



Id. No. 109-00041 Reg. G30-D197  
Company Enervest Operating, LLC  
Facility Glen Rogers Region 5  
Initials JEM

9/18/2015

WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF AIR QUALITY  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

**Subject: EnerVest Operating Compression Downsizing Project Glen Rogers G30 Permit application (109-00041).**

Dear Sir or Madame,

We are removing the Ajax DPC-360 rated at 346HP currently at this facility and placing a Caterpillar G3306 rated at 145HP at this facility. This facility had determination in the past but due to an increase in emissions this facility will require a permit now. If you have any additional questions please feel free to call me at 304-414-8171 or email me at [mdearing@enervest.net](mailto:mdearing@enervest.net).

Sincerely,

Michael Dearing  
Air Emissions Supervisor

*Entire Document*  
**NON-CONFIDENTIAL**



ENERVEST

**Glen Rogers Compressor Station Permit Application**



WEST VIRGINIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 DIVISION OF AIR QUALITY  
 601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304  
 Phone: (304) 926-0475 • www.dep.wv.gov/daq

**APPLICATION FOR GENERAL PERMIT REGISTRATION**  
 CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE  
 A STATIONARY SOURCE OF AIR POLLUTANTS

CONSTRUCTION     MODIFICATION     RELOCATION     CLASS I ADMINISTRATIVE UPDATE  
 CLASS II ADMINISTRATIVE UPDATE

**CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:**

- |  |   |
|--|---|
| <input type="checkbox"/> G10-D – Coal Preparation and Handling                                   | <input type="checkbox"/> G40-C – Nonmetallic Minerals Processing                  |
| <input type="checkbox"/> G20-B – Hot Mix Asphalt   | <input type="checkbox"/> G50-B – Concrete Batch                                   |
| <input checked="" type="checkbox"/> G30-D – Natural Gas Compressor Stations                      | <input type="checkbox"/> G60-C – Class II Emergency Generator                     |
| <input type="checkbox"/> G33-A – Spark Ignition Internal Combustion Engines                      | <input type="checkbox"/> G65-C – Class I Emergency Generator                      |
| <input type="checkbox"/> G35-A – Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit) | <input type="checkbox"/> G70-A – Class II Oil and Natural Gas Production Facility |

**SECTION I. GENERAL INFORMATION**

1. Name of applicant (as registered with the WV Secretary of State's Office): EnerVest Operating, LLC		2. Federal Employer ID No. (FEIN): . 76-0460809	
3. Applicant's mailing address: 300 Capitol Street, Suite 200, Charleston, WV, 25301		4. Applicant's physical address: _____ _____	
5. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
6. WV 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 LLC / Registration (one page) including any name change amendments or other Business Certificate as Attachment A.			

**SECTION II. FACILITY INFORMATION**

7. Type of plant or facility (stationary source) to be constructed, modified, relocated or administratively updated (e.g., coal preparation plant, primary crusher, etc.): natural gas compressor	8a. Standard Industrial Classification Classification (SIC) code: 1311	AND	8b. North American Industry System (NAICS) code: 211111
9. DAQ Plant ID No. (for existing facilities only):  109 - 00041	10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only): _____ _____		

**A: PRIMARY OPERATING SITE INFORMATION**

<p>11A. Facility name of primary operating site:</p> <p>Glen rogers Compressor Station</p>	<p>12A. Address of primary operating site:</p> <p>Mailing: 300 Capitol Street, Suite 200, Charleston, WV, 25301</p> <p>Physical: _____</p>	
<p>13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <span style="float:right"><b>9 YES</b>    9 NO</span></p> <p>— IF YES, please explain: <u>  Enervest has lease agreement with the land owner  </u></p> <p>— IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		
<p>14A. — For <b>Modifications or Administrative Updates</b> at an existing facility, please provide directions to the present location of the facility from the nearest state road;</p> <p>— For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a <b>MAP as Attachment F.</b></p> <p style="padding-left: 40px;">From Glen Rodgers drive southwest on Glen Rodgers road .5 miles. Turn Left onto gravel road cross creek and continue till arrival at compressor station.</p>		
<p>15A. Nearest city or town: Glen Rogers</p>	<p>16A. County: Wyoming</p>	<p>17A. UTM Coordinates:</p> <p>Northing (KM): <u>  461.393  </u></p> <p>Easting (KM): <u>  4173.725  </u></p> <p>Zone: <u>  17S  </u></p>
<p>18A. Briefly describe the proposed new operation or change (s) to the facility:</p> <p>Swapping compressors</p>		<p>19A. Latitude &amp; Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):</p> <p>Latitude: _____</p> <p>Longitude: _____</p>

