0308404 0.0308404 0.0308404 0.0308404 0.031883 0.000720741 0.031830 0.000720741 0.031898 0.996395 0.713253	0.00679272 0.0022006 0.0172040 0.00240674 0.003358578 0.00358580 0.00135023	8.64052E-10 1.08218E-08 8.51449E-12 3.87994E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 75.9425 75.9425 75.9425 75.9425 100 0 18.4214 0.00151027 0.00190880 0.032345 0.0395742 1.73937E-05 2.66021E-06 0.999551 0.636040
P P P P P P P P P P P P P P P P P P P	Methylcyclohexane Toluene Octane Ethylberzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor a Fraction Vapor a Fraction Vapor Straction Vapor B Fraction Vapor B Fraction Vapor Straction Vapor Diole Fraction Flow Compressibility Specific Gravity API Gravity Enthalpy Mass Enthalpy Mass Enthalpy	Units "F psig % % % blb/bmol lb/ft*3 lb/ft*3 lb/ft*3 MMCFH MMbI/d MMSCFD Mbbl/d MMBtu/h Btu/h Btu/lb	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 33.8270 93.3610 Well Stream 5.0140 100 100 100 100 0 0 20.9 0.7 2461.4 51506.0 74.9 320.1 22.4 10.1 0.969 0.723	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4.36606 HP Separator Gas Solved 71.0 200 100 0 0 20.9 2333.6 50063.1 590.9 259.3 251.8 10.0 0.9 259.9 251.8 10.0 0.944 0.722 -82.6	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.00658218 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.985 1.444 0.0 -1084.4	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0 0.994 0.721 -78.8		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 200.0 300 200.0 300 100 0 29.9 1.5 0.3 10.0 0 0 29.9 1.5 0.3 10.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Solved 75.94 0 100 0 20.6577 0.0530072 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 0 0 0 0.055077 0.0530072 0.0791360 1.03476 0.0303404 0.131830 0.000321898 0.996395 0.713253 -0.00296714 -1815.03	0.00679272 0.000220206 0.0172040 0.000240674 0.000349674 0.000359578 0.000359578 0.00135923 0.00135023 0.00135023 0.00135023 10.00135023 10.00135023 10.00135023 10.001482 10.0035 10.00145751 0.0023741 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000654534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.000554534 0.00055553 0.00055553 0.00055553 0.00055553 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.000555555 0.000555555 0.000555555 0.0005555555 0.000555555 0.000555555 0.0005555555 0.000555555 0.0005555555 0.00055555555	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22088E-09 2.10340E-12 6.55806E-14 Water W/B Solved 75.9425 -14.2249 100 0 18.4214 0.00190980 0.0351810 0.0351810 0.035742 1.73337E-05 2.66021E-06 0.999551 0.636040 -0.000194448 -5527.08
M Mole Mole Var Sti d L	Methylcyclohexane Toluene Octane Ethylberzene m-Xylene o-Xylene Nonane C10+ Process Streams Phase: Vapor Property Temperature Pressure Iole Fraction Vapor a Fraction Vapor a Fraction Vapor Straction Vapor B Fraction Vapor B Fraction Vapor Straction Vapor Diole Fraction Flow Compressibility Specific Gravity API Gravity Enthalpy Mass Enthalpy Mass Enthalpy	Units "F psig % % % bi/bi/bi/d bi/h bi/h bi/h MOE/H MMSCFD Mbbi/d MMBtu/h	14.4454 3.25784 56.5282 3.01557 4.02515 4.62115 34.8270 93.8610 Well Stream Solved 168.5 200 100 0 20.9 20.9 0.7 2461.4 51506.0 74.9 320.1 22.4 10.1 0.969 0.723	11.9718 2.59317 35.1921 1.76174 2.18299 2.37831 12.4718 4 IP Separator Gas Solved 71.0 200 100 0 20.9 0.8 2393.6 50063.1 59.9 265.3 21.8 10.0 0.944 0.722 -82.6 -1649.8	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 71.0 200 100 0 20.9 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0467046 0.0101155 0.128445 0.00658178 0.00658178 0.006802918 0.0440923 0.0135504 OT Flash Gas Solved 75.9 0 100 0 41.8 0.1 0.7 29.4 0.3 1.2 0.0 0.985 1.444 0.0	Solved 75.9 0 100 0 41.8 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Solved 200.0 300 100 0 20.9 1.0 2388.0 49880.0 51.8 221.3 21.7 10.0 0.964 0.721 -78.8 -1579.9		0.0808398 0.0188390 0.163158 0.00732308 0.00732308 0.00933933 0.0495105 0.0266339 200.0 300 200.0 300 100 0 29.9 1.5 0.3 10.0 0 0 29.9 1.5 0.3 10.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Solved 75.94 0 100 0 20.6577 0.0550072 0 0 0 0 0 0 0 0 0 0 0 0 0	0.000441795 0.000799276 0.000138043 0.000509524 0.000509524 0.00069920 7.24304E-05 2.84372E-05 PWT Flash Gas Solved 75.94 0 0 0 0 0.055077 0.0530072 0.0791360 1.03476 0.0303404 0.131830 0.000321898 0.996395 0.713253 -0.00296714 -1815.03	0.00679272 0.0002202006 0.0172040 0.000240674 0.000240674 0.000381831 0.000389578 0.00135023 0.00135023 0.00135023 75.9425 12.0035 100 0 0 2.003700 0.203700 0.203700 0.106963 4.55761 0.0223741 0.009654534 0.00974183 0.000954183 0.000054524	8.64052E-10 1.08218E-08 8.51449E-12 3.87934E-09 5.29273E-09 6.22098E-09 2.10340E-12 6.55806E-14 Water W/B Solved 7 5.9425 -14.2249 100 0 18.4214 0.00151027 0.00190800 0.0351810 0.0232945 0.0935742 1.73337E-05 2.66021E-06 0.999551 0.536040 -0.000194448

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Dynamic Viscosity	cP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0107244	0.0107244	0.00850685	0.0102639
Kinematic Viscosity	cSt	1.1	0.8	0.8	0.8	4.9	4.9	0.8	0.5	12.6305	12.6305	2.60709	424.266
Thermal Conductivity	Btu/(h*ft*°F)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0171551	0.0171551	0.0109065	0.0122250
Surface Tension	lbf/ft												
Net I.G. Heating Value	Btu/ft^3	1115.7	1141.4	1141.4	1141.4	2192.4	2192.4	1141.9	1598.4	1078.40	1078.40	2234.96	45.3573
Net Liquid Heating Value	Btu/lb	20146.2	20645.8	20645.8	20645.8	19743.1	19743.1	20684.2	20138.3	19723.9	19723.9	19751.4	-45.7522
Gross I.G. Heating Value	Btu/ft^3	1231.1	1258.3	1258.3	1258.3	2384.8	2384.8	1258.8	1747.8	1190.87	1190.87	2430.29	97.5166
Gross Liquid Heating Value	Btu/lb	22240.1	22767.2	22767.2	22767.2	21488.4	21488.4	22808.7	22030.8	21790.0	21790.0	21491.0	1028.7

