

May xx, 2016

West Virginia Dept. of Environmental Protection  
Division of Air Quality – Permitting Section  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304



98 VANADIUM ROAD  
BUILDING D, 2<sup>nd</sup> FLOOR  
BRIDGEVILLE, PA 15017  
(412) 221-1100  
(412) 257-6103 (FAX)  
<http://www.se-env.com>

**RE: Application for NSR Construction Permit  
Dopey Dehydration Facility  
Icon Midstream, LLC  
Tyler County, West Virginia**

To Whom It May Concern:

On behalf of our client, Icon Midstream, LLC, we are pleased to submit one hard copy and two electronic copies of the Application for an NSR Construction Permit for its Dopey Dehydration Facility in Tyler County. This application is being submitted as an individual permit application rather than a General Permit registration as the facility will be contiguous and aggregated with the Jay-Bee Oil & Gas Dopey Well Pad Production Facility (application being submitted separately). As such, the Dopey Dehydration Facility is not eligible for registration under a general permit.

A fee in the amount of \$3,500 (\$1,000 Permit Fee + \$2,500 NESHAPS Fee) was determined to be applicable. A check, payable to WVDEP – Division of Air Quality for this amount is included herein.

If there are any questions or concerns regarding this application, please contact me at 412/221-1100, x 202 or [rdhonau@se-env.com](mailto:rdhonau@se-env.com) and we will provide any needed clarification or additional information immediately.

Sincerely,

**SE TECHNOLOGIES, LLC**

Roger A. Dhonau, PE, QEP  
Principal

Enclosures

Cc: Icon Midstream, LLC – Shane Dowell

# **Icon Midstream Pipeline, LLC**

## **APPLICATION FOR NSR CONSTRUCTION PERMIT**

**Doc 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**

**Dopey 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 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
(304) 926-0475  
[www.dep.wv.gov/daq](http://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): <b>Icon Midstream Pipeline, LLC</b>		2. Federal Employer ID No. (FEIN): <b>47-1115453</b>	
3. Name of facility (if different from above): <b>Doc Dehydration Facility</b>		4. The applicant is the: <input type="checkbox"/> <b>OWNER</b> <input type="checkbox"/> <b>OPERATOR</b> <input checked="" type="checkbox"/> <b>BOTH</b>	
5A. Applicant's mailing address: 3130 Grants Lake Blvd, Suite 18859  Sugarland, TX 77496		5B. Facility's present physical address: Off Indian Creek Road  Middlebourne in Tyler County	
6. <b>West Virginia Business Registration.</b> Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> <b>YES</b> <input type="checkbox"/> <b>NO</b> – If <b>YES</b> , provide a copy of the <b>Certificate of Incorporation/Organization/Limited Partnership</b> (one page) including any name change amendments or other Business Registration Certificate as <b>Attachment A</b> . – If <b>NO</b> , provide a copy of the <b>Certificate of Authority/Authority of L.L.C./Registration</b> (one page) including any name change amendments or other Business Certificate as <b>Attachment A</b> .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation: <b>N/A</b>			
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"/> <b>YES</b> <input type="checkbox"/> <b>NO</b> – If <b>YES</b> , please explain: <b>Applicant has a lease agreement with the land owner for installation of the facility</b> – If <b>NO</b> , you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be <b>constructed, modified, relocated, administratively updated</b> or <b>temporarily permitted</b> (e.g., coal preparation plant, primary crusher, etc.): <b>Dehydration facility</b>		10. North American Industry Classification System (NAICS) code for the facility:  <b>211111</b>	
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.**

<p>12A.</p> <ul style="list-style-type: none"> <li>For <b>Modifications, Administrative Updates</b> or <b>Temporary permits</b> at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road;</li> <li>For <b>Construction</b> or <b>Relocation permits</b>, please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP</b> as <b>Attachment B</b>.</li> </ul> <p><b>From Middlebourne, proceed southeast on State Route 18 (Main Street) out of town. Proceed approximately 5.8 miles to the junction with CR 1/3 (Indian Creek Road) on the left. From WV 18 and Indian Creek (CR13) intersection, take Indian Creek Rd east for 4.4 miles. Turn right onto lease road and follow north for 0.2 miles to well pad entrance.</b></p>		
12.B. New site address (if applicable):	12C. Nearest city or town: Middlebourne	12D. County: Tyler
12.E. UTM Northing (KM): <b>4365.4151</b>	12F. UTM Easting (KM): <b>519.5733</b>	12G. UTM Zone: 17
<p>13. Briefly describe the proposed change(s) at the facility:  <b>This facility will receive gas from the contiguous Jay-Bee Oil &amp; 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.</b></p>		
14A. Provide the date of anticipated installation or change: Upon permit issuance. <ul style="list-style-type: none"> <li>If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen:        /        /</li> </ul>	14B. Date of anticipated Start-Up if a permit is granted: <b>7/15/16</b>	
14C. Provide a <b>Schedule</b> of the planned <b>Installation of/Change</b> to and <b>Start-Up</b> of each of the units proposed in this permit application as <b>Attachment C</b> (if more than one unit is involved).		
15. Provide maximum projected <b>Operating Schedule</b> 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"/> <b>YES</b> <input checked="" type="checkbox"/> <b>NO</b>		
17. <b>Risk Management Plans.</b> If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see <a href="http://www.epa.gov/ceppo">www.epa.gov/ceppo</a> ), submit your <b>Risk Management Plan (RMP)</b> to U. S. EPA Region III.		
18. <b>Regulatory Discussion.</b> 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 <b>Attachment D</b> .		
<b>Section II. Additional attachments and supporting documents.</b>		
19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).		
20. Include a <b>Table of Contents</b> as the first page of your application package.		
21. Provide a <b>Plot Plan</b> , 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 <b>Attachment E</b> (Refer to <b>Plot Plan Guidance</b> ) . <ul style="list-style-type: none"> <li>Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).</li> </ul>		
22. Provide a <b>Detailed Process Flow Diagram(s)</b> showing each proposed or modified emissions unit, emission point and control device as <b>Attachment F</b> .		
23. Provide a <b>Process Description</b> as <b>Attachment G</b> . <ul style="list-style-type: none"> <li>Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).</li> </ul>		
<b>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</b>		

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.*

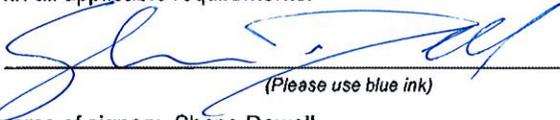
35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

**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  DATE: 5-13-2010  
(Please use blue ink) (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 B: Map(s) <input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule <input checked="" type="checkbox"/> Attachment D: Regulatory Discussion <input checked="" type="checkbox"/> Attachment E: Plot Plan <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s) <input checked="" type="checkbox"/> Attachment G: Process Description <input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) <input checked="" type="checkbox"/> Attachment I: Emission Units Table <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet	<input checked="" type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s) <input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations <input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans <input checked="" type="checkbox"/> Attachment P: Public Notice <input type="checkbox"/> Attachment Q: Business Confidential Claims <input type="checkbox"/> Attachment R: Authority Forms <input type="checkbox"/> Attachment S: Title V Permit Revision Information <input checked="" type="checkbox"/> Application Fee
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*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.*

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## **SECTION II**

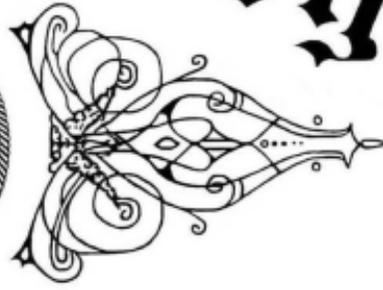
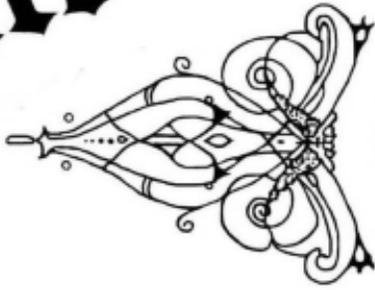
### **Attachments**

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**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*



