



NTG
ENVIRONMENTAL

6000 Town Center Blvd.
Suite 220
Canonsburg, PA 15317
Tel. 724.745.5929
www.ntglobal.com



July 14, 2016

Ms. Bev McKeone, P.E.
NSR Program Manager
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th. Street, SE
Charleston, WV
25304

ATTN: Ms. McKeone

**RE: BRC Operating Company, LLC
Gas Well Testing
Submission of Application for NSR Permit
G70-B General Permit Application
Operators Well Number - MeadWestvaco Rupert 3-1H
Greenbrier County, WV
API# 47-025-00043**

Please find enclosed above referenced application with necessary attachments.

Should you have any questions or may require an on-site meeting, please do not hesitate to contact me at 724-470-8664, or via email at wjenko@ntglobal.com.

Respectfully,

Walter W. Jenko, P.E.

cc: Chad Touchet, Vice President-BRC Operating Company, LLC

**G70 – B GENERAL PERMIT APPLICATION
APPLICATION FOR NSR PERMIT**

MWV RUPERT 3-1H VERTICAL GAS WELL

(MWV Pad 3)

GREENBRIER COUNTY, WV

Prepared for:

BRC Operating Company

200 Crescent Court, Suite 1900

Dallas, Texas 75201

Submitted to:

West Virginia Department of Environmental Protection

Division of Air Quality

601 57th. Street, SE

Charleston, WV 25304

Prepared by:

New Tech Global Ventures

6000 Town Center Blvd., Suite 220

Canonsburg, Pa. 15319

July 14, 2016

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

SECTION I – III



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): BRC Operating Company LLC		2. Federal Employer ID No. (FEIN): 26-3500285	
3. Name of facility (if different from above): MWV Rupert 3-1H, MWV Pad 3		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 200 Crescent Court, Suite 1900 Dallas, Texas 75201		5B. Facility's present physical address: Physical address not available. General location is south of Fenwick, WV, east of Little Laurel Creek.	
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: Bluescape Resources Company, LLC			
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 leases the site from Plum Creek Timberlands, LP - 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.): Natural gas production well with flare.		10. North American Industry Classification System (NAICS) code for the facility: 211111	
11A. DAQ Plant ID No. (for existing facilities only): None		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R13-2946T	

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"> 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. <p>Travel south along State County Route 39/14 (Saxman Rd.) from Fenwick, WV intersection at State Route 20 a distance of 4.4 miles; turn left and then travel easterly a distance of 1.9 miles to right turn at cross intersection; travel an additional 2.5 miles to sharp left turn at a "Y" intersection; travel an additional .4 miles to "Y" intersection bear right; travel an additional .1 miles to another "Y" intersection and continue to bear right; travel .3 miles to Pad 3 access road to entrance gate to site on left.</p>		
12.B. New site address (if applicable):	12C. Nearest city or town: Richwood, WV (Nicholas County)	12D. County: Greenbrier
12.E. UTM Northing (KM): 421.263	12F. UTM Easting (KM): 2131.899	12G. UTM Zone: 17
<p>13. Briefly describe the proposed change(s) at the facility: BRC Operating Company, LLC is currently drilling a vertical deep well followed completion operations. Testing will be conducted within two formations; the Point Pleasant and Rose Hill, to determine the economic feasibility of production. A flare is necessary to combust the natural gas during these exploration activities, in that an available natural gas pipeline is not within the area.</p>		
<p>14A. Provide the date of anticipated installation or change: 09/01/2016</p> <ul style="list-style-type: none"> If this is an After-The-Fact permit application, provide the date upon which the proposed change did happen: / / 		<p>14B. Date of anticipated Start-Up if a permit is granted: 09/01/2016</p>
<p>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).</p>		
<p>15. Provide maximum projected Operating Schedule of activity/activities outlined in this application: Hours Per Day 24 Days Per Week 7 Weeks Per Year 36</p>		
<p>16. Is demolition or physical renovation at an existing facility involved? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO</p>		
<p>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.</p>		
<p>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.</p>		

Section II. Additional attachments and supporting documents.

<p>19. Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13).</p>
<p>20. Include a Table of Contents as the first page of your application package.</p>
<p>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).</p> <ul style="list-style-type: none"> Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).
<p>22. Provide a Detailed Process Flow Diagram(s) showing each proposed or modified emissions unit, emission point and control device as Attachment F.</p>
<p>23. Provide a Process Description as Attachment G.</p> <ul style="list-style-type: none"> 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 checked="" 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 | |

X General Emission Unit, specify Natural gas production well with flare/s.

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 checked="" 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 checked="" 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: 07-14-2016
(Please use blue ink)

35B. Printed name of signee: Chad A. Touchet

35C. Title: Vice President, Completions and Production

35D. E-mail: catouchet@bluescapedgroup.com

35E. Phone: 489-398-2232

35F. FAX: 682-626-3153

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

36B. Title: Same

36C. E-mail: Same

36D. Phone: Same

36E. FAX: Same

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 checked="" 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 checked="" type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms |
| <input 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.

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT

APPLICATION FEE

Permit application fee to be submitted following receipt of the package by the Division of Air Quality.

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT A

BUSINESS CERTIFICATE

2008

**WEST VIRGINIA
STATE TAX DEPARTMENT**

2010

**BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
**BRC OPERATING COMPANY LLC
200 CRESCENT CT STE 200
DALLAS, TX 75201-1880**

BUSINESS REGISTRATION ACCOUNT NUMBER: 2216-4375

This certificate is issued for the registration period beginning: **July 1, 2008**

This certificate is valid until: **June 30, 2010**

*This business registration certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12 of the West Virginia Code.*

*The person or organization identified on this certificate is registered
to conduct business in the State of West Virginia at the location above.*

This certificate is not transferrable and must be displayed at the location for which issued.

**ENGAGING IN BUSINESS WITHOUT CONSPICUOUSLY POSTING A WEST VIRGINIA BUSINESS
REGISTRATION CERTIFICATE IN THE PLACE OF BUSINESS IS A CRIME AND MAY SUBJECT YOU
TO FINES PER W. VA. CODE § 11-9.**

**TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of
this certificate displayed at every job site within West Virginia.**

STATE OF WEST VIRGINIA
State Tax Department
P. O. Box 2666
Charleston, WV 25324-2666



Joe Manchin III, Governor

Christopher G. Morris, Tax Commissioner

BRC OPERATING COMPANY LLC
200 CRESCENT CT STE 200
DALLAS TX 75201-1880

Letter ID: L0092140032
Issued: 10/16/2008

RE: BUSINESS REGISTRATION CERTIFICATE

The West Virginia State Tax Department would like to thank you for registering your business. Enclosed is your Business Registration Certificate. Please review the certificate and display it prominently at your business location.

When contacting the Tax Department, refer to the appropriate account number listed below. The taxes listed may not be all the taxes for which you are responsible.

View, file and pay these taxes at <https://mytaxes.wvtax.gov>

TAX	FILING FREQUENCY	ACCOUNT NUMBER
Business Registration Tax	Every Two Years	2216-4375

Tax returns (even for taxes not listed above) will be mailed prior to the due dates. Your account number for taxes not listed will be printed on the returns you receive. Should the nature of your business activity or business ownership change, your liability for these and other taxes will change accordingly.

To learn more about these taxes and the services offered by the West Virginia State Tax Department, visit our web site at www.wvtax.gov.

Enclosure

atL007 v 58

West Virginia Secretary of State — Online Data Services

Business and Licensing

Online Data Services Help

Business Organization Detail

NOTICE: The West Virginia Secretary of State's Office makes every reasonable effort to ensure the accuracy of information. However, we make no representation or warranty as to the correctness or completeness of the information. If information is missing from this page, it is not in the The West Virginia Secretary of State's database.