Process Streams		Well Stream	HP Separator Gas	HP Separator Water	HP Separator Oil	OT Flash Gas	Sales Oil	Gas	Water	Oil	Produced Water	PWT Flash Gas	Oil W/B	Water W/B
Phase: Light Liquid	Status	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Mole Fraction	otatus	%	%	%	%	%	%	%	%	%	%	%	%	%
Water		99.9775	0.0459879	99.9640	0.0459879	0.00343211	0.00343211	70	100	0	99.9969	99.9969	3.26428E-06	100.0000
H2S		0	0	0	0	0	0.00040211		0	0	0	0	0	0
Nitrogen		6.03202E-05	0.0117652	8.78105E-05	0.0117652	7.93114E-05	7.93114E-05		0	0.00829815	2.93164E-06	2.93164E-06	8.09325E-06	1.66479E-09
Carbon Dioxide		0.000454442	0.0345979		0.0345979	0.00243917	0.00243917		0	0.0159495	0.000598796	0.000598796	0.00577274	2.30301E-05
Methane		0.0179656	5.52520	0.0270437	5.52520	0.114117	0.114117		0	4.04896	0.00179196	0.00179196	0.0592984	2.83611E-06
Ethane		0.00307034	6.10283	0.00534776	6.10283	0.756116	0.756116		0	6.54784	0.000408437	0.000408437	2.09071	5.99918E-07
Propane		0.000651856	6.74374	0.00180167	6.74374	2.45961	2.45961		0	7.26094	0.000150813	0.000150813	5.69487	5.42444E-08
Isobutane		3.38899E-05	2.08915	7.34093E-05	2.08915	1.36057	1.36057		0	2.06878	2.26127E-06	2.26127E-06	2.85078	1.02262E-10
n-Butane		0.000176344	6.25028	0.000330946	6.25028	4.81392	4.81392		0	6.10548	2.16479E-05	2.16479E-05	10.0446	1.47435E-09
Isopentane		2.85964E-05	4.73993	6.78130E-05	4.73993	4.84893	4.84893		0	3.51342	3.10372E-06	3.10372E-06	9.50859	5.32359E-11
n-Pentane		2.80871E-05	4.91928	5.17180E-05	4.91928	5.31752	5.31752		0	4.72871	2.34471E-06	2.34471E-06	10.2328	2.93290E-11
2-Methylpentane		2.31937E-07	0.180123	3.64179E-07	0.180123	0.215980	0.215980		0	2.84413	8.05234E-09	8.05234E-09	0.402001	1.92960E-14
3-Methylpentane		3.60940E-07	0.142837	7.13445E-07	0.142837	0.172657	0.172657		0	2.03963	4.12383E-08	4.12383E-08	0.319722	2.39600E-13
n-Hexane		2.01025E-05	28.0740	3.24328E-05	28.0740	34.4144	34.4144		0	7.07753	5.72822E-07	5.72822E-07	4.32637	5.32228E-14
Methylcyclopentane		2.88857E-07	0.0992891	1.21668E-06	0.0992891	0.122031	0.122031		0	1.10526	1.89237E-07	1.89237E-07	0.207897	2.36154E-12
Benzene		4.82351E-06	0.0293709	1.84292E-05	0.0293709	0.0360771	0.0360771		0	0.332364	1.66246E-05	1.66246E-05	0.00373689	6.36462E-10
2-Methylhexane		8.59273E-08	0.573858	3.04633E-07	0.573858	0.728125	0.728125		0	3.15769	5.71602E-09	5.71602E-09	0.0841003	2.25467E-16
3-Methylhexane		7.64147E-08	0.494403	2.61483E-07	0.494403	0.628027	0.628027		0	2.61193		5.12399E-09	1.09074	3.02860E-15
Heptane		9.45382E-08	1.27589	5.56458E-07	1.27589	1.62866	1.62866		0	5.62164	1.09640E-08	1.09640E-08	2.59646	4.76399E-15
Methylcyclohexane		8.47982E-07	0.828736	2.16357E-06	0.828736	1.05727	1.05727		0	3.66776	2.35027E-07	2.35027E-07	1.71691	6.29123E-13
Toluene		1.04083E-05	0.235453	3.19324E-05	0.235453	0.301468	0.301468		0	0.882556	2.82238E-05	2.82238E-05	0.0675842	5.22335E-10
Octane		3.84286E-07	6.14500	5.24850E-07	6.14500	7.94236	7.94236		0	12.3705	6.86949E-09	6.86949E-09	11.9232	5.84289E-16
Ethylbenzene		4.98450E-06	0.387579	1.61764E-05	0.387579	0.501325	0.501325		0	0.710582	1.41241E-05	1.41241E-05	0.205205	1.47784E-10
m-Xylene o-Xylene		7.74894E-06 1.26081E-05	0.569728 0.693424	2.03747E-05 2.99714E-05	0.569728 0.693424	0.737563 0.898117	0.737563 0.898117		0	0.948734 1.08957	1.78671E-05 2.71548E-05	1.78671E-05 2.71548E-05	0.388266 0.408109	2.08843E-10 3.31791E-10
Nonane		1.26081E-05 2.58839E-07	0.693424 5.73438	2.99714E-05 2.47162E-07	0.693424 5.73438	7.44183	7.44183		0	6.79793	2.71548E-05 5.10475E-09	5.10475E-05	10.1791	2.05518E-16
C10+		4.17306E-07	18.0732	7.72335E-08	18.0732	23.4973	23.4973		0	14.4438	1.99451E-09	1.99451E-09	25.5932	6.43702E-18
Molar Flow		+.1/300E=0/	lbmol/h		10.0732	23.4373								
Water				lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	lbmol/h	Ibmol/h	Ibmol/h	25.5932 Ibmol/h	lbmol/h
		168.524	0	Ibmol/h 233.221	lbmol/h 0.00139785	lbmol/h		lbmol/h	1bmol/h 237.665					
H2S		168.524 0	0			Ibmol/h 0 0	lbmol/h	lbmol/h			lbmol/h			
H2S Nitrogen		168.524 0 0.000101677	0 0 0 0	233.221 0		lbmol/h 0 0	lbmol/h	lbmol/h		Ibmol/h 0	lbmol/h			
		0	0 0 0 0	233.221 0 0.000204867	0.00139785 0	Ibmol/h 0 0 0	Ibmol/h 8.02282E-05 0	Ibmol/h		Ibmol/h 0	Ibmol/h 233.219 0			
Nitrogen		0 0.000101677	0 0 0 0 0	233.221 0 0.000204867	0.00139785 0 0.000357614	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06	lbmol/h		Ibmol/h 0 0.000331000	lbmol/h 233.219 0 6.83735E-06			
Nitrogen Carbon Dioxide		0 0.000101677 0.000766018	0 0 0 0 0 0	233.221 0 0.000204867 0.00237390	0.00139785 0 0.000357614 0.00105164	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	lbmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05	lbmol/h		Ibmol/h 0 0 0.000331000 0.000636199	Ibmol/h 233.219 0 6.83735E-06 0.00139655			1
Nitrogen Carbon Dioxide Methane		0 0.000101677 0.000766018 0.0302833	0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944	0.00139785 0 0.000357614 0.00105164 0.167944	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758	lbmol/h		Ibmol/h 0 0 0.000331000 0.000636199 0.161507	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00417932			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05	0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.00420340	0.00139785 0 0.000357614 0.00105164 0.167944 0.185502 0.204983 0.0635018	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0574953 0.0318044	lbmol/h		Ibmol/h 0 0 0.000331000 0.000636199 0.161507 0.261183 0.289627 0.0825203	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00417932 0.000952582 0.000351736 5.27388E-06			1
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05 0.000297250	0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000171268 0.000772113	0.00139785 0 0.000357614 0.00105164 0.167944 0.185502 0.204983 0.0635018 0.189983	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0574953 0.0574953 0.0318044 0.112529	ibmol/h		Ibmol/h 0 0.000331000 0.000636199 0.161507 0.261183 0.289627 0.0825203 0.243538	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00417932 0.000952582 0.000351736 5.27388E-06 5.04885E-05			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05	0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000171268 0.000171268 0.000772113 0.000158211	0.00139785 0 0.000357614 0.00105164 0.167944 0.185502 0.204983 0.0635018 0.189983 0.144075	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0574953 0.0318044 0.112529 0.113347	lbmol/h		Ibmol/h 0 0 0.000331000 0.00068199 0.161507 0.261183 0.289627 0.0825203 0.243538 0.140145	Ibmol/h 233.219 0 6.83735E-06 0.00136655 0.00417932 0.00055282 0.000351736 5.27388E-06 5.04885E-05 7.23869E-06			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000171268 0.000727113 0.000772113 0.00075211 0.000152061	0.00139785 0 0.000357614 0.0105164 0.167944 0.185502 0.204983 0.0635018 0.189983 0.144075 0.149526	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.00767485 0.00774953 0.0318044 0.112529 0.113347 0.124301	lbmol/h		Ibmol/h 0 0 0 0 0.000331000 0.000636199 0.261183 0.289627 0.0625203 0.24338 0.140145 0.188621	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00417932 0.000952582 0.000351736 5.27388E-06 5.04885E-05 5.46848E-06			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-P-entane 2-Methylpentane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.90958E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0.000204867 0.00237390 0.0630944 0.00420340 0.00420340 0.000171268 0.000171268 0.000171281 0.000172113 0.000158211 0.000126661 8.49648E-07	0.00139785 0 0.000357614 0.00105164 0.167944 0.165502 0.204983 0.0635018 0.163903 0.144075 0.149526 0.00547503	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0378054 0.0378054 0.0318044 0.112529 0.113347 0.124301 0.00504870	lbmol/h		Ibmol/h 0 0 0 0.000331000 0.00035199 0.161507 0.261183 0.289627 0.0825203 0.243538 0.140145 0.140145 0.113448	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00417932 0.000962582 0.000351736 5.27388E-06 5.0486E-05 7.23869E-06 1.87802E-08			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00108878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.39058E-07 6.08408E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.002204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000171268 0.000772113 0.000178211 0.000120661 8.49548E-07 1.66451E-06	0.00139785 0 0.000357614 0.00105164 0.167944 0.185502 0.204983 0.0635018 0.189983 0.144075 0.149526 0.005475503 0.00434166	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0276748 0.0574953 0.0318044 0.112529 0.113347 0.124301 0.00504870 0.00504870	ibmol/h		Ibmol/h 0 0 0 0.000331000 0.000636199 0.161507 0.261183 0.289627 0.0625203 0.243538 0.140145 0.188621 0.113448 0.0813575	Ibmol/h 233.219 0 6.83735E-06 0.00138665 0.00139665 0.000351736 5.27388E-06 5.04885E-05 7.2380E-06 5.46848E-06 1.87802E-08 9.61784E-08			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Mettylpentane n-Hexane		0 0.000101677 0.000766018 0.0002833 0.00517544 0.0010878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.39058E-07 6.08408E-07 3.38852E-05	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000171268 0.00072713 0.000158211 0.000158211 0.000158211 0.000158211 1.66451E-06 7.56674E-05	0.00139785 0 0.000357614 0.00105164 0.167944 0.185502 0.204983 0.0635018 0.1489983 0.144075 0.149526 0.004347503 0.004347603 0.00434166 0.853337	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0076748 0.0378054 0.0378054 0.0318044 0.112529 0.113347 0.124301 0.00563699 0.804463	ibmol/h		Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.000387528 0.000381736 5.27388E-06 5.04885E-05 7.23869E-06 5.46848E-06 1.87802E-08 9.61784E-06 1.33597E-06			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Mettry/pentane - n-Hexane Mettry/cyclopentane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.39085E-07 6.08408E-07 3.38852E-05 4.88903E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.0001721136 0.000172113 0.000172061 8.49648E-07 1.66451E-06 7.56674E-05 2.83857E-06	0.00139785 0 0.000357614 0.00105164 0.167944 0.185502 0.204983 0.0635018 0.189983 0.144075 0.149526 0.0047503 0.00437503 0.00437166 0.653337 0.00301799	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0574863 0.0318044 0.112529 0.113347 0.12529 0.113347 0.12529 0.113347 0.124301 0.0044870 0.00403599 0.0044453 0.00255258	ibmol/h		Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 233.219 0 6.83735E-06 0.001396655 0.00417932 0.000952582 0.000952582 0.000391736 5.27388E-06 5.4488E-06 5.46848E-06 1.87802E-08 9.61784E-08 1.33597E-06 4.41349E-07			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane -n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcopentane Benzene		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.90558E-07 6.08400E-07 3.38852E-05 4.86800E-07 8.13063E-06	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.0630844 0.0124766 0.00420340 0.000172113 0.000172113 0.000172113 0.000158211 0.000158211 0.000158511 0.000158511 0.00015861 8.49848E-07 1.66451E-06 7.56674E-05 2.38357E-06 4.29963E-05	0.00139785 0 0.000357614 0.167944 0.167944 0.167944 0.165502 0.204983 0.06535018 0.189983 0.149075 0.149075 0.149526 0.00547503 0.00417503 0.00341769 0.000382756	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.0056758 0.0318044 0.112529 0.11347 0.124301 0.00504870 0.00604870 0.000643399 0.804463 0.00028528 0.000843329	lbmol/h		Ibmol/h 0 0 0.0000331000 0.000636199 0.161507 0.261183 0.289627 0.0825203 0.243538 0.140145 0.188621 0.183755 0.242311 0.0440872 0.0132575	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.000417932 0.000351736 5.27388E-06 5.04885E-06 5.04885E-06 5.46848E-06 1.87802E-08 9.61748E-08 9.61748E-08 9.61748E-08 3.87730E-05			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane -n-Pentane 2-Methylpentane n-Hexane Methylyclopentane Benzene 2-Methylhexane		0 0.000101677 0.000766018 0.0302833 0.00517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.82028E-05 4.82028E-05 4.8408E-07 6.08408E-07 6.339055E-05 4.86903E-07 8.13063E-06 1.44841E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.000217288 0.000171288 0.000171288 0.000171288 0.000172113 0.000158211 0.000158211 0.000158211 0.00015661 8.49545E-07 1.66451E-06 7.36674E-06 7.36674E-06 7.30674E-06 7.10726E-07	0.00139785 0 0.000357614 0.0105164 0.167944 0.185502 0.204983 0.0635018 0.189983 0.144075 0.149526 0.00647503 0.00434166 0.853337 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.000547503 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054756 0.00054 0.00054 0.00055756 0.00055756 0.00055756 0.00054 0.00055756 0.000557556 0.000557556 0.000557556 0.000557556 0.00055755	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0574953 0.0318044 0.112529 0.113347 0.124301 0.00504870 0.00604870 0.00604870 0.00265258 0.000843329 0.0170205	lbmol/h		Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 233.219 0 6.83735E-06 0.00139665 0.00139665 0.000351736 5.2738E-06 5.04885E-05 5.46849E-06 1.33872-06 1.33877-06 4.41349E-07 3.387730E-05 1.33313E-08			1
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 3-Methylpentane 3-Methylpentane n-Hexane Methylpentane Benzene 2-Methylhexane		0 0.000101677 0.000766018 0.002833 0.00517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.90958E-07 6.08408E-07 3.38852E-05 4.88005E-07 1.48404E-07 1.28806E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000171268 0.00072113 0.000158211 0.000158211 0.000158211 0.000158211 0.000158614 8.49649E-07 1.56654E-05 2.33857E-06 4.29963E-05 7.10726E-07 6.10053E-07	0.00139785 0 0.000357614 0.0105164 0.167944 0.185502 0.204983 0.0635018 0.144075 0.149526 0.00547503 0.00434166 0.853337 0.00434166 0.853337 0.00392756 0.00174430 0.0174430	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.00774953 0.0318044 0.112529 0.113347 0.124301 0.00504870 0.00486599 0.804463 0.00285288 0.000843329 0.00170205 0.0170205	ibmol/h		Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 233.219 0 6.83735E-06 0.00139665 0.00139665 0.000381736 5.27388E-06 5.04885E-06 5.04885E-06 5.46848E-06 1.87802E-08 9.61784E-06 1.33597E-06 1.33597E-06 1.33597E-06 1.33313E-08 1.19505E-08			1
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane slopentane n-Pentane 2-Methylpentane 3-Methylpentane Benzene Benzene 2-Methylhexane 3-Methylhyexane Heptane		0 0.000101677 0.000766018 0.0302833 0.00017544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.39058E-07 6.08408E-07 8.13065E-06 1.44841E-07 1.59356E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000772113 0.00017268 0.000772113 0.000158211 0.000158211 0.000120661 8.49648E-07 1.66451E-06 7.56674E-05 2.83857E-06 4.29865E-05 7.10726E-07 6.10035E-07 1.29825E-06	0.00139785 0 0.000357614 0.0105164 0.167344 0.185502 0.204983 0.0635018 0.144075 0.149526 0.00547503 0.00437503 0.00437503 0.00301799 0.0082756 0.0174430 0.0150279 0.0387821	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70178E-05 0.00266758 0.00266758 0.0318044 0.0574953 0.0318044 0.112529 0.113347 0.124301 0.00403599 0.804463 0.00285258 0.00043329 0.00146806 0.0380711	ibmol/h		Ibmol/h 0 0 0.000331000 0.000636199 0.161507 0.281183 0.280627 0.0825203 0.243538 0.140145 0.188621 0.0813575 0.282311 0.040872 0.0125755 0.125955 0.10166 0.224238	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00139655 0.00417932 0.000952582 0.00031736 5.27388E-06 5.46485E-05 7.23869E-06 5.46448E-06 1.87802E-08 9.61784E-08 1.33597E-06 4.41349E-07 3.87730E-05 1.33313E-08 1.139508E-08 2.55709E-08			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane -n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane Heptane Methylcyclohexane		0 0.000101677 0.000766018 0.0302833 0.00017544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.9055E-05 4.86903E-07 8.13063E-06 1.44841E-07 1.28306E-07 1.28305E-07 1.42338E-06	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000172113 0.000172113 0.000172113 0.000158211 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158200 0.000158210 0.000158200 0.000000000000000000000000000000000	0.00139785 0 0.000357614 0.0105164 0.167944 0.185502 0.204983 0.0655018 0.189983 0.144075 0.149526 0.00547503 0.00434166 0.6853337 0.00301799 0.000892756 0.0174430 0.0150279 0.0387821 0.0251902	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0574653 0.0318044 0.112529 0.113347 0.124301 0.0054870 0.00403599 0.804463 0.00286228 0.000843329 0.01740205 0.0146806 0.0380711 0.0247146	ibmol/h		Ibmol/h 0 0 0.0000331000 0.000636199 0.161507 0.261183 0.289627 0.0825203 0.243538 0.140145 0.188621 0.183622 0.0438755 0.0243376 0.042975 0.125955 0.104186 0.242238 0.146301	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00417932 0.000351736 5.27388E-06 5.04885E-06 5.04885E-06 5.04885E-06 1.87802E-08 9.61784E-08 9.61784E-08 9.61784E-07 3.87730E-05 1.33313E-08 1.19505E-08 2.55708E-08 5.48145E-07			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane slopentane n-Pentane 2-Methylpentane 3-Methylpentane Benzene Benzene 2-Methylhexane 3-Methylhyexane Heptane		0 0.000101677 0.000766018 0.0302833 0.000517544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.82028E-05 4.82028E-05 4.82028E-05 4.86005E-07 8.13063E-05 1.44841E-07 1.28306E-07 1.59356E-07 1.59356E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.0630844 0.0630844 0.00124766 0.00420340 0.000171268 0.000172113 0.000172113 0.000158211 0.000158211 0.000158211 0.000158211 0.00015861 8.49648E-07 1.66451E-06 7.56674E-05 2.33857E-06 4.29963E-05 7.10728E-06 5.04772E-06 7.45001E-05	0.00139785 0 0.000357614 0.167944 0.167944 0.167944 0.165502 0.204983 0.0635018 0.189983 0.144075 0.149526 0.00547503 0.00547503 0.00547503 0.00341166 0.853337 0.00301799 0.000892756 0.0174430 0.00307821 0.0251902 0.02715682	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0378044 0.112529 0.113347 0.124301 0.00504870 0.00604870 0.006403599 0.000403599 0.000403599 0.000403329 0.000403329 0.000403329 0.0170205 0.0146806 0.0380711 0.0247146 0.0247146	Ibmol/h		Ibmol/h 0 0 0.000331000 0.000636199 0.161507 0.261183 0.289627 0.0825203 0.24338 0.140145 0.188621 0.113448 0.0132575 0.125955 0.146301 0.446301 0.0322037	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.00139655 0.000361736 5.27388E-06 5.04885E-05 5.46848E-06 1.37802E-08 9.61784E-08 1.37807E-06 4.1349E-07 3.387730E-05 1.33313E-08 1.19505E-08 2.55709E-08 5.5709E-08 5.548145E-07 6.58253E-05			1
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isobutane n-Butane 2-Methylpentane 3-Methylpentane Benzene Benzene 2-Methylhexane 3-Methylhexane 3-Methylhexane Heptane Methyloyclohexane Toluene		0 0.000101677 0.000766018 0.0302833 0.00017544 0.00109878 5.71257E-05 0.000297250 4.82028E-05 4.73443E-05 3.9055E-05 4.86903E-07 8.13063E-06 1.44841E-07 1.28306E-07 1.28305E-07 1.42338E-06	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	233.221 0 0.000204867 0.00237390 0.0630944 0.0124766 0.00420340 0.000172113 0.000172113 0.000172113 0.000158211 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158210 0.000158200 0.000158210 0.000158200 0.000000000000000000000000000000000	0.00139785 0 0.000357614 0.0105164 0.167944 0.185502 0.204983 0.0655018 0.189983 0.144075 0.149526 0.00547503 0.00434166 0.6853337 0.00301799 0.000892756 0.0174430 0.0150279 0.0387821 0.0251902	Ibmol/h 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Ibmol/h 8.02282E-05 0 1.85396E-06 5.70175E-05 0.00266758 0.0176748 0.0574653 0.0318044 0.112529 0.113347 0.124301 0.0054870 0.00403599 0.804463 0.00286228 0.000843329 0.01740205 0.0146806 0.0380711 0.0247146	ibmol/h		Ibmol/h 0 0 0.0000331000 0.000636199 0.161507 0.261183 0.289627 0.0825203 0.243538 0.140145 0.188621 0.183622 0.0438755 0.0243376 0.042975 0.125955 0.104186 0.242238 0.146301	Ibmol/h 233.219 0 6.83735E-06 0.00139655 0.000179325 0.000351736 5.27388E-06 5.04885E-06 5.04885E-06 5.04885E-06 1.87802E-08 9.61784E-08 9.61784E-08 9.61784E-07 3.87730E-05 1.33313E-08 1.19505E-08 2.55708E-08 5.48145E-07			