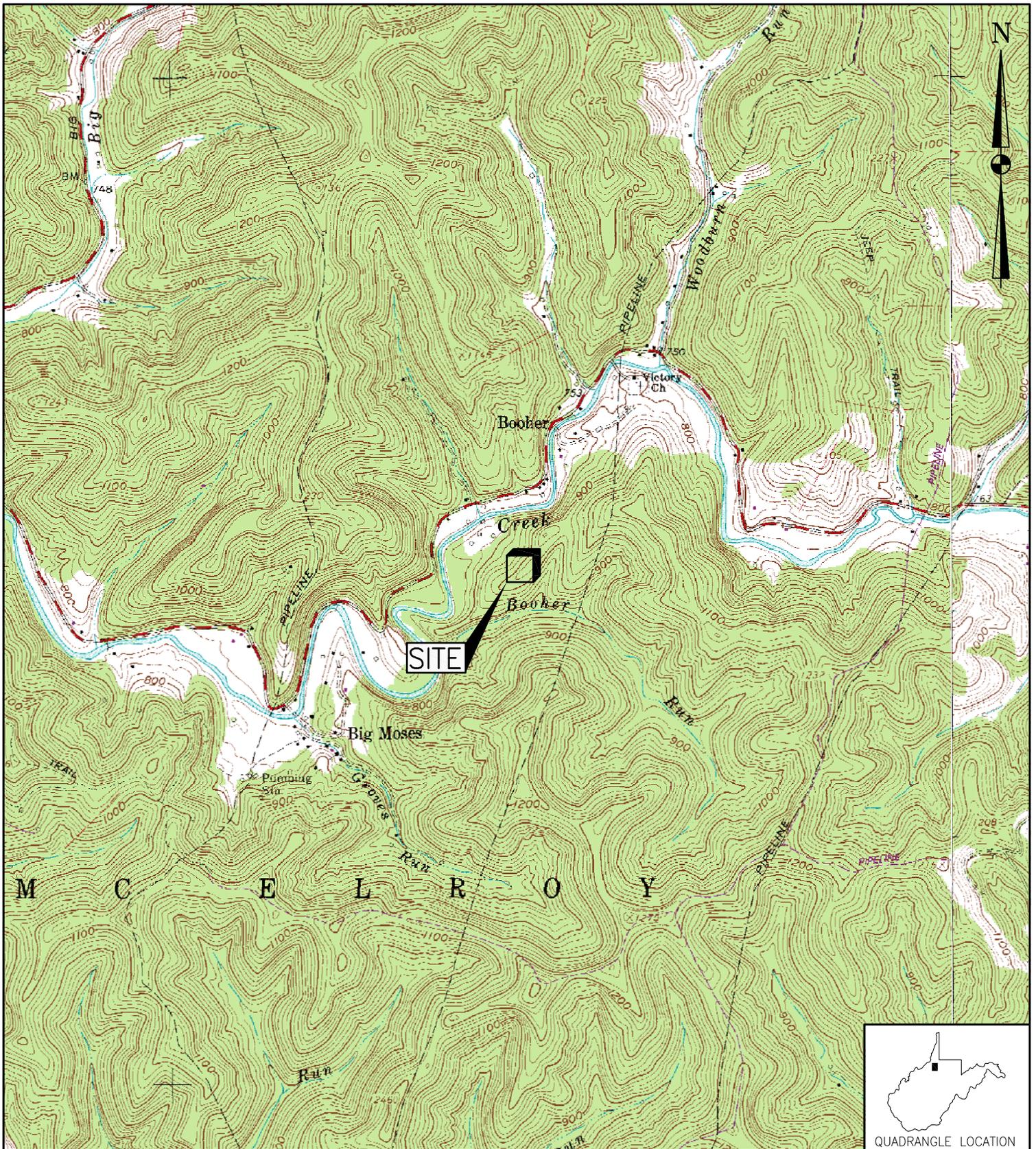
*Natalie E. Tennant*

Secretary of State

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# **ATTACHMENT B**

## **Area Map**



REFERENCE: USGS 7.5' QUADRANGLE MAP OF: SHIRLEY, WEST VIRGINIA; DATED 1961, PHOTOREVISED 1989

DRAWN BY	DJF
DATE	5/19/16
CHECKED BY	RAD
SET JOB NO.	215095
SET DWG FILE	DOPEYm01.dwg
DRAWING SCALE	1"=2000'



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

## ICON MIDSTREAM PIPELINE, LLC

DOPEY DEHYDRATION FACILITY  
TYLER COUNTY, WEST VIRGINIA  
SITE LOCATION MAP

DRAWING NO.

FIGURE 1

REV.

0

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## **ATTACHMENT C**

### **Installation and Start-Up Schedule**

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

Installation of the Dopey Dehydration Facility 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 15 days of receipt of approval. Start-up of the Facility is anticipated to begin shortly after permit issuance and installation, approximately the 30th day of July, 2016.

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**ATTACHMENT D**

**Regulatory Discussion**

# Icon Midstream Pipeline, LLC

## Dopey Dehydration Facility Attachment D – Regulatory Discussion

Both State and Federal environmental regulations governing air emissions apply to the planned Dopey 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 alone and in combination with the adjoining Jay-Bee Oil & Gas Dopey Well Pad 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 Dopey Dehydration Facility contiguous with the Jay-Bee Oil & Gas Dopey Well Pad in Tyler County. The Dopey Dehydration Facility will receive and manage natural gas from the Dopey 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 Dopey Well Pad while under the same general SIC Code, has separate ownership (Jay-Bee Oil & Gas) but share common workforces. Additionally, the Dopey Dehydration Facility supports operation of the Dopey Well Pad and only exists as a support facility for gas coming from this well pad. Therefore, emissions from the Dopey Dehydration Facility must be aggregated with Jay-Bee's Dopey 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 SO<sub>2</sub> and PM emissions from boilers and heaters fired by various fuels. While the primary thrust of this set of regulations is to control SO<sub>x</sub> 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 Dopey 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.

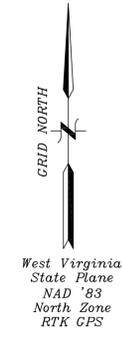
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**ATTACHMENT E**

**Plot Plan**

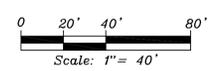
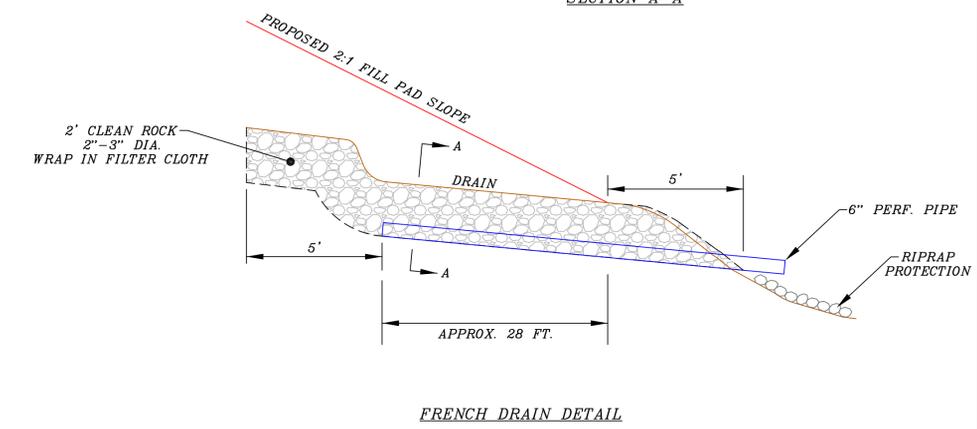
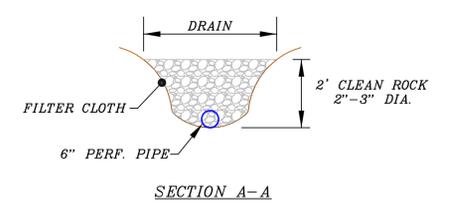
John & Patty  
Montgomery  
D.B. 309/611  
T.M. 11/27  
65 Ac.

LEGEND	
Existing	—
Proposed	—
30" Reinforced Silt Fence	—
Ditch	—
Drainage Feature	—
LOD (Permit)	—
LOD (Modified)	—
Property Line	—
Right of Way	—
Slope Drainage Break	—
Overhead Electric	—



Notes:  
1. No water wells were found within 250' of the well location. One dwelling was found within 616' of the center of the well pad, as shown also on Sheet 6.  
2. Stack all marketable timber on the property from which it was cul.

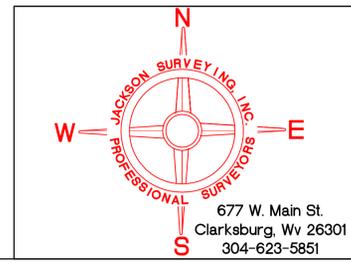
John & Patty  
Montgomery  
D.B. 309/611  
T.M. 11/27  
65 Ac.