BLUESCAPE RESOURCES COMPANY LLC

Organization Information									
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason	
LLC Limited Liability Company	4/16/2009		4/16/2009	Foreign	Profit				

Organization Information			
Business Purpose	2111 - Mining, Quarrying, Oil & Gas Extraction - Oil and Gas Extraction - Crude Oil and Natural Gas Extraction		Capital Stock
Charter County		Control Number	99E90
Charter State	DE	Excess Acres	
At Will Term	A	Member Managed	MGR
At Will Term Years		Par Value	
Authorized Shares			

Addresses

Type	Address
Mailing Address	200 CRESCENT COURT SUITE 1900 DALLAS, TX, 75201 USA
Principal Office Address	200 CRESCENT COURT SUITE 1900 DALLAS, TX, 75201 USA
Type	Address

Officers

Type	Name/Address
Manager	BLUESCAPE RESOURCES INVESTORS COMPANY LLC 200 CRESCENT COURT STE 200 DALLAS, TX, 75201
Type	Name/Address

Annual Reports

Date	Filed For
6/22/2015	2015
6/13/2014	2014
6/18/2013	2013
	2012
7/22/2011	2011
1/19/2010	2010
Date	Filed For

For more information, please contact the Secretary of State's Office at 304-558-8000.

Monday, January 25, 2016 — 10:08 AM

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BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

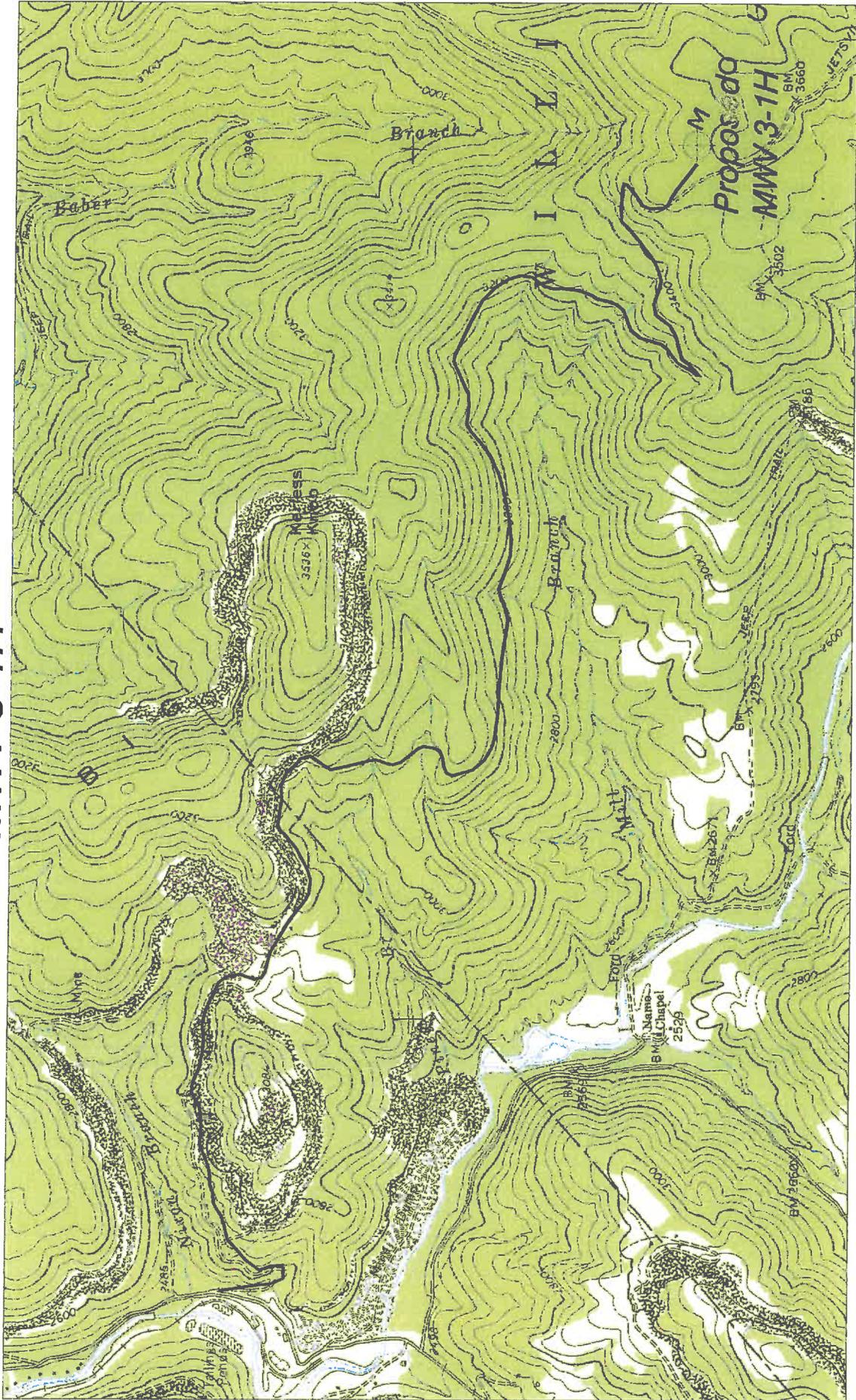
WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT B

MAP

BRC OPERATING CO., LLC. MWV 3-1H



HUPP Surveying & Mapping

P.O. BOX 647 GRANTSVILLE, WV 26147
PH: (304)354-7035 E-MAIL: nupp@fronternet.net

1" = 2000'

Richwood Quad

BRC OPERATING CO. LLC.
200 Crescent Court, Suite 200
Dallas, TX 75201

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT C

INSTALLATION AND START-UP SCHEDULE

ATTACHMENT C

SCHEDULE OF INSTALLATION

Operation of the flare will begin in advance of issuance of the permit; in that the 30 day / drilling of a gas well will likely be initiated as part of the Well Work Permit issued by the WVDEP, Office of Oil and Gas on May 31, 2016. The API Number associated with this well is 47-025-00044, and is permitted as a vertical well to be drilled to the Point Pleasant formation. Completion operations of the vertical will be conducted within two-separate formations, the Point Pleasant and Rose Hill. The formations are defined as deep zone gas well development. The Rose Hill formation being part of the Silurian period (geologic age), and the Point Pleasant being part of the Ordovician period. Following completion operations, testing of each formation will be performed independently over a 60 day period. BRC Operating Company will begin mobilization of the necessary equipment for the completion work, which was approved as part of the Well Work Permit. Flaring will be initiated following the duration period of the flowback resulting from hydraulic fracturing. The purpose of this application is to procure permitting for extended flaring that will be necessary following the completion/s operation/s; with the commencement of the testing period/s.

Equipment typical of a deep well exploration will mobilize to the padsite (MWV Pad 3) and set up prior to issuance of the permit. The flare(s), which are a source at the padsite under the drilling and completion operations will cease upon expiration of the initial 30 day allowance³ under a Well Work Permit.

The following schedule for the well work, as it relates to flaring is as follows:

Associated Well Work	Date/s
Complete perforating/fracturing/flowback operations within vertical well-Point Pleasant formation	August 1-August 31, 2016
Perform testing/flaring of the Point Pleasant formation	September 1-October 31, 2016
Complete perforating/fracturing/flowback operations within vertical well-Rose Hill formation	November 1-November 30, 2016
Perform testing/flaring of the Rose Hill formation	December 1-January 31, 2017
Drilling/perforating/fracturing/flowback operations for the horizontal portion of the well	February 1-March 31, 2017
Extended flaring of the well-horizontal section	April 1-May 31, 2017

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT D

REGULATORY DISCUSSION

ATTACHMENT D

REGULATORY DISCUSSION

The following Federal and State Regulations may be applicable to the natural gas well and flare and ancillary equipment installed at the MVW Rupert 3-1H site:

West Virginia State Regulations

45 CSR 6 – Control of Air Pollution from Combustion of Refuse – The flare meets the definition of “incineration” in this regulation, as it relates to the control of particulate matter and smoke from flares. The emissions standards for incinerators and the requirements to obtain a permit for incineration may apply to the flare.