o-Xylene		2.12525E-05	0	6.99248E-05	0.0210773	0	0.0209942		0	0.0434613	6.33320E-05	0	0	0
Nonane		4.36305E-07	0	5.76643E-07	0.174302	0	0.173958		0	0.271159	1.19056E-08	0	0	0
C10+		7.03421E-07	0	1.80190E-07	0.549352	0	0.549268		0	0.576139	4.65173E-09	0	0	0
Mass Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%
Water		99.9748	0.00911423	99.9574	0.00911423	0.000585314	0.000585314		100	0	99.9952	99.9952	5.64667E-07	99.9999
H2S		0	0	0	0	0	0		0	0	0	0	0	0
Nitrogen		9.37943E-05	0.00362577	0.000136534	0.00362577	2.10324E-05	2.10324E-05		0	0.00249903	4.55856E-06	4.55856E-06	2.17697E-06	2.58871E-09
Carbon Dioxide		0.00111013	0.0167507	0.00248551	0.0167507	0.00101619	0.00101619		0	0.00754600	0.00146277	0.00146277	0.00243945	5.62601E-05
Methane		0.0159978	0.975111	0.0240806	0.975111	0.0173305	0.0173305		0	0.698294	0.00159570	0.00159570	0.00913436	2.52554E-06
Ethane		0.00512453	2.01877	0.00892527	2.01877	0.215226	0.215226		0	2.11661	0.000681705	0.000681705	0.603639	1.00131E-06
Propane		0.00159549	3.27138	0.00440962	3.27138	1.02671	1.02671		0	3.44201	0.000369136	0.000369136	2.41126	1.32773E-07
Isobutane		0.000109335	1.33582	0.000236823	1.33582	0.748601	0.748601		0	1.29265	7.29536E-06	7.29536E-06	1.59100	3.29924E-10
n-Butane		0.000568920	3.99647	0.00106765	3.99647	2.64867	2.64867		0	3.81492	6.98408E-05	6.98408E-05	5.60581	4.75665E-09
Isopentane		0.000114522	3.76215	0.000271564	3.76215	3.31178	3.31178		0	2.72511	1.24298E-05	1.24298E-05	6.58733	2.13203E-10
n-Pentane		0.000112482	3.90450	0.000207110	3.90450	3.63182	3.63182		0	3.66771	9.39009E-06	9.39009E-06	7.08903	1.17459E-10
2-Methylpentane		1.10943E-06	0.170761	1.74192E-06	0.170761	0.176191	0.176191		0	2.63485	3.85174E-08	3.85174E-08	0.332640	9.23018E-14
3-Methylpentane		1.72649E-06	0.135412	3.41251E-06	0.135412	0.140849	0.140849		0	1.88955	1.97258E-07	1.97258E-07	0.264557	1.14612E-12
n-Hexane		9.61568E-05	26.6147	0.000155131	26.6147	28.0744	28.0744		0	6.55675	2.74003E-06	2.74003E-06	3.57990	2.54589E-13
Methylcyclopentane		1.34938E-06	0.0919263	5.68341E-06	0.0919263	0.0972213	0.0972213		0	0.999983	8.84015E-07	8.84015E-07	0.168003	1.10321E-11
Benzene		2.09136E-05	0.0252388	7.99012E-05	0.0252388	0.0266769	0.0266769		0	0.279097	7.20809E-05	7.20809E-05	0.00280280	2.75961E-09
2-Methylhexane		4.77920E-07	0.632581	1.69427E-06	0.632581	0.690667	0.690667		0	3.40149	3.17923E-08	3.17923E-08	0.0809167	1.25406E-15
3-Methylhexane		4.25011E-07	0.544995	1.45428E-06	0.544995	0.595719	0.595719		0	2.81360	2.84994E-08	2.84994E-08	1.04945	1.68452E-14
Heptane		5.25812E-07	1.40645	3.09484E-06	1.40645	1.54487	1.54487		0	6.05568	6.09812E-08	6.09812E-08	2.49817	2.64976E-14
Methylcyclohexane		4.62151E-06	0.895161	1.17910E-05	0.895161	0.982707	0.982707		0	3.87146	1.28091E-06	1.28091E-06	1.61868	3.42882E-12
Toluene		5.32313E-05	0.238660	0.000163306	0.238660	0.262947	0.262947		0	0.874192	0.000144347	0.000144347	0.0597930	2.67146E-09
Octane		2.43656E-06	7.72202	3.32766E-06	7.72202	8.58837	8.58837		0	15.1910	4.35563E-08	4.35563E-08	13.0777	3.70477E-15
Ethylbenzene		2.93732E-05	0.452665	9.53221E-05	0.452665	0.503834	0.503834		0	0.810997	8.32326E-05	8.32326E-05	0.209187	8.70900E-10
m-Xylene		4.56637E-05	0.665402	0.000120061	0.665402	0.741254	0.741254		0	1.08280	0.000105290	0.000105290	0.395799	1.23073E-09
o-Xvlene		7.42982E-05	0.809870	0.000126611	0.809870	0.902611	0.902611		0	1.24354	0.000160022	0.000160022	0.416027	1.95526E-09
Nonane		1.84269E-06	8.09089	1.75949E-06	8.09089	9.03527	9.03527		0	9.37293	3.63413E-08	3.63413E-08	12.5357	1.46313E-15
C10+		3.75247E-06	32.2095	6.94466E-07	32.2095	36.0347	36.0347		0	25 1547	1.79351E-08	1.79351E-08	39.8111	5.78840E-17
Mass Flow		lb/h	lb/h	lb/h	1b/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	100402-11
Water														
Water							0.00144522		4291.60	0	4201 50	0	0	0
H2S		3036.01	0	4201.55	0.0251826	0	0.00144533		4281.60 0	0	4201.50	0	0	0
H2S Nitrogen		0	0	0	0	0	0		4281.60 0	0 0 0 00027243	0	0	0	0
Nitrogen		0 0.00284832	0 0 0	0 0.00573901	0 0.0100180	0 0 0	0 5.19358E-05		4281.60 0 0	0 0 0.00927243	0 0.000191537	0 0 0	0 0 0	0 0 0
Nitrogen Carbon Dioxide		0 0.00284832 0.0337121	0 0 0	0 0.00573901 0.104474	0 0.0100180 0.0462821	0 0 0	0 5.19358E-05 0.00250931		4281.60 0 0 0	0.0279988	0 0.000191537 0.0614615	0 0 0	0 0 0 0	0 0 0
Nitrogen Carbon Dioxide Methane		0 0.00284832 0.0337121 0.485818	0 0 0 0	0 0.00573901 0.104474 1.01219	0 0.0100180 0.0462821 2.69423	0 0 0 0	0 5.19358E-05 0.00250931 0.0427946		4281.60 0 0 0 0	0.0279988 2.59096	0 0.000191537 0.0614615 0.0670466	0 0 0 0	0 0 0 0	0 0 0 0
Nitrogen Carbon Dioxide Methane Ethane		0 0.00284832 0.0337121 0.485818 0.155620	0 0 0 0 0	0 0.00573901 0.104474 1.01219 0.375160	0 0.0100180 0.0462821 2.69423 5.57785		0 5.19358E-05 0.00250931 0.0427946 0.531463		4281.60 0 0 0 0 0	0.0279988 2.59096 7.85352	0 0.000191537 0.0614615 0.0670466 0.0286432			0 0 0 0 0
Nitrogen Carbon Dioxide Methane Ethane Propane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516	0 0 0 0 0	0 0.00573901 0.104474 1.01219 0.375160 0.185351	0 0.0100180 0.0462821 2.69423 5.57785 9.03883		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529		4281.60 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100	0 0 0 0 0 0		0 0 0 0 0 0
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027	0 0 0 0 0 0 0	0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.00995446	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854		4281.60 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.000306530			0 0 0 0 0 0 0
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.0172768	0 0 0 0 0 0 0 0	0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.00995446 0.0448769	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044		4281.60 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.000306530 0.00293450			0 0 0 0 0 0 0
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.0172768 0.00347777		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.00995446 0.0448769 0.0114148	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788		4281.60 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.000306530 0.00293450 0.000522262			0 0 0 0 0 0 0 0
Nitrogen Carbon Dioxide Ethane Propane Isobutane n-Butane Isopentane n-Pentane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.0172768 0.00347777 0.00341583		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.00995446 0.0448769 0.014148 0.00870552	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 10.7882		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.000306530 0.00233450 0.00023450 0.000252262 0.000394544			0 0 0 0 0 0 0 0 0
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane		0 0.00284832 0.0337121 0.485818 0.156620 0.0484516 0.00332027 0.0172768 0.00341583 3.36910E-05		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.00995446 0.0448769 0.0114148 0.00114148 0.00114552 7.32188E-05	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 10.7882 0.471813		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.71778 8.96817 0.435073		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640	0 0.000191537 0.0614615 0.0270466 0.0286432 0.0155100 0.00306530 0.000522262 0.000522262 0.000394544 1.61839E-06			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.0172768 0.00341777 0.00341583 3.36910E-05 5.24298E-05		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.00995446 0.0448769 0.0114148 0.00870552 7.321885-05 0.000143439	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 10.7882 0.471813 0.374144		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817 0.435073 0.347803		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640 7.01101	0 0.00191537 0.0614615 0.0670466 0.0286432 0.0155100 0.003306530 0.00332450 0.00332450 0.00332450 0.00334544 1.616395-06 8.28821E-06			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane n-Hexane		0 0.00284832 0.0337121 0.485818 0.156620 0.0484516 0.00332027 0.0172768 0.00347777 0.00341583 3.36910E-05 5.24298E-05 0.00292007		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.00935446 0.0448769 0.0114148 0.00870552 7.32188-05 0.00014339 0.000652067	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69006 11.0423 10.3948 10.7882 0.471813 0.374144 73.5366		0 5 19358E-05 0 00250931 0 0427946 0 531463 2 53529 1 84854 6 54044 8. 17788 8. 96817 0 435073 0 435073 0 435073 6 9.3249		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283	0 0.000191537 0.0614615 0.0286432 0.0155100 0.000306530 0.000325450 0.00052252 0.000394544 1.61395-06 8.28821E-06 0.000115128			
Nitrogen Carbon Dioxide Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.0172768 0.00341583 3.36910E-05 5.24298E-05 0.00292007 4.09775E-05		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.0095466 0.0448769 0.0114148 0.00870552 7.32188E-05 0.000143439 0.00652067 0.000238893	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.7882 0.471813 0.374144 7.5.5866 0.253992		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817 0.435073 0.347803 6.3249 0.240071		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640 9.77640 2.43283 3.71036	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.0039450 0.00052262 0.00032454 1.61839E-06 8.28821E-06 0.00015128 3.71437E-05			
Nitrogen Carbon Dioxide Ethane Propane Isobutane n-Butane Isopentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcopentane Benzene		0 0.00284832 0.0337121 0.485818 0.055620 0.0484516 0.00332027 0.00347777 0.00341583 3.36910E-05 5.24298E-05 0.0029207 4.09775E-05 0.000635098		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.0995446 0.0448769 0.0114148 0.00470552 7.32188E-05 0.000143439 0.00652067 0.00023883 0.00032582	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 10.7882 0.471813 0.374144 73.5366 0.253992 0.0697348		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.177788 8.96817 0.435073 0.347803 69.3249 0.240071 0.040701 0.0658739		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 1.03557	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.000306630 0.00052262 0.000052262 0.000052262 0.000034544 1.61839E-06 8.28821E-06 0.000115128 3.71437E-05 0.000302863			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopertane 2-Methylpentane 3-Methylpentane n-Hexane Methylpentane Benzene 2-Methylpentane		0 0.00284832 0.0337121 0.485818 0.055620 0.0484516 0.00332027 0.012768 0.00347777 0.00347573 3.36910E-05 5.24298E-05 0.0029007 4.09775E-05 0.000635098 1.45134E-05		0 0.00573901 0.104474 1.01219 0.375160 0.375160 0.0485351 0.00995446 0.044769 0.0114148 0.00470552 7.32188E-05 0.000143439 0.00052883 0.000238832 7.12161E-05	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 10.7882 0.471813 0.374144 73.5366 0.253992 0.0697348 1.74782		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817 0.435073 0.347803 69.3249 0.240071 0.0658739 1.70548		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0279988 2 59096 7 85352 12.7713 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 1.03557 12.6210	0 0.000191537 0.0614415 0.0670466 0.0286432 0.0155100 0.000306530 0.00052262 0.00039450 0.00032450 0.00032450 0.00034544 1.61839E-06 8.28821E-06 0.00015128 3.71437E-05 0.00032883 1.33582E-06			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 3-Methylpentane Methyloyclopentane Benzene 2-Methylhexane 3-Methylhexane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.00347777 0.00347583 3.36910E-05 5.24298E-05 0.00092007 4.09775E-05 0.000635098 1.45134E-05 1.29066E-05		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.0093546 0.0448769 0.0114148 0.00870552 7.32188-05 0.00014339 0.00052067 0.000238893 0.0035862 7.12161E-05 6.11285E-05	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 10.7882 0.471813 0.374144 75.5366 0.253992 0.0697348 1.74782 1.74782		0 5 19358E-05 0 00250931 0 0427946 0 531463 2 53529 1 84854 6 54044 8. 17788 8. 96817 0. 435073 0. 435073 0. 32490 0. 240071 0. 0658739 1. 70548 1. 47103		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79526 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 1.03557 12.6210 10.4396	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.000306530 0.000394540 0.000394544 1.61839E-06 8.28821E-06 0.000115128 3.71437E-05 0.00302863 1.33582E-06 1.19746E-06			