**NOTE: ALL DRILL PITS & SUMPS SHALL BE LINED WITH HDPE LINER HAVING A MINIMUM THICKNESS OF 60 MILLS.**

**PAD LIMIT OF DISTURBANCE (LOD): 6.50± ACRES**

**DLF.**  
Dennis L. Fisher, RPE  
PO Box 281  
Philippi, WV 26416  
Cell: 304-677-4129  
E-Mail: Fisher.Engineering@gmx.com



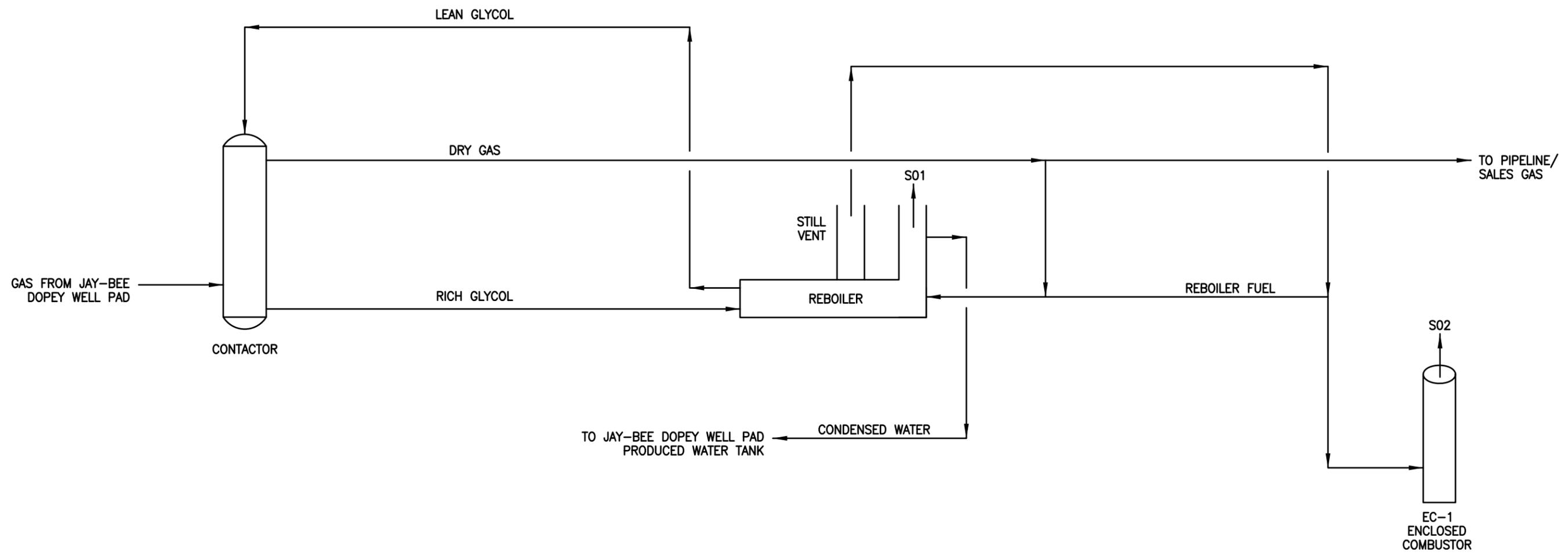
*Jackson Surveying Inc.*

Proposed Pad Plan  
Sheet 7 of 13  
**DOPEY SITE PLAN**  
Modification

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# **ATTACHMENT F**

## **Process Flow Diagram**



**LEGEND:**

↑  
EMISSION POINT

DRAWN BY	DJF
DATE	5/3/16
CHECKED BY	RAD
SET JOB NO.	215095
SET DWG FILE	DOPEY DEHY FAC FDb01.dwg
DRAWING SCALE	N.T.S.



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

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# **ATTACHMENT G**

## **Process Description**

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

Icon Midstream plans to install its Doc Dehydration Facility contiguous with the Jay-Bee Oil & Gas Doc 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 a combustor. 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.

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

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

- 500 MBTU/Hr reboiler vent
- One 40 MMSCFD Dehydration Still Vent controlled by a combustor.

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**ATTACHMENT I**

**Emission Units Table**



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**ATTACHMENT J**

**Emission Points Data Summary Sheet**

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

Table 1: Emissions Data

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup> (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase  (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>4</sup> )
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
S01	Upward Vertical Vent	RBV-1	Re-boiler Vent	RBV-1	Reboiler	C	8760	NO <sub>x</sub>	0.05	0.22	0.05	0.22	Gas	EE	
								CO	0.04	0.18	0.04	0.18	Gas	EE	
								VOC	<0.01	0.01	<0.01	0.01	Gas	EE	
								PM	<0.01	0.02	<0.01	0.02	Solid	EE	
								Benzene	<0.01	<0.01	<0.01	<0.01	Gas	EE	
								Formaldehyde	<0.01	<0.01	<0.01	<0.01	Gas	EE	
								CO <sub>2</sub> e	60.4	265	60.4	265	Gas	EE	
S02	Upward Vertical Vent	RSV-1	Still Vent	EC-1	Enclosed Combustor	C	8760	NO <sub>x</sub>	<0.01	<0.01	0.20	0.89	Gas	EE	
								CO	<0.01	<0.01	1.11	4.86	Gas	EE	
								VOC	100.41	439.8	2.01	8.08	Gas	EE	
								PM	<0.01	<0.01	<0.01	0.14	Solid	EE	
								Benzene	1.22	5.34	0.02	0.11	Gas	EE	
								Formaldehyde	<0.01	<0.01	<0.01	<0.01	Gas	EE	
								CO <sub>2</sub> e	1272	5574	446.1	1,664	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.

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

<sup>2</sup> 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).

<sup>3</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. **DO NOT LIST** H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

<sup>4</sup> 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).

<sup>5</sup> 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).

<sup>6</sup> 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).

<sup>7</sup> 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/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).



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**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 <sup>1</sup>	Maximum Potential Uncontrolled Emissions <sup>2</sup>		Maximum Potential Controlled Emissions <sup>3</sup>		Est. Method Used <sup>4</sup>
		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						

<sup>1</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

<sup>2</sup> 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).

<sup>3</sup> 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).

<sup>4</sup> 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 <sup>1</sup>	Number of Components Monitored by Frequency <sup>2</sup>	Average Time to Repair (days) <sup>3</sup>	Estimated Annual Emission Rate (lb/yr) <sup>4</sup>
Pumps <sup>5</sup>	light liquid VOC <sup>6,7</sup>				
	heavy liquid VOC <sup>8</sup>				
	Non-VOC <sup>9</sup>				
Valves <sup>10</sup>	Gas VOC	24	0	n/a	86.47 lb VOC/yr
	Light Liquid VOC				
	Heavy Liquid VOC				
	Non-VOC	24	0	n/a	1.07 lb CO <sub>2</sub> /yr 189.45 lb CH <sub>4</sub> /yr
Safety Relief Valves <sup>11</sup>	Gas VOC	2	0	n/a	10.68 lb VOC/yr
	Non VOC	2	0	n/a	0.13 lb CO <sub>2</sub> /yr 23.39 lb CH <sub>4</sub> /yr
Open-ended Lines <sup>12</sup>	VOC	2	0	n/a	16.28 lb VOC/yr
	Non-VOC	2	0	n/a	0.20 lb CO <sub>2</sub> /yr 35.67 lb CH <sub>4</sub> /yr
Sampling Connections <sup>13</sup>	VOC				
	Non-VOC				
Compressors	VOC				
	Non-VOC				
Flanges	VOC				
	Non-VOC				
Other - Connectors	VOC	90	0	n/a	36.03 lb VOC/yr
	Non-VOC	90	0	n/a	0.45 lb CO <sub>2</sub> /yr 78.94 lb CH <sub>4</sub> /yr

<sup>1 - 13</sup> See notes on the following page.