45 CSR 13- Permits for Construction, Modification, Relocation and Stationary Sources of Air Pollutants and Procedures, Notification Requirements, Administrative Updates, Temporary Permits, General Permits and Procedures for Evaluation – This regulation governs the permit application submitted by BRC Operating Company, LLC for the equipment in this stationary source at the padsite (MWV Pad 3).

45 CSR 14 – Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration – This regulation does not apply to the proposed operations based on the operational limitations set for this equipment.

45 CSR 16 – Standards of Performance for New Stationary Sources – This rule adopts the federal rules under 40 CSR 60. This source has a new rule under 40 CSR 60 (Subpart OOOO) as discussed later herein.

45 CSR 22 – Air Quality Management Fee Program – The facility is subject to this regulation.

45 CSR 30 – Requirements for Operation Permits – This regulation will not apply to the proposed operations based on the operating restrictions proposed in this permit application.

45 CSR 34 – *Emission Standards for Hazardous Air Pollutants* – This rule establishes and adopts a program of national emission standards for hazardous air pollutants (NESHAPS) and other regulatory requirements promulgated by the USEPA.

Federal Regulations

40 CFR 60, Subpart OOOO – *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution* – This regulation establishes emission standards and compliance schedules for the control of VOC and SO₂ emissions from affected facilities. The rule requires the control of VOC emissions resulting from the well completion, and requirements for storage tanks and pneumatic devices, with notification and reporting requirements. This well is interpreted as an exploration well under this rule.

VOC Control of Well Completions:

The well will fit under Phase 1 of the program and be required to destroy emissions under the regulation by the use of flaring. The well completions subject to the rule are limited to the flowback period after hydraulic fracturing operations at the gas well (affected facility). In Phase 1 the source is required to reduce VOC emissions by either using completion combustion devices or by capturing gas by using green completions with a completion combustion device. A completion combustion destruction device is a device that burns off the gas that would otherwise escape during the well – completion period, and is typically a flare. Flaring may occur under Phase 1 until January 1, 2015. There are exceptions on flaring for new wells based on safety and pressure. It is not anticipated that this operation will meet the exceptions due to location and pressure.

Storage Vessels:

Storage tanks having VOC emissions equal to greater than 6 tpy will be required to control the emissions by at least 95%.

Pneumatic Controllers Affected Facility:

Pneumatic controllers are automated instruments that help maintain the conditions such as liquid level, pressure, and temperature at wells. The controls are typically powered by high pressure natural gas and may release gas with valve movement, continuously or under normal operations. The rule affects high-bleed controllers which are controllers with a gas bleed rate greater than 6 scf / hour that are located at wellheads.

Notification and Reporting:

A notification will be required to be made to the WVDEP, Division of Air Quality and to the USEPA not later than two days before the commencement of flowback operations. A daily log must be maintained for the duration of the flowback; duration of recovery to the flowline; duration of combustion; duration of venting; and specific reasons for venting in lieu of capture or combustion. Reporting is also required under the rule on completion operations, which includes information on the compressors, pneumatic controllers, and storage tanks.

BRC OPERATING COMPANY, LLC

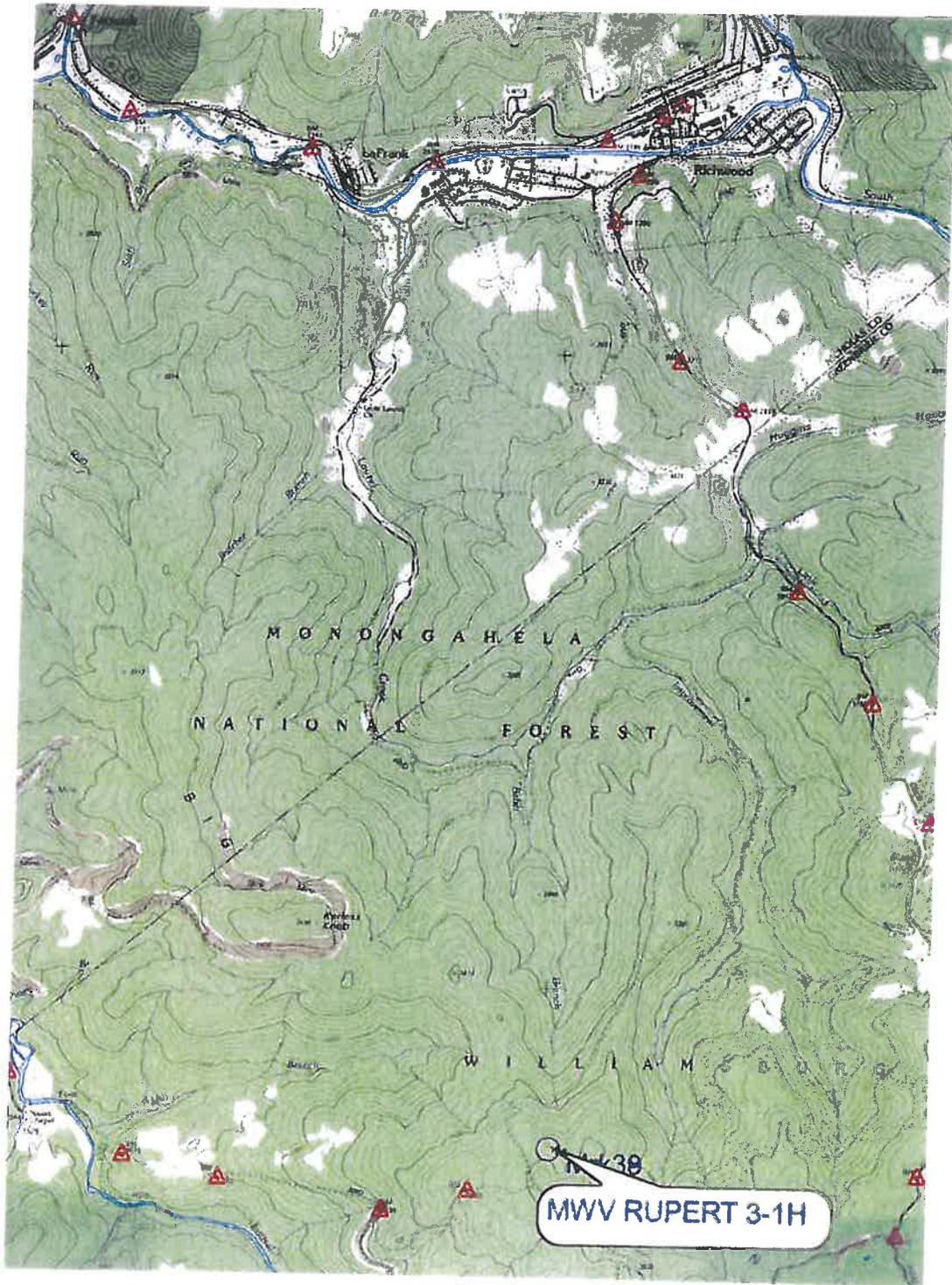
APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT E

