

Icon Midstream Pipeline, LLC

APPLICATION FOR NSR (45CSR13) CONSTRUCTION PERMIT

**Sleepy Dehydration Facility
Tyler County, West Virginia**



98 Vanadium Road
Bridgeville, PA 15017
(412) 221-1100

APPLICATION FOR NSR (45CSR13) CONSTRUCTION PERMIT

Icon Midstream Pipeline, LLC

Sleepy Dehydration Facility

Tyler County, West Virginia

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SECTION I

Application Form



WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT
AND
TITLE V PERMIT REVISION
(OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

- ☒ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

- ☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office): Icon Midstream Pipeline, LLC		2. Federal Employer ID No. (FEIN): 47-1115453	
3. Name of facility (if different from above): Sleepy Dehydration Facility		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 3130 Grants Lake Blvd, Suite 18859 Sugarland, TX 77496		5B. Facility's present physical address: Off Walnut Fork Road Middlebourne in Tyler County	
6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> 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 name of parent corporation: N/A			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If YES , please explain: Applicant has a lease agreement with the land owner for installation of the facility – 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.): Dehydration facility		10. North American Industry Classification System (NAICS) code for the facility: 211111	
11A. DAQ Plant ID No. (for existing facilities only): –		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):	

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 <i>present location</i> of the facility from the nearest state road; – For Construction or Relocation permits , please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a MAP as Attachment B . From Middlebourne, proceed south/east on State Route 18 (Main Street) out of town. Proceed approximately 5.8 miles to the junction with Indian Creek Road on the left. From WV 18 and Indian Creek CR13 intersection, take Indian Creek Rd east for 4.6 miles. Turn left onto CR 13/1 (Walnut Fork) follow north for 1.7 miles to well pad entrance on left.		
12.B. New site address (if applicable):	12C. Nearest city or town: Middlebourne	12D. County: Tyler
12.E. UTM Northing (KM): 4,369.6	12F. UTM Easting (KM): 522.4	12G. UTM Zone: 17
13. Briefly describe the proposed change(s) at the facility: This facility will receive gas from the contiguous Jay-Bee Oil & Gas well pad, dehydrate the gas and inject it into a gather line owned and operated by others. There is no compression at this time.		
14A. Provide the date of anticipated installation or change: Upon permit issuance. – If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen: / /		14B. Date of anticipated Start-Up if a permit is granted: 6/15/16
14C. Provide a Schedule of the planned Installation of/Change to and Start-Up of each of the units proposed in this permit application as Attachment C (if more than one unit is involved).		
15. Provide maximum projected Operating Schedule of activity/activities outlined in this application: Hours Per Day 24 Days Per Week 7 Weeks Per Year 52		
16. Is demolition or physical renovation at an existing facility involved? <input type="checkbox"/> YES <input checked="" type="checkbox"/> 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 (<i>if known</i>). 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 (<i>if known</i>). Provide this information as Attachment D .		
Section II. Additional attachments and supporting documents.		
19. 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.		
21. 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 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 as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

<input type="checkbox"/> Bulk Liquid Transfer Operations	<input type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	

☒ General Emission Unit, specify: **Glycol Dehydration Unit (1) with Reboiler and Still Vent.**

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

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:

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> 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 _____

(Please use blue ink)

DATE: _____

(Please use blue ink)

35B. Printed name of signee: Shane Dowell

35C. Title: Operations Manager

35D. E-mail: iconmidstream@gmail.com

36E. Phone: 304-904-1700

36F. FAX: 304-628-3111

36A. Printed name of contact person (if different from above):

36B. Title:

36C. E-mail:

36D. Phone:

36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate | <input checked="" type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet |
| <input checked="" type="checkbox"/> Attachment B: Map(s) | <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s) |
| <input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule | <input type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input checked="" type="checkbox"/> Attachment D: Regulatory Discussion | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan | <input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s) | <input checked="" type="checkbox"/> Attachment P: Public Notice |
| <input checked="" type="checkbox"/> Attachment G: Process Description | <input type="checkbox"/> Attachment Q: Business Confidential Claims |
| <input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table | <input type="checkbox"/> Attachment S: Title V Permit Revision Information |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this 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 Permitting 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.

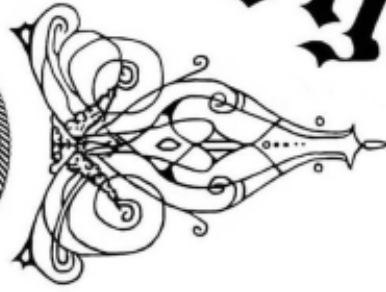
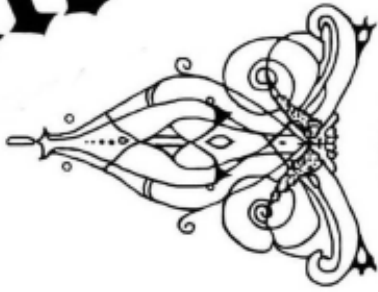
SECTION II

Attachments

ATTACHMENT A

Business Certificate

State of West Virginia



Certificate

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

Icon Midstream Pipeline, LLC

has filed the appropriate registration documents in my office according to the provisions of the West Virginia Code and hereby declare the organization listed above as duly registered with the Secretary of State's Office.

*Given under my hand and
the Great Seal of West Virginia
on this day of
March 13, 2015*



Natalie E. Tennant

Secretary of State

ATTACHMENT B

Area Map



DRAWN BY	DJF
DATE	2/22/16
CHECKED BY	RAD
SET JOB NO.	215095
SET DWG FILE	SLEEPY DEHY FACm01.dwg
DRAWING SCALE	1"=200'



TECHNOLOGIES

98 Vanadium Road Bridgeville, PA 15017 (412) 221-1100

ICON MIDSTREAM PIPELINE, LLC	
SLEEPY DEHYDRATION FACILITY TYLER COUNTY, WEST VIRGINIA SITE LOCATION MAP	
DRAWING NAME	FIGURE 1
REV.	0

ATTACHMENT C

Installation and Start-Up Schedule

Icon Midstream Pipeline, LLC
Sleepy Dehydration Facility
Attachment C – Installation and Start-Up Schedule

Installation of the Sleepy Dehydration Facility, emission point S01, will take place upon receipt of approval of this application. Icon will install the equipment and connect to existing gathering lines. It is anticipated that all work can be completed within 30 days of receipt of approval. Start-up of the Facility is anticipated to begin shortly after permit issuance and installation, approximately the 15th day of June, 2016.

ATTACHMENT D

Regulatory Discussion

Icon Midstream Pipeline, LLC

Sleepy Dehydration Facility Attachment D – Regulatory Discussion

Both State and Federal environmental regulations governing air emissions apply to the planned Sleepy Dehydration Facility. The West Virginia Department of Environmental Protection (WVDEP) has been delegated the authority to implement certain federal air quality requirements for the state. Air quality regulations that potentially affect the Facility are discussed herein.

1.1 PSD and NSR

The facility will be a minor source with respect to Prevention of Significant Deterioration (PSD) regulations as it will not have the potential to emit more than the annual emission thresholds of any PSD regulated pollutant.

The facility is within an area designated as attainment. Consequently, the facility is not subject to the New Source Review (NSR) regulations.

1.2 Title V Operating Permit Program

West Virginia has incorporated provisions of the federal Title V operating permit program. Thresholds for inclusion under the Title V program are 10 tpy of any single Hazardous Air Pollutant (HAP) or 25 tons of any combination of HAP and/or 100 tpy of all other regulated pollutants. Additionally, facilities regulated under certain New Source Performance Standards (NSPS) require facilities to have Title V permits.

The facility will be a minor source and is not subject to NSPS; therefore, a Title V permit will not be required for this facility.

1.3 Aggregation

Source aggregation determinations are typically made based on the following criteria:

- Whether the facilities are under common control,
- Whether the facilities belong to the same Major Group (i.e. the first two digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement;
- Whether the facilities are located on one or more contiguous or adjacent properties; and the distance between all pollutant emitting activities,
- Whether the facilities can operate independently

Only if all criteria are met does a permitting authority aggregate the facilities into a single source.

Icon Midstream plans to install its Sleepy Dehydration Facility contiguous with the Jay-Bee Oil & Gas Sleepy Well Pad in Tyler County. The Sleepy Dehydration Facility will receive and manage natural gas from the Sleepy Well Pad, dehydrate the gas and inject into a gathering line owned and operated by others.

There is no gas routed to or received from any other Icon Midstream facility. Hence, no other Icon Midstream facilities in the area should be aggregated with this facility.

The Sleepy Well Pad while under the same general SIC Code, has completely separate ownership (Jay-Bee Oil & Gas) but share common workforces. The facilities do not share common payroll activities. The Sleepy Dehydration Facility supports operation of the Sleepy Well Pad and only exists as a support for gas coming from this well pad. Therefore, emissions from the Sleepy Dehydration Facility should be aggregated with Jay-Bee's Sleepy Well Pad to determine major source status.

1.4 New Source Performance Standards

New Source Performance Standards (NSPS) regulations promulgated under 40 CFR 60 require new and reconstructed facilities to control emissions to the level achievable by Best-Available Technology (BAT). Specific NSPS requirements potentially applicable to the proposed Facility are as follows:

- 40 CFR 60, Subpart Dc – Standard of Performance for Small Industrial-Commercial Institutional Steam Generating Units
- 40 CFR 60, Subpart OOOO – Standard of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

1.4.1 Subpart Dc

This subpart limits SO₂ and PM emissions from boilers and heaters fired by various fuels. While the primary thrust of this set of regulations is to control SO_x and PM emissions from coal and oil-fired boilers and heaters, natural gas fired units are also covered under this rule. The planned heater is well below the threshold of coverage for this rule (10 MMBTU/Hr). Thus, this rule does not apply.

1.4.2 Subpart OOOO

This Subpart governs emissions from a broad spectrum of operations in the oil and natural gas industries, including operations at processing and fractionation plants. Subpart OOOO is potentially applicable to dehydration units; however, the dehydration unit is exempt from these requirements of per 40 CFR 60.5365(f)(2) because it will not be located at a natural gas processing plant.