## Notes for Leak Source Data Sheet

1. For VOC sources include components on streams and equipment that contain greater than 10% w/w VOC, including feed streams, reaction/separation facilities, and product/by-product delivery lines. Do not include certain leakless equipment as defined below by category.
2. By monitoring frequency, give the number of sources routinely monitored for leaks, using a portable detection device that measures concentration in ppm. Do not include monitoring by visual or soap-bubble leak detection methods. "M/Q(M)/Q/SA/A/O" means the time period between inspections as follows:  
  
Monthly/Quarterly, with Monthly follow-up of repaired leakers/Quarterly/Semi-annual/Annually/Other (specify time period)  
  
If source category is not monitored, a single zero in the space will suffice. For example, if 50 gas-service valves are monitored quarterly, with monthly follow-up of those repaired, 75 are monitored semi-annually, and 50 are checked bimonthly (alternate months), with non checked at any other frequency, you would put in the category "valves, gas service:" 0/50/0/75/0/50 (bimonthly).
3. Give the average number of days, after a leak is discovered, that an attempt will be made to repair the leak.
4. Note the method used: MB - material balance; EE - engineering estimate; EPA - emission factors established by EPA (cite document used); O - other method, such as in-house emission factor (specify).
5. Do not include in the equipment count sealless pumps (canned motor or diaphragm) or those with enclosed venting to a control device. (Emissions from vented equipment should be included in the estimates given in the Emission Points Data Sheet.)
6. Volatile organic compounds (VOC) means the term as defined in 40 CFR S1.100
7. A light liquid is defined as a fluid with vapor pressure equal to or greater than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if 20% w/w or more of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a light liquid.
8. A heavy liquid is defined as a fluid with a vapor pressure less than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if less than 20% w/w of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a heavy liquid.
9. LIST CO, H<sub>2</sub>S, mineral acids, NO, NO<sub>2</sub>, SO<sub>3</sub>, etc. DO NOT LIST CO<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
10. Include all process valves whether in-line or on an open-ended line such as sample, drain and purge valves. Do not include safety-relief valves, or leakless valves such as check, diaphragm, and bellows seal valves.
11. Do not include a safety-relief valve if there is a rupture disk in place upstream of the valve, or if the valve vents to a control device.
12. Open-ended lines include purge, drain and vent lines. Do not include sampling connections, or lines sealed by plugs, caps, blinds or second valves.
13. Do not include closed-purge sampling connections.

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**ATTACHMENT L**

**Emissions Unit Data Sheet(s)**

## GLYCOL DEHYDRATION EMISSION UNIT DATA SHEET

General Glycol Dehydration Unit Data		Manufacturer and Model		Exterran HANO-486848030	
		Max Dry Gas Flow Rate (mmscf/day)		40 MMSCFD	
		Design Heat Input (mmBtu/hr)		0.500 MMBTU/Hr (re-boiler)	
		Design Type (DEG or TEG)		TEG	
		Source Status <sup>2</sup>		NS	
		Date Installed/Modified/Removed <sup>3</sup>		Upon Permit	
		Regenerator Still Vent APCD <sup>4</sup>		TO	
		Control Device ID <sup>4</sup>		RBV-1	
		Fuel HV (Btu/scf)		1253 (HHV)	
		H <sub>2</sub> S Content (gr/100 scf)		<0.001%	
		Operation (hrs/yr)		8760	
Emission Unit ID/ Emission Point ID <sup>1</sup>	Vent	Reference <sup>5</sup>	Potential Emissions <sup>6</sup>	lbs/hr	tons/yr
RBV-1	Reboiler Vent	AP-42	NO <sub>x</sub>	0.050	0.219
		AP-42	CO	0.042	0.184
		AP-42	VOC	0.003	0.012
		AP-42	SO <sub>2</sub>	<0.001	0.001
		AP-42	PM <sub>10</sub>	0.004	0.017
RSV-1	Glycol Regenerator Still Vent	GRI-GLYCalc™	VOC	2.008	8.796
		GRI-GLYCalc™	Benzene	0.024	0.107
		GRI-GLYCalc™	Ethylbenzene	0.028	0.122
		GRI-GLYCalc™	Toluene	0.210	0.922
		GRI-GLYCalc™	Xylenes	0.193	0.847
		GRI-GLYCalc™	n-Hexane	0.045	0.198

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 <sup>TM</sup>	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-GLYCalc<sup>TM</sup> (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-GLYCalc<sup>TM</sup> 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

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

Division of Air Quality

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.

<b>Section A: Facility Description</b>			
Affected facility actual annual average natural gas throughput (scf/day):	<b>40 MMSCF/Day</b>		
Affected facility actual annual average hydrocarbon liquid throughput: (bbl/day):	<b>N/A</b>		
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			
<b>Section B: Dehydration Unit (if applicable) <sup>1</sup></b>			
Description: <b>40 MMSCFD Glycol Dehydrator</b>			
Date of Installation: <b>Upon Permit</b>	Annual Operating Hours: <b>8760</b>	Burner rating (MMbtu/hr): <b>0.500</b>	
Exhaust Stack Height (ft): <b>8</b>	Stack Diameter (ft): <b>0.5</b>	Stack Temp. (°F): <b>212 (Still Vent)</b>	
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? <u>0.08</u> 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. <u>98%</u>			
Other controls installed? <input type="checkbox"/> Yes <input type="checkbox"/> No      Describe:			
Wet Gas <sup>2</sup> : Gas Temp.: <u>85</u> °F      Gas Pressure <u>500</u> psig			
(Upstream of Contact Tower)	Saturated Gas?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If no, water content _____ lb/MMSCF
Dry Gas: Gas Flowrate(MMSCFD)      Actual <u>Varies</u> _____      Design <u>40 MMSCF/Day</u>			
(Downstream of Contact Tower)	Water Content <u>7.0</u> lb/MMSCF		
Lean Glycol: Circulation rate (gpm)      Actual <sup>3</sup> <u>As appropriate</u> _____      Maximum <sup>4</sup> <u>7.5</u> _____			
Pump make/model: <b>Kimray 45015 PV</b>			
Glycol Flash Tank (if applicable): Temp.: _____°F      Pressure _____ psig      Vented?      Yes <input type="checkbox"/> No <input type="checkbox"/>			
<b>N/A</b> If no, describe vapor control: <u>Recycle/recompression</u>			
Stripping Gas (if applicable): Source of gas: <b>N/A</b> 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 C<sub>1</sub>-C<sub>8</sub>, 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**

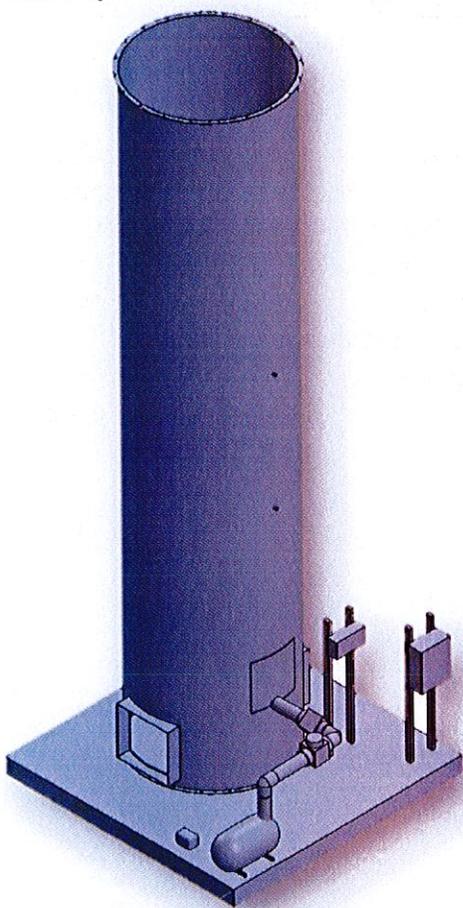
Affected facility	<input checked="" type="checkbox"/> Subject to Subpart HH	
	<input type="checkbox"/> Subject to Subpart HHH	
status:	<input type="checkbox"/> Not Subject	<input type="checkbox"/> < 10/25 TPY
(choose only one)	because:	<input type="checkbox"/> Affected facility exclusively handles black oil
		<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
		<input type="checkbox"/> No affected source is present