**B: 1<sup>ST</sup> ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)**

<p>11B. Name of 1<sup>st</sup> alternate operating site:</p> <p>_____</p> <p>_____</p>	<p>12B. Address of 1<sup>st</sup> alternate operating site:</p> <p>Mailing: _____ Physical: _____</p> <p>_____</p>
<p>13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <span style="float:right"><b>9 YES</b>    9 NO</span></p> <p>— IF YES, please explain: _____</p> <p>_____</p> <p>— IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>	

14B. — For **Modifications or Administrative Updates** at an existing facility, please provide directions to the present location of the facility from the nearest state road;  
 For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a **MAP as Attachment F**.

\_\_\_\_\_

\_\_\_\_\_

15B. Nearest city or town:	16B. County:	17B. UTM Coordinates: Northing (KM): _____ Easting (KM): _____ Zone: _____
18B. Briefly describe the proposed new operation or change (s) to the facility:		19B. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: _____ Longitude: _____

**C: 2<sup>ND</sup> ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits):**

11C. Name of 2 <sup>nd</sup> alternate operating site:	12C. Address of 2 <sup>nd</sup> alternate operating site: Mailing: _____ Physical: _____	
13C. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <span style="float: right;">9 YES 9 NO</span> IF YES, please explain: _____ _____ IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.		
14C. — For <b>Modifications or Administrative Updates</b> at an existing facility, please provide directions to the present location of the facility from the nearest state road; For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a <b>MAP as Attachment F</b> .		
15C. Nearest city or town:	16C. County:	17C. UTM Coordinates: Northing (KM): _____ Easting (KM): _____ Zone: _____
18C. Briefly describe the proposed new operation or change (s) to the facility:		19C. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: _____ Longitude: _____

<p>20. Provide the date of anticipated installation or change:</p> <p style="text-align: center;">___ 9 ___ / ___ 30 ___ / ___ 15 ___</p> <p><input type="checkbox"/> If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen: :</p> <p>___ / ___ / ___</p>	<p>21. Date of anticipated Start-up if registration is granted:</p> <p style="text-align: center;">___ 9 ___ / ___ 30 ___ / ___ 15 ___</p>
<p>22. Provide maximum projected <b>Operating Schedule</b> of activity/activities outlined in this application if other than 8760 hours/year. (Note: anything other than 24/7/52 may result in a restriction to the facility's operation).</p> <p>Hours per day ___ 24 ___ Days per week ___ 7 ___ Weeks per year ___ 52 ___ Percentage of operation ___ 100 ___</p>	

**SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS**

<p>23. Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13).</p>
<p>24. Include a <b>Table of Contents</b> as the first page of your application package.</p>
<p>All of the required forms and additional information can be found under the Permitting Section (General Permits) of DAQ's website, or requested by phone.</p>
<p>25. Please check all attachments included with this permit application. Please refer to the appropriate reference document for an explanation of the attachments listed below.</p> <ul style="list-style-type: none"> <li>9 ATTACHMENT A : CURRENT BUSINESS CERTIFICATE</li> <li>9 ATTACHMENT B: PROCESS DESCRIPTION</li> <li>9 ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS</li> <li>9 ATTACHMENT D: PROCESS FLOW DIAGRAM</li> <li>9 ATTACHMENT E: PLOT PLAN</li> <li>9 ATTACHMENT F: AREA MAP</li> <li>9 ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION APPLICABILITY FORM</li> <li>9 ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS</li> <li>9 ATTACHMENT I: EMISSIONS CALCULATIONS</li> <li>9 ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT</li> <li>9 ATTACHMENT K: ELECTRONIC SUBMITTAL</li> <li>9 ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE</li> <li>9 ATTACHMENT M: SITING CRITERIA WAIVER</li> <li>9 ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS)</li> <li>9 ATTACHMENT O: EMISSIONS SUMMARY SHEETS</li> <li>9 OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.)</li> </ul> <p>Please mail an original and two copies of the complete General Permit Registration Application with the signature(s) to the DAQ Permitting Section, at the address shown on the front page of this application. Please DO NOT fax permit applications. For questions regarding applications or West Virginia Air Pollution Rules and Regulations, please refer to the website shown on the front page of the application or call the phone number also provided on the front page of the application.</p>

SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

G I certify that I am a President, Vice President, Secretary, Treasurer or in charge of a principal business function of the corporation

FOR A PARTNERSHIP

G I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

G I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

G I certify that I am the President or a member of the Board of Directors

FOR A JOINT VENTURE

G I certify that I am the President, General Partner or General Manager

FOR A SOLE PROPRIETORSHIP

G I certify that I am the Owner and Proprietor

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

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

Signature  Responsible Official Date 9/16/15

Name & Title Sr. Vice President and General Manager EVOC

Signature \_\_\_\_\_ Authorized Representative (if applicable) Date \_\_\_\_\_

Applicant's Name \_\_\_\_\_

Phone & Fax \_\_\_\_\_ Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

**Attachment A - Current Business Certificate**

**WEST VIRGINIA  
STATE TAX DEPARTMENT  
BUSINESS REGISTRATION  
CERTIFICATE**

ISSUED TO:  
**ENERVEST OPERATING LLC EASTERN DIVISION  
300 CAPITOL ST 200  
CHARLESTON, WV 25301-1794**

**BUSINESS REGISTRATION ACCOUNT NUMBER: 1051-6031**

This certificate is issued on: **05/27/2011**

*This 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.**

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

**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.**

## **Attachment B - Process Description**

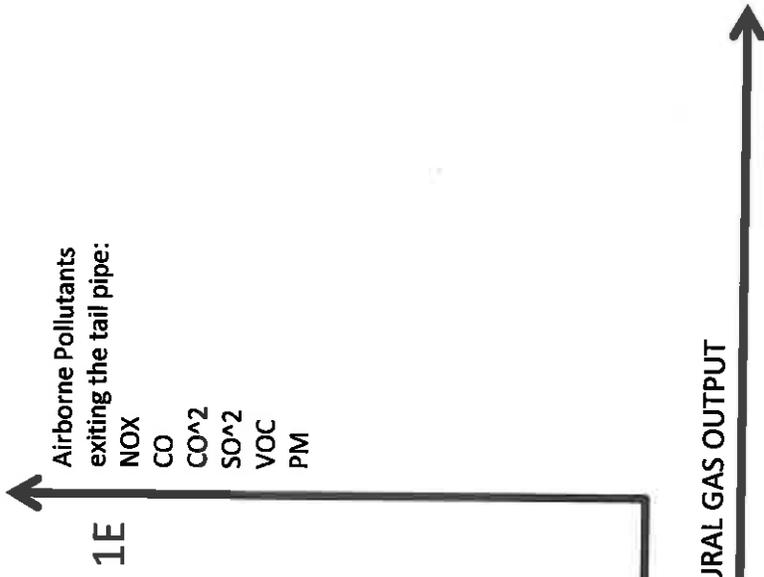
**Natural Gas is produced from Coalbed Methane wells as well as conventional wells where is then transported via pipeline to the Glen Rodgers compressor station. Natural gas is then combusted in the engine and natural gas is compressed so that EnerVest may produce more efficiently.**

## **Attachment C – Description of Fugitive Emissions**

**Fugitive emissions occur at the threaded and flanged connections of the piping on the site as well on the seals and connections on the compressor.**

## Attachment E – Plot Plan

## Attachment D – Process Flow Diagram



1S  
Unit Name: Glen Rogers Compressor  
Engine model: CAT G3306NA  
Engine HP: 145  
Engine Serial number: 07Y05333  
Manufacture Date: Pre 8/28/1995

NATURAL GAS INPUT

NATURAL GAS OUTPUT

# EnerVest Operating, LLC

CE-1 Compressor  
Wyoming Co. WV  
Attachment "E"