PLOT PLAN



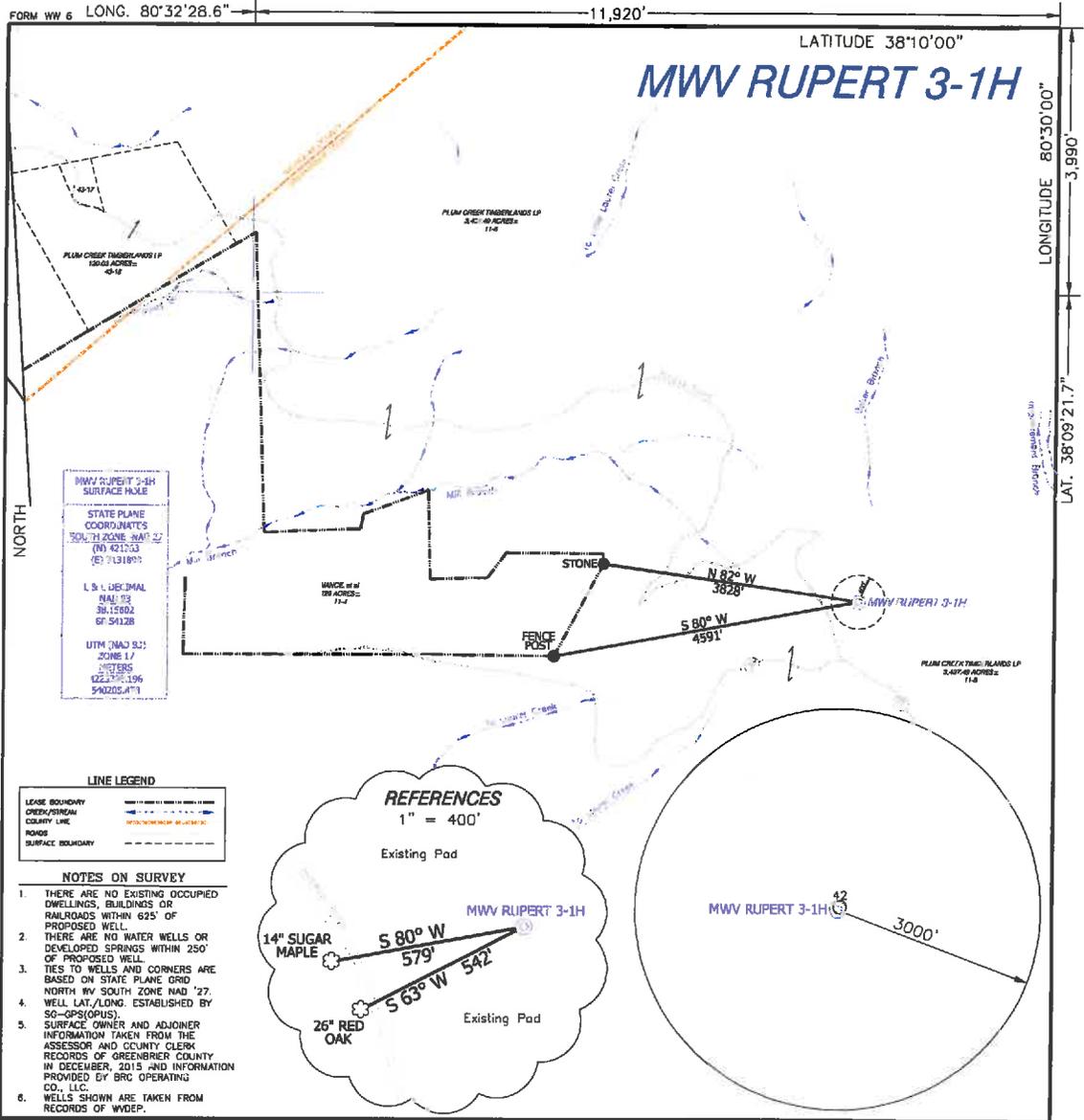
ATTACHMENT E

PLOT PLAN

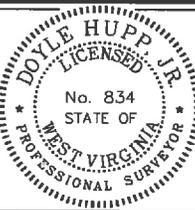
Project: BRC Operating Company, LLC

Location: MWV Rupert 3-1H Well

Subject: Application For NSR Permit



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE MAY 11, 20 16

OPERATORS WELL NO. MWV RUPERT 3-1H

API WELL NO. 47-025-

STATE COUNTY PERMIT

P.S. 834

HUPP Surveying & Mapping
 P.O. Box 647 Grantsville, WV 26147
 (304) 354-7035 EMAIL: hupp@fronternet.net

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W1834 (BK50-14)

PROVEN SOURCE OF ELEVATION SG-GPS (OPUS) SCALE 1" = 2000'

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

WELL TYPE : OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION : ELEVATION 3,589' WATERSHED BABER BRANCH

DISTRICT WILLIAMSBURG COUNTY GREENBRIER QUADRANGLE RICHWOOD 7.5'

SURFACE OWNER PLUM CREEK TIMBERLANDS LP ACREAGE 3,437.49±

ROYALTY OWNER MEADWESTVACO CORP., et al LEASE ACREAGE 3,437.49±

PROPOSED WORK : LEASE NO. _____

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER _____

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION POINT PLEASANT

ESTIMATED DEPTH 12,070'

WELL OPERATOR BRC OPERATING CO., LLC DESIGNATED AGENT MARC A. MONTELEONE

ADDRESS 200 CRESCENT COURT, SUITE 1900 DALLAS, TX 75201 ADDRESS P.O. Box 1386 Charleston WV 25325

COUNTY NAME PERMIT

BRC OPERATING COMPANY, LLC

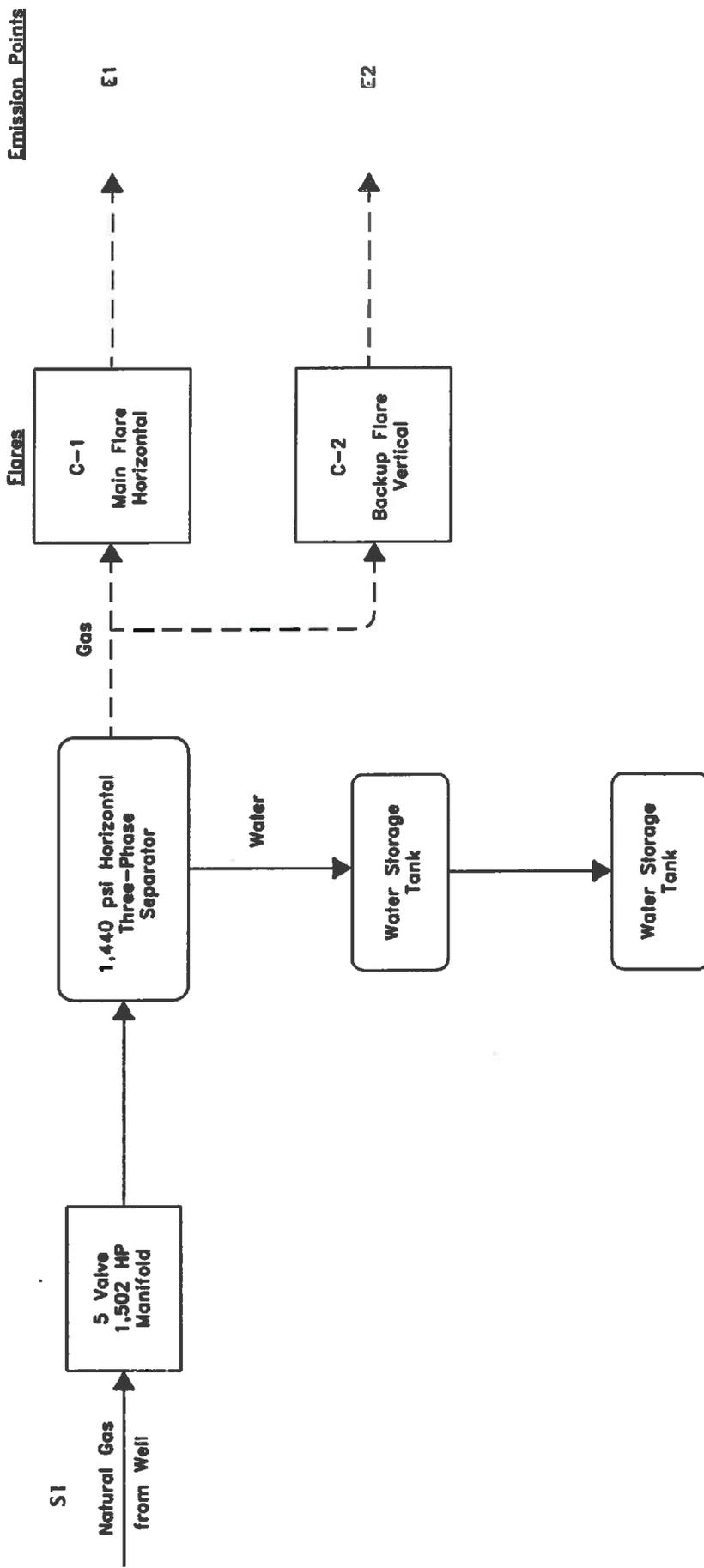
APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT F