1.5 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated under 40 CFR 63 regulate the emission of Hazardous Air Pollutants (HAPs) from certain industrial processes. In general, these rules apply to major sources of HAPs with a major source being defined as having the potential to emit more than 10 tpy of any individual HAP or 25 tpy of total HAPs. Emissions standards under these rules have been established as the Maximum Achievable Control Technology (MACT) for each source category. The following NESHAP source category standards are potentially applicable to the planned Sleepy Dehydration Facility:

- 40 CFR 63, Subpart HH – National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities
- 40 CFR 63, Subpart JJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

1.5.1 Subpart HH

This Subpart contains MACT standards for major and area source dehydration units located at natural gas production facilities. The proposed equipment for the Facility includes a dehydration unit. Hence, this rule applies.

Exemption criteria are established in 40 CFR 63.764(e)(1). To satisfy the exemption to this subpart, the unit has to satisfy one of the following criteria:

- Annual average flow must be less than 85,000 SCMD (20.0 MMSCFD); or
- Average benzene emissions must be less than 0.9 Mg/yr (1 ton per year).

The average flow through the dehydration unit will exceed 85,000 SCMD; however the potential to emit benzene will be less than 1 ton per year as can be seen in Attachment N; therefore, the dehydration unit is exempt from the requirements of 40 CFR 63 Subpart HH. Although, the dehydration unit is exempt from 40 CFR 63 Subpart HH, records must be maintained of the actual annual benzene emission determination as set forth in 40 CFR 63.774(d)(1).

1.5.2 Subpart JJJJJ

This subpart contains MACT standards for an industrial, commercial, or institutional boiler that is located at an area source of HAPs. This Facility will contain a gas-fired reboiler so it is not subject to this subpart per 40 CFR 63.11195(e).

1.6 Chemical Accident Prevention

Subparts B-D of 40 CFR 68 present the requirements for the assessment and subsequent preparation of a Risk Management Plan (RMP) for a facility that stores more than a threshold quantity of a regulated substance listed in 40 CFR 68.130. If a facility stores, handles or processes one or more regulated substances in an amount greater than its corresponding threshold, the facility must prepare and implement an RMP. This permit application proposes to

store triethylene glycol which is not a regulated substance per 40 CFR 68.130; therefore, this rule does not apply.

1.7 West Virginia State Requirements

1.7.1 45 CSR 2

The facility is subject to the opacity requirement of 45 CSR 2. Emissions from the facility cannot exceed 10% over any six minute period.

1.7.2 45 CSR 4

This regulation prohibits the emission of objectionable odors. Icon Midstream is obligated to run the station in a manner that does not produce objectionable odors.

1.7.3 45 CSR 10

This regulation limits emissions of sulfur oxides. As the sulfur content of the Inlet Gas contains no measurable sulfur, emissions of sulfur oxides is negligible. Thus, while parts of this rule are applicable to the facility, no actions are required on the part of Icon Midstream to attain compliance. The various non-engine combustion units have a design heat input less than 10 MMBTU/Hr and are therefore exempt from the requirements of this rule.

1.7.4 45 CSR 13

The state regulations applicable to the permitting of the proposed construction are in Title 45 Series 13 of the Code of State Regulations. The proposed Facility has the potential to emit several regulated pollutants in excess of the thresholds that define a Stationary Source. It will remain less than the thresholds that would classify the facility as a Major Source under 45 CSR 14.

1.7.5 45 CSR 16

This series of regulations is an incorporation, by reference, of the New Source Performance Standards (NSPS) codified under 40 CFR 60. As referenced in 1.4 above, the Facility is not subject to NSPS.

1.7.6 45 CSR 30

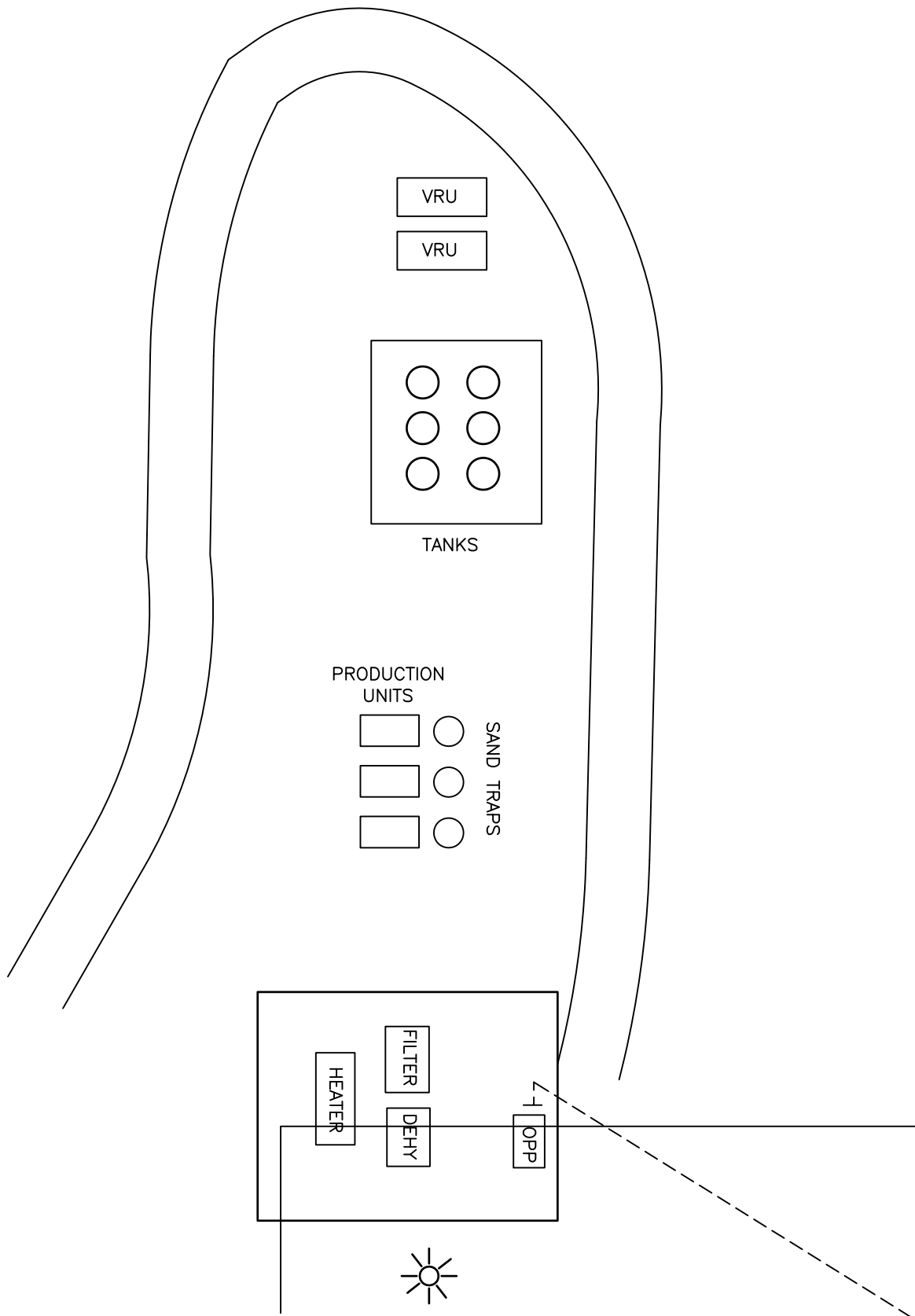
The state regulations applicable to Title V operating permits are in Title 45 Series 30. The Facility, as noted above, does not have the potential to emit any regulated pollutant about the threshold that would define it as a major facility.

1.7.7 Other Applicable Requirements

Throughout Series 34, WVDEP has adopted the NESHAPs for Source Categories. NESHAPs have been discussed above.

ATTACHMENT E

Plot Plan



DRAWN BY	DJF
DATE	2/22/16
CHECKED BY	RAD
SET JOB NO.	215095
SET DWG FILE	SLEEPYa01.dwg
DRAWING SCALE	N.T.S.



TECHNOLOGIES

98 Vanadium Road Bridgeville, PA 15017 (412) 221-1100

ICON MIDSTREAM PIPELINE, LLC

SLEEPY DEHYDRATION FACILITY
TYLER COUNTY, WEST VIRGINIA
SITE LAYOUT

DRAWING NAME

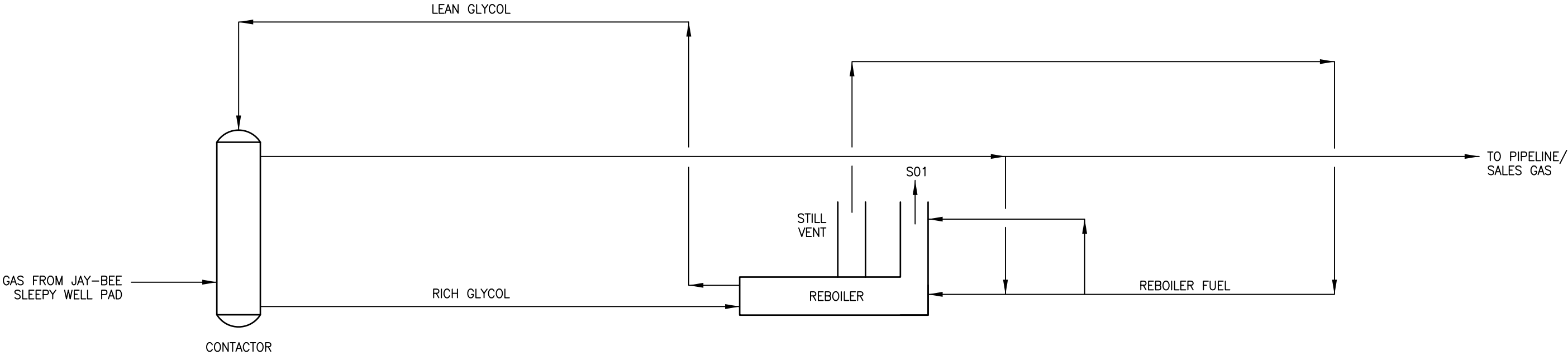
FIGURE 2

REV.

0

ATTACHMENT F

Process Flow Diagram



LEGEND:

↑
EMISSION POINT

DRAWN BY	DJF
DATE	2/16/16
CHECKED BY	RAD
SET JOB NO.	215095
SET DWG FILE	SLEEPY DEHY FAC FDb01.dwg
DRAWING SCALE	N.T.S.