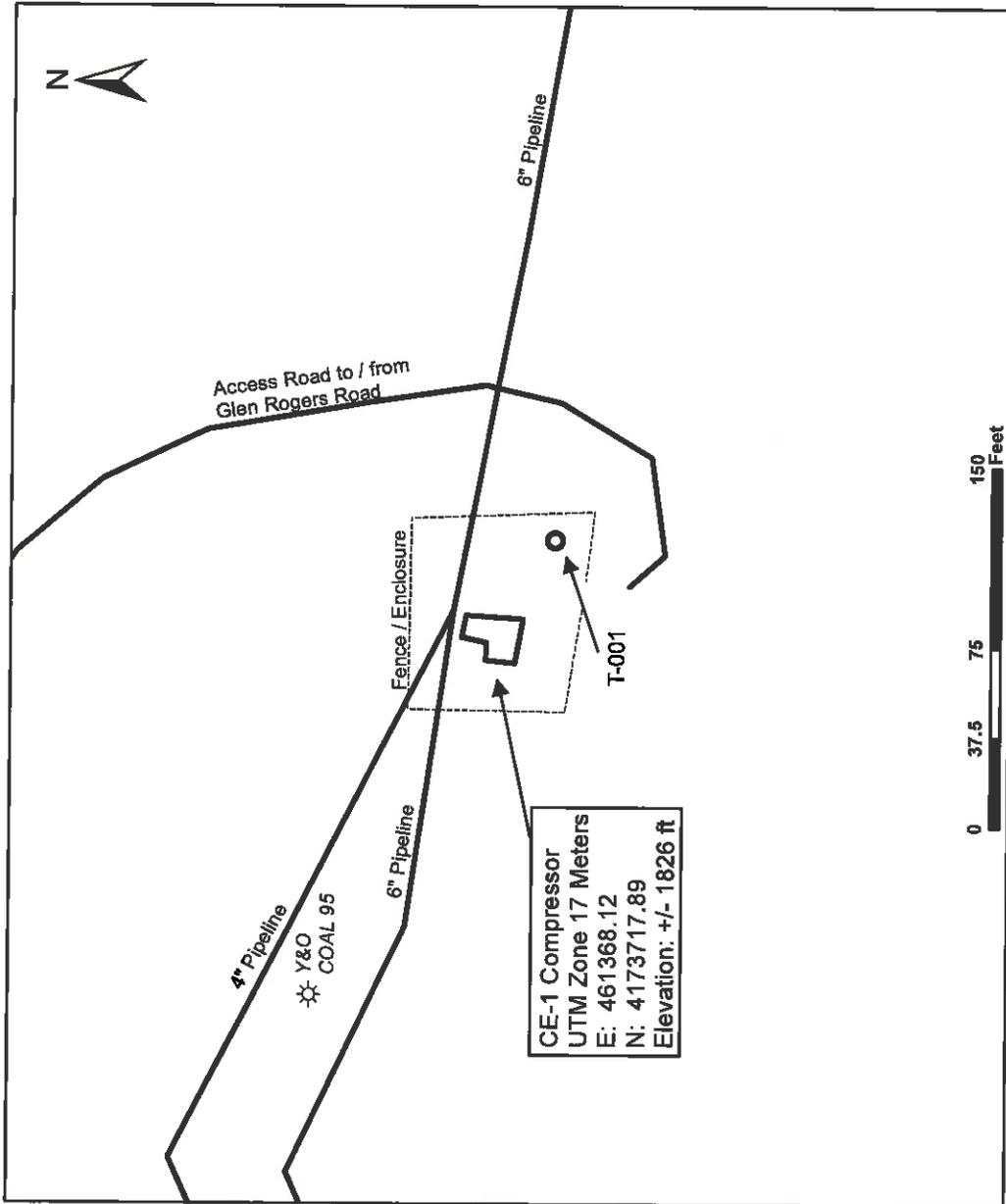
Base Elevation: +/- 1826 ft

Scale: 1 in = 75ft

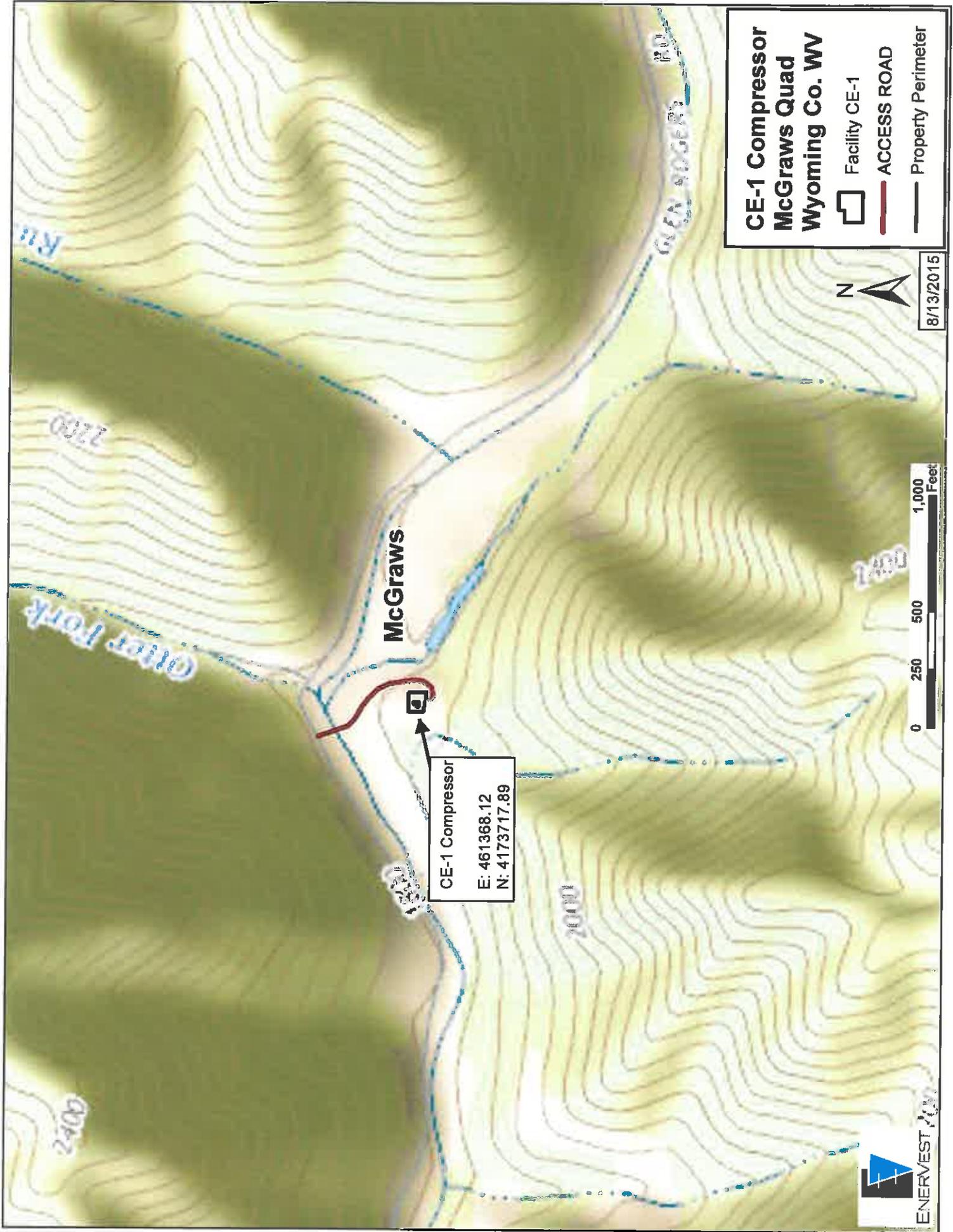
Map Date: 8/13/2015



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**Attachment F – Area Map**



**CE-1 Compressor  
McGraws Quad  
Wyoming Co. WV**

-  Facility CE-1
-  ACCESS ROAD
-  Property Perimeter



8/13/2015



**McGraws**

**CE-1 Compressor**  
 E: 461368.12  
 N: 4173717.89





# G30-D REGISTRATION APPLICATION FORMS

### NATURAL GAS COMPRESSOR/GENERATOR ENGINE DATA SHEET

Source Identification Number <sup>1</sup>		CE-1					
Engine Manufacturer and Model		Caterpillar G3306NA					
Manufacturer's Rated bhp/rpm		145 HP / 1800RPM					
Source Status <sup>2</sup>							
Date Installed/Modified/Removed <sup>3</sup>		9/20/15					
Engine Manufactured/Reconstruction Date <sup>4</sup>		8/28/1995					
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJ? (Yes or No) <sup>5</sup>		yes					
Engine, Fuel and Combustion Data	Engine Type <sup>6</sup>	RB4S					
	APCD Type <sup>7</sup>	NONE					
	Fuel Type <sup>8</sup>	RG					
	H <sub>2</sub> S (gr/100 scf)	0					
	Operating bhp/rpm	145 / 1800					
	BSFC (Btu/bhp-hr)	7543					
	Fuel throughput (ft <sup>3</sup> /hr)	1093					
	Fuel throughput (MMft <sup>3</sup> /yr)	9.58					
Operation (hrs/yr)	8760						
Reference <sup>9</sup>	Potential Emissions <sup>10</sup>	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
MD	NO <sub>x</sub>	<b>7.707</b>	<b>33.758</b>				