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**ATTACHMENT M**

**Air Pollution Control Device Sheets**

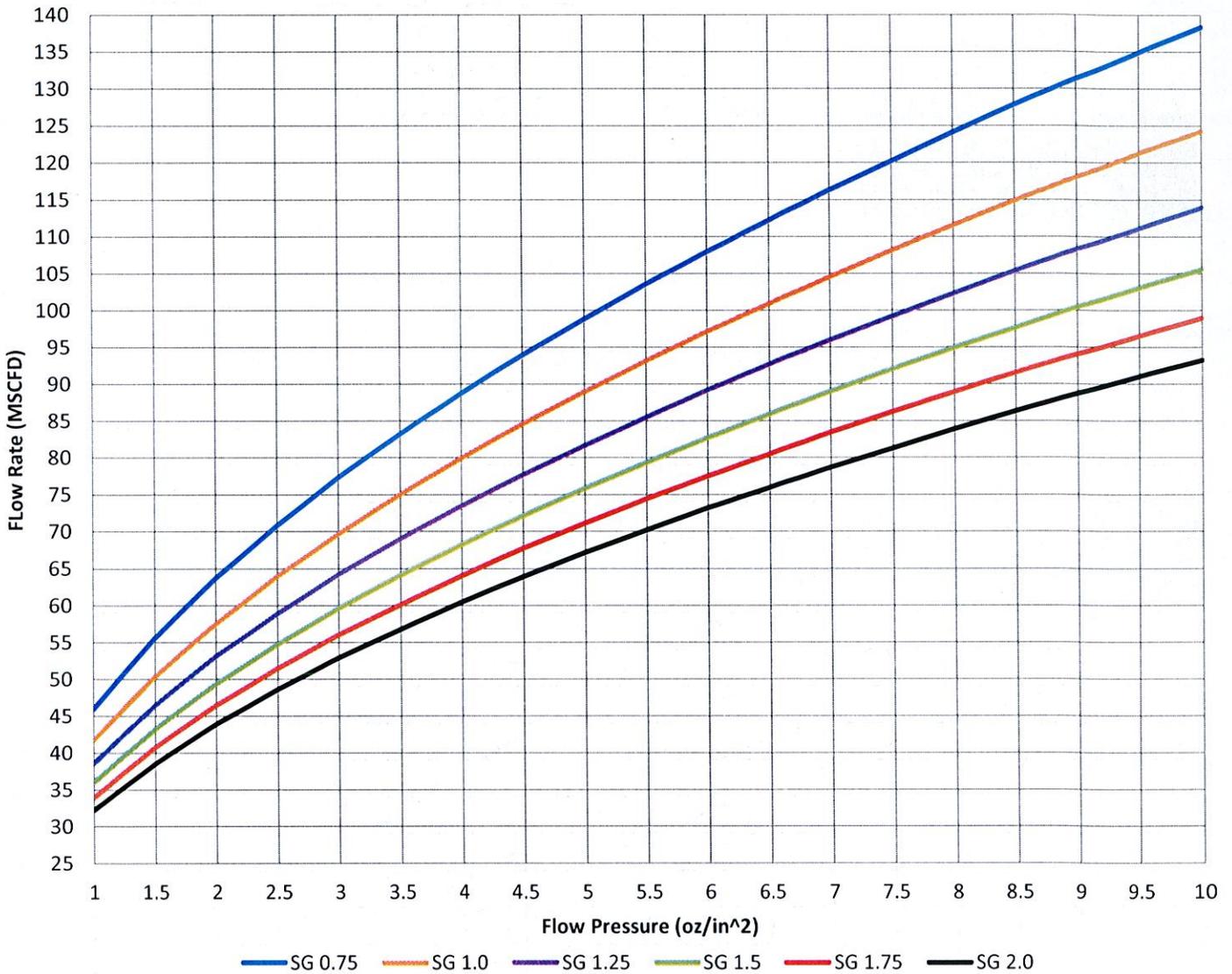
With the fairly recent publication of the NSPS OOOO emission standard, all storage tank facilities constructed on or after August 23, 2011 will be allowed to emit 6 Tons or less of VOC's per year. This regulation not only forces companies to monitor and control their emissions, but it also forces the *means* of emission monitoring and controlling to be more reliable and exact. In response to such a stringent protocol, HY-BON Engineering Company is pleased to offer the **CH10.0** enclosed Vapor Combustor Unit (VCU). Built upon a foundation of 60+ years' experience with tank vapors, the VCU is the solution for reducing residual tank vapor emissions when a Vapor Recovery Unit (VRU) is not sufficient or a viable option.



- EPA 40 CFR 60, Quad O Compliant
- Completely Enclosed Combustion
- 99.99% Destruction Efficiency
- Fully Automated System
- Output Operational Data via Thumb Drive
- Capable of SCADA Integration

GENERAL PROPERTIES	
TYPE	Enclosed Tank Battery Flare
AMBIENT TEMPERATURE	-20 °F to +100 °F
PILOT FUEL REQUIREMENTS	Propane or Site Gas @5psi of natural gas = 13.3 SCFM @5psi of propane = 12.5 SCFM
BURNER SIZE	10.0 million BTU/hr
INLET PRESSURE REQUIREMENTS	Minimum 0.5 oz/in <sup>2</sup> (~1.0 inches w.c.)
TURN DOWN RATIO	5:1
DESTRUCTION EFFICIENCY	99.99% DRE
MECHANICAL PROPERTIES	
DESIGN WIND SPEED	100 MPH
AMBIENT TEMPERATURE	-20 °F to +120 °F
ELECTRICAL AREA CLASSIFICATION	General Area Classification (Non-Hazardous)
ELEVATION	up to 3,000ft ASL
PROCESS PROPERTIES	
SMOKELESS CAPACITY	100%
OPERATING TEMPERATURE	800 °F to 2000 °F (1500 °F Nominal)
UTILITIES	
PILOT GAS	Process Gas
ELECTRICITY	1 Phase, 60 Hz, 120V/10A
SOLAR PANEL OPTION AVAILABLE	YES

**CH10.0: Flow Rate vs Flow Pressure with Corresponding Specific Gravity**



**Gas Analytical Services**

Good

Charleston, WV  
844-445-4207

<b>Customer</b>	: 8788 - JayBee Oil & Gas	<b>Date Sampled</b>	: 02/02/2016
<b>Station ID</b>	: DOC 2H	<b>Date Analyzed</b>	: 02/01/2016
<b>Cylinder ID</b>	: 0379	<b>Effective Date</b>	: 03/01/2016
<b>Producer</b>	:	<b>Cyl Pressure</b>	: 1,115
<b>Lease</b>	: DOC 2H JayBee	<b>Temp</b>	: 0
<b>Area</b>	: 357 - Union	<b>Cylinder Type</b>	: Spot
<b>State</b>	:	<b>Sample By</b>	: Justin Whipkey

<u>COMPONENT</u>	<u>MOL%</u>	<u>GPM@14.73(PSIA)</u>
Carbon-Dioxide	0.1587	0.000
Oxygen	0.0009	0.000
Nitrogen	0.3525	0.000
Methane	74.7431	0.000
Ethane	14.5795	3.917
Propane	4.6929	1.299
Iso-Butane	0.6066	0.199
N-Butane	1.1732	0.372
Neo-Pentane	0.0105	0.004
Iso-Pentane	0.3013	0.111
N-Pentane	0.3415	0.124
N-Hexane	0.5710	0.369
N-Heptane	0.3362	0.156
N-Octane	0.0627	0.032
N-Nonane	0.0067	0.004
N-Decane	0.0009	0.001
Benzene	0.0106	0.003
Toluene	0.0691	0.023
Ethylbenzene	0.0027	0.001
M-Xylene/P-Xylene	0.0038	0.001
O-Xylene	0.0024	0.001
C6's	0.6464	0.261
C7's	0.7941	0.356
C9's	0.0590	0.031
C10's	0.0051	0.003
C11's	0.0001	0.000
C8's	0.4685	0.238
<b>TOTAL</b>	<b>100.0000</b>	<b>7.506</b>

**Compressibility Factor (Z) @ 14.73 @ 60 Deg. F = 0.9952**

**C5+ GPM : 0.63300**

**Ideal Gravity: 0.7964**

**Real Gravity: 0.7999**

**C5+ Mole % : 3.2756**

<b>BTU @ (PSIA)</b>	<b>@14.65</b>	<b>@14.696</b>	<b>@14.73</b>	<b>@15.025</b>
<b>Ideal GPM</b>	7.430	7.453	7.471	7.620
<b>Ideal BTU Dry</b>	1,371.30	1,375.61	1,378.79	1,406.40
<b>Ideal BTU Sat</b>	1,347.30	1,351.61	1,354.79	1,382.40
<b>Real GPM</b>	7.465	7.489	7.506	7.657
<b>Real BTU Dry</b>	1,377.82	1,382.17	1,385.38	1,413.26

<b>Real BTU Sat</b>	1,354.31	1,358.66	1,361.87	1,389.77
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**Comments:**

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**Gas Analysis performed in accordance with GPA 2286**

**Sample Count : 230000010**

**Analytical Calculations performed in accordance with GPA 2172**

**COC :**

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**ATTACHMENT N**

**Supporting Emissions Calculations**

## Icon Midstream Pipeline, LLC

**Dopey 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	Xylenes lb/hr	E-Benzene lb/hr	Toluene lb/hr	formaldehyde lb/hr	Total HAPs lb/hr
RBV-1	500 MBTU/Hr Reboiler	0.05	0.04	60.4	0.00	0.000	0.00	0.001	0.002				0.000	0.001
RSV-1	Controlled Still Vent	0.20	1.11	446.1	2.01		0.00	0.045	0.024	0.193	0.028	0.210		0.501
---	Fittings Fugitive Emissions			1.0	0.02									
<b>Total</b>		0.25	1.15	508	2.03	0.00	0.01	0.05	0.03	0.19	0.03	0.21	0.00	0.50