SE
TECHNOLOGIES

98 Vanadium Road Bridgeville, PA 15017 (412) 221-1100

ICON MIDSTREAM PIPELINE, LLC	
SLEEPY DEHYDRATION FACILITY TYLER COUNTY, WEST VIRGINIA PROCESS FLOW DIAGRAM	
DRAWING NAME	FIGURE 3
REV.	1

ATTACHMENT G

Process Description

Icon Midstream Pipeline, LLC
Sleepy Dehydration Facility
Attachment G – Process Description

Icon Midstream plans to install its Sleepy Dehydration Facility contiguous with the Jay-Bee Oil & Gas Sleepy Well Pad in Tyler County. The Facility will receive and manage natural gas from the contiguous well pad, dehydrate the gas and inject into a gathering line owned and operated by others.

The dehydration unit will generate emissions from the still vent and re-boiler. There is no flash tank. Vapors from the still vent are comprised of water and various low molecular weight hydrocarbons. This vapor stream will be used as fuel for the reboiler. Excess still vent vapors are routed to the still vent where they are ignited by a glow plug and combusted. Although needs are anticipated to be minimal, supplemental re-boiler fuel is available from the dehydrated gas stream prior to injection into the sales line.

As all still vent vapors are routed to the re-boiler (either as fuel or for destruction in the re-boiler), there is only one emission point at this facility.

Any water condensing in the still vent column will be routed to wastewater tanks at the contiguous Jay-Bee Sleepy Well Pad.

In summary, emission sources at this facility will include only the following:

- One 20 MMSCFD Dehydration Unit – Exterran w/ 300 MBTU/Hr reboiler

ATTACHMENT I

Emission Units Table

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

[illegible]

¹ For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

² For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

³ New, modification, removal

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

ATTACHMENT J

Emission Points Data Summary Sheet

Attachment J

EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data															
Emission Point ID No. <i>(Must match Emission Units Table & Plot Plan)</i>	Emission Point Type ¹	Emission Unit Vented Through This Point <i>(Must match Emission Units Table & Plot Plan)</i>		Air Pollution Control Device <i>(Must match Emission Units Table & Plot Plan)</i>		Vent Time for Emission Unit <i>(chemical processes only)</i>		All Regulated Pollutants - Chemical Name/CAS ³ <i>(Speciate VOCs & HAPS)</i>	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase <i>(At exit conditions, Solid, Liquid or Gas/Vapor)</i>	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
S01	Vent	RBV-1 RSV-1	Re-boiler Vent and Still Vent	RBV-1	Reboiler (Still Vent routes to reboiler)	C	8760	NO _x	0.03	0.13			Gas	EE	
								CO	0.03	0.11			Gas	EE	
								VOC	3.22	14.09			Gas	EE	
								SO2	<0.01	<0.01			Gas	EE	
								PM	<0.01	0.01			Solid	EE	
								Benzene	0.03	0.10			Gas	EE	
								Formaldehyde	<0.01	<0.01			Gas	EE	
								CO2e	96	421			Gas	EE	

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/20 minute 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 SO₂, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. <i>(Must match Emission Units Table)</i>	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) <i>at operating conditions</i>	Velocity (fps)	Ground Level <i>(Height above mean sea level)</i>	Stack Height ² <i>(Release height of emissions above ground level)</i>	Northing	Easting
S01	0.5	212	33	2.8	1122	8		

¹ Give at operating conditions. Include inerts.

² Release height of emissions above ground level.

ATTACHMENT K

Fugitive Emissions Data Summary Sheet

Attachment K

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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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.)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants Chemical Name/CAS ¹	Maximum Potential Uncontrolled Emissions ²		Maximum Potential Controlled Emissions ³		Est. Method Used ⁴
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads						
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks	VOC CO2 CH4	Does not apply	0.054 0.001 0.169	Does not apply	0.054 0.001 0.169	EE EE
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.

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).

LEAK SOURCE DATA SHEET

Source Category	Pollutant	Number of Source Components ¹	Number of Components Monitored by Frequency ²	Average Time to Repair (days) ³	Estimated Annual Emission Rate (lb/yr) ⁴
Pumps ⁵	light liquid VOC ^{6,7}				
	heavy liquid VOC ⁸				
	Non-VOC ⁹				
Valves ¹⁰	Gas VOC	24	0	n/a	62.11 lb VOC/yr
	Light Liquid VOC				
	Heavy Liquid VOC				
	Non-VOC	24	0	n/a	1.05 lb CO ₂ /yr 196.14 lb CH ₄ /yr
Safety Relief Valves ¹¹	Gas VOC	2	0	n/a	7.67 lb VOC/yr
	Non VOC	2	0	n/a	0.13 lb lb CO ₂ /yr 24.21 lb CH ₄ /yr
Open-ended Lines ¹²	VOC	2	0	n/a	11.69 lb VOC/yr
	Non-VOC	2	0	n/a	0.20 lb CO ₂ /yr 36.93 lb CH ₄ /yr
Sampling Connections ¹³	VOC				
	Non-VOC				
Compressors	VOC				
	Non-VOC				
Flanges	VOC				
	Non-VOC				
Other - Connectors	VOC	90	0	n/a	25.88 lb VOC/yr
	Non-VOC	90	0	n/a	0.44 lb CO ₂ /yr 81.72 lb CH ₄ /yr

^{1 - 13} See notes on the following page.

ATTACHMENT L

Emissions Unit Data Sheet(s)

GLYCOL DEHYDRATION EMISSION UNIT DATA SHEET

General Glycol Dehydration Unit Data		Manufacturer and Model		Exterran HANO-486824035	
		Max Dry Gas Flow Rate (mmscf/day)		20 MMSCFD	
		Design Heat Input (mmBtu/hr)		0.300 MMBTU/Hr (re-boiler)	
		Design Type (DEG or TEG)		TEG	
		Source Status ²		NS	
		Date Installed/Modified/Removed ³		Upon Permit	
		Regenerator Still Vent APCD ⁴			
		Control Device ID ⁴		RBV-1	
		Fuel HV (Btu/scf)		735.1 (HHV)	
		H ₂ S Content (gr/100 scf)		<0.001%	
		Operation (hrs/yr)		8760	
Emission Unit ID/ Emission Point ID ¹	Vent	Reference ⁵	Potential Emissions ⁶	lbs/hr	tons/yr
RBV-1	Reboiler Vent	AP-42	NO _x	0.03	0.13
		AP-42	CO	0.03	0.11
		AP-42	VOC	0.0017	0.007
		AP-42	SO ₂	<0.0001	0.001
		AP-42	PM ₁₀	<0.01	0.01
RSV-1	Glycol Regenerator Still Vent	GRI-GLYCalc™	VOC	3.2	14.03
		GRI-GLYCalc™	Benzene	0.023	0.10
		GRI-GLYCalc™	Ethylbenzene	<0.0001	<0.0001
		GRI-GLYCalc™	Toluene	0.279	1.220
		GRI-GLYCalc™	Xylenes	0.175	0.765
		GRI-GLYCalc™	n-Hexane	0.089	0.39

1. Enter the appropriate Emission Unit ID Numbers and Emission Point ID Numbers for the glycol dehydration unit reboiler vent and glycol regenerator still vent. The glycol dehydration unit reboiler vent and glycol regenerator still vent should be designated RBV-1 and RSV-1, respectively. If the compressor station incorporates multiple glycol dehydration units, a *Glycol Dehydration Emission Unit Data Sheet* shall be completed for each, using Source Identification #s RBV-2 and RSV-2, RBV-3 and RSV-3, etc.
2. Enter the Source Status using the following codes:

NS Construction of New Source	ES Existing Source
MS Modification of Existing Source	RS Removal of Source
3. Enter the date (or anticipated date) of the glycol dehydration unit's installation (construction of source), modification or removal.

4. Enter the Air Pollution Control Device (APCD) type designation using the following codes and the control device ID number:

NA	None	CD	Condenser
FL	Flare	CC	Condenser/Combustion Combination
TO	Thermal Oxidizer		

5. Enter the Potential Emissions Data Reference designation using the following codes:

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-GLYCalc TM	OT	Other _____	(please list)

6. Enter the Reboiler Vent and Glycol Regenerator Still Vent Potential to Emit (PTE) for the listed regulated pollutants in lbs per hour and tons per year. The Glycol Regenerator Still Vent potential emissions may be determined using the most recent version of the thermodynamic software model GRI-GLYCalcTM (Radian International LLC & Gas Research Institute). Attach all referenced Potential Emissions Data (or calculations) and the GRI-GLYCalc *Aggregate Calculations Report* to this *Glycol Dehydration Emission Unit Data Sheet(s)*. This PTE data shall be incorporated in the *Emissions Summary Sheet*.

Include a copy of the GRI-GLYCalcTM analysis. This includes a printout of the aggregate calculations report, which shall include emissions reports, equipment reports, and stream reports.

West Virginia Department of Environmental Protection

DIVISION OF AIR QUALITY : (304) 926-0475

Division of Air Quality

WEB PAGE: <http://www.wvdep.org>

40 CFR Part 63; Subpart HH & HHH Registration Form

Complete this form for any oil and natural gas production or natural gas transmission and storage facility that uses an affected unit under HH/HHH, whether subject or not.