MD	CO	<b>0.448</b>	<b>1.960</b>				
MD	VOC	<b>0.051</b>	<b>0.224</b>				
AP-42	SO <sub>2</sub>	0.001	0.003				
AP-42	PM <sub>10</sub>	<b>0.010</b>	<b>0.046</b>				
MD	Formaldehyde	<b>0.074</b>	<b>0.322</b>				

- Enter the appropriate Source Identification Number for each natural gas-fueled reciprocating internal combustion compressor/generator engine located at the compressor station. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Generator engines should be designated GE-1, GE-2, GE-3 etc. If more than three (3) engines exist, please use additional sheets.
- Enter the Source Status using the following codes:
 

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Removal of Source



### NATURAL GAS FIRED BOILER/LINE HEATER DATA SHEET

Source ID # <sup>1</sup>	Status <sup>2</sup>	Design Heat Input (mmBtu/hr) <sup>3</sup>	Hours of Operation (hrs/yr) <sup>4</sup>	Fuel Heating Value (Btu/scf) <sup>5</sup>	

1. Enter the appropriate Source Identification Numbers (Source ID #) for each boiler or line heater located at the compressor station. Boilers should be designated BLR-1, BLR-2, BLR-3, etc. Heaters or Line Heaters should be designated HTR-1, HTR-2, HTR-3, etc. Enter glycol dehydration unit Reboiler Vent data on the *Glycol Dehydration Unit Data Sheet*.
2. Enter the Status for each boiler or line heater using the following:  
 EXIST Existing Equipment  
 REM Equipment Removed  
 NEW Installation of New Equipment
3. Enter boiler or line heater design heat input in mmBtu/hr.