DETAILED PROCESS FLOW DIAGRAM





NTG ENVIRONMENTAL

333 Technology Drive, Suite 107
 Canonsburg, PA 15317
 Office: 724.745.5929

BRC OPERATING COMPANY, LLC
DALLAS, TEXAS

**ATTACHMENT F: DETAILED
 PROCESS FLOW DIAGRAM**

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT G

PROCESS DESCRIPTION

ATTACHMENT G

PROCESS DESCRIPTION

BRC Operating Company, LLC is currently developing a vertical deep gas well, referenced as Operator's Well Number: MWV Rupert 3-1H at a padsite (MWV Pad 3) located in Greenbrier County, WV; also referred to as Padsite #3. Two formation zones will be individually tested as completion operations; identified as Point Pleasant (TVD = 11,995' to 12,174'), and the Rose Hill (TVD = 9,650' to 10,004'). Well completions will be conducted through perforating of the vertical casing with hydraulic fracturing as separate operations for each formation zone, followed by flowback operations. As a first order of exploration, the Point Pleasant formation will be completed, followed by a two month test period. Then later be followed by completion of the Rose Hill formation with a two month test period. As flowback of the individual formations after hydraulic fracturing is completed along with production testing, the well will be vented to a horizontal flare with a vertical flare backup. The duration of flaring will be extended during each of the individual test periods, for a minimum period of 60 days. The testing is necessary in order to determine the economic feasibility as to which of the two formations should be further developed as a horizontally drilled well.

Ultimately, the Well Work Permit as issued by the WVDEP-OOG (API# 025-00044) will be modified to re-enter the vertical well and develop a horizontal well; with completion operations followed by flaring. Therefore, for this application BRC Operating Company, LLC is requesting an 9-month period for its 1) initial completion operation for the Point Pleasant formation, 2) followed by a two-month test period, 3) completion operation for the Rose Hill formation, 4) followed by a two-month test period, 5) horizontal drilling of an extended lateral, 6) completion operation for the horizontal portion, and 7) followed by a period of flaring.

Flaring is necessary during each of the formation tests, in that accessible pipelines are not located within a reasonable distance to receive the gas produced by the operation/s. Should the evaluation of the two individual formations be determined not to be economically viable for further development, a temporary plugging of the well be performed, with the option to develop a horizontal well within the "shallow zone" Marcellus shale formation.

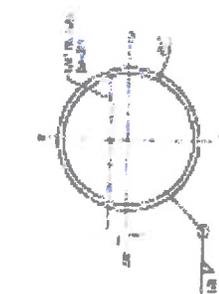
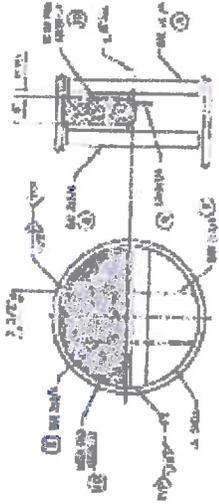
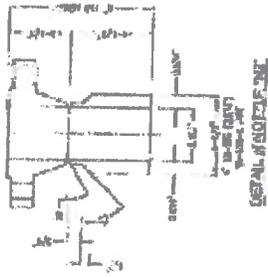
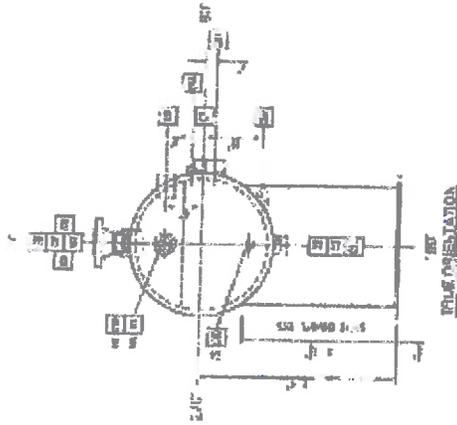
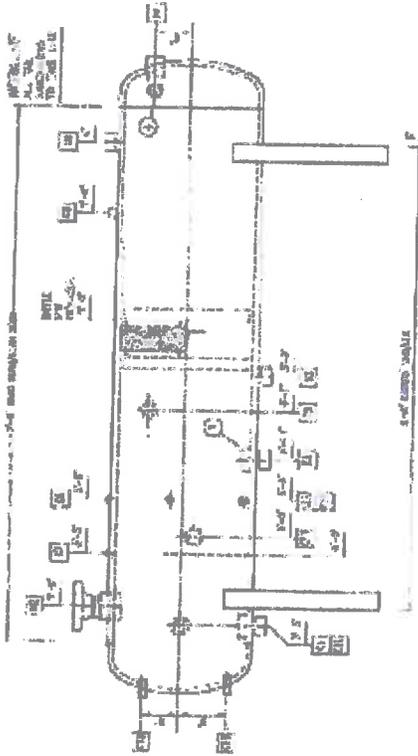
BRC Operating will operate the vertical gas well (herein after referred to as designation S-1), which will produce natural gas and water. The production from the well will be first sent to a three-phase separator. The gas from the separator will then be vented through a horizontal flare (C-1) for combustion. A vertical flare (C-2) will be constructed in parallel to the horizontal flare to serve as an emergency backup flare.

Both the horizontal flare and the vertical flare are expected to have a control efficiency of 98% by meeting 40CFR60.18 and, therefore, the emissions will be the same for use of either flare. The horizontal flare minimizes the visible flame due to the lower combustion height of the flare.

The flowback water, which has been separated from the natural gas, is sent to storage tanks prior to hauling offsite for disposal. As water passed through the three-phase separator, the hydrocarbon content in the water is negligible and the water is not anticipated to be a significant source of emission. The well is not expected to produce oils and heavy hydrocarbon liquids; therefore the separator does not produce oil requiring management at the site.

Emissions are based on Certified Emission Statement (CES) calculations obtained at the PCSF 2-1H & PCSF 2-2H (PCSF Pad 2) well gas analysis. Refer to Attachment N: Supporting Emission Calculations. The relative distance from these previously drilled wells to the current padsite (MWV Pad 3) is approximately 5+ miles. Because this is the first exploration of a deep zone formation/s, the previous values used for the Marcellus formation of the previously mentioned wells will be increased by 20%, in the submission of this permit application.