Nitrogen Carbon Dioxide Ethane Propane Isobutane n-Butane sopertane n-Pentane 2-Methylpentane 3-Methylpentane Benzene Benzene 2-Methylhexane 3-Methylhexane Heptane		0 0.00284832 0.485818 0.485818 0.155620 0.0484516 0.0032027 0.0172768 0.00341583 3.36910E-05 5.24298E-05 0.00292007 4.09775E-05 0.00035098 1.45134E-05 1.2906RE-05 1.59678E-05		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.09870552 7.321885-05 0.000143439 0.00052067 0.000238893 0.00328893 0.0035862 7.12161E-05 6.11285E-05 0.000130087	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.7882 0.471813 0.374144 7.5.386 0.253992 0.0697348 1.74782 1.50582 3.88604		0 5 19358E-05 0 00250931 0 0427946 0 531463 2 53529 1 84854 6 54044 8 17788 8 96817 0 435073 0 347803 6 3249 0 240071 0 0658739 1 70548 1 147103 3 81480		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640 9.77640 7.01101 24.3283 3.71036 1.03557 12.6210 10.4396 22.4691	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.00039450 0.00052262 0.00039454 1.61839E-06 8.28821E-06 0.000115128 3.71437E-05 0.00032833 1.33582E-06 1.19746E-06 2.56225E-06			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2.Methylpentane 3.Methylpentane Benzene 2.Methylhexane Methylcyclopentane Heptane Heptane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.0172768 0.00341583 3.36910E-05 5.24299E-05 0.00292007 4.09775E-05 0.00292007 1.29066E-05 1.59678E-05 0.500140345		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.0995446 0.0448769 0.0114148 0.00670552 7.32188E-05 0.00143439 0.00623893 0.000328893 0.000328852 7.12161E-05 6.11285E-05 0.000149087 0.000495615	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.7882 0.471813 0.374184 73.5366 0.2559992 0.0697348 1.74782 1.50582 1.50582 3.88604 2.47333		0 5.19358E-05 0.00259031 0.0427946 0.531463 2.53529 1.84864 6.54044 8.17788 8.96817 0.435073 0.347803 69.3249 0.2440071 0.0658739 1.70548 1.47103 3.81480 2.42663		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0279988 2 59096 7 85352 12.7713 14.79526 14.1549 10.1113 16.0087 9.77640 7.01101 24.3283 3.71036 1.03557 12.6210 10.4396 22.4691 14.3647	0 0.000191537 0.0614161 0.0670466 0.0286432 0.0155100 0.000306530 0.00052262 0.00039450 0.00052262 0.000394544 1.61839E.06 8.28821E.06 0.000115128 3.71437E.05 0.00302863 1.3382E.06 1.19746E.06 2.56225E.06 5.38202E.05			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane 1-Sutane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane 3-Methylhexane Heptane Methylcyclohexane Toluene		0 0.00284832 0.0337121 0.485818 0.055620 0.0484516 0.00332027 0.0172768 0.00347583 3.36910E-05 5.24298E-05 0.00292007 4.09775E-05 0.0006635098 1.45134E-05 1.29066E-05 1.59678E-05 0.000140345 0.000140345		0 0.00573901 0.104474 1.01219 0.375160 0.375160 0.035551 0.00995446 0.014148 0.00470552 7.32188E-05 0.000143439 0.00023883 0.00023883 0.00023883 0.00035652 7.12161E-05 6.11285E-05 0.0001496515 0.0004496515 0.000496515	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 0.471813 0.374144 73.5366 0.471813 0.374144 73.5369 0.053992 0.0697348 1.74782 1.50582 3.88604 2.47333 0.659418		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.69817 0.435073 0.347803 69.3249 0.240071 0.0658739 1.70548 1.47103 3.81480 2.42663 0.649303		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0279988 2 59096 7 85352 12.7713 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 10.03557 12.6210 10.4396 22.4691 14.3647 3.24362	0 0.000191537 0.061445 0.0670466 0.0286432 0.0155100 0.003306530 0.0052262 0.00052262 0.00034540 1.61339E-06 8.28821E-06 0.000315128 3.7437E-05 0.00302863 1.33582E-06 1.19746E-06 2.56225E-06 5.38202E-05 0.000606504			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane 2-Methylpentane 3-Methylpentane Methylcyclopentane Benzene 2-Methylhexane 3-Methylhexane Heptane Methylcyclohexane Toluene Octane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.0032027 0.00347777 0.0034758 0.00347777 0.0034758 0.00292007 4.09775E-05 0.000635098 1.45134E-05 1.29066E-05 1.29066E-05 1.59678E-05 0.000161652 7.39928E-05		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.0093546 0.0448769 0.0114148 0.00870552 7.32188-05 0.000143439 0.00652067 0.000138652 7.12161E-05 6.11285E-05 0.000130657 0.00065515 0.00065422 0.000139673	0 0.0100180 0.0462821 2.69423 5.57785 9.03883 3.69086 11.0423 10.3948 10.7882 0.471813 0.374144 73.5366 0.253992 0.0697348 1.74782 1.50582 3.88604 2.47333 0.655418 21.3360		0 5 19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817 0.435073 0.347803 69.3249 0.2400713 0.0558739 1.70548 1.47103 3.81480 2.42663 0.649303 21.2075		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 1.03557 12.6210 10.4396 22.4691 14.3647 3.24362 56.3651	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.000394540 0.000394540 0.000394544 1.61839E-06 8.28821E-06 0.000115128 3.71437E-05 0.000115128 3.71437E-05 1.19746E-06 2.56225E-06 5.38202E-05 0.000606504 1.83011E-06			
Nitrogen Carbon Dioxide Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane Benzene 2-Methylcxclopentane Benzene 3-Methylcxclopentane Heptane Methylcyclohexane Toluene Octane		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.0033027 0.0172768 0.00341583 3.38910E-05 5.24298E-05 0.00292007 4.09775E-05 0.00053098 1.45134E-05 1.59678E-05 0.000140345 0.00140345 0.0016622 7.39928E-05 0.000891998		0 0.00573901 0.104474 1.01219 0.375160 0.185351 0.0098466 0.0448769 0.0114148 0.00870552 7.3218605 0.000143439 0.00052067 0.000238893 0.00035852 7.12161E05 6.11285E05 0.000130067 0.000139673 0.00049671	0 0.0100180 0.0462821 269423 5.57785 9.03883 3.69086 11.0423 10.7882 0.471813 0.374144 17.45366 0.253992 0.0697348 1.74782 1.50582 3.88604 2.47333 0.659418 21.3360 1.25071	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5 19358E-05 0 00250931 0 0427946 0 531463 2 53529 1 84854 6 54044 8 17788 8 96817 0 435073 0 347803 6 3249 0 240071 0 0658739 1 70548 1 147103 3 81480 2 42663 0 649303 2 12075 1 24413		4281.60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0279988 2.59096 7.85352 12.7713 4.79626 14.1549 10.1113 13.6087 9.77640 7.70101 24.3283 3.71036 1.03557 12.6210 10.4396 22.4691 14.3647 3.24362 25.3651 3.00914	0 0.000191537 0.0614615 0.0670466 0.0286432 0.0155100 0.0033450 0.00052262 0.000334544 1.61339E-06 8.28821E-06 0.000315128 3.71437E-05 0.000115128 3.71437E-05 0.0002883 1.33582E-06 1.33582E-06 5.38202E-05 0.00606504 1.83011E-06 0.00349719	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
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Nitrogen Carbon Dioxide Hehane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane 3-Methylpentane Benzene 2-Methylhexane Methylcyclopentane Benzene 2-Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Octylene Nonane C10+		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.0032027 0.0172768 0.00341583 3.36910E-05 5.24298E-05 0.00292007 4.09775E-05 0.00039098 1.45134E-05 1.29678E-05 0.000140345 0.00140345 0.00018998 0.00138671 0.00225627 5.595882-05 0.00013954		0 0.00573901 0.10474 1.01219 0.375160 0.375160 0.485351 0.0098746 0.0448769 0.0114148 0.00870552 7.32188E-05 0.000134339 0.000238833 0.00328823 7.12161E-05 6.11285E-05 0.000130873 0.000495515 0.000495515 0.000495515 0.000495515 0.000139873 0.000495515 0.00049555 0.00049555 0.00049555 0.00049555 0.00049555 0.00049555 0.0005555 0.000555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0	0 0.0100180 0.0462821 2.69423 5.7785 9.03883 3.69086 11.0423 10.7882 0.471813 0.374144 73.5366 0.253992 0.0697348 1.74782 1.50582 3.88604 2.47333 0.659418 21.3360 1.25071 1.83851 2.23767 22.3551 88.9950		0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817 0.435073 0.347803 0.347803 0.347803 0.347803 0.347803 0.347803 0.347803 0.558739 1.70548 1.747103 3.81480 2.42663 0.649303 21.2075 1.24413 1.83040 2.22884 2.23111 8.9.814			0 0279988 2 59096 7 85352 12,7713 4.79626 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 1.03557 12.6210 10.4396 12.224691 14.3647 3.24362 22.4691 14.3647 3.24362 56.3651 3.00914 4.01765 4.61407 34.7775 9.3344	0 0.000191537 0.061415 0.0670466 0.0286432 0.0155100 0.00039450 0.00052262 0.00032454 1.01338-06 8.28821E-06 0.00032863 1.33582E-06 1.97482E-06 5.38202E-06 5.38202E-06 5.38202E-06 5.38202E-06 5.38202E-05 0.00036504 1.83011E-06 0.000342719 0.00442398 0.00572364 1.52696E-06 7.53580E-07			
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane 2-Methylpentane 3-Methylpentane Benzene 2-Methylhexane Methylcylopentane Benzene 2-Methylhexane Heptane Methylcylohexane Toluene Octane Ethylbenzene m Xylene o-Xylene Nonane C10+		0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.00332027 0.0172768 0.00341583 3.36910E-05 5.24298E-05 0.00292007 4.99775E-05 0.00292007 4.99775E-05 0.00292007 1.29066E-05 1.29066E-05 1.29066E-05 1.29066E-05 1.29066E-05 0.00140345 0.00161652 7.39928E-05 0.00038071 0.0023671 0.0038671 0.00328671 0.0038671 0.0038671 0.00328671 0.0038671 0.00038672 0.00038672 0.000038672 0.000038672 0.000038672 0.000038672 0.000038672 0.000038672 0.000038672 0.000038672 0.000038672 0.000038672 0.000038675 0.000038675 0.000038675 0.00000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0.00573901 0.104474 1.01219 0.375160 0.375160 0.375160 0.0485351 0.0095446 0.044769 0.0114148 0.00870552 7.32188E-05 0.000134339 0.00652067 0.000238893 0.00335852 7.12161E-05 6.11285E-05 0.000130873 0.000495615 0.000495615 0.000495615 0.000495615 0.000495615 0.000495615 0.000495615 0.000496542 0.000496545 0.000496542 0.000496542 0.000496542 0.000496545 0.000496542 0.000496545 0.000496542 0.000496545 0.000496545 0.000496545 0.000496542 0.000496545 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00049655 0.00040657 0.0004955	0 0.0100180 0.0462821 2.69423 5.7785 9.03883 3.69086 11.0423 10.7882 0.471813 0.37414 73.5366 0.2559992 0.0697348 1.74782 1.50582 3.88604 2.47333 0.659418 21.33651 1.25071 1.33551 2.23767 22.3551 88.9950 HP Separator Oil	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817 0.435073 0.347803 69.3249 0.0240071 0.0658739 1.70548 1.47103 3.81480 0.242063 0.643033 21.2075 1.24413 1.83040 2.22884 22.3111 88.9814 Sales Oil	Gas	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0279988 2 59096 7 85352 12.7713 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 10.3557 12.6210 10.4396 22.4691 14.3847 3.24362 55.3651 3.00914 4.01765 4.61407 3.4.7775 93.3344 0ii	0 0.00191537 0.061415 0.0670466 0.0286432 0.0155100 0.00393450 0.00052282 0.00052282 0.000394544 1.61839E-06 0.000115128 3.71437E-05 0.00302863 1.3382E-06 1.19746E-06 2.56225E-06 5.38202E-05 5.38202E-05 5.38202E-05 0.00066504 1.83011E-06 0.00349719 0.00424388 0.00672364 1.52996E-06 7.53580E-07 Produced Water	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane Isopentane n-Pentane 2-Methylpentane 3-Methylpentane 3-Methylpentane Benzene 2-Methylpentane Benzene 2-Methylhexane Methylcyclopentane Benzene Catane Heptane Methylcyclopentane Heptane Methylcyclopentane Cotane Ethylbenzene m-Xylene o-Xylene Nonane C10+	Status Units	0 0.00284832 0.0337121 0.485818 0.155620 0.0484516 0.0032027 0.0172768 0.00341583 3.36910E-05 5.24298E-05 0.00292007 4.09775E-05 0.00039098 1.45134E-05 1.29678E-05 0.000140345 0.00140345 0.00018998 0.00138671 0.00225627 5.595882-05 0.00013954	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0.00573901 0.10474 1.01219 0.375160 0.375160 0.485351 0.0098746 0.0448769 0.0114148 0.00870552 7.32188E-05 0.000134339 0.000238833 0.00328823 7.12161E-05 6.11285E-05 0.000130873 0.000495515 0.000495515 0.000495515 0.000495515 0.000139873 0.000495515 0.00049555 0.00049555 0.00049555 0.00049555 0.00049555 0.00049555 0.0005555 0.000555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0005555 0.0	0 0.0100180 0.0462821 2.69423 5.7785 9.03883 3.69086 11.0423 10.7882 0.471813 0.374144 73.5366 0.253992 0.0697348 1.74782 1.50582 3.88604 2.47333 0.659418 21.3360 1.25071 1.83851 2.23767 22.3551 88.9950	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 5.19358E-05 0.00250931 0.0427946 0.531463 2.53529 1.84854 6.54044 8.17788 8.96817 0.435073 0.347803 0.347803 0.347803 0.347803 0.347803 0.347803 0.347803 0.558739 1.70548 1.747103 3.81480 2.42663 0.649303 21.2075 1.24413 1.83040 2.22884 2.23111 8.9.814	Gas Solved		0 0279988 2 59096 7 85352 12,7713 4.79626 14.1549 10.1113 13.6087 9.77640 7.01101 24.3283 3.71036 1.03557 12.6210 10.4396 12.224691 14.3647 3.24362 22.4691 14.3647 3.24362 56.3651 3.00914 4.01765 4.61407 34.7775 9.3344	0 0.000191537 0.061415 0.0670466 0.0286432 0.0155100 0.00039450 0.00052262 0.00032454 1.01338-06 8.28821E-06 0.00032863 1.33582E-06 1.97482E-06 5.38202E-06 5.38202E-06 5.38202E-06 5.38202E-06 5.38202E-05 0.00036504 1.83011E-06 0.000342719 0.00442398 0.00572364 1.52696E-06 7.53580E-07	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Pressure	psig	200	200	200	200	0	0	200	300	0	0	12.0035	-14.2249
Mole Fraction Vapor	%	0	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	100
Mole Fraction Heavy Liquid	%	0	0	0	0	0	0	0	0	0	0	0	0
Molecular Weight	lb/lbmol	18.0	90.9	18.0	90.9	105.6	105.6	18.0	93.0	18.0156	18.0156	104.144	18.0153
Mass Density	lb/ft^3	60.8	42.7	62.3	42.7	43.9	43.9	57.3	38.9	62.2170	62.2170	43.7725	62.2179
Molar Flow	lbmol/h	168.6	0.0	233.3	3.0	0.0	2.3	237.7	4.0	233.226	0	0	0
Mass Flow	lb/h	3036.8	0.0	4203.3	276.3	0.0	246.9	4281.6	371.0	4201.71	0	0	0
Vapor Volumetric Flow	MCFH	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0675330	0	0	0
Liquid Volumetric Flow	Mbbl/d	0.2	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.288675	0	0	0
Std Vapor Volumetric Flow	MMSCFD	1.5	0.0	2.1	0.0	0.0	0.0	2.2	0.0	2.12414	0	0	0
Std Liquid Volumetric Flow	Mbbl/d	0.2	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.288000	0	0	0
Compressibility		0.009	0.080	0.011	0.080	0.006	0.006	0.008	0.106	0.000740328	0.000740328	0.0110515	2.37282E-05
Specific Gravity		0.975	0.685	0.998	0.685	0.704	0.704	0.920	0.623	0.997563	0.997563	0.701831	0.997577
API Gravity		10.0	73.4	10.0	73.4	67.3	67.3	10.0	70.7	10.0154	10.0154	67.8846	10.0135
Enthalpy	MMBtu/h	-20.4	0.0	-28.7	-0.3	0.0	-0.2	-28.3	-0.3	-28.6658	0	0	0
Mass Enthalpy	Btu/lb	-6729.9	-923.3	-6824.8	-923.3	-883.7	-883.7	-6598.5	-831.1	-6822.41	-6822.41	-893.829	-6822.66
Mass Cp	Btu/(lb*°F)	1.0	0.5	1.0	0.5	0.5	0.5	1.0	0.6	0.982734	0.982734	0.497423	0.982746
Ideal Gas CpCv Ratio		1.321	1.060	1.326	1.060	1.052	1.052	1.316	1.049	1.32555	1.32555	1.05227	1.32556
Dynamic Viscosity	cP	0.4	0.4	1.0	0.4	0.5	0.5	0.2	0.2	0.924435	0.924435	0.446138	0.924434
Kinematic Viscosity	cSt	0.4	0.5	1.0	0.5	0.6	0.6	0.2	0.3	0.927569	0.927569	0.636278	0.927556
Thermal Conductivity	Btu/(h*ft*°F)	0.4	0.1	0.3	0.1	0.1	0.1	0.4	0.1	0.349784	0.349784	0.0677761	0.349835
Surface Tension	lbf/ft	0.004	0.001	0.005	0.001	0.001	0.001	0.003	0.001	0.00499711	0.00499711	0.00141051	0.00499737
Net I.G. Heating Value	Btu/ft^3	0.2	4609.2	0.4	4609.2	5335.1	5335.1	0.0	4704.7	0.0321073	0.0321073	5263.47	3.68900E-05
Net Liquid Heating Value	Btu/lb	-1054.5	19081.7	-1051.0	19081.7	19003.0	19003.0	-1059.8	19012.7	-1059.04	-1059.04	19018.1	-1059.76
Gross I.G. Heating Value	Btu/ft^3	50.6	4962.2	50.7	4962.2	5736.3	5736.3	50.3	5062.7	50.3436	50.3436	5660.05	50.3100
Gross Liquid Heating Value	Btu/lb	5.6	20554.9	9.2	20554.9	20443.8	20443.8	0.0	20471.3	0.736303	0.736303	20462.8	0.000814861