Section A: Facility Description			
Affected facility actual annual average natural gas throughput (scf/day):	20 MMSCF/Day		
Affected facility actual annual average hydrocarbon liquid throughput: (bbl/day):	N/A		
The affected facility processes, upgrades, or stores hydrocarbon liquids prior to custody transfer.	Yes	<input checked="" type="checkbox"/>	No
The affected facility processes, upgrades, or stores natural gas prior to the point at which natural gas (NG) enters the NG transmission and storage source category or is delivered to the end user.	Yes	<input checked="" type="checkbox"/>	No
The affected facility is: <input checked="" type="checkbox"/> prior to a NG processing plant <input type="checkbox"/> a NG processing plant <input type="checkbox"/> prior to the point of custody transfer and there is no NG processing plant			
The affected facility transports or stores natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company).	Yes	<input checked="" type="checkbox"/>	No
The affected facility exclusively processes, stores, or transfers black oil.	Yes	<input checked="" type="checkbox"/>	No
Initial producing gas-to-oil ratio (GOR): _____scf/bbl API gravity: _____degrees			
Section B: Dehydration Unit (if applicable) ¹			
Description: 20 MMSCFD Glycol Dehydrator			
Date of Installation: Upon Permit	Annual Operating Hours: 8760	Burner rating (MMbtu/hr): 0.300	
Exhaust Stack Height (ft): 8	Stack Diameter (ft): 0.5	Stack Temp. (°F): 212 (Still Vent)	
Glycol Type:	<input checked="" type="checkbox"/> TEG <input type="checkbox"/> EG <input type="checkbox"/> Other:		
Glycol Pump Type:	<input type="checkbox"/> Electric <input checked="" type="checkbox"/> Gas	If gas, what is the volume ratio? 0.08 ACFM/gpm	
Condenser installed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Exit Temp. ____°F Condenser Pressure ____psig	
Incinerator/flare installed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Destruction Eff. 90%	
Other controls installed?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Describe:	
Wet Gas ² : (Upstream of Contact Tower)	Gas Temp.: 85 °F Gas Pressure 500 psig	Saturated Gas? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, water content _____ lb/MMSCF	
Dry Gas: (Downstream of Contact Tower)	Gas Flowrate(MMSCFD) Actual Varies _____ Design 20 MMSCF/Day	Water Content 7.0 lb/MMSCF	
Lean Glycol:	Circulation rate (gpm) Actual ³ 3.5 Maximum ⁴ 3.5	Pump make/model:	
Glycol Flash Tank (if applicable):	Temp.: _____°F Pressure _____ psig	Vented? Yes <input type="checkbox"/> No <input type="checkbox"/>	
If no, describe vapor control: Recycle/recompression			
Stripping Gas (if applicable):	Source of gas: N/A	Rate _____ scfm	

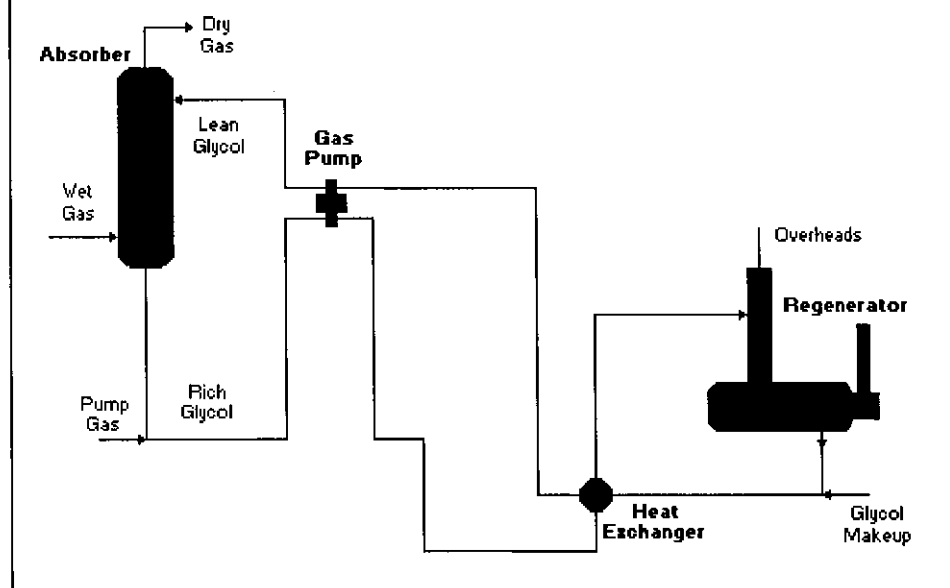
Please attach the following required dehydration unit information:

1. System map indicating the chain of custody information. See Page 43 of this document for an example of a gas flow schematic. It is not intended that the applicant provide this level of detail for all sources. The level of detail that is necessary is to establish where the custody transfer points are located. This can be accomplished by submitting a process flow diagram indicating custody transfer points and the natural gas flow. However, the DAQ reserves the right to request more detailed information in order to make the necessary decisions.
2. Extended gas analysis from the Wet Gas Stream including mole percents of C₁-C₈, benzene, ethylbenzene, toluene, xylene and n-Hexane, using Gas Processors Association (GPA) 2286 (or similar). A sample should be taken from the inlet gas line, downstream from any inlet separator, and using a manifold to remove entrained liquids from the sample and a probe to collect the sample from the center of the gas line. GPA standard 2166 reference method or a modified version of EPA Method TO-14, (or similar) should be used.
3. GRI-GLYCalc Ver. 3.0 aggregate report based on maximum Lean Glycol circulation rate and maximum throughput.
4. Detailed calculations of gas or hydrocarbon flow rate.

Section C: Facility NESHAPS Subpart HH/HHH status

Affected facility status: (choose only one)	<input checked="" type="checkbox"/>	Subject to Subpart HH
	<input type="checkbox"/>	Subject to Subpart HHH
	<input type="checkbox"/>	Not Subject
	because:	<div><input type="checkbox"/> < 10/25 TPY</div> <div><input type="checkbox"/> Affected facility exclusively handles black oil</div> <div><input type="checkbox"/> The facility wide actual annual average NG throughput is < 650 thousand scf/day and facility wide actual annual average hydrocarbon liquid is < 250 bpd</div> <div><input type="checkbox"/> No affected source is present</div>

TEG Dehydration Flowsheet



Gas Analytical Services

Good

Charleston, WV

844-445-4207

Customer	: 8788 - JayBee Oil & Gas	Date Sampled	: 11/27/2015
Station ID	: GRUMPY3	Date Analyzed	: 12/10/2015
Cylinder ID	: 0289	Effective Date	: 12/01/2015
Producer	:	Cyl Pressure	: 935
Lease	: Grumpy 3	Temp	: 70
Area	: 357 - Union	Cylinder Type	: Spot
State	:	Sample By	: J Whipkey

<u>COMPONENT</u>	<u>MOL%</u>	<u>GPM@14.73(PSIA)</u>
Carbon-Dioxide	0.1500	0.000
Nitrogen	0.6184	0.000
Methane	76.9823	0.000
Ethane	14.6121	3.921
Propane	4.7780	1.321
Iso-Butane	0.6014	0.197
N-Butane	1.1765	0.372
Neo-Pentane	0.0132	0.005
Iso-Pentane	0.2829	0.104
N-Pentane	0.2924	0.106
N-Hexane	0.1102	0.071
N-Heptane	0.0408	0.019
N-Octane	0.0103	0.005
N-Nonane	0.0016	0.001
N-Decane	0.0003	0.000
Benzene	0.0021	0.001
Toluene	0.0066	0.002
Ethylbenzene	0.0006	0.000
M-Xylene/P-Xylene	0.0023	0.001
O-Xylene	0.0005	0.000
C6's	0.1568	0.064
C7's	0.0833	0.037
C9's	0.0082	0.004
C10's	0.0010	0.001
C11's	0.0000	0.000
C13's	0.0001	0.000
C15's	0.0000	0.000
C8's	0.0681	0.034
TOTAL	100.0000	6.266

Compressibility Factor (Z) @ 14.73 @ 60 Deg. F = 0.9963

C5+ GPM : 0.28500

Ideal Gravity: 0.7255

Real Gravity: 0.7279

C5+ Mole % : 1.0151

BTU @ (PSIA)	@14.65	@14.696	@14.73	@15.025
Ideal GPM	6.211	6.230	6.245	6.370
Ideal BTU Dry	1,259.32	1,263.27	1,266.20	1,291.55
Ideal BTU Sat	1,237.28	1,241.23	1,244.16	1,269.51
Real GPM	6.233	6.253	6.267	6.393

Real BTU Dry	1,263.91	1,267.89	1,270.84	1,296.38
Real BTU Sat	1,242.30	1,246.28	1,249.23	1,274.78

Comments:

Gas Analysis performed in accordance with GPA 2286

Sample Count : 230000007

Analytical Calculations performed in accordance with GPA 2172

COC :

ATTACHMENT N

Supporting Emissions Calculations

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility Tyler County, WV

Source	Description	NOx lb/hr	CO lb/hr	CO2e lb/hr	VOC lb/hr	SO2 lb/hr	PM lb/hr	n-Hexane lb/hr	benzene lb/hr	formaldehyde lb/hr	Total HAPs lb/hr
RBV-1	300 MBTU/Hr Reboiler	0.03	0.03	36.2	0.00	0.000	0.00	0.001	0.002	0.000	0.001
RSV-1	Controlled Still Vent			59.0	3.20			0.089	0.023		0.564
---	Fittings Fugitive Emissions			1.0	0.01						
Total		0.03	0.03	96	3.22	0.00	0.00	0.09	0.03	0.00	0.56

Source		NOx tpy	CO tpy	CO2e tpy	VOC tpy	SO2 tpy	PM tpy	n-Hexane tpy	benzene tpy	formaldehyde tpy	Total HAPs tpy
RBV-1	300 MBTU/Hr Reboiler	0.13	0.11	159	0.01	0.001	0.01	0.00	0.00	0.00	0.002
RSV-1	Controlled Still Vent			258	14.03			0.39	0.10		2.470
---	Fittings Fugitive Emissions			4	0.05						
Total Proposed		0.13	0.11	421	14.09	0.00	0.01	0.39	0.10	0.00	2.47

Contiguous Jay Bee Sleepy Well Pad	3.13	3.82	3,256	32.93	0.02	3.26	0.94	0.00	0.08	1.27
Aggregated Emissions	3.27	3.93	3,677	47.02	0.02	3.27	1.33	0.10	0.08	3.75

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility
Tyler County, WV

Dehy Stil Vent Emissions

SOURCE RSV-1

Still Vent Emissions (Controlled)

From Gri GlyCalc 4.0

Dry Gas Rate 20 MMSCFD
Glycol Circulation Rate 3.5 gpm
Treating Temperature 85 Deg F
Treating Pressure 500 psi
Destruction Efficiency of Re-Boiler 90 %

Data From GLYCalc:

Total HC	6.6600	lbs/hr	29.171	TPY
Methane	2.3600	lbs/hr	10.337	TPY
Total VOC	3.2040	lbs/hr	14.034	TPY
Total HAP	0.5640	lbs/hr	2.470	TPY
benzene	0.0229	lbs/hr	0.100	TPY
toluene	0.2785	lbs/hr	1.220	TPY
ethyl benzene	0.0000	lbs/hr	0.000	TPY
xylene	0.1746	lbs/hr	0.765	TPY
n-hexane	0.0889	lbs/hr	0.389	TPY