4. Enter the annual hours of operation in hours/year for each boiler or line heater.
5. Enter the fuel heating value in Btu/standard cubic foot.

### STORAGE TANK DATA SHEET

Source ID # <sup>1</sup>	Status <sup>2</sup>	Content <sup>3</sup>	Volume <sup>4</sup>	Dia <sup>5</sup>	Throughput <sup>6</sup>	Orientation <sup>7</sup>	Liquid Height <sup>8</sup>
T01	exist	Pipeline liquids / lube oils	420		420	Very	1'

1. Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
2. Enter storage tank Status using the following:  
 EXIST Existing Equipment  
 REM Equipment Removed  
 NEW Installation of New Equipment
3. Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, etc.
4. Enter storage tank volume in gallons.
5. Enter storage tank diameter in feet.
6. Enter storage tank throughput in gallons per year.
7. Enter storage tank orientation using the following:  
 VERT Vertical Tank  
 HORZ Horizontal Tank
8. Enter storage tank average liquid height in feet.





**COMPRESSOR STATION EMISSION SUMMARY SHEET FOR HAZARDOUS/TOXIC POLLUTANTS**

Compressor Station		Registration Number (Agency Use) <b>G30-D</b>										
Source ID No.	Benzene	Ethylbenzene	Toluene	Xylenes	n-Hexane	Formaldehyde	Benzene	Ethylbenzene	Toluene	Xylenes	n-Hexane	Formaldehyde
		Potential Emissions (lbs/hr)					Potential Emissions (tons/yr)					
CE-1	0.0	0.0	0.0	0.0	0.0	0.074	0.0	0.0	0.0	0.0	0.0	0.322
T01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>												