Process Streams		Well Stream	HP Separator Gas	HP Separator Water	HP Separator Oil	OT Flash Gas	Sales Oil	Gas	Water	Oil	Produced Water	PWT Flash Gas	Oil W/B	Water W/B
Phase: Heavy Liquid	Status	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%
Water			99.9640		99.9640									
H2S	1		0		0									
Nitrogen	1		8.78105E-05		8.78105E-05									
Carbon Dioxide	1		0.00101751		0.00101751									
Methane	1		0.0270437		0.0270437									
Ethane			0.00534776		0.00534776									
Propane			0.00180167		0.00180167									
Isobutane	1		7.34093E-05		7.34093E-05									
n-Butane			0.000330946		0.000330946									
Isopentane	1		6.78130E-05		6.78130E-05									
n-Pentane			5.17180E-05		5.17180E-05									
2-Methylpentane			3.64179E-07		3.64179E-07									
3-Methylpentane			7.13445E-07		7.13445E-07									
n-Hexane			3.24328E-05		3.24328E-05									
Methylcyclopentane			1.21668E-06		1.21668E-06									
Benzene			1.84292E-05		1.84292E-05									
2-Methylhexane			3.04633E-07		3.04633E-07									
3-Methylhexane			2.61483E-07		2.61483E-07									
Heptane			5.56458E-07		5.56458E-07									
Methylcyclohexane			2.16357E-06		2.16357E-06									
Toluene			3.19324E-05		3.19324E-05									
Octane			5.24850E-07		5.24850E-07									
Ethylbenzene			1.61764E-05		1.61764E-05									
m-Xylene]		2.03747E-05		2.03747E-05									
o-Xylene			2.99714E-05		2.99714E-05									
Nonane			2.47162E-07		2.47162E-07									
C10+			7.72335E-08		7.72335E-08									
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
Water			0		0									
H2S			0		0									
Nitrogen			0		0									
Carbon Dioxide			0		0									
Methane			0		0									