Attachment G-1 THREE-PHASE SEPARATOR DIAGRAM



NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	SEPARATOR VESSEL	1	EA	
2	WEIR	1	EA	
3	FLOAT VALVE	1	EA	
4	INLET PIPE	1	EA	
5	OUTLET PIPE	1	EA	
6	INSULATION	1	EA	
7	PAINT	1	EA	
8	ANCHOR BOLTS	1	EA	
9	WELDING	1	EA	
10	VALVES	1	EA	
11	FLANGES	1	EA	
12	GASKETS	1	EA	
13	PIPE FITTINGS	1	EA	
14	STAINLESS STEEL	1	EA	
15	BRASS	1	EA	
16	COPPER	1	EA	
17	ALUMINUM	1	EA	
18	STEEL	1	EA	
19	CONCRETE	1	EA	
20	FOUNDATION	1	EA	

NO.	DESCRIPTION	QTY	UNIT	REMARKS
21	INSULATION	1	EA	
22	PAINT	1	EA	
23	ANCHOR BOLTS	1	EA	
24	WELDING	1	EA	
25	VALVES	1	EA	
26	FLANGES	1	EA	
27	GASKETS	1	EA	
28	PIPE FITTINGS	1	EA	
29	STAINLESS STEEL	1	EA	
30	BRASS	1	EA	
31	COPPER	1	EA	
32	ALUMINUM	1	EA	
33	STEEL	1	EA	
34	CONCRETE	1	EA	
35	FOUNDATION	1	EA	

NO.	DESCRIPTION	QTY	UNIT	REMARKS
36	INSULATION	1	EA	
37	PAINT	1	EA	
38	ANCHOR BOLTS	1	EA	
39	WELDING	1	EA	
40	VALVES	1	EA	
41	FLANGES	1	EA	
42	GASKETS	1	EA	
43	PIPE FITTINGS	1	EA	
44	STAINLESS STEEL	1	EA	
45	BRASS	1	EA	
46	COPPER	1	EA	
47	ALUMINUM	1	EA	
48	STEEL	1	EA	
49	CONCRETE	1	EA	
50	FOUNDATION	1	EA	

NO.	DESCRIPTION	QTY	UNIT	REMARKS
51	INSULATION	1	EA	
52	PAINT	1	EA	
53	ANCHOR BOLTS	1	EA	
54	WELDING	1	EA	
55	VALVES	1	EA	
56	FLANGES	1	EA	
57	GASKETS	1	EA	
58	PIPE FITTINGS	1	EA	
59	STAINLESS STEEL	1	EA	
60	BRASS	1	EA	
61	COPPER	1	EA	
62	ALUMINUM	1	EA	
63	STEEL	1	EA	
64	CONCRETE	1	EA	
65	FOUNDATION	1	EA	

NO.	DESCRIPTION	QTY	UNIT	REMARKS
66	INSULATION	1	EA	
67	PAINT	1	EA	
68	ANCHOR BOLTS	1	EA	
69	WELDING	1	EA	
70	VALVES	1	EA	
71	FLANGES	1	EA	
72	GASKETS	1	EA	
73	PIPE FITTINGS	1	EA	
74	STAINLESS STEEL	1	EA	
75	BRASS	1	EA	
76	COPPER	1	EA	
77	ALUMINUM	1	EA	
78	STEEL	1	EA	
79	CONCRETE	1	EA	
80	FOUNDATION	1	EA	

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT I

EMISSION UNITS TABLE

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

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	Emission Unit 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 ³ (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions ⁴		Maximum Potential Controlled Emissions ⁵		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ³)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
E-1	Horizontal Flare	S-1 & S-2	Nat Gas Well	C-1	Flare	C	4,380	CO2	N/A	41,308	68,862	Vapor and Solid	EE	N/A	
								CO2e		44,380	73,983				
								CO		129.97	216.67				
								NOX		48.47	80.80				
								SO2		.60	1.00				
								PM/PM2.5/P M10		.238	.043				
								VOC		.24	0.40				
Methane		145.17	242.00												
E-2	Vertical Flare	S-1 & S-2	Nat Gas Well	C-2	Flare	C	4,380	-	-	-	-	-	-	-	-

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 (i.e., 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 HAP's. 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. (Must match Emission Units Table)	Inner Diameter (ft.)	Exit Gas		Emission Point Elevation (ft)			UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow ¹ (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting
E-1 & E-2	0.5	1800	4,860	405	3589	N/A	421.263	2131.899

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

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?

Yes No

If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.

2.) Will there be Storage Piles?

Yes No

If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.

3.) Will there be Liquid Loading/Unloading Operations?

Yes No

If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.

4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation?

Yes No

If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.

5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)?

Yes No

If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.

6.) Will there be General Clean-up VOC Operations?

Yes No

If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.

7.) Will there be any other activities that generate fugitive emissions?

Yes No

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 ¹ Chemical Name/CAS	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	PM PM10 PM2.5	.793 .344	.144 .063	.238 .103	.043 .019	EE
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks					Does not apply	
General Clean-up VOC Emissions						
Other						

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

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).

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT L

EMISSION UNIT DATA SHEET/S

**Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): S-1

1. Name or type and model of proposed affected source:

Natural gas production well
Operator's Well No. MWV Rupert 3-1H

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

Maximum gas production rate of 1,000,000 scf/hr.; Average gas production rate of 300,000 scf/hr.

4. Name(s) and maximum amount of proposed material(s) produced per hour:

Maximum gas production rate of 1,000,000 scf/hr.; Average gas production rate of 300,000 scf/hr.

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

Natural gas will be combusted in a flare.

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Gas production rate of 300,000 scf/hr.

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

Natural gas analysis provided in Attachment N.

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@

°F and

psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: × 10⁶ BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	36
-----------	----	-----------	---	------------	----

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:			
@	°F and		psia
a. NO _x	48.47	lb/hr	grains/ACF
b. SO ₂	1.00	lb/hr	grains/ACF
c. CO	129.97	lb/hr	grains/ACF
d. PM ₁₀	0.238	lb/hr	grains/ACF
e. Hydrocarbons	145.17	lb/hr	grains/ACF
f. VOCs	0.24	lb/hr	grains/ACF
g. Pb		lb/hr	grains/ACF
h. Specify other(s)		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
 Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING

BRC Operating Company, LLC proposes to monitor the natural gas production rate to the flare

RECORDKEEPING

BRC Operating Company, LLC proposes hourly record keeping of the natural gas production rate

REPORTING

BRC Operating company, LLC proposes no reporting requirement

TESTING

BRC Operating Company, LLC does not propose additional testing beyond those requirements beyond the gas stream characteristics provided herein

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

N/A

Attachment L FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

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

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)	10	10
p =	Number of days per year with precipitation >0.01 in.	160	160

Item Number	Description	Number of Wheels	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	Tucking transport,drilling	10-18	37-1/2	NA	0.322	10	730	WT	70
2	equipment & materials								
3									
4									
5									
6									
7									
8									

Source: AP-42 Fifth Edition – 13.2.2 Unpaved Roads

$$E = k \times 5.9 \times (s + 12) \times (S + 30) \times (W + 3)^{0.7} \times (w + 4)^{0.5} \times ((365 - p) + 365) = \text{lb/Vehicle Mile Traveled (VMT)}$$

Where:

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)	10	10
S =	Mean vehicle speed (mph)		
W =	Mean vehicle weight (tons)	37.5	37.5
w =	Mean number of wheels per vehicle	10-18	10-18
p =	Number of days per year with precipitation >0.01 in.	160	160

For lb/hr: $[\text{lb} \div \text{VMT}] \times [\text{VMT} \div \text{trip}] \times [\text{Trips} \div \text{Hour}] = \text{lb/hr}$

For TPY: $[\text{lb} \div \text{VMT}] \times [\text{VMT} \div \text{trip}] \times [\text{Trips} \div \text{Hour}] \times [\text{Ton} \div 2000 \text{ lb}] = \text{Tons/year}$

SUMMARY OF UNPAVED HAULROAD EMISSIONS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	.793	.144	.238	.043	.344	0.063	.103	0.019
2								
3								
4								
5								
6								
7								
8								
TOTALS								

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT M

AIR POLLUTION CONTROL DEVICE SHEET/S

Steam Injection

20. Will steam injection be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Steam pressure Minimum Expected: Design Maximum:	PSIG
22. Total Steam flow rate:	LB/hr	23. Temperature: °F
24. Velocity	ft/sec	25. Number of jet streams
26. Diameter of steam jets:	in	27. Design basis for steam injected: LB steam/LB hydrocarbon
28. How will steam flow be controlled if steam injection is used?		