Icon Midstream Pipeline, LLC

Sleepy Dehydration Facility Tyler County, WV

Potential Emission Rates

Source RBV-1

Burner Duty Rating	300.0 Mbtu/hr
Burner Efficiency	98.0 %
Gas Heat Content (HHV)	735.1 Btu/scf
Total Gas Consumption	9,995 scfd
H2S Concentration	0.000 Mole %
Hours of Operation	8760

NOx	0.0300	lbs/hr	0.131	TPY
CO	0.0252	lbs/hr	0.110	TPY
CO2	36.0	lbs/hr	157.7	TPY
CO2e	36	lbs/hr	159	tpy
VOC	0.0017	lbs/hr	0.007	TPY
SO2	0.0002	lbs/hr	0.001	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0023	lbs/hr	0.010	TPY
CHOH	0.0000	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0005	lbs/hr	0.002	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0006	lbs/hr	0.002	TPY

AP-42 Factors Used

NOx	100 Lbs/MMCF	
CO	84 Lbs/MMCF	
CO ₂	120,000 Lbs/MMCF	Global Warming Potential = 1
VOC	5.5 Lbs/MMCF	
PM	7.6 Lbs/MMCF	
SO ₂	0.6 Lbs/MMCF	
CH ₄	2.3 Lbs/MMCF	Global Warming Potential = 25
N ₂ O	2.2 Lbs/MMCF	Global Warming Potential = 298
HCOH	0.075 Lbs/MMCF	
Benzene	0.0021 Lbs/MMCF	
n-Hexane	1.8 Lbs/MMCF	
Toluene	0.0034 Lbs/MMCF	

Icon Midstream Pipeline, LLC

Sleepy Dehydration Facility
Tyler County, WV

Fugitive VOC Emissions

Volatile Organic Compounds, non-methane and non-ethane from gas analysis:	18.72	
Methane from gas analysis:	59.11	weight percent
Carbon Dioxide from gas analysis:	0.32	weight percent
Gas Density	0.0585	lb/scf

Emission Source:	Number*	Oil & Gas Production**	VOC %	VOC, lb/hr	VOC TPY	VOC, lb/yr	CO2 lb/hr	CO2 TPY	CO2 lb/yr	CH4 lb/hr	CH4 TPY	CH4 lb/yr	CO2e TPY
Valves:													
Gas/Vapor:	24	0.02700 scf/hr	18.7	0.007	0.031	62.11	0.000	0.001	1.05	0.022	0.098	196.14	2.45
Relief Valves:	2	0.04000 scf/hr	18.7	0.001	0.004	7.67	0.000	0.000	0.13	0.003	0.012	24.21	0.30
Open-ended Lines, gas:	2	0.06100 scf/hr	18.7	0.001	0.006	11.69	0.000	0.000	0.20	0.004	0.018	36.93	0.46
Connectors:													
Gas:	90	0.00300 scf/hr	18.7	0.003	0.013	25.88	0.000	0.000	0.44	0.009	0.041	81.72	1.02

Fugitive Calculations:

	lb/hr	tpy
VOC	0.012	0.054
CH4	0.039	0.169
CO2	0.000	0.001
CO2e	0.968	4.238

Notes:

*Numbers are from 40 CFR 98, Table W-1B

**Factors are from 40 CFR 98, Table W-1A (scf/hr), where available. Remaining are API (lb/hr)

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility
Tyler County, WV

Inlet Gas Composition:

	Fuel Gas mole %	Fuel M.W. lb/lb-mole	Fuel S.G.	Fuel Wt. %	LHV, dry Btu/scf	HHV, dry Btu/scf	AFR vol/vol	VOC NM / NE	Z Factor	GPM
Nitrogen, N2	0.618	0.173	0.006	0.829			-		0.0062	
Carbon Dioxide, CO2	0.150	0.066	0.002	0.316			-		0.0015	
Hydrogen Sulfide, H2S	0.000	0.000	0.000	0.000	0.0	0.0	0.000		0.0000	
Helium, He	-	-	-	-			-		-	
Oxygen, O2	-	-	-	-			-		-	
Methane, CH4	76.982	12.350	0.426	59.108	700.1	777.5	7.336		0.7683	
Ethane, C2H6	14.612	4.394	0.152	21.029	236.5	258.6	2.437		0.1449	3.887
Propane	4.778	2.107	0.073	10.084	110.6	120.2	1.138	10.084	0.0469	1.310
Iso-Butane	0.601	0.349	0.012	1.672	18.0	19.5	0.186	1.672	0.0058	0.196
Normal Butane	1.177	0.684	0.024	3.274	35.4	38.4	0.365	3.274	0.0114	0.369
Iso Pentane	0.296	0.214	0.007	1.022	10.9	11.8	0.113	1.022	0.0030	0.108
Normal Pentane	0.292	0.211	0.007	1.008	10.8	11.7	0.111	1.008	0.0029	0.105
Hexane	0.267	0.119	0.008	0.570	11.8	12.7	0.121	0.570	0.0026	0.109
Heptane+	0.227	0.227	0.008	1.089	11.6	12.5	0.119	1.089	0.0023	0.104
100.000	20.894	0.725			1,145.8	1,263.0	11.926	18.719	0.9958	6.187

Gas Density (STP) = 0.058

Ideal Gross (HHV)	1,263.0
Ideal Gross (sat'd)	1,241.8
GPM	-
Real Gross (HHV)	1,268.3
Real Net (LHV)	1,150.6

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility
Tyler County, WV

Still Vent Gas Composition Information:

	Fuel Gas mole %	Fuel M.W. lb/lb-mole	Fuel S.G.	Fuel Wt. %	LHV, dry Btu/scf	HHV, dry Btu/scf	AFR vol/vol	VOC NM / NE	Z Factor	GPM
Nitrogen, N2	0.2350	0.066	0.002	0.293			-		0.0023	
Carbon Dioxide, CO2	0.1540	0.068	0.002	0.301			-		0.0015	
Hydrogen Sulfide, H2S		-	-	-			-		-	
Water	55.1000	9.918	0.342	44.094			-		0.5513	
Oxygen, O2		-	-	-			-		-	
Methane, CH4	29.1000	4.669	0.161	20.756	264.6	293.9	2.773		0.2904	
Ethane, C2H6	7.2100	2.168	0.075	9.639	116.7	127.6	1.203		0.0715	1.918
Propane	3.0400	1.341	0.046	5.960	70.4	76.5	0.724	5.960	0.0299	0.833
Iso-Butane	0.4720	0.274	0.009	1.220	14.2	15.3	0.146	1.220	0.0046	0.154
Normal Butane	1.1100	0.645	0.022	2.868	33.4	36.2	0.344	2.868	0.0107	0.348
Iso Pentane	0.2960	0.214	0.007	0.949	10.9	11.8	0.113	0.949	0.0030	0.108
Normal Pentane	0.3490	0.252	0.009	1.120	12.9	14.0	0.133	1.120	0.0035	0.126
Hexane	0.4350	0.375	0.013	1.667	19.2	20.7	0.197	1.667	0.0043	0.178
Heptane	2.4990	2.504	0.086	11.133	127.4	137.5	1.310	11.133	0.0249	1.147
	100.000	22.493	0.777		669.8	733.6	6.942	24.917	0.9979	4.811

Gas Density (STP) = 0.063

Ideal Gross (HHV)	733.6
Ideal Gross (sat'd)	721.6
GPM	-
Real Gross (HHV)	735.1
Real Net (LHV)	671.2

GAS DATA INFORMATION

Specific Gravity of Air, @ 29.92 in. Hg and 60 -F, 28.9625
 One mole of gas occupies, @ 14.696 psia & 32 -F, 359.2 cu ft. per lb-mole
 One mole of gas occupies, @ 14.696 psia & 60 -F, 379.64 cu ft. per lb-mole

Hydrogen Sulfide (H₂S) conversion chart:

0 grains H ₂ S/100 scf	=	0.00000 mole % H ₂ S
		0.0 ppmv H ₂ S
0 mole % H ₂ S	=	0 grains H ₂ S/100 scf
		0.0 ppmv H ₂ S
0 ppmv H ₂ S	=	0.000 grains H ₂ S/100 scf
		0.00000 mole % H ₂ S

Ideal Gas at 14.696 psia and 60°F

		MW lb/mol	Specific Gravity	Lb per Cu Ft	Cu Ft per Lb	LHV, dry Btu/scf	HHV, dry Btu/scf	LHV Btu/lb	HHV Btu/lb	cu ft of air / 1 cu ft of gas	Z factor
Nitrogen	N ₂	28.013	0.9672	0.0738	13.552	0	0	0	0	0	0.9997
Carbon Dioxide	CO ₂	44.010	1.5196	0.1159	8.626	0	0	0	0	0	0.9964
Hydrogen Sulfide	H ₂ S	34.076	1.1766	0.0898	11.141	587	637	6,545	7,100	7.15	0.9846
Water	H ₂ O	18.000	0.6215	0.0474	21.091	0	0	0	0	0	1.0006
Oxygen	O ₂	31.999	1.1048	0.0843	11.864	0	0	0	0	0	0.9992
Methane	CH ₄	16.043	0.5539	0.0423	23.664	909.4	1,010.0	21,520	23,879	9.53	0.9980
Ethane	C ₂ H ₆	30.070	1.0382	0.0792	12.625	1,618.7	1,769.6	20,432	22,320	16.68	0.9919
Propane	C ₃ H ₈	44.097	1.5226	0.1162	8.609	2,314.9	2,516.1	19,944	21,661	23.82	0.9825
Iso-Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,000.4	3,251.9	19,629	21,257	30.97	0.9711
Normal Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,010.8	3,262.3	19,680	21,308	30.97	0.9667
Iso Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,699.0	4,000.9	19,478	21,052	38.11	1.0000
Normal Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,706.9	4,008.9	19,517	21,091	38.11	1.0000
Hexane	C ₆ H ₁₄	86.178	2.9755	0.2270	4.405	4,403.8	4,755.9	19,403	20,940	45.26	0.9879
Heptane	C ₇ H ₁₆	100.205	3.4598	0.2639	3.789	5,100.0	5,502.5	22,000	23,000	52.41	0.9947