Source		NOx tpy	CO tpy	CO2e tpy	VOC tpy	SO2 tpy	PM tpy	n-Hexane tpy	benzene tpy	Xylenes tpy	E-Benzene tpy	Toluene tpy	formaldehyde tpy	Total HAPs tpy
RBV-1	500 MBTU/Hr Reboiler	0.22	0.18	265	0.01	0.001	0.02	0.00	0.00				0.00	0.004
RSV-1	Controlled Still Vent	0.89	4.86	1,664	8.80		0.14	0.20	0.11	0.85	0.12	0.92		2.195
---	Fittings Fugitive Emissions			4	0.08									
<b>Total</b>	<b>Proposed</b>	1.11	5.04	1,933	8.89	0.00	0.15	0.20	0.11	0.85	0.12	0.92	0.00	2.20

<b>Contiguous Jay Bee Dopey Well Pad</b>		3.32	3.99	3,606	35.33	0.02	3.72	0.92	0.00	0.00	0.00	0.04	0.07	1.31
<b>Aggregated Emissions</b>		4.43	9.04	5,539	44.22	0.02	3.87	1.13	0.11	0.85	0.12	0.96	0.07	3.51

# Icon Midstream Pipeline,LLC

Dopey Dehydration Facility  
Tyler County, WV

## Dehy Stil Vent Emissions

SOURCE RSV-1

## Still Vent Emissions (Controlled)

From Gri GlyCalc 4.0

Dry Gas Rate 40 MMSCFD  
Glycol Circulation Rate 7.5 gpm  
Treating Temperature 85 Deg F  
Treating Pressure 500 psi  
Destruction Efficiency of Re-Boiler 90 %

Data From GLYCalc:

Total HC	3.511	lbs/hr	15.378	TPY
Methane	1.018	lbs/hr	4.460	TPY
Total VOC	2.008	lbs/hr	8.796	TPY
Total HAP	0.501	lbs/hr	2.195	TPY
benzene	0.024	lbs/hr	0.107	TPY
toluene	0.210	lbs/hr	0.922	TPY
ethyl benzene	0.028	lbs/hr	0.122	TPY
xylene	0.193	lbs/hr	0.847	TPY
n-hexane	0.045	lbs/hr	0.198	TPY

# Icon Midstream Pipeline,LLC

Dopey Dehydration Facility  
Tyler County, WV

## Potential Emission Rates

### Source RBV-1

Burner Duty Rating	500.0 Mbtu/hr
Burner Efficiency	98.0 %
Gas Heat Content (HHV)	735.1 Btu/scf
Total Gas Consumption	16,658 scfd
H2S Concentration	0.000 Mole %
Hours of Operation	8760

NOx	0.0500	lbs/hr	0.219	TPY
CO	0.0420	lbs/hr	0.184	TPY
CO2	60.0	lbs/hr	262.9	TPY
CO2e	60	lbs/hr	265	tpy
VOC	0.0028	lbs/hr	0.012	TPY
SO2	0.0003	lbs/hr	0.001	TPY
H2S	0.0000	lbs/hr	0.000	TPY
PM10	0.0038	lbs/hr	0.017	TPY
CHOH	0.0000	lbs/hr	0.000	TPY
Benzene	0.0000	lbs/hr	0.000	TPY
N-Hexane	0.0009	lbs/hr	0.004	TPY
Toluene	0.0000	lbs/hr	0.000	TPY
Total HAPs	0.0009	lbs/hr	0.004	TPY

### AP-42 Factors Used

NOx	100 Lbs/MMCF
CO	84 Lbs/MMCF
CO <sub>2</sub>	120,000 Lbs/MMCF
VOC	5.5 Lbs/MMCF
PM	7.6 Lbs/MMCF
SO <sub>2</sub>	0.6 Lbs/MMCF
CH <sub>4</sub>	2.3 Lbs/MMCF
N <sub>2</sub> 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

Dopey Dehydration Facility  
Tyler County, WV

## Potential Emission Rates

### Source EC-1

#### Enclosed Vapor Combustor

Destruction Efficiency 98.0 %  
 Gas Heat Content (HHV) 735.1 Btu/scf  
 Max Flow to T-E 0.00408 MMSCFH 35.740 MMCF/Yr  
 Max BTUs to Flare 3.00 MMBTU/Hr 26,273 MMBTU/Yr

NOx	0.20	lbs/hr	0.89	tpy
CO	1.11	lbs/hr	4.86	tpy
CO2	350.58	lbs/hr	1,535.53	tpy
CO2e	420.69	lb/hr	1,552.41	tpy
VOC	0.0028	lb/hr	0.012	tpy
CH4	0.01	lbs/hr	0.0289	tpy
N2O	0.001	lbs/hr	0.0029	tpy
PM	0.001	lb/hr	0.14	tpy
Benzene	0.000	lbs/hr	0.000	tpy
CHOH	0.000	lb/hr	0.001	tpy
n-Hexane	0.045	lbs/hr	0.198	tpy
Ethylbenzene	0.028	lbs/hr	0.122	tpy
Toluene	0.210	lbs/hr	0.922	tpy
Xylenes	0.193	lbs/hr	0.847	tpy
Total HAPs	0.501	lbs/hr	2.195	tpy

#### Factors Used

AP-42 Table 13.5-1 NOx 0.068 Lbs/MMBTU  
 AP-42 Table 13.5-1 CO 0.37 Lbs/MMBTU  
 40 CFR 98 Table C-1 CO2 116.89 Lbs/MMBTU  
 40 CFR 98 Table C-2 CH4 0.0022 Lbs/MMBTU  
 40 CFR 98 Table C-2 N2O 0.00022 Lbs/MMBTU  
 AP-42 Table 1.4-2 PM 7.6 lb/MMSCF  
 AP-42 Table 1.4-3 CHOH 0.075 lb/MMSCF

## Icon Midstream Pipeline, LLC

**Dopey Dehydration Facility**  
Tyler County, WV

### Fugitive VOC Emissions

Volatile Organic Compounds, non-methane and non-ethane from gas analysis:	24.98	weight percent
Methane from gas analysis:	54.37	weight percent
Carbon Dioxide from gas analysis:	0.32	weight percent
Gas Density	0.0640	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
<b>Valves:</b>													
Gas/Vapor:	24	0.02700 scf/hr	25.0	0.010	0.045	90.73	0.000	0.001	1.15	0.023	0.099	197.49	2.47
<b>Relief Valves:</b>	2	0.04000 scf/hr	25.0	0.001	0.006	11.20	0.000	0.000	0.14	0.003	0.012	24.38	0.30
<b>Open-ended Lines, gas:</b>	2	0.06100 scf/hr	25.0	0.002	0.009	17.08	0.000	0.000	0.22	0.004	0.019	37.18	0.46
<b>Connectors:</b>													
Gas:	90	0.00300 scf/hr	25.0	0.004	0.019	37.81	0.000	0.000	0.48	0.009	0.041	82.29	1.03

*Fugitive Calculations:*

	lb/hr	tpy
VOC	<b>0.018</b>	<b>0.078</b>
CH4	<b>0.039</b>	<b>0.171</b>
CO2	<b>0.000</b>	<b>0.001</b>
CO2e	<b>0.974</b>	<b>4.268</b>

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

Dopey 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	0.353	0.099	0.003	0.448			-		0.0035	
Carbon Dioxide, CO2	0.159	0.070	0.002	0.317			-		0.0016	
Hydrogen Sulfide, H2S	0.000	0.000	0.000	0.000	0.0	0.0	0.000		0.0000	
Helium, He	-	-	-	-			-		-	
Oxygen, O2	0.001	0.000	0.000	0.001			-		0.0000	
Methane, CH4	74.743	11.991	0.414	54.374	679.7	754.9	7.123		0.7459	
Ethane, C2H6	14.580	4.384	0.151	19.880	236.0	258.0	2.432		0.1446	3.878
Propane	4.693	2.069	0.071	9.384	108.6	118.1	1.118	9.384	0.0461	1.286
Iso-Butane	0.607	0.353	0.012	1.599	18.2	19.7	0.188	1.599	0.0059	0.197
Normal Butane	1.173	0.682	0.024	3.092	35.3	38.3	0.363	3.092	0.0113	0.368
Iso Pentane	0.312	0.225	0.008	1.020	11.5	12.5	0.119	1.020	0.0031	0.114
Normal Pentane	0.342	0.246	0.009	1.117	12.7	13.7	0.130	1.117	0.0034	0.123
Hexane	1.228	0.119	0.037	0.540	54.1	58.4	0.556	0.540	0.0121	0.502
Heptane+	1.811	1.815	0.063	8.229	92.4	99.7	0.949	8.229	0.0180	0.831
	100.000	22.053	0.794		1,248.5	1,373.2	12.978	24.981	0.9957	7.300