Ethane		0		0									
Propane		0		0									
Isobutane		0		0									
n-Butane		0		0									
Isopentane		0		0									
n-Pentane		0		0									
2-Methylpentane		0		0									
3-Methylpentane		0		0									
		0		0									
n-Hexane		0		0									
Methylcyclopentane		0		0									
Benzene		0		0									
2-Methylhexane		0		0									
3-Methylhexane		0		0									
Heptane		0		0									
Methylcyclohexane		0		0									
Toluene		0		0									
Octane		0		0									
Ethylbenzene		0		0									
m-Xylene		0		0									
· · · · · · · · · · · · · · · · · · ·													
o-Xylene				0							1		
Nonane		U		U							1		
C10+		0		0									
Mass Fraction	%	%	%	%	%	%	%	%	%	%	%	%	%
Water		99.9574		99.9574									
H2S		0		0							1		
Nitrogen		0.000136534		0.000136534							1		
Carbon Dioxide		0.00248551		0.00248551									
Methane		0.0240806		0.0240806									
Ethane		0.00892527		0.00892527									
Propane		0.00440962		0.00440962									
Isobutane		0.000236823		0.000236823									
n-Butane		0.00106765		0.00106765									
Isopentane													
		0.000271564		0.000271564									
n-Pentane		0.000207110		0.000207110									
n-Pentane 2-Methylpentane		0.000207110 1.74192E-06		0.000207110 1.74192E-06									
n-Pentane 2-Methylpentane 3-Methylpentane		0.000207110 1.74192E-06 3.41251E-06		0.000207110 1.74192E-06 3.41251E-06									
n-Pentane 2-Methylpentane		0.000207110 1.74192E-06 3.41251E-06		0.000207110 1.74192E-06 3.41251E-06									
n-Pentane 2-Methylpentane 3-Methylpentane		0.000207110 1.74192E-06		0.000207110 1.74192E-06									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane 3-Methylhexane		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06									
n-Pentane 2-Methylpentane 3-Methylpentane Methylcyclopentane Benzene 2-Methylcxane 3-Methylcxane Heptane		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane 3-Methylhexane Heptane Methylcyclohexane		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 1.69427E-06 1.69427E-06 3.09484E-06 3.09484E-06 1.17910E-05		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 1.69427E-06 1.69427E-06 3.09484E-06 3.09484E-06 1.17910E-05									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane 3-Methylhexane Heptane Methylcyclohexane Toluene		0.000207110 1.74192E-06 3.41251E-06 0.00155131 5.68341E-06 7.99012E-05 1.69427E-06 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306		0.000207110 1.74192E-06 3.41251E-06 0.00155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane 3-Methylhexane Heptane Methylcyclohexane Toluene Octane		0.000207110 1.74192E-06 3.41251E-06 0.00155131 5.68341E-06 1.69427E-06 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06		0.000207110 1.74192E-06 3.41251E-06 0.000153131 5.68341E-06 7.99012E-06 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Benzene 2-Methylcyclopentane Benzene 3-Methylcyclopexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene		0.000207110 1.741925-06 3.41251-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06 9.53221E-05		0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05									
n-Pentane 2-Methylpentane 3-Methylpentane Methylcyclopentane Benzene 2-Methylhexane 3-Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061		0.000207110 1.741925-06 3.41251-06 0.000155131 5.68341E-06 7.99012E-05 1.68427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061									
n-Pentane 2.Methylpentane 3.Methylpentane n-Hexane Methylcyclopentane 2.Methylcxane 3.Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene		0.000207110 1.74192E-06 3.41251E-06 0.00155131 5.68341E-06 7.99012E-05 1.68427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163006 3.32766E-06 9.53221E-05 0.00012061 0.000176611		0.000207110 1.74192E-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.2276E-06 9.53221E-05 0.00012061 0.00012061									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane 3-Methylhexane 3-Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane		0.000207110 1.741925-06 3.41251E-06 0.00155131 5.68341E-06 7.990125-05 1.69427E-06 1.49428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000176611 1.79949E-06		0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000176611 1.75949E-06									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Benzene 2-Methylcyclopentane Benzene 3-Methylcyclopexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+		0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07		0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07									
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane 3-Methylhexane 3-Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane	lb/h	0.000207110 1.741925-06 3.41251E-06 0.00155131 5.68341E-06 7.990125-05 1.69427E-06 1.49428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000176611 1.79949E-06	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000176611 1.75949E-06	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	ib/h	Ib/h	ibíh
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Benzene 2-Methylcyclopentane Benzene 3-Methylcyclopexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+	ibíh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	ibíh	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	ib/h	Ib/h	Ib/h
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Benzene 2-Methylcyclopentane Benzene 3-Methylcyclopexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10- Mass Flow	Ibíh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	ib/h	ib/h	ib/h	ib/h	tb/h	lb/h	ib/h	lb/h
n-Pentane 2.Methylpentane 3.Methylpentane n-Hexane Methylcyclopentane 2.Methylpextane 3.Methylpextane 3.Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S	ibh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lbíh	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	lbíh	lbíh	Ibíh	lbíh	lbíh	Ibíh	Ibih	ibih
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Benzene 2-Methylcyclopentane Benzene 3-Methylcyclopexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen	Ibíh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	Ib/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	lb/h	lb/h	Ib/h	ibíh	ibíh	ib/h	ib/h	Ib/h
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane 3-Methylcyclohexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10- Mass Flow Water H2S Nitrogen Carbon Dioxide	ibh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	ibih	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	Ibih	Ibíh						
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane Benzene 2-Methylhexane 3-Methylcyclohexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene n-Xylene Nonane Ct10+ Mass Flow Water H2S Nitrogen Carbon Dioxide Methane	lb/h	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	ib/h	lb/h	lb/h	lb/h	lb/h	lb/h	ib/h	ibih	lb/h
n-Pentane 2.Methylpentane 3.Methylpentane n-Hexane Methylcyclopentane 2.Methylpextane 3.Methylpextane 3.Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen Carbon Dioxide Methane Ethane	lb/h	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	ib/h	lb/h	ib/h	lb/h	lb/h	lb/h	ib/h	ibih	lb/h
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane 2-Methylcyclopentane 3-Methylnexane 3-Methylnexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen Carbon Dixxide Methane Ethane Ethane Propane	ib/h	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	ib/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	ibih	lbíh						
n-Pentane 2.Methylpentane 3.Methylpentane n-Hexane Methylcyclopentane 2.Methylcyclopentane 3.Methylcyclopexane Heptane Methylcyclohexane Toluene Octane Ethylcyclohexane Cotane Ethylenzene m-Xylene o-Xylene Nonane C10- Mass Flow Water H2S Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane	Ibíh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	lb/h	lb/h	lb/h	ib/h	ib/h	ib/h	ib/h	lb/h
n-Pentane 2.Methylpentane 3.Methylpentane n-Hexane Methylcyclopentane 2.Methylcyclopentane Benzene 2.Methylcyclopentane Heptane Methylcyclohexane Toluene Octane Ethylcyclohexane m-Xylene n-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane n-Butane	Ib/h	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	ib/h	lb/h	lbíh	lb/h	lb/h	lb/h	ib/h	lb/h	lb/h
n-Pentane 2.Methylpentane 3.Methylpentane n-Hexane Methylcyclopentane 2.4Methylpentane 3.4Methylpentane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane Isobutane Isopentane	 ibíh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	ibíh	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	Ibíh	lb/h	Ib/h	Ibih	Ib/h	ib/h	Ibih	Ibh
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane 2-Methylcyclopentane 3-Methylcyclopentane 3-Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane n-Butane n-Pentane	ibh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	lb/h	ib/h	lb/h	lb/h	lb/h	ib/h	lb/h	Ib/h
n-Pentane 2.Methylpentane 3.Methylpentane n-Hexane Methylcyclopentane 2.4Methylpentane 3.4Methylpentane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane Isobutane Isopentane	lb/h	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	lb/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	ib/h	lb/h	lb/h	lb/h	ib/h	lb/h	ib/h	ib/h	Ib/h
n-Pentane 2-Methylpentane 3-Methylpentane n-Hexane Methylcyclopentane 2-Methylcyclopentane 3-Methylcyclopentane 3-Methylhexane Heptane Methylcyclohexane Toluene Octane Ethylbenzene m-Xylene o-Xylene o-Xylene Nonane C10+ Mass Flow Water H2S Nitrogen Carbon Dioxide Methane Ethane Propane Isobutane n-Butane n-Butane n-Pentane	ibíh	0.000207110 1.74192E-06 3.4125E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.71910E-05 0.000163306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6.94466E-07	Ib/h	0.000207110 1.741925-06 3.41251E-06 0.000155131 5.68341E-06 7.99012E-05 1.69427E-06 1.45428E-06 3.09484E-06 1.17910E-05 0.00016306 3.32766E-06 9.53221E-05 0.000120061 0.000176611 1.75949E-06 6 54466E-07	lb/h	lb/h	lbíh	Ib/h	lb/h	Ib/h	Ib/h	Ib/h	Ibh