Real Gas at 14.696 psia and 60°F

		MW lb/mol	Specific Gravity	Lb per Cu Ft	Cu Ft per Lb	LHV, dry Btu/scf	HHV, dry Btu/scf	LHV Btu/lb	HHV Btu/lb	cu ft of air / 1 cu ft of gas	Gal/Mole
Nitrogen	N ₂	28.013	0.9672	0.0738	13.552	0	0	0	0	0	4.1513
Carbon Dioxide	CO ₂	44.010	1.5196	0.1159	8.626	0	0	0	0	0	6.4532
Hydrogen Sulfide	H ₂ S	34.076	1.1766	0.0898	11.141	621	672	6,545	7,100	7.15	5.1005
Water	H ₂ O	18.000	0.6215	0.0474	21.091						3.8376
Oxygen	O ₂	31.999	1.1048	0.0843	11.864	0	0	0	0	0	3.3605
Methane	CH ₄	16.043	0.5539	0.0423	23.664	911	1,012	21,520	23,879	9.53	6.4172
Ethane	C ₂ H ₆	30.070	1.0382	0.0792	12.625	1,631	1,783	20,432	22,320	16.68	10.126
Propane	C ₃ H ₈	44.097	1.5226	0.1162	8.609	2,353	3,354	19,944	21,661	23.82	10.433
Iso-Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,101	3,369	19,629	21,257	30.97	12.386
Normal Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,094	3,370	19,680	21,308	30.97	11.937
Iso Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,709	4,001	19,478	21,052	38.11	13.86
Normal Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,698	4,009	19,517	21,091	38.11	13.713
Hexane	C ₆ H ₁₄	86.178	2.9755	0.2270	4.405	4,404	4,756	19,403	20,940	45.26	15.566
Heptane	C ₇ H ₁₆	100.205	3.4598	0.2639	3.789	5,101	5,503	22,000	23,000	52.41	17.468

16.3227
17.468

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility
Tyler County, WV

Source	Description	NOx lb/hr	CO lb/hr	CO2e lb/hr	VOC lb/hr	SO2 lb/hr	PM lb/hr	n-Hexane lb/hr	benzene lb/hr	formaldehyde lb/hr	Total HAPs lb/hr
RBV-1	300 MBTU/Hr Reboiler	0.03	0.03	36.2	0.00	0.000	0.00	0.001	0.002	0.000	0.001
RSV-1	Controlled Still Vent			59.0	3.20			0.089	0.023		0.564
---	Fittings Fugitive Emissions			1.0	0.01						
Total		0.03	0.03	96	3.22	0.00	0.00	0.09	0.03	0.00	0.56

Source		NOx tpy	CO tpy	CO2e tpy	VOC tpy	SO2 tpy	PM tpy	n-Hexane tpy	benzene tpy	formaldehyde tpy	Total HAPs tpy
RBV-1	300 MBTU/Hr Reboiler	0.13	0.11	159	0.01	0.001	0.01	0.00	0.00	0.00	0.002
RSV-1	Controlled Still Vent			258	14.03			0.39	0.10		2.470
---	Fittings Fugitive Emissions			4	0.05						
Total Proposed		0.13	0.11	421	14.09	0.00	0.01	0.39	0.10	0.00	2.47

Contiguous Jay Bee Sleepy Well Pad	3.13	3.82	3,256	32.93	0.02	3.26	0.94	0.00	0.08	1.27
Aggregated Emissions	3.27	3.93	3,677	47.02	0.02	3.27	1.33	0.10	0.08	3.75

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility
Tyler County, WV

Dehy Stil Vent Emissions

SOURCE RSV-1

Still Vent Emissions (Controlled)

From Gri GlyCalc 4.0

Dry Gas Rate 20 MMSCFD
Glycol Circulation Rate 3.5 gpm
Treating Temperature 85 Deg F
Treating Pressure 500 psi
Destruction Efficiency of Re-Boiler 90 %

Data From GLYCalc:

Total HC	6.6600	lbs/hr	29.171	TPY
Methane	2.3600	lbs/hr	10.337	TPY
Total VOC	3.2040	lbs/hr	14.034	TPY
Total HAP	0.5640	lbs/hr	2.470	TPY
benzene	0.0229	lbs/hr	0.100	TPY
toluene	0.2785	lbs/hr	1.220	TPY
ethyl benzene	0.0000	lbs/hr	0.000	TPY
xylene	0.1746	lbs/hr	0.765	TPY
n-hexane	0.0889	lbs/hr	0.389	TPY

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility Tyler County, WV

Potential Emission Rates

Source RBV-1

Burner Duty Rating	300.0 Mbtu/hr
Burner Efficiency	98.0 %
Gas Heat Content (HHV)	735.1 Btu/scf
Total Gas Consumption	9,995 scfd
H2S Concentration	0.000 Mole %
Hours of Operation	8760

NOx	0.0300	lbs/hr	0.131	TPY
CO	0.0252	lbs/hr	0.110	TPY
CO2	36.0	lbs/hr	157.7	TPY
CO2e	36	lbs/hr	159	tpy
VOC	0.0017	lbs/hr	0.007	TPY
SO2	0.0002	lbs/hr	0.001	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0023	lbs/hr	0.010	TPY
CHOH	0.0000	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0005	lbs/hr	0.002	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0006	lbs/hr	0.002	TPY

AP-42 Factors Used

NOx	100 Lbs/MMCF
CO	84 Lbs/MMCF
CO ₂	120,000 Lbs/MMCF
VOC	5.5 Lbs/MMCF
PM	7.6 Lbs/MMCF
SO ₂	0.6 Lbs/MMCF
CH ₄	2.3 Lbs/MMCF
N ₂ O	2.2 Lbs/MMCF
HCOH	0.075 Lbs/MMCF
Benzene	0.0021 Lbs/MMCF
n-Hexane	1.8 Lbs/MMCF
Toluene	0.0034 Lbs/MMCF

Global Warming Potential = 1

Global Warming Potential = 25

Global Warming Potential =298

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility
Tyler County, WV

Fugitive VOC Emissions

Volatile Organic Compounds, non-methane and non-ethane from gas analysis:	18.72	weight percent
Methane from gas analysis:	59.11	weight percent
Carbon Dioxide from gas analysis:	0.32	weight percent
Gas Density	0.0585	lb/scf

Emission Source:	Number*	Oil & Gas Production**	VOC %	VOC, lb/hr	VOC TPY	VOC, lb/yr	CO2 lb/hr	CO2 TPY	CO2 lb/yr	CH4 lb/hr	CH4 TPY	CH4 lb/yr	CO2e TPY
Valves:													
Gas/Vapor:	24	0.02700 scf/hr	18.7	0.007	0.031	62.11	0.000	0.001	1.05	0.022	0.098	196.14	2.45
Relief Valves:	2	0.04000 scf/hr	18.7	0.001	0.004	7.67	0.000	0.000	0.13	0.003	0.012	24.21	0.30
Open-ended Lines, gas:	2	0.06100 scf/hr	18.7	0.001	0.006	11.69	0.000	0.000	0.20	0.004	0.018	36.93	0.46
Connectors:													
Gas:	90	0.00300 scf/hr	18.7	0.003	0.013	25.88	0.000	0.000	0.44	0.009	0.041	81.72	1.02

Fugitive Calculations:

	lb/hr	tpy
VOC	0.012	0.054
CH4	0.039	0.169
CO2	0.000	0.001
CO2e	0.968	4.238

Notes:

*Numbers are from 40 CFR 98, Table W-1B

**Factors are from 40 CFR 98, Table W-1A (scf/hr), where available. Remaining are API (lb/hr)

Icon Midstream Pipeline,LLC

Sleepy Dehydration Facility
Tyler County, WV

Inlet Gas Composition:

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Nitrogen, N2	0.618	0.173	0.006	0.829			-		0.0062	
Carbon Dioxide, CO2	0.150	0.066	0.002	0.316			-		0.0015	
Hydrogen Sulfide, H2S	0.000	0.000	0.000	0.000	0.0	0.0	0.000		0.0000	
Helium, He	-	-	-	-			-		-	
Oxygen, O2	-	-	-	-			-		-	
Methane, CH4	76.982	12.350	0.426	59.108	700.1	777.5	7.336		0.7683	
Ethane, C2H6	14.612	4.394	0.152	21.029	236.5	258.6	2.437		0.1449	3.887
Propane	4.778	2.107	0.073	10.084	110.6	120.2	1.138	10.084	0.0469	1.310
Iso-Butane	0.601	0.349	0.012	1.672	18.0	19.5	0.186	1.672	0.0058	0.196
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Iso Pentane	0.296	0.214	0.007	1.022	10.9	11.8	0.113	1.022	0.0030	0.108
Normal Pentane	0.292	0.211	0.007	1.008	10.8	11.7	0.111	1.008	0.0029	0.105
Hexane	0.267	0.119	0.008	0.570	11.8	12.7	0.121	0.570	0.0026	0.109
Heptane+	0.227	0.227	0.008	1.089	11.6	12.5	0.119	1.089	0.0023	0.104
	100.000	20.894	0.725		1,145.8	1,263.0	11.926	18.719	0.9958	6.187

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GPM	-
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Real Net (LHV)	1,150.6

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Still Vent Gas Composition Information:

	Fuel Gas mole %	Fuel M.W. lb/lb-mole	Fuel S.G.	Fuel Wt. %	LHV, dry Btu/scf	HHV, dry Btu/scf	AFR vol/vol	VOC NM / NE	Z Factor	GPM
Nitrogen, N2	0.2350	0.066	0.002	0.293			-		0.0023	
Carbon Dioxide, CO2	0.1540	0.068	0.002	0.301			-		0.0015	
Hydrogen Sulfide, H2S		-	-	-			-		-	
Water	55.1000	9.918	0.342	44.094			-		0.5513	
Oxygen, O2		-	-	-			-		-	
Methane, CH4	29.1000	4.669	0.161	20.756	264.6	293.9	2.773		0.2904	
Ethane, C2H6	7.2100	2.168	0.075	9.639	116.7	127.6	1.203		0.0715	1.918
Propane	3.0400	1.341	0.046	5.960	70.4	76.5	0.724	5.960	0.0299	0.833
Iso-Butane	0.4720	0.274	0.009	1.220	14.2	15.3	0.146	1.220	0.0046	0.154
Normal Butane	1.1100	0.645	0.022	2.868	33.4	36.2	0.344	2.868	0.0107	0.348
Iso Pentane	0.2960	0.214	0.007	0.949	10.9	11.8	0.113	0.949	0.0030	0.108
Normal Pentane	0.3490	0.252	0.009	1.120	12.9	14.0	0.133	1.120	0.0035	0.126
Hexane	0.4350	0.375	0.013	1.667	19.2	20.7	0.197	1.667	0.0043	0.178
Heptane	2.4990	2.504	0.086	11.133	127.4	137.5	1.310	11.133	0.0249	1.147
	100.000	22.493	0.777		669.8	733.6	6.942	24.917	0.9979	4.811