## **Attachment I - Emissions Calculations**

**Rich Burn Engines 4 Stroke AP 42 Table 3.2-1**

Emissions Unit ID:	<b>Glen Rogers CS</b>	BHP	<b>145</b>	BTU Content of Gas	<b>1000</b>
Fuel Usage in MMBTU/hr:	<b>1.094</b>	Fuel Consumption BTU/BHP-hr	<b>7543</b>	Date of manufacture:	<b>8/28/1995</b>
Make:	<b>Caterpillar</b>	Model:	<b>G3306NA</b>	Serial number:	<b>07Y05333</b>
<b>Pollutants</b>		Emission Factor	lbs./hr	Tons Year	G/bhp-hr
SOX ton/yr		0.000588	<b>0.001</b>	<b>0.003</b>	<b>0.002</b>
PM10 (filterable)		0.009500	<b>0.010</b>	<b>0.046</b>	<b>0.033</b>
PM2.5 (filterable)		0.009500	<b>0.010</b>	<b>0.046</b>	<b>0.033</b>
PM Condensable		0.009910	<b>0.011</b>	<b>0.047</b>	<b>0.034</b>
Calculations		EF	MMBTU x EF = lbs/hr	(lbs/hr)/2000	(lbs-hr*453.592)/BHP

**Emissions Calculator Based on Spec sheet Data @ 100% Load**

Pollutant	Unit BHP	Emissions g/BHP-Hr	Grams Per Hour	lbs-hr	Tons/yr
NOX	145	<b>24.11</b>	3496.0	<b>7.707</b>	<b>33.758</b>
CO2	145	<b>492</b>	71340.0	<b>157.278</b>	<b>688.876</b>
VOC	145	<b>0.16</b>	23.2	<b>0.051</b>	<b>0.224</b>
CO	145	<b>1.4</b>	203.0	<b>0.448</b>	<b>1.960</b>
NMHC (Non CH4 hydrocarbons)	145	<b>0.24</b>	34.8	<b>0.077</b>	<b>0.336</b>
Formaldehyde (H2CO)	145	<b>0.23</b>	33.4	<b>0.074</b>	<b>0.322</b>
Calculations			(BHP*G/HP-hr)*8760	g-hr * 0.00220462	lbs-hr*8760/2000

**Fuel Usage Calculator**

Rated BHP	BTU/BHP-Hr	MMBTU/ Hr	BTU Content:	Total BTU/Hr	Total BTU Year
145	<b>7543</b>	<b>1.094</b>	1000	<b>1093735</b>	<b>9581118600</b>
		(Bhp x Btu/Bhp-hr)/1,000,000		Bhp x Btu/Bhp-hr	Tbtu/Bhp-hr x 8760
MMBTU/hr	MCF/HOUR	SCF / HOUR	SCF/YR	MCF/YEAR	MMSCF/YR
<b>1.093735</b>	<b>1.093735</b>	<b>1093.735</b>	<b>9581118.6</b>	<b>9581.1186</b>	<b>9.5811186</b>
	SCF-HR/1000	Tbtu HR/ Btu Content	SCF-HR*8760	SCF-YR/1000	SCF-YR/1,000,000

ENGINE SPEED (rpm):	1800	FUEL SYSTEM:	LPG IMPCO
COMPRESSION RATIO:	10.5:1	<b>SITE CONDITIONS:</b>	
JACKET WATER OUTLET (°F):	210	FUEL:	Nat Gas
COOLING SYSTEM:	JW+OC	FUEL PRESSURE RANGE (psig):	1.5-5.0
IGNITION SYSTEM:	MAG	FUEL METHANE NUMBER:	84.8
EXHAUST MANIFOLD:	WC	FUEL LHV (Btu/scf):	905
COMBUSTION:	Standard	ALTITUDE (ft):	500
EXHAUST O2 EMISSION LEVEL %:	2.0	MAXIMUM INLET AIR TEMPERATURE (°F):	77
SET POINT TIMING:	30.0	NAMEPLATE RATING:	145 bhp@1800rpm

RATING	NOTES	LOAD	MAXIMUM RATING	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE		
			100%	100%	75%	50%
ENGINE POWER	(1)	bhp	145	145	109	73
INLET AIR TEMPERATURE		°F	77	77	77	77

ENGINE DATA						
FUEL CONSUMPTION (LHV)	(2)	Btu/bhp-hr	7543	7543	8064	9134
FUEL CONSUMPTION (HHV)	(2)	Btu/bhp-hr	8367	8367	8945	10132
AIR FLOW	(3)(4)	lb/hr	996	996	804	610
AIR FLOW WET (77°F, 14.7 psia)	(3)(4)	scfm	225	225	181	138
INLET MANIFOLD PRESSURE	(5)	in Hg(abs)	26.4	26.4	22.3	17.8
EXHAUST STACK TEMPERATURE	(6)	°F	1040	1040	993	943
EXHAUST GAS FLOW (@ stack temp, 14.5 psia)	(7)(4)	ft3/min	697	697	545	399
EXHAUST GAS MASS FLOW	(7)(4)	lb/hr	1051	1051	848	644