n-Hexane		0	0					
Methylcyclopentane		0	0					
Benzene		0	0					
2-Methylhexane		0	0					
3-Methylhexane		0	0					
Heptane		0	0					
Methylcyclohexane		0	0					
Toluene		0	0					
Octane		0	0					
Ethylbenzene		0	0					
m-Xylene		0	0					
o-Xylene		0	0					
Nonane		0	0					
C10+	(0	0					

-												r		
Process Streams		Well Stream	HP Separator Gas	HP Separator Water	HP Separator Oil	OT Flash Gas	Sales Oil	Gas	Water	Oil	Produced Water	PWT Flash Gas	Oil W/B	Water W/B
Phase: Heavy Liquid	Status	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Property	Units													
Temperature	°F		71.0		71.0									
Pressure	psig		200		200									
Mole Fraction Vapor	%		0		0									
Mole Fraction Light Liquid	%		0		0									
Mole Fraction Heavy Liquid	%		100		100									
Molecular Weight	lb/lbmol		18.0		18.0									
Mass Density	lb/ft^3		62.3		62.3									
Molar Flow	lbmol/h		0.0		0.0									
Mass Flow	lb/h		0.0		0.0									
Vapor Volumetric Flow	MCFH		0.0		0.0									
Liquid Volumetric Flow	Mbbl/d		0.0		0.0									
Std Vapor Volumetric Flow	MMSCFD		0.0		0.0									
Std Liquid Volumetric Flow	Mbbl/d		0.0		0.0									
Compressibility			0.011		0.011									
Specific Gravity			0.998		0.998									
API Gravity			10.0		10.0									
Enthalpy	MMBtu/h		0.0		0.0									
Mass Enthalpy	Btu/lb		-6824.8		-6824.8									
Mass Cp	Btu/(lb*°F)		1.0		1.0									
Ideal Gas CpCv Ratio			1.326		1.326									
Dynamic Viscosity	cP		1.0		1.0									
	cSt		1.0		1.0									
	Btu/(h*ft*°F)		0.3		0.3									
	lbf/ft		0.005		0.005									
	Btu/ft^3		0.4		0.4									
	Btu/lb		-1051.0		-1051.0									
Gross I.G. Heating Value	Btu/ft^3		50.7		50.7									
Gross Liquid Heating Value	Btu/lb		9.2		9.2									

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

For: Antero Resources Appalachian Corp. 1625 17th Street Denver, Colorado 80202

Sample: Moore No. 1H (Moore Pad) Separator Hydrocarbon Liquid Sampled @ 200 psig & 71 °F

Date Sampled: 09/25/13

Job Number: 35844.002

CHROMATOGRAPH EX	TENDED ANA	ALYSIS - GPA 2186	6-M
COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.013	0.003	0.003
Carbon Dioxide	0.000	0.000	0.000
Methane	5.429	1.872	0.782
Ethane	5.670	3.086	1.531
Propane	4.895	2.744	1.938
Isobutane	1.346	0.896	0.702
n-Butane	3.278	2.103	1.711
2,2 Dimethylpropane	0.112	0.087	0.072
Isopentane	2.120	1.578	1.374
n-Pentane	2.192	1.617	1.420
2,2 Dimethylbutane	0.171	0.146	0.133
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.285	0.238	0.221
2 Methylpentane	1.460	1.234	1.130
3 Methylpentane	1.063	0.883	0.822
n-Hexane	2.076	1.737	1.606
Heptanes Plus	<u>69.889</u>	<u>81.775</u>	<u>86.555</u>
Totals:	100.000	100.000	100.000

Chara	ictei	ristics	s of	Heptanes	Plus:

Specific Gravity	0.7602	(Water=1)
°API Gravity	54.63	@ 60°F
Molecular Weight	137.9	
Vapor Volume	17.49	CF/Gal
Weight	6.33	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.7182	(Water=1)
°API Gravity	65.51	@ 60°F
Molecular Weight	111.4	
Vapor Volume	20.47	CF/Gal
Weight	5.98	Lbs/Gal

Base Conditions: 14.850 PSI & 60 °F

Certified: FESCO, Ltd.

FESCO, Ltd. - Alice, Texas

Analyst: XG Processor: JCdjv Cylinder ID: W-1570

David Dannhaus 361-661-7015

TANKS DATA INPUT REPORT

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.000	0.000	0.000
Nitrogen	0.013	0.003	0.003
Methane	5.429	1.872	0.782
Ethane	5.670	3.086	1.531
Propane	4.895	2.744	1.938
Isobutane	1.346	0.896	0.702
n-Butane	3.390	2.190	1.783
Isopentane	2.120	1.578	1.374
n-Pentane	2.192	1.617	1.420
Other C-6's	2.980	2.501	2.306
Heptanes	7.576	6.844	6.648
Octanes	12.065	11.665	11.797
Nonanes	8.901	9.909	10.137
Decanes Plus	37.229	50.209	54.133
Benzene	0.063	0.036	0.045
Toluene	0.549	0.374	0.454
E-Benzene	0.993	0.780	0.947
Xylenes	2.513	1.958	2.395
n-Hexane	2.076	1.737	1.606
2,2,4 Trimethylpentane	0.000	0.000	0.000
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.7182	(Water=1)
°API Gravity	65.51	@ 60°F
Molecular Weight	111.4	
Vapor Volume	20.47	CF/Gal
Weight	5.98	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.7744	(Water=1)
Molecular Weight	162.0	

Characteristics of Atmospheric Sample:

°API Gravity	58.66	@ 60°F
Reid Vapor Pressure (ASTM D-5191)	1.65	psi

QUALITY CONTROL CHECK			
	Sampling Conditions		
Cylinder Number		W-1570*	
Pressure, PSIG	200	192	
Temperature, °F	71	70	

* Sample used for analysis

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.013	0.003	0.003
Carbon Dioxide	0.000	0.000	0.000
Methane	5.429	1.872	0.782
Ethane	5.670	3.086	1.531
Propane	4.895	2.744	1.938
Isobutane	1.346	0.896	0.702
n-Butane	3.278	2.103	1.711
2,2 Dimethylpropane	0.112	0.087	0.072
Isopentane	2.120	1.578	1.374
n-Pentane	2.192	1.617	1.420
2,2 Dimethylbutane	0.171	0.146	0.133
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.285	0.238	0.221
2 Methylpentane	1.460	1.234	1.130
3 Methylpentane	1.063	0.883	0.822
n-Hexane	2.076	1.737	1.606
Methylcyclopentane	0.629	0.453	0.475
Benzene	0.063	0.036	0.045
Cyclohexane	0.496	0.344	0.375
2-Methylhexane	1.928	1.824	1.735
3-Methylhexane	1.592	1.487	1.432
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	0.623	0.570	0.555
n-Heptane	2.308	2.167	2.076
Methylcyclohexane	2.198	1.798	1.938
Toluene	0.549	0.374	0.454
Other C-8's	7.225	7.113	7.150
n-Octane	2.641	2.754	2.709
E-Benzene	0.993	0.780	0.947
M & P Xylenes	0.843	0.666	0.804
O-Xylene	1.670	1.292	1.591
Other C-9's	6.223	6.843	7.054
n-Nonane	2.678	3.066	3.083
Other C-10's	8.998	10.873	11.414
n-decane	2.504	3.128	3.199
Undecanes(11)	9.521	11.804	12.566
Dodecanes(12)	6.162	8.252	8.907
Tridecanes(13)	3.969	5.699	6.237
Tetradecanes(14)	2.330	3.584	3.976
Pentadecanes(15)	1.359	2.238	2.513
Hexadecanes(16)	0.796	1.402	1.587
Heptadecanes(17)	0.538	1.001 0.717	1.144
Octadecanes(18)	0.366 0.238		0.825 0.562
Nonadecanes(19) Eicosanes(20)	0.238	0.486 0.348	0.562
	0.099	0.222	0.403
Heneicosanes(21)	0.065	0.222	0.259
Docosanes(22) Tricosanes(23)	0.005	0.150	0.177
	0.031	0.078	0.093
Tetracosanes(24) Pentacosanes(25)	0.013	0.078	0.093
. ,			
Hexacosanes(26)	0.009 0.006	0.023 0.015	0.027 0.019
Heptacosanes(27) Octacosanes(28)	0.008	0.015	0.019
Nonacosanes(29)	0.003	0.015	0.018
Triacontanes(30)	0.003	0.010	0.012
Hentriacontanes Plus(31+)	<u>0.002</u>	<u>0.008</u>	<u>0.004</u>
Total	100.000	100.000	100.000
iotai	100.000	100.000	100.000

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



For: Antero Resources Appalachian Corp.
1625 17th Street
Denver, Colorado 80202Date Sample: 09/25/13
Date Analyzed: 10/02/13Sample: Moore No. 1HJob Number: J35844

FLASH LIBERATION OF HYDROCARBON LIQUID **Separator HC Liquid Stock Tank** Pressure, psig 200 0 Temperature, °F 71 70 Gas Oil Ratio (1) 139 -----Gas Specific Gravity (2) 1.149 _____ Separator Volume Factor (3) 1.000 1.0837

STOCK TANK FLUID PROPERTIES			
Shrinkage Recovery Factor (4)	0.9228		
Oil API Gravity at 60 °F	58.66		
Reid Vapor Pressure, psi (5)	1.65		

Quality Control Check			
	Sampling Conditions	Test S	amples
Cylinder No.		W-1570*	
Pressure, psig	200	192	
Temperature, °F	71	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: M. G.

* Sample used for flash study

Base Conditions: 14.85 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

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

For: Antero Resources Appalachian Corp. 1625 17th Street Denver, Colorado 80202

Sample: Moore No. 1H (Moore Pad) Gas Evolved from Hydrocarbon Liquid Flashed From 200 psig & 71 °F to 0 psig & 70 °F

Date Sampled: 09/25/13

Job Number: 35844.001

CHROMATOGRAPH EXTENDED ANALYSIS - SUMMATION REPORT

COMPONENT	MOL%	GPM
Hydrogen Sulfide*	< 0.001	
Nitrogen	0.054	
Carbon Dioxide	0.117	
Methane	35.770	
Ethane	31.071	8.375
Propane	18.617	5.169
Isobutane	3.229	1.065
n-Butane	5.838	1.855
2-2 Dimethylpropane	0.101	0.039
Isopentane	1.708	0.630
n-Pentane	1.353	0.494
Hexanes	1.101	0.457
Heptanes Plus	<u>1.041</u>	<u>0.471</u>
Totals	100.000	18.556

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.643	(Air=1)
Molecular Weight	104.45	
Gross Heating Value	5573	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.149	(Air=1)
Compressibility (Z)	0.9899	
Molecular Weight	32.94	
Gross Heating Value		
Dry Basis	1951	BTU/CF
Saturated Basis	1918	BTU/CF

*Hydrogen Sulfide tested in laboratory by: Stained Tube Method (GPA 2377) Results: 0.063 Gr/100 CF, 1.0 PPMV or 0.0001 Mol %

Base Conditions: 14.850 PSI & 60 Deg F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: MR Processor: ANB Cylinder ID: FL# 15 S

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Hydrogen Sulfide*	< 0.001	-	< 0.001
Nitrogen	0.054		0.046
Carbon Dioxide	0.117		0.156
Methane	35.770		17.417
Ethane	31.071	8.375	28.359
Propane	18.617	5.169	24.919
Isobutane	3.229	1.065	5.697
n-Butane	5.838	1.855	10.300
2,2 Dimethylpropane	0.101	0.039	0.221
Isopentane	1.708	0.630	3.741
n-Pentane	1.353	0.494	2.963
2,2 Dimethylbutane	0.063	0.027	0.165
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.081	0.033	0.212
2 Methylpentane	0.363	0.152	0.950
3 Methylpentane	0.229	0.094	0.599
n-Hexane	0.365	0.151	0.955
Methylcyclopentane	0.034	0.012	0.087
Benzene	0.010	0.003	0.024
Cyclohexane	0.050	0.017	0.128
2-Methylhexane	0.110	0.052	0.335
3-Methylhexane	0.110	0.050	0.335
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.119	0.052	0.358
n-Heptane	0.120	0.056	0.365
Methylcyclohexane	0.101	0.041	0.301
Toluene	0.023	0.008	0.064
Other C8's	0.177	0.083	0.592
n-Octane	0.039	0.020	0.135
Ethylbenzene	0.002	0.001	0.006
M & P Xylenes	0.014	0.005	0.045
O-Xylene	0.002	0.001	0.006
Other C9's	0.074	0.038	0.284
n-Nonane	0.015	0.009	0.058
Other C10's	0.031	0.018	0.133
n-Decane	0.004	0.002	0.017
Undecanes (11)	<u>0.006</u>	<u>0.004</u>	<u>0.027</u>
Totals	100.000	18.556	100.000