Gas Density (STP) = 0.063

Ideal Gross (HHV)	733.6
Ideal Gross (sat'd)	721.6
GPM	-
Real Gross (HHV)	735.1
Real Net (LHV)	671.2

GAS DATA INFORMATION

Specific Gravity of Air, @ 29.92 in. Hg and 60 -F, 28.9625
 One mole of gas occupies, @ 14.696 psia & 32 -F 359.2 cu ft. per lb-mole
 One mole of gas occupies, @ 14.696 psia & 60 -F 379.64 cu ft. per lb-mole

Hydrogen Sulfide (H₂S) conversion chart:

<u>0</u> grains H ₂ S/100 scf	=	<u>0.00000</u> mole % H ₂ S
		<u>0.0</u> ppmv H ₂ S
<u>0</u> mole % H ₂ S	=	<u>0</u> grains H ₂ S/100 scf
		<u>0.0</u> ppmv H ₂ S
<u>0</u> ppmv H ₂ S	=	<u>0.000</u> grains H ₂ S/100 scf
		<u>0.00000</u> mole % H ₂ S

Ideal Gas at 14.696 psia and 60°F

		MW lb/mol	Specific Gravity	Lb per Cu Ft	Cu Ft per Lb	LHV, dry Btu/scf	HHV, dry Btu/scf	LHV Btu/lb	HHV Btu/lb	cu ft of air / 1 cu ft of gas	Z factor
Nitrogen	N ₂	28.013	0.9672	0.0738	13.552	0	0	0	0	0	0.9997
Carbon Dioxide	CO ₂	44.010	1.5196	0.1159	8.626	0	0	0	0	0	0.9964
Hydrogen Sulfide	H ₂ S	34.076	1.1766	0.0898	11.141	587	637	6,545	7,100	7.15	0.9846
Water	H ₂ O	18.000	0.6215	0.0474	21.091	0	0	0	0	0	1.0006
Oxygen	O ₂	31.999	1.1048	0.0843	11.864	0	0	0	0	0	0.9992
Methane	CH ₄	16.043	0.5539	0.0423	23.664	909.4	1,010.0	21,520	23,879	9.53	0.9980
Ethane	C ₂ H ₆	30.070	1.0382	0.0792	12.625	1,618.7	1,769.6	20,432	22,320	16.68	0.9919
Propane	C ₃ H ₈	44.097	1.5226	0.1162	8.609	2,314.9	2,516.1	19,944	21,661	23.82	0.9825
Iso-Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,000.4	3,251.9	19,629	21,257	30.97	0.9711
Normal Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,010.8	3,262.3	19,680	21,308	30.97	0.9667
Iso Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,699.0	4,000.9	19,478	21,052	38.11	1.0000
Normal Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,706.9	4,008.9	19,517	21,091	38.11	1.0000
Hexane	C ₆ H ₁₄	86.178	2.9755	0.2270	4.405	4,403.8	4,755.9	19,403	20,940	45.26	0.9879
Heptane	C ₇ H ₁₆	100.205	3.4598	0.2639	3.789	5,100.0	5,502.5	22,000	23,000	52.41	0.9947

Real Gas at 14.696 psia and 60°F

		MW lb/mol	Specific Gravity	Lb per Cu Ft	Cu Ft per Lb	LHV, dry Btu/scf	HHV, dry Btu/scf	LHV Btu/lb	HHV Btu/lb	cu ft of air / 1 cu ft of gas	Gal/Mole
Nitrogen	N ₂	28.013	0.9672	0.0738	13.552	0	0	0	0	0	4.1513
Carbon Dioxide	CO ₂	44.010	1.5196	0.1159	8.626	0	0	0	0	0	6.4532
Hydrogen Sulfide	H ₂ S	34.076	1.1766	0.0898	11.141	621	672	6,545	7,100	7.15	5.1005
Water	H ₂ O	18.000	0.6215	0.0474	21.091						3.8376
Oxygen	O ₂	31.999	1.1048	0.0843	11.864	0	0	0	0	0	3.3605
Methane	CH ₄	16.043	0.5539	0.0423	23.664	911	1,012	21,520	23,879	9.53	6.4172
Ethane	C ₂ H ₆	30.070	1.0382	0.0792	12.625	1,631	1,783	20,432	22,320	16.68	10.126
Propane	C ₃ H ₈	44.097	1.5226	0.1162	8.609	2,353	3,354	19,944	21,661	23.82	10.433
Iso-Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,101	3,369	19,629	21,257	30.97	12.386
Normal Butane	C ₄ H ₁₀	58.124	2.0069	0.1531	6.532	3,094	3,370	19,680	21,308	30.97	11.937
Iso Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,709	4,001	19,478	21,052	38.11	13.86
Normal Pentane	C ₅ H ₁₂	72.151	2.4912	0.1901	5.262	3,698	4,009	19,517	21,091	38.11	13.713
Hexane	C ₆ H ₁₄	86.178	2.9755	0.2270	4.405	4,404	4,756	19,403	20,940	45.26	15.566
Heptane	C ₇ H ₁₆	100.205	3.4598	0.2639	3.789	5,101	5,503	22,000	23,000	52.41	17.468

16.3227
17.468

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: Icon Midstream - Sleepy

File Name: C:\Rogers_Files\Misc\Jay-Bee Oil & Gas\Icon Midstream\Sleepy\Sleepy No Cond.ddf

Date: February 23, 2016

DESCRIPTION:

Description: 20 MMSCFD
Still as Fuel and Excess to Still Column for
destruction
No Flash Tank

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 85.00 deg. F
Pressure: 500.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.1500
Nitrogen	0.6180
Methane	76.9820
Ethane	14.6120
Propane	4.7780
Isobutane	0.6010
n-Butane	1.1770
Isopentane	0.2960
n-Pentane	0.2920
n-Hexane	0.1100
Other Hexanes	0.1570
Heptanes	0.1240
Benzene	0.0010
Toluene	0.0070
Xylenes	0.0020
C8+ Heavies	0.0890

DRY GAS:

Flow Rate: 20.0 MMSCF/day
Water Content: 7.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type: TEG
Water Content: 1.5 wt% H2O
Flow Rate: 3.5 gpm

PUMP:

Glycol Pump Type: Gas Injection
Gas Injection Pump Volume Ratio: 0.080 acfm gas/gpm glycol

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device:	Combustion Device
Destruction Efficiency:	90.0 %
Excess Oxygen:	5.0 %
Ambient Air Temperature:	60.0 deg. F

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: Icon Midstream - Sleepy

File Name: C:\Rogers_Files\Misc\Jay-Bee Oil & Gas\Icon Midstream\Sleepy\Sleepy No Cond.ddf

Date: February 23, 2016

DESCRIPTION:

Description: 20 MMSCFD
 Still as Fuel and Excess to Still Column for
 destruction
 No Flash Tank

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	2.3603	56.647	10.3380
Ethane	1.0960	26.305	4.8006
Propane	0.6766	16.238	2.9634
Isobutane	0.1386	3.325	0.6069
n-Butane	0.3258	7.820	1.4271
Isopentane	0.1078	2.586	0.4720
n-Pentane	0.1274	3.057	0.5579
n-Hexane	0.0889	2.134	0.3894
Other Hexanes	0.1007	2.417	0.4411
Heptanes	0.2131	5.114	0.9334
Benzene	0.0229	0.550	0.1005
Toluene	0.2785	6.683	1.2197
Xylenes	0.1746	4.189	0.7646
C8+ Heavies	0.9492	22.780	4.1574
Total Emissions	6.6602	159.845	29.1718
Total Hydrocarbon Emissions	6.6602	159.845	29.1718
Total VOC Emissions	3.2039	76.894	14.0332
Total HAP Emissions	0.5649	13.557	2.4741
Total BTEX Emissions	0.4760	11.423	2.0847

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	23.6028	566.466	103.3801
Ethane	10.9602	263.046	48.0059
Propane	6.7657	162.377	29.6338
Isobutane	1.3855	33.252	6.0685
n-Butane	3.2581	78.195	14.2706
Isopentane	1.0776	25.861	4.7197
n-Pentane	1.2738	30.570	5.5791
n-Hexane	0.8890	21.337	3.8940
Other Hexanes	1.0070	24.169	4.4108
Heptanes	2.1310	51.143	9.3336
Benzene	0.2293	5.504	1.0045
Toluene	2.7848	66.834	12.1972
Xylenes	1.7456	41.894	7.6456

C8+ Heavies	9.4918	227.804	41.5741
Total Emissions	66.6022	1598.452	291.7175
Total Hydrocarbon Emissions	66.6022	1598.452	291.7175
Total VOC Emissions	32.0392	768.940	140.3316
Total HAP Emissions	5.6487	135.569	24.7413
Total BTEX Emissions	4.7597	114.232	20.8473

EQUIPMENT REPORTS:

COMBUSTION DEVICE

Ambient Temperature: 60.00 deg. F
 Excess Oxygen: 5.00 %
 Combustion Efficiency: 90.00 %
 Supplemental Fuel Requirement: 2.92e-001 MM BTU/hr

Component	Emitted	Destroyed
Methane	10.00%	90.00%
Ethane	10.00%	90.00%
Propane	10.00%	90.00%
Isobutane	10.00%	90.00%
n-Butane	10.00%	90.00%
Isopentane	10.00%	90.00%
n-Pentane	10.00%	90.00%
n-Hexane	10.00%	90.00%
Other Hexanes	10.00%	90.00%
Heptanes	10.00%	90.00%
Benzene	10.00%	90.00%
Toluene	10.00%	90.00%
Xylenes	10.00%	90.00%
C8+ Heavies	10.00%	90.00%

ABSORBER

NOTE: Because the Calculated Absorber Stages was below the minimum allowed, GRI-GLYCalc has set the number of Absorber Stages to 1.25 and has calculated a revised Dry Gas Dew Point.