Characteristics of the Waste Gas Stream to be Burned

29.	Name	Quantity Grains of H ₂ S/100 ft ³	Quantity (LB/hr, ft ³ /hr, etc)	Source of Material
	Natural Gas	See Attachment N		
30. Estimate total combustible to flare: 1,000,000 scf/hr. LB/hr or ACF/hr (Maximum mass flow rate of waste gas)				
31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.: 1,000,000 scf/hr. LB/hr or ACF/hr				
32. Give composition of carrier gases:				
33. Temperature of emission stream: °F		34. Identify and describe all auxiliary fuels to be burned. BTU/scf BTU/scf BTU/scf BTU/scf		
Heating value of emission stream: BTU/ft ³				
Mean molecular weight of emission stream: MW = lb/lb-mole				
35. Temperature of flare gas: °F		36. Flare gas flow rate: scf/min		
37. Flare gas heat content: BTU/ft ³		38. Flare gas exit velocity: scf/min		
39. Maximum rate during emergency for one major piece of equipment or process unit:				scf/min
40. Maximum rate during emergency for one major piece of equipment or process unit:				BTU/min
41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):				
42. Describe the collection material disposal system:				
43. Have you included Flare Control Device in the Emissions Points Data Summary Sheet? Yes				

44. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

RECORDKEEPING:

REPORTING:

TESTING:

MONITORING: Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING: Please describe any proposed emissions testing for this process equipment on air pollution control device.

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

Steam Injection

20. Will steam injection be used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Steam pressure Minimum Expected: _____ PSIG Design Maximum: _____
22. Total Steam flow rate: _____ LB/hr	23. Temperature: _____ °F
24. Velocity _____ ft/sec	25. Number of jet streams _____
26. Diameter of steam jets: _____ in	27. Design basis for steam injected: _____ LB steam/LB hydrocarbon
28. How will steam flow be controlled if steam injection is used?	

Characteristics of the Waste Gas Stream to be Burned

29.	Name	Quantity Grains of H ₂ S/100 ft ³	Quantity (LB/hr, ft ³ /hr, etc)	Source of Material
	Natural Gas	See Attachment N		
30. Estimate total combustible to flare: _____ Max. 1,000,000 scf/hr. _____ LB/hr or ACF/hr (Maximum mass flow rate of waste gas)				
31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.: Max. 1,000,000 scf/hr. _____ LB/hr or ACF/hr				
32. Give composition of carrier gases:				
33. Temperature of emission stream: _____ °F		34. Identify and describe all auxiliary fuels to be burned. BTU/scf BTU/scf BTU/scf BTU/scf		
Heating value of emission stream: _____ BTU/ft ³				
Mean molecular weight of emission stream:				
MW = _____ lb/lb-mole				
35. Temperature of flare gas: _____ °F		36. Flare gas flow rate: _____ scf/min		
37. Flare gas heat content: _____ BTU/ft ³		38. Flare gas exit velocity: _____ scf/min		
39. Maximum rate during emergency for one major piece of equipment or process unit:				scf/min
40. Maximum rate during emergency for one major piece of equipment or process unit:				BTU/min
41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):				
42. Describe the collection material disposal system:				
43. Have you included Flare Control Device in the Emissions Points Data Summary Sheet? Yes				

44. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

BRC Operating Company, LLC will monitor the natural gas production rate to the flare.

RECORDKEEPING:

BRC Operating Company, LLC proposes hourly recordkeeping of the natural gas production rate.

REPORTING:

BRC Operating does not propose to report.

TESTING:

BRC Operating Company, LLC does not propose additional testing requirements beyond the natural gas stream characteristics provided herein this application.

MONITORING:

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.

N/A

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

N/A

47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

N/A

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

By JAG
Date: 09/23/2013

Checked By: PEW
Date: 9/23/2013

AP-42 Factors	TCEQ Factors	(based on TCEQ Guidance publication RG360A/08, Technical Supplement 4 - Flares)
0.14	---	VOC (lb/MMBTU)
---	99	VOC based on % DRE of Propane and Lighter Hydrocarbons
---	96	VOC based on % DRE of Butane and Heavier Hydrocarbons
0.058	0.135	NOx Emission Factor (lb/MMBTU)
0.37	0.2755	CO Emission Factor (lb/MMBTU)

Total Emissions from Flared Wells (ton/year)		
50	50	All hydrocarbons including methane
0.02	0.08	Total VOC Emissions (excluding methane & ethane)
48	48	Methane
7.9	16.0	NOx
42.9	31.9	CO
0.20	0.20	SO2 (mass balance)
0.90	0.90	PM/PM10/PM2.5
13,634	13,634	CO ₂ (mass balance)
14,648	14,648	CO ₂ e

Based on 11/27/12 sample

Well: Wells		Heating Value @14.696 psia		CO ₂ Mol Balance		
237.6	Total Gas Flow (MMSCF) ¹	993.46	BTU Dry	total mols		
231,914	Total Heat Release (MMBtu)	976.07	BTU Sat	626,087		
285.44	VOC Heat Release (MMBTU)*	1.7816% Water Vapor				
* Assumes 20,000 Btu/lb for propane, i-butane, n-butane, i-pentane, n-pentane, and hexane.						
Component	dry mol %	wet mol %	MW	Produced Gas lb	Unburned Hydro carbon lb	CO ₂ Mols CO ₂
Methane	96.1263	96.10918	16.04	9,653,507	96,535	601,727 1 601,727
Ethane	1.268	1.26777	30.07	238,677	2,387	7,937 2 15,875
Propane	0.0443	0.04429	44.10	12,228	122	277 3 832
i-butane	0.0026	0.00160	58.12	582	12	10 4 40
n-butane	0.0029	0.00290	58.12	1,055	21	18 4 73
i-pentane	0.0006	0.00060	72.15	271	5	4 5 19
n-pentane	0.0003	0.00030	72.15	135	3	2 5 9
Hexane	0	0.00000	86.18	0	0	0 6 0
Nitrogen	2.3947	2.39447	28.01	419,962	0	14,991 0 0
Carbon Dioxide	0.1611	0.16107	44.01	44,382	0	1,008 1 1,008
Oxygen	0	0.00000	32.00	0	0	0 0 0
Water Vapor	0	0.01782	18.02	2,010	0	112 0 0
	100.0000	100.0000	16.57	10,372,809	99,085	626,087 619,583
	Spec Gravity (Air=1.0)		0.572			
Emissions	NOx	CO	% DRE	% DRE	mass balance	
(lb)	32,004	63,892	All HC	VOC	CO ₂	
(ton)	16.0	31.9	49.5	0.1	13,634	

SO ₂ Emissions (Assume total sulfur content converted to SO ₂)		
Total Sulfur =	0.5674	grains/100 cf
Total Sulfur =	0.1	tpy
SO ₂ =	0.20	tpy

PM Emissions (PM, PM10, and PM2.5 are equal)			
EF =	7.6	lb/10 ⁶ CF	Ref AP-42, Section 1.4 (Table 1.4.2)
PM =	0.90288	tpy	

1 Based on 9/20/2013 email from Chad Touchet to Patrick E. Ward
Values used in CESI form

J-W Measurement Company
 Shreveport,LA Tyler,TX Victoria,TX Midland,TX
 Fairfield,TX Oklahoma City,OK Mounds,OK Tulsa,OK
 WWW.JWOPERATING.COM
 888-226-9110

JWMC Number:	KBWS1000	Run Date:	11/27/12
Customer Name:	K.B. WELLBORE	Eff. Date:	12/1/2012
Station Name:	PLUM CREEK SOUTH FORK PAD 2	Sampled by:	JM
Station Number:		Procure Date:	11/15/12
Producer:	BLUESCAPE	Pressure (lbs.):	75.00
Field:		Temperature (° F):	68
Co. or Pr.:	NICHOLAS	Bottle Number:	522
State:	WV.		