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.149	(Air=1)
Compressibility (Z)	0.9899	
Molecular Weight	32.94	
Gross Heating Value		
Dry Basis	1951	BTU/CF
Saturated Basis	1918	BTU/CF

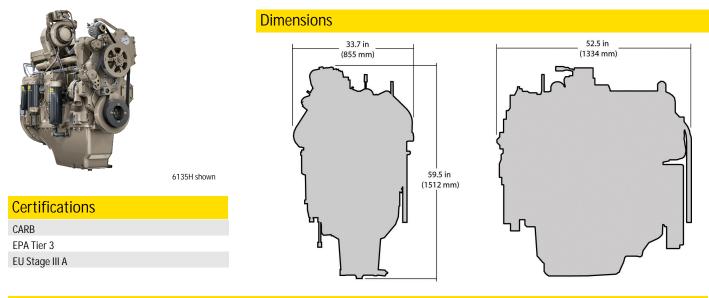
Antero Resources		
Moore Unit	1H - Moore Pad	

Tee News	Value	11	Timesterne
Tag Name	Value	Units	Timestamp
Accumulated Gas Flow	1154650		12/3/2013 10:05
Casing Pressure	287.85		12/3/2013 10:05
Current Day Gas Flow	422.39		12/3/2013 10:05
Differential Pressure		inH2O	12/3/2013 10:05
Flow Rate		MCF Per Day	12/3/2013 10:05
Pressure	203.88		12/3/2013 10:05
Previous Day Energy	5930.91		12/3/2013 10:05
Previous Day Gas Flow	4755.91		12/3/2013 10:05
Temperature	69.77		12/3/2013 10:05
Tubing Pressure	287.85		12/3/2013 10:05
Daily AP		PSIA	12/3/2013 9:00
Daily DP	206.96		12/3/2013 9:00
Daily Energy	5930.91		12/3/2013 9:00
Daily Flow	4755.91		12/3/2013 9:00
Daily Tf	68.31		12/3/2013 9:00
Hourly AP	197.13		12/3/2013 11:00
Hourly DP		Inches	12/3/2013 11:00
Hourly Energy		MBTU	12/3/2013 11:00
Hourly Flow Time	3600	Seconds	12/3/2013 11:00
Hourly Tf	69.4		12/3/2013 11:00
Hourly Volume	200.8	MCF	12/3/2013 11:00
Audited Accumulated Gas	Volume	MCF	
Audited Casing Pressure	293	PSI	11/30/2013 9:00
Audited Gas Volume	4772.87	MCF	11/30/2013 9:00
Audited Oil Volume	0	Barrels	11/30/2013 9:00
Audited Tubing Pressure	293	PSI	11/30/2013 9:00
Audited Water Volume	0	Barrels	11/30/2013 9:00
Argon	0	%	12/3/2013 10:05
BTU	1247.06	BTU	12/3/2013 10:05
C02	0.1467	%	12/3/2013 10:05
Carbon Monoxide	0	%	12/3/2013 10:05
Decane	0	%	12/3/2013 10:05
Ethane	14.1987	%	12/3/2013 10:05
Helium	0	%	12/3/2013 10:05
Heptane	0	%	12/3/2013 10:05
Hexane	0.5451	%	12/3/2013 10:05
Hydrogen	0	%	12/3/2013 10:05
Hydrogen Sulfide	0	%	12/3/2013 10:05
Iso-Butane	0.5666	%	12/3/2013 10:05
Iso-Pentane	0.3749	%	12/3/2013 10:05
Methane	77.6927	%	12/3/2013 10:05
N2	0.4946	%	12/3/2013 10:05
N-Butane	1.1838	%	12/3/2013 10:05
Nonane	0	%	12/3/2013 10:05
N-Pentane	0.2914	%	12/3/2013 10:05
Octane	0	%	12/3/2013 10:05
Oxygen	0.0117	%	12/3/2013 10:05
Plate Size		Inches	12/3/2013 10:05
Propane	4.4938		12/3/2013 10:05
SPG	0.7248		12/3/2013 10:05
Water		%	12/3/2013 10:05
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PowerTech Plus 6135H Diesel Engine

Industrial Engine Specifications





General data

Model	6135HF485	Aspiration	Turbocharged and air-to-air aftercooled
Number of cylinders	6		artercooleu
Displacement - L (cu in)	13.5 (824)	Length - mm (in)	1334 (52.5)
		Width - mm (in)	855 (33.7)
Bore and Stroke mm (in)	132 x 165 (5.20 x 6.50)	()	
Compression Ratio	16.0:1	Height mm (in)	1512 (59.5)
		Weight, dry kg (lb)	1493 (3291)
Engine Type	In-line, 4-Cycle		1170 (0271)

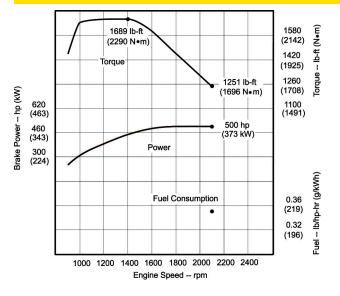
Intermittent BHP is the power rating for variable speed and load applications where full power is required intermittently.

Heavy duty - see application ratings/definitions, engine performance curves.

Continuous BHP is the power rating for applications operating under a constant load and speed for long periods of time.

Power output is within + or - 5% at standard SAE J 1995 and ISO 3 046.

Performance curve



Performance data

Intermittent rated speed	373 kW (500 hp) @ 2100 rpm
Peak power	373 kW (500 hp) @ 2100 rpm
Power bulge %	0% @ NA rpm
Peak torque	2290 N.m (1689 ft-lb) @ 1400 rpm
Torque rise %	35% @ 1400 rpm

Features and benefits

4-Valve Cylinder Head

 The 4-valve cylinder head provides excellent airflow resulting in greater lowspeed torque and better transient response. Cross flow design

Electronic Unit Injector (EUI) and Engine Control Unit (ECU)

- The EUI fuel system provides variable common-rail pressure, multiple injections, and higher injection pressures, up to 2000 bar (29,000 psi). It also controls fuel injection timing and provides precise control for start, duration, and end of injection

Cooled Exhaust Gas Recirculation (EGR)

- EGR cools and mixes measured amounts of cooled exhaust gas with incoming fresh air to lower peak combustion temperatures, thereby reducing NOx

Variable Geometry Turbocharger (VGT)

 Varies exhaust pressure based on load and speed to insure proper EGR flow; greater low-speed torque, quicker transient response, higher peak torque, and best-in-class fuel econo my.

Air-to-Air Aftercooled

 This is the most efficient method of cooling intake air to help reduce engine emissions while maintaining low-speed torque, transient response time, and peak torque. It enables an engine to meet emissions regulations with better fuel economy and the lowest installed costs

Compact Size

- Horsepower/displacement ratio is best-in-class
- Lower installed cost
- Mounting points are the same as Tier 2/Stage II engine models

John Deere Power Systems

3801 W. Ridgeway Ave. PO Box 5100 Waterloo, IA 50704-5100 Phone: 1-800-533-6446 Fax: 319.292.5075 John Deere Power Systems Usine de Saran La Foulonnerie - B.P. 11.13 45401 Fleury les Aubrais Cedex France Phone: 33.2.38.82.61.19 Fax: 33.2.38.82.60.00

Engine Performance

- Multiple rated speeds to further reduce noise and improve fuel economy
- New higher peak torque ratings
- Better transient response time
- Greater levels of low speed torque
- Higher levels of power bulge

John Deere Electronic Engine Controls

- Electronic engine controls monitor critical engine functions, providing warning and/or shutdown to prevent costly engine repairs and eliminate the need for add-on governing components all lowering total installed costs.
 Snapshot diagnostic data that can be retrieved using commonly available diagnostic service tools
- Controls utilize new common wiring interface connector for vehicles or a vailable OEM instrumentation packages; new solid conduit and "T" connectors to reduce wiring stress and provide greater durability and improved appearance
- Factory-installed, engine mounted ECU or remote-mounted ECU comes with wiring harness and associated components. Industry-standard SAE J1939 interface communicates with other vehicle systems, eliminating redundant sensors and reducing vehicle installed cost

Additional Features

 Gear-driven auxiliary drives; 500-hour oil change; self-adjusting poly-vee fan drive; R.H. and L.H. engine-mounted fuel filters; single-piece low friction piston; optional rear PTO; low-pressure fuel system with "auto-prime" feature; directed top-liner cooling

All values at rated speed and power with standard options unless otherwise noted. Specifications and design subject to change without notice.

Attachment O

Monitoring/Recordkeeping/Reporting/Testing Plans



Attachment O

Proposed Monitoring, Recordkeeping, Reporting, and Testing Pearl Jean Well Pad Antero Resources Corporation Doddridge County, West Virginia

The Facility will perform the following to demonstrate compliance with emission limits and operating parameters:

- 1. Monitor and maintain records of natural gas usage for the heaters
- 2. Monitor the presence of the vapor combustor pilot flame with a thermocouple or equivalent.
- 3. Monitor opacity from the heaters and enclosed combustor
- 4. Monitor and maintain records of condensate and produced water transferred from storage tanks.
- 5. Monitor engine setting adjustments to ensure these are consistent with manufacturer's instructions.
- 6. Maintain records of hours of operations of the engines.
- 7. Maintain records of maintenance performed on engines.
- 8. Documentation from manufacturer that engine is certified to meet emission standards

These records will be maintained on site or in a readily available off-site location for a period of 5 years.

Attachment P

Public Notice



Attachment P

Air Quality Permit Notice Notice of Application Pearl Jean 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 NSR Permit 45CSR13 for an Oil and Natural Gas facility located at 19 Antioch Rd, Salem, WV 26426.

The latitude and longitude coordinates are: 39.285147 degrees N and -80.672978 degrees W

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

Pollutants	TOTALS (tpy):
VOC	29.0980
NO _X	31.5852
CO _{2e}	10217.4
CO	7.6768
SO ₂	10.7933
PM _{2.5}	0.2222
PM ₁₀	1.1656
Lead	1.48E-05
Total HAPs	2.1339
Benzene	0.0684
Formaldehyde	0.0528
Xylenes	0.2442

Change of operation is planned to begin upon the issuance of the permit. 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 1227, during normal business hours. Dated this the __ day of ______, 2015

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

Attachment R

Authority Forms



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

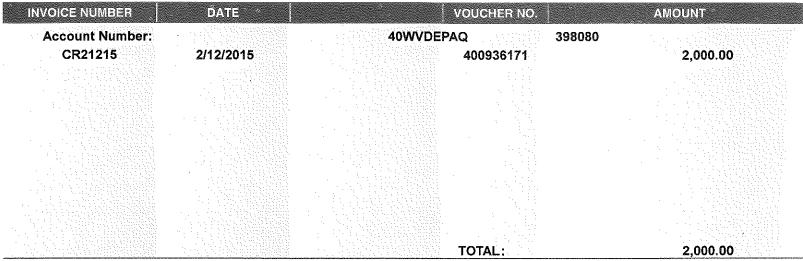
Attachment

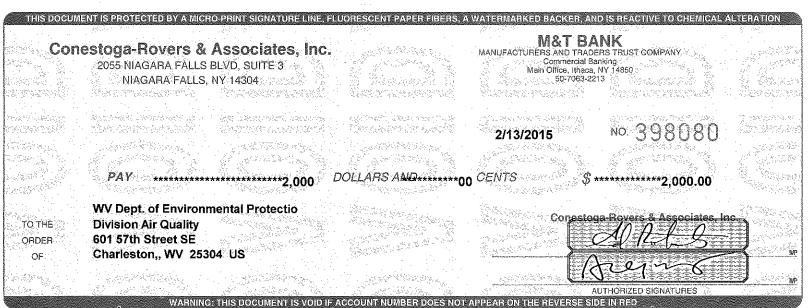
Application Fee



Conestoga-Rovers & Associates, Inc.

V PLEASE DETACH AND RETAIN FOR YOUR RECORDS





"398080" #221370632#6100000118910"