Calculated Absorber Stages: 1.25
 Calculated Dry Gas Dew Point: 3.68 lbs. H2O/MMSCF
 Temperature: 85.0 deg. F
 Pressure: 500.0 psig
 Dry Gas Flow Rate: 20.0000 MMSCF/day
 Glycol Losses with Dry Gas: 0.0750 lb/hr
 Wet Gas Water Content: Saturated
 Calculated Wet Gas Water Content: 63.69 lbs. H2O/MMSCF
 Calculated Lean Glycol Recirc. Ratio: 4.20 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.76%	94.24%
Carbon Dioxide	99.84%	0.16%
Nitrogen	99.99%	0.01%

Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.93%	0.07%
Isobutane	99.90%	0.10%
n-Butane	99.86%	0.14%
Isopentane	99.85%	0.15%
n-Pentane	99.80%	0.20%
n-Hexane	99.65%	0.35%
Other Hexanes	99.74%	0.26%
Heptanes	99.30%	0.70%
Benzene	86.71%	13.29%
Toluene	80.42%	19.58%
Xylenes	62.65%	37.35%
C8+ Heavies	97.23%	2.77%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	37.09%	62.91%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.33%	99.67%
n-Pentane	0.36%	99.64%
n-Hexane	0.41%	99.59%
Other Hexanes	0.78%	99.22%
Heptanes	0.45%	99.55%
Benzene	4.97%	95.03%
Toluene	7.87%	92.13%
Xylenes	12.89%	87.11%
C8+ Heavies	11.74%	88.26%

STREAM REPORTS:

WET GAS STREAM

Temperature: 85.00 deg. F
Pressure: 514.70 psia
Flow Rate: 8.35e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.34e-001	5.32e+001
Carbon Dioxide	1.50e-001	1.45e+002
Nitrogen	6.17e-001	3.80e+002
Methane	7.69e+001	2.71e+004
Ethane	1.46e+001	9.65e+003

Propane	4.77e+000	4.63e+003
Isobutane	6.00e-001	7.67e+002
n-Butane	1.18e+000	1.50e+003
Isopentane	2.96e-001	4.69e+002
n-Pentane	2.92e-001	4.63e+002
n-Hexane	1.10e-001	2.08e+002
Other Hexanes	1.57e-001	2.97e+002
Heptanes	1.24e-001	2.73e+002
Benzene	9.99e-004	1.72e+000
Toluene	6.99e-003	1.42e+001
Xylenes	2.00e-003	4.66e+000
C8+ Heavies	8.89e-002	3.33e+002

Total Components	100.00	4.63e+004
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DRY GAS STREAM

Temperature: 85.00 deg. F
 Pressure: 514.70 psia
 Flow Rate: 8.33e+005 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	7.74e-003	3.06e+000
Carbon Dioxide	1.50e-001	1.45e+002
Nitrogen	6.18e-001	3.80e+002
Methane	7.70e+001	2.71e+004
Ethane	1.46e+001	9.65e+003
Propane	4.78e+000	4.63e+003
Isobutane	6.01e-001	7.67e+002
n-Butane	1.18e+000	1.50e+003
Isopentane	2.96e-001	4.68e+002
n-Pentane	2.91e-001	4.62e+002
n-Hexane	1.10e-001	2.08e+002
Other Hexanes	1.57e-001	2.96e+002
Heptanes	1.23e-001	2.71e+002
Benzene	8.67e-004	1.49e+000
Toluene	5.63e-003	1.14e+001
Xylenes	1.25e-003	2.92e+000
C8+ Heavies	8.66e-002	3.24e+002
Total Components	100.00	4.62e+004

LEAN GLYCOL STREAM

Temperature: 85.00 deg. F
 Flow Rate: 3.50e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.84e+001	1.94e+003
Water	1.50e+000	2.96e+001
Carbon Dioxide	1.18e-012	2.33e-011
Nitrogen	2.18e-013	4.29e-012
Methane	4.93e-018	9.71e-017
Ethane	8.60e-008	1.69e-006
Propane	6.67e-009	1.31e-007
Isobutane	1.22e-009	2.40e-008

n-Butane	2.66e-009	5.23e-008
Isopentane	1.83e-004	3.61e-003
n-Pentane	2.35e-004	4.62e-003
n-Hexane	1.86e-004	3.67e-003
Other Hexanes	4.00e-004	7.88e-003
Heptanes	4.90e-004	9.66e-003
Benzene	6.09e-004	1.20e-002
Toluene	1.21e-002	2.38e-001
Xylenes	1.31e-002	2.58e-001
C8+ Heavies	6.41e-002	1.26e+000
<hr/>		
Total Components	100.00	1.97e+003

RICH GLYCOL AND PUMP GAS STREAM

Temperature: 85.00 deg. F
 Pressure: 514.70 psia
 Flow Rate: 3.75e+000 gpm
 NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
<hr/>		
TEG	9.29e+001	1.94e+003
Water	3.82e+000	7.97e+001
Carbon Dioxide	1.65e-002	3.43e-001
Nitrogen	1.60e-002	3.33e-001
Methane	1.13e+000	2.36e+001
Ethane	5.25e-001	1.10e+001
Propane	3.24e-001	6.77e+000
Isobutane	6.64e-002	1.39e+000
n-Butane	1.56e-001	3.26e+000
Isopentane	5.18e-002	1.08e+000
n-Pentane	6.13e-002	1.28e+000
n-Hexane	4.28e-002	8.93e-001
Other Hexanes	4.86e-002	1.01e+000
Heptanes	1.03e-001	2.14e+000
Benzene	1.16e-002	2.41e-001
Toluene	1.45e-001	3.02e+000
Xylenes	9.60e-002	2.00e+000
C8+ Heavies	5.15e-001	1.08e+001
<hr/>		
Total Components	100.00	2.09e+003

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
 Pressure: 14.70 psia
 Flow Rate: 1.92e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
<hr/>		
Water	5.51e+001	5.01e+001
Carbon Dioxide	1.54e-001	3.43e-001
Nitrogen	2.35e-001	3.33e-001
Methane	2.91e+001	2.36e+001
Ethane	7.21e+000	1.10e+001
Propane	3.04e+000	6.77e+000
Isobutane	4.72e-001	1.39e+000
n-Butane	1.11e+000	3.26e+000

Isopentane	2.96e-001	1.08e+000
n-Pentane	3.49e-001	1.27e+000
n-Hexane	2.04e-001	8.89e-001
Other Hexanes	2.31e-001	1.01e+000
Heptanes	4.21e-001	2.13e+000
Benzene	5.81e-002	2.29e-001
Toluene	5.98e-001	2.78e+000

Xylenes	3.25e-001	1.75e+000
C8+ Heavies	1.10e+000	9.49e+000

Total Components	100.00	1.17e+002
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COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
 Pressure: 14.70 psia
 Flow Rate: 8.54e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	6.54e+001	2.36e+000
Ethane	1.62e+001	1.10e+000
Propane	6.82e+000	6.77e-001
Isobutane	1.06e+000	1.39e-001
n-Butane	2.49e+000	3.26e-001
Isopentane	6.64e-001	1.08e-001
n-Pentane	7.84e-001	1.27e-001
n-Hexane	4.58e-001	8.89e-002
Other Hexanes	5.19e-001	1.01e-001
Heptanes	9.45e-001	2.13e-001
Benzene	1.30e-001	2.29e-002
Toluene	1.34e+000	2.78e-001
Xylenes	7.31e-001	1.75e-001
C8+ Heavies	2.48e+000	9.49e-001
Total Components	100.00	6.66e+000

ATTACHMENT O

Monitoring, Recordkeeping, Reporting and Testing Plan

ATTACHMENT O

Icon Midstream Pipeline, LLC

Sleepy Dehydration Facility

Monitoring, Recordkeeping, Reporting and Testing Plan

I. Monitoring

Icon Midstream (Icon) will monitor actual annual benzene emissions.

II. Recordkeeping

Icon will maintain accurate operating records of the dehydration unit for each calendar year. Records will include actual annual benzene emissions.

III. Testing

None anticipated.

IV. Reporting

Icon will submit certified emission statements on an annual basis in accordance with WVDEP, Division of Air Quality requirements.

ATTACHMENT P

Public Notice

Tyler Star News Legals Print Ad Proof

ADNo: 2163 Customer Number: L00411
Customer Name: Company: SE TECHNOLOGIES
Address: 98 VANADIUM ROAD
City/St/Zip: BRIDGEVILLE, PA 15017
Phone: (412) 221-1100 Solicitor: VV
Category: 10 Class: 1000 Rate: LE-0 Start: 4-6-2016 Stop: 4-6-2016
Lines: 48 Inches: 4.67 Words: 221

Credit Card: Expire:
Order Number:
Cost: 45.40 Extra Charges: .00 Adjustments: .00
Payments: .00 Discount: .00
Balance: 45.40

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Icon Midstream Pipeline, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit Registration for its **Sleepy Dehydration Facility** located off of Walnut Fork (CR 13/1) near Middlebourne in Tyler County, West Virginia (Lat.39.475506, Long. -80.73868).

The applicant estimates the potential to discharge the following regulated air pollutants:

0.13 tons of Nitrogen Oxides per year
0.11 tons of Carbon Monoxide per year
14.24 tons of Volatile Organics per year
<0.01 tons of Sulfur Dioxide per year
0.01 tons of Particulate Matter per year
0.10 tons of Benzene per year
0.39 tons of n-Hexane per year
1.22 tons of Toluene per year
0.76 tons of Xylene per year
432 tons of CO_{2e} per year

Startup of the modified operation is planned to begin on or about the 15th day of June, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

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

Dated this the 6th day of April, 2016.
TSN 2163 4/6

**Affidavit Notice Will Be Submitted
Upon Receipt**

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Icon Midstream Pipeline, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit Registration for its Sleepy Dehydration Facility located off of Walnut Fork (CR 13/1) near Middlebourne in Tyler County, West Virginia (Lat.39.475506, Long. -80.73868).

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- 0.13 tons of Nitrogen Oxides per year
- 0.11 tons of Carbon Monoxide per year
- 14.24 tons of Volatile Organics per year
- <0.01 tons of Sulfur Dioxide per year
- 0.01 tons of Particulate Matter per year
- 0.10 tons of Benzene per year
- 0.39 tons of n-Hexane per year
- 1.22 tons of Toluene per year
- 0.76 tons of Xylene per year
- 432 tons of CO_{2e} per year

Startup of the modified operation is planned to begin on or about the 15th day of June, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

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

Dated this the (Day) day of (Month), (Year).

By: Mr. Shane Dowell
Operations Manager
Icon Midstream Pipeline, LLC