Gas Density (STP) = 0.064

Ideal Gross (HHV)	1,373.2
Ideal Gross (sat'd)	1,350.0
GPM	-
Real Gross (HHV)	1,379.2
Real Net (LHV)	1,253.9

# Icon Midstream Pipeline,LLC

Dopey 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:

<u>Q</u> grains H2S/100 scf	=	<u>0.00000</u> mole % H2S
		<u>0.0</u> ppmv H2S
<u>Q</u> mole % H2S	=	<u>Q</u> grains H2S/100 scf
		<u>0.0</u> ppmv H2S
<u>Q</u> ppmv H2S	=	<u>0.000</u> grains H2S/100 scf
		<u>0.00000</u> mole % H2S

**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	N2	28.013	0.9672	0.0738	13.552	0	0	0	0	0	0.9997
Carbon Dioxide	CO2	44.010	1.5196	0.1159	8.626	0	0	0	0	0	0.9964
Hydrogen Sulfide	H2S	34.076	1.1766	0.0898	11.141	587	637	6,545	7,100	7.15	0.9846
Water	H2O	18.000	0.6215	0.0474	21.091	0	0	0	0	0	1.0006
Oxygen	O2	31.999	1.1048	0.0843	11.864	0	0	0	0	0	0.9992
Methane	CH4	16.043	0.5539	0.0423	23.664	909.4	1,010.0	21,520	23,879	9.53	0.9980
Ethane	C2H6	30.070	1.0382	0.0792	12.625	1,618.7	1,769.6	20,432	22,320	16.68	0.9919
Propane	C3H8	44.097	1.5226	0.1162	8.609	2,314.9	2,516.1	19,944	21,661	23.82	0.9825
Iso-Butane	C4H10	58.124	2.0069	0.1531	6.532	3,000.4	3,251.9	19,629	21,257	30.97	0.9711
Normal Butane	C4H10	58.124	2.0069	0.1531	6.532	3,010.8	3,262.3	19,680	21,308	30.97	0.9667
Iso Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,699.0	4,000.9	19,478	21,052	38.11	1.0000
Normal Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,706.9	4,008.9	19,517	21,091	38.11	1.0000
Hexane	C6H14	86.178	2.9755	0.2270	4.405	4,403.8	4,755.9	19,403	20,940	45.26	0.9879
Heptane	C7H16	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	N2	28.013	0.9672	0.0738	13.552	0	0	0	0	0	4.1513
Carbon Dioxide	CO2	44.010	1.5196	0.1159	8.626	0	0	0	0	0	6.4532
Hydrogen Sulfide	H2S	34.076	1.1766	0.0898	11.141	621	672	6,545	7,100	7.15	5.1005
Water	H2O	18.000	0.6215	0.0474	21.091						3.8376
Oxygen	O2	31.999	1.1048	0.0843	11.864	0	0	0	0	0	3.3605
Methane	CH4	16.043	0.5539	0.0423	23.664	911	1,012	21,520	23,879	9.53	6.4172
Ethane	C2H6	30.070	1.0382	0.0792	12.625	1,631	1,783	20,432	22,320	16.68	10.126
Propane	C3H8	44.097	1.5226	0.1162	8.609	2,353	3,354	19,944	21,661	23.82	10.433
Iso-Butane	C4H10	58.124	2.0069	0.1531	6.532	3,101	3,369	19,629	21,257	30.97	12.386
Normal Butane	C4H10	58.124	2.0069	0.1531	6.532	3,094	3,370	19,680	21,308	30.97	11.937
Iso Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,709	4,001	19,478	21,052	38.11	13.86
Normal Pentane	C5H12	72.151	2.4912	0.1901	5.262	3,698	4,009	19,517	21,091	38.11	13.713
Hexane	C6H14	86.178	2.9755	0.2270	4.405	4,404	4,756	19,403	20,940	45.26	15.566
Heptane	C7H16	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 - AGGREGATE CALCULATIONS REPORT

Case Name: Icon Midstream - Dopey

File Name: C:\Rogers\_Files\Misc\Jay-Bee Oil &amp; Gas\Icon Midstream\Dopey\Dopey No Cond DOC 6H.ddf

Date: May 12, 2016

## DESCRIPTION:

Description: 40 MMSCFD

Still as fuel for reboiler with Excess to  
 Combustor  
 No Flash Tank

Annual Hours of Operation: 8760.0 hours/yr

## EMISSIONS REPORTS:

## CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	1.0182	24.437	4.4597
Ethane	0.4844	11.627	2.1219
Propane	0.3076	7.382	1.3471
Isobutane	0.0634	1.522	0.2778
n-Butane	0.1535	3.684	0.6723
Isopentane	0.0539	1.294	0.2362
n-Pentane	0.0658	1.579	0.2881
n-Hexane	0.0453	1.088	0.1986
Other Hexanes	0.0531	1.274	0.2325
Heptanes	0.1360	3.263	0.5956
Benzene	0.0244	0.585	0.1068
Toluene	0.2104	5.049	0.9214
Ethylbenzene	0.0278	0.666	0.1216
Xylenes	0.1933	4.638	0.8465
C8+ Heavies	0.6739	16.175	2.9519
<b>Total Emissions</b>	<b>3.5109</b>	<b>84.262</b>	<b>15.3778</b>
<b>Total Hydrocarbon Emissions</b>	<b>3.5109</b>	<b>84.262</b>	<b>15.3778</b>
<b>Total VOC Emissions</b>	<b>2.0083</b>	<b>48.199</b>	<b>8.7963</b>
<b>Total HAP Emissions</b>	<b>0.5011</b>	<b>12.027</b>	<b>2.1949</b>
<b>Total BTEX Emissions</b>	<b>0.4558</b>	<b>10.938</b>	<b>1.9962</b>

## UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
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Methane	50.9094	1221.825	222.9831
Ethane	24.2225	581.339	106.0944
Propane	15.3783	369.078	67.3568
Isobutane	3.1714	76.113	13.8907
n-Butane	7.6743	184.183	33.6134
Isopentane	2.6959	64.702	11.8081
n-Pentane	3.2888	78.931	14.4049
n-Hexane	2.2673	54.414	9.9306
Other Hexanes	2.6538	63.690	11.6235
Heptanes	6.7988	163.170	29.7786
Benzene	1.2186	29.247	5.3377
Toluene	10.5187	252.450	46.0721
Ethylbenzene	1.3877	33.306	6.0783
Xylenes	9.6630	231.912	42.3239
C8+ Heavies	33.6973	808.736	147.5943

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Total Emissions 175.5458 4213.098 768.8904

Total Hydrocarbon Emissions 175.5458 4213.098 768.8904  
 Total VOC Emissions 100.4139 2409.934 439.8129  
 Total HAP Emissions 25.0554 601.330 109.7427  
 Total BTEX Emissions 22.7881 546.915 99.8120

#### EQUIPMENT REPORTS:

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#### COMBUSTION DEVICE

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Ambient Temperature: 60.00 deg. F  
 Excess Oxygen: 5.00 %  
 Combustion Efficiency: 98.00 %  
 Supplemental Fuel Requirement: 7.99e-001 MM BTU/hr

Component	Emitted	Destroyed
Methane	2.00%	98.00%
Ethane	2.00%	98.00%
Propane	2.00%	98.00%
Isobutane	2.00%	98.00%
n-Butane	2.00%	98.00%
Isopentane	2.00%	98.00%
n-Pentane	2.00%	98.00%
n-Hexane	2.00%	98.00%
Other Hexanes	2.00%	98.00%
Heptanes	2.00%	98.00%
Benzene	2.00%	98.00%
Toluene	2.00%	98.00%

Ethylbenzene	2.00%	98.00%
Xylenes	2.00%	98.00%
C8+ Heavies	2.00%	98.00%

## ABSORBER

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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: 3.55 lbs. H<sub>2</sub>O/MMSCF

Temperature: 85.0 deg. F  
 Pressure: 500.0 psig  
 Dry Gas Flow Rate: 40.0000 MMSCF/day  
 Glycol Losses with Dry Gas: 0.1554 lb/hr  
 Wet Gas Water Content: Saturated  
 Calculated Wet Gas Water Content: 63.64 lbs. H<sub>2</sub>O/MMSCF  
 Calculated Lean Glycol Recirc. Ratio: 4.48 gal/lb H<sub>2</sub>O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	5.58%	94.42%
Carbon Dioxide	99.83%	0.17%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.96%	0.04%
Propane	99.92%	0.08%
Isobutane	99.89%	0.11%
n-Butane	99.85%	0.15%
Isopentane	99.83%	0.17%
n-Pentane	99.78%	0.22%
n-Hexane	99.62%	0.38%
Other Hexanes	99.71%	0.29%
Heptanes	99.24%	0.76%
Benzene	85.88%	14.12%
Toluene	79.30%	20.70%
Ethylbenzene	70.33%	29.67%
Xylenes	61.00%	39.00%
C8+ Heavies	97.01%	2.99%