Remarks:

<u>Component</u>	<u>Mole Percent</u>	<u>GPM @ 14,696</u>	<u>Ideal BTU @ 14,696</u>
Hydrogen Sulfide			
Nitrogen	2.3949		
Methane	96.1263		970.88
Carbon Dioxide	0.1611		0.00
Ethane	1.2680	0.338	22.44
Propane	0.0443	0.012	1.11
I-Butane	0.0016	0.001	0.05
N-Butane	0.0029	0.001	0.09
I-Pentane	0.0006	0.000	0.02
N-Pentane	0.0003	0.000	0.01
2,2-Dimethylbutane	0.0000	0.000	0.00
2,3-Dimethylbutane	0.0000	0.000	0.00
2-Methylpentane	0.0000	0.000	0.00
3-Methylpentane	0.0000	0.000	0.00
n-Hexane	0.0000	0.000	0.00
2,2-Dimethylpentane	0.0000	0.000	0.00
Methylcyclopentane	0.0000	0.000	0.00
Benzene	0.0000	0.000	0.00
3,3-Dimethylpentane	0.0000	0.000	0.00
Cyclohexane	0.0000	0.000	0.00
2-Methylhexane	0.0000	0.000	0.00
2,3 dimethylpentane	0.0000	0.000	0.00
3- methylhexane	0.0000	0.000	0.00
1t,2-Dimethylcyclopentane	0.0000	0.000	0.00
1c,2-Dimethylcyclopentane	0.0000	0.000	0.00
n-heptane	0.0000	0.000	0.00
Methylcyclohexane	0.0000	0.000	0.00
2,5-Dimethylhexane	0.0000	0.000	0.00
2,4-Dimethylhexane	0.0000	0.000	0.00
Toluene	0.0000	0.000	0.00
2-Methylheptane	0.0000	0.000	0.00
4-Methylheptane	0.0000	0.000	0.00

We appreciate your business

J-W Measurement Company
 Shreveport,LA Tyler,TX Victoria,TX Midland,TX
 Fairfield,TX Oklahoma City,OK Mounds,OK Tulsa,OK
 WWW.JWOPERATING.COM
 888-226-9110

Customer Name:	K.B. WELLBORE		
Station Name:	PLUM CREEK SOUTH FORK PAD 2		
Station Number:		Eff. Date:	12/1/2012
3-Methylheptane	0.0000	0.000	0.00
1c,2-Dimethylcyclohexane	0.0000	0.000	0.00
N-Octane	0.0000	0.000	0.00
1t,2-Dimethylcyclohexane	0.0000	0.000	0.00
1t,3-Dimethylcyclohexane	0.0000	0.000	0.00
1c,3-Dimethylcyclohexane	0.0000	0.000	0.00
Ethylcyclohexane	0.0000	0.000	0.00
Ethylbenzene	0.0000	0.000	0.00
M-Xylene	0.0000	0.000	0.00
P-Xylene	0.0000	0.000	0.00
O-Xylene	0.0000	0.000	0.00
N-Nonane	0.0000	0.000	0.00
Decanes	0.0000	0.000	0.00
Undecanes	0.0000	0.000	0.00
TOTAL	100.0000	0.352	994.61
Ideal Gravity	0.5720	Real Gravity	0.5731
Compressibility Factor (Z) @ 14.696 PSIA & 60 DEG. F =			0.9980
Base Pressures	14.73	14.65	15.025
GPM	0.353	0.351	0.360
Ideal BTU Dry	996.91	991.50	1016.88
Ideal BTU Sat.	979.57	974.15	998.49
Real BTU Dry	998.90	993.48	1018.94
Real BTU Sat.	981.52	978.07	1001.52

Note: Calibration, Standards, and testing procedures are achieved pursuant to GPA regulations.

This Analysis Report is not intended for submission to Louisiana Department of Environmental Quality.

J-W ANALYST

DISTRIBUTION:	
1	35

We appreciate your business

By: JAG
Date: 9/26/2013

Checked By: PEW
Date: 9/26/2013

Vehicular Traffic

Emission factor equation:

$$E = k(s/12)^a (W/3)^b ((365-p)/365)$$

From AP-42 Fifth Edition, Section 13.2.2, Fugitive Sources

	PM	PM10	PM2.5	
E =	?	?	?	lb/VMT
k =	4.9	1.5	0.15	particle size multiplier
a =	0.7	0.9	0.9	constant
b =	0.45	0.45	0.45	constant
s =	10	10	10	% silt in road surface
W _{truck} =	37.5	37.5	37.5	mean vehicle weight (using total loaded weight of 75,000 pounds)
p =	157	157	157	# days with 0.01" rain
E =	7.66	2.26	0.23	lb/VMT

Length of Roadway (one-way) = 1,200 ft
Estimated Trucks Per Year = 730 (2 per day provided by the client)

Rounding to = 2

Vehicular Traffic		Number of Trips/Hour (trips/hour)	Number of Trips/Year (trips/year)	Control Device		TSP Emissions	
ID	Miles/Trip (miles)			Type	Effic(%)	Uncontrolled (tpy)	Controlled (tpy)
Trucks	0.5	10	730	WT	70	1.27	0.38
						1.27	0.38

Vehicular Traffic		Number of Trips/Hour (trips/hour)	Number of Trips/Year (trips/year)	Control Device		PM10 Emissions	
ID	Miles/Trip (miles)			Type	Effic(%)	Uncontrolled (tpy)	Controlled (tpy)
Trucks	0.5	10	730	WT	70	0.38	0.11
						0.38	0.11

Vehicular Traffic		Number of Trips/Hour (trips/hour)	Number of Trips/Year (trips/year)	Control Device		PM2.5 Emissions	
ID	Miles/Trip (miles)			Type	Effic(%)	Uncontrolled (tpy)	Controlled (tpy)
Trucks	0.5	10	730	WT	70	0.04	0.01
						0.04	0.01

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT O

MONITORING/RECORDKEEPING/REPORTING/TESTING PLANS

ATTACHMENT O

MONITORING / RECORDKEEPING / REPORTING / TESTING PLANS

BRC Operating Company, LLC proposes a limited monitoring and recordkeeping plan. BRC Operating Company, LLC proposes to monitor and keep records of the hourly natural gas production rate, to ensure compliance with the annual throughput limitations set forth in this permit application.

Annual emissions reporting required for this facility will be conducted. Testing of the natural gas will be conducted as part of the testing phases associated with each of the formations under exploration.

BRC OPERATING COMPANY, LLC

APPLICATION FOR NSR PERMIT

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

ATTACHMENT P

PUBLIC NOTICE

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that BRC Operating Company, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a NSR Temporary Permit to install and operate a flare for gas well production testing located off Saxman Road (West Virginia County 39/14), in Greenbrier County, West Virginia. The coordinates of the location are: Latitude 38.15609 and Longitude -80.54128.

The applicant estimates the maximum potential to discharge the following regulated air pollutants on a facility-wide basis will be:

PM10	= 0.043 tpy
NOx	= 67.34 tpy
CO	= 216.67 tpy
VOC	= 0.40 tpy
SO2	= 1.00 tpy

Startup of the operation is planned to begin on or about September 1, 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 of July, 2016.

By: Chad A. Touchet

Vice President

200 Crescent Court, Suite 1900

Dallas, Texas 75201