## REGENERATOR

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No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	38.63%	61.37%
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%
Ethylbenzene	10.38%	89.62%
Xylenes	12.89%	87.11%
C8+ Heavies	11.73%	88.27%

STREAM REPORTS:

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WET GAS STREAM

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Temperature: 85.00 deg. F  
 Pressure: 514.70 psia  
 Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.34e-001	1.06e+002
Carbon Dioxide	1.69e-001	3.27e+002
Nitrogen	3.72e-001	4.59e+002
Methane	7.63e+001	5.38e+004
Ethane	1.48e+001	1.96e+004
Propane	4.99e+000	9.68e+003
Isobutane	6.32e-001	1.62e+003
n-Butane	1.27e+000	3.26e+003
Isopentane	3.40e-001	1.08e+003
n-Pentane	3.47e-001	1.10e+003
n-Hexane	1.29e-001	4.90e+002
Other Hexanes	1.90e-001	7.21e+002
Heptanes	1.82e-001	8.04e+002

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Benzene 2.50e-003 8.58e+000

Toluene 1.25e-002 5.06e+001

Ethylbenzene 9.99e-004 4.67e+000

Xylenes 5.29e-003 2.47e+001

C8+ Heavies 1.46e-001 1.10e+003

-----  
Total Components 100.00 9.42e+004

#### DRY GAS STREAM

-----  
Temperature: 85.00 deg. F

Pressure: 514.70 psia

Flow Rate: 1.67e+006 scfh

Component	Conc. (vol%)	Loading (lb/hr)
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-----  
Water 7.49e-003 5.92e+000

Carbon Dioxide 1.69e-001 3.26e+002

Nitrogen 3.73e-001 4.59e+002

Methane 7.64e+001 5.38e+004

Ethane 1.48e+001 1.96e+004

Propane 4.99e+000 9.67e+003

Isobutane 6.33e-001 1.61e+003

n-Butane 1.27e+000 3.25e+003

Isopentane 3.40e-001 1.08e+003

n-Pentane 3.47e-001 1.10e+003

n-Hexane 1.29e-001 4.88e+002

Other Hexanes 1.90e-001 7.19e+002

Heptanes 1.81e-001 7.98e+002

Benzene 2.15e-003 7.37e+000

Toluene 9.92e-003 4.01e+001

Ethylbenzene 7.04e-004 3.28e+000

Xylenes 3.23e-003 1.51e+001

C8+ Heavies 1.42e-001 1.06e+003

-----  
Total Components 100.00 9.40e+004

#### LEAN GLYCOL STREAM

-----  
Temperature: 85.00 deg. F

Flow Rate: 7.49e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)
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-----  
TEG 9.83e+001 4.14e+003

Water 1.50e+000 6.32e+001

Carbon Dioxide 1.35e-012 5.68e-011

Nitrogen 1.36e-013 5.74e-012

Methane 5.09e-018 2.14e-016

Ethane 8.98e-008 3.78e-006

Propane 7.12e-009 3.00e-007

Isobutane 1.31e-009 5.50e-008

n-Butane 2.93e-009 1.23e-007

Isopentane 2.15e-004 9.06e-003

n-Pentane 2.84e-004 1.19e-002

n-Hexane 2.22e-004 9.35e-003

Other Hexanes 4.93e-004 2.08e-002

Heptanes 7.31e-004 3.08e-002

Benzene 1.51e-003 6.38e-002

Toluene 2.13e-002 8.99e-001

Ethylbenzene 3.81e-003 1.61e-001

Xylenes 3.39e-002 1.43e+000

C8+ Heavies 1.06e-001 4.48e+000

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Total Components 100.00 4.21e+003

## RICH GLYCOL AND PUMP GAS STREAM

-----  
Temperature: 85.00 deg. F

Pressure: 514.70 psia

Flow Rate: 8.07e+000 gpm

NOTE: Stream has more than one phase.

Component	Conc. (wt%)	Loading (lb/hr)
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-----  
TEG 9.23e+001 4.14e+003

Water 3.64e+000 1.64e+002

Carbon Dioxide 1.87e-002 8.39e-001

Nitrogen 9.74e-003 4.37e-001

Methane 1.13e+000 5.09e+001

Ethane 5.40e-001 2.42e+001

Propane 3.43e-001 1.54e+001

Isobutane 7.06e-002 3.17e+000

n-Butane 1.71e-001 7.67e+000

Isopentane 6.03e-002 2.70e+000

n-Pentane 7.35e-002 3.30e+000

n-Hexane 5.07e-002 2.28e+000

Other Hexanes 5.96e-002 2.67e+000

Heptanes 1.52e-001 6.83e+000

Benzene 2.86e-002 1.28e+000

Toluene 2.54e-001 1.14e+001

Ethylbenzene 3.45e-002 1.55e+000

Xylenes 2.47e-001 1.11e+001

C8+ Heavies 8.50e-001 3.82e+001  
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REGENERATOR OVERHEADS STREAM

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Temperature: 212.00 deg. F  
 Pressure: 14.70 psia  
 Flow Rate: 4.08e+003 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.18e+001	1.00e+002
Carbon Dioxide	1.77e-001	8.39e-001
Nitrogen	1.45e-001	4.37e-001
Methane	2.95e+001	5.09e+001
Ethane	7.48e+000	2.42e+001
Propane	3.24e+000	1.54e+001
Isobutane	5.07e-001	3.17e+000
n-Butane	1.23e+000	7.67e+000
Isopentane	3.47e-001	2.70e+000
n-Pentane	4.23e-001	3.29e+000
n-Hexane	2.44e-001	2.27e+000
Other Hexanes	2.86e-001	2.65e+000
Heptanes	6.30e-001	6.80e+000
Benzene	1.45e-001	1.22e+000
Toluene	1.06e+000	1.05e+001
Ethylbenzene	1.21e-001	1.39e+000
Xylenes	8.45e-001	9.66e+000
C8+ Heavies	1.84e+000	3.37e+001
<hr/>		
Total Components	100.00	2.77e+002

COMBUSTION DEVICE OFF GAS STREAM

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Temperature: 1000.00 deg. F  
 Pressure: 14.70 psia  
 Flow Rate: 3.91e+001 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	6.16e+001	1.02e+000
Ethane	1.56e+001	4.84e-001
Propane	6.77e+000	3.08e-001
Isobutane	1.06e+000	6.34e-002
n-Butane	2.56e+000	1.53e-001
Isopentane	7.25e-001	5.39e-002
n-Pentane	8.84e-001	6.58e-002
n-Hexane	5.10e-001	4.53e-002

Other Hexanes 5.97e-001 5.31e-002

Heptanes 1.32e+000 1.36e-001

Benzene 3.03e-001 2.44e-002

Toluene 2.21e+000 2.10e-001

Ethylbenzene 2.54e-001 2.78e-002

Xylenes 1.77e+000 1.93e-001

C8+ Heavies 3.84e+000 6.74e-001

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Total Components 100.00 3.51e+000

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## **ATTACHMENT O**

### **Monitoring, Recordkeeping, Reporting and Testing Plan**

## **ATTACHMENT O**

### **Icon Midstream Pipeline, LLC**

#### **Dopey Dehydration Facility**

#### **Monitoring, Recordkeeping, Reporting and Testing Plan**

##### **I. Monitoring**

Icon Midstream (Icon) will monitor and record weekly gas processed by the dehydration unit and will complete extended gas analysis on a quarterly basis. Additionally, operating parameters for the unit, such as inlet temperature and pressure and glycol recirculation rates will be tracked on a weekly basis..

##### **II. Recordkeeping**

Icon will maintain accurate operating records of the dehydration unit for each calendar year. Records will include calculated 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.

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**ATTACHMENT P**

**Public Notice**

**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 Dopey Dehydration Facility located off of Indian Creek Road near Middlebourne, WV in Tyler County, West Virginia (Lat.39.438060, Long. -80.772553).

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

- 1.11 tons of Nitrogen Oxides per year
- 5.04 tons of Carbon Monoxide per year
- 8.89 tons of Volatile Organics per year
- 0.15 tons of Particulate Matter per year
- 0.11 tons of Benzene per year
- 0.20 tons of n-Hexane per year
- 0.92 tons of Toluene per year
- 0.85 tons of Xylene per year
- 1,933 tons of CO<sub>2e</sub> per year

Startup of the modified operation is planned to begin on or about the 30th day of July, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> 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