EMISSIONS DATA						
NOx (as NO2)	(8)	g/bhp-hr	24.11	24.11	21.09	22.10
CO	(8)	g/bhp-hr	1.40	1.40	1.50	1.50
THC (mol. wt. of 15.84)	(8)	g/bhp-hr	1.60	1.60	1.46	1.91
NMHC (mol. wt. of 15.84)	(8)	g/bhp-hr	0.24	0.24	0.22	0.29
NMNEHC (VOCs) (mol. wt. of 15.84)	(8)(9)	g/bhp-hr	0.16	0.16	0.15	0.19
HCHO (Formaldehyde)	(8)	g/bhp-hr	0.23	0.23	0.24	0.28
CO2	(8)	g/bhp-hr	492	492	526	596
EXHAUST OXYGEN	(10)	% DRY	2.0	2.0	2.4	2.6

HEAT REJECTION						
HEAT REJ. TO JACKET WATER (JW)	(11)	Btu/min	5652	5652	4964	4213
HEAT REJ. TO ATMOSPHERE	(11)	Btu/min	729	729	585	441
HEAT REJ. TO LUBE OIL (OC)	(11)	Btu/min	924	924	812	689

HEAT EXCHANGER SIZING CRITERIA			
TOTAL JACKET WATER CIRCUIT (JW+OC)	(12)	Btu/min	7326

**CONDITIONS AND DEFINITIONS**

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature.  
 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature.  
 Max. rating is the maximum capability for the specified fuel at site altitude and reduced inlet air temperature.  
 Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.

**TANKS 4.0.9d**  
**Emissions Report - Summary Format**  
**Tank Identification and Physical Characteristics**

**Identification**

User Identification:	T001
City:	Huntington
State:	West Virginia
Company:	Enervest Operating
Type of Tank:	Vertical Fixed Roof Tank
Description:	10 bbl slop tank

**Tank Dimensions**

Shell Height (ft):	8.00
Diameter (ft):	3.50
Liquid Height (ft) :	5.50
Avg. Liquid Height (ft):	1.00
Volume (gallons):	395.84
Turnovers:	1.00
Net Throughput(gal/yr):	395.84
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Dome
Height (ft)	0.50
Radius (ft) (Dome Roof)	3.50

**Breather Vent Settings**

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meteorological Data used in Emissions Calculations: Huntington, West Virginia (Avg Atmospheric Pressure = 14.33 psia)

**TANKS 4.0.9d**  
**Emissions Report - Summary Format**  
**Liquid Contents of Storage Tank**

**T001 - Vertical Fixed Roof Tank**  
**Huntington, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Crude oil (RVP 5)	All	56.53	51.44	61.62	54.87	2.6870	2.4255	2.9708	50.0000			207.00	Option 4: RVP-5

**TANKS 4.0.9d**  
**Emissions Report - Summary Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**T001 - Vertical Fixed Roof Tank**  
**Huntington, West Virginia**

Components	Losses(lbs)		
	Working Loss	Breathing Loss	Total Emissions
Crude oil (RVP 5)	0.95	20.78	21.73

**Attachment L - General Permit Registration Application Fee**

**AFFIDAVIT OF PUBLICATION  
THE WYOMING COUNTY REPORT  
WYOMING COUNTY, WEST VIRGINIA**

**COPY OF PUBLICATION**

STATE OF WEST VIRGINIA  
COUNTY OF WYOMING, to wit:

I, Tara Meyer, of The Wyoming County Report, a weekly zoned edition newspaper published in Wyoming County, West Virginia, do Certify that the notice attached hereto under the caption:

AIR QUALITY PERMIT NOTICE /  
NOTICE OF APPLICATION  
(Description of Notice)

was published once a week for oen successive week on the following day: August 31, 2015.

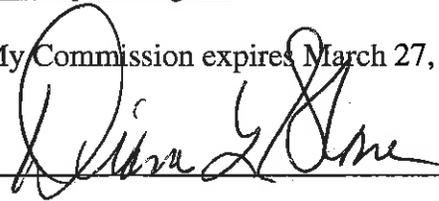
Publication Fee \$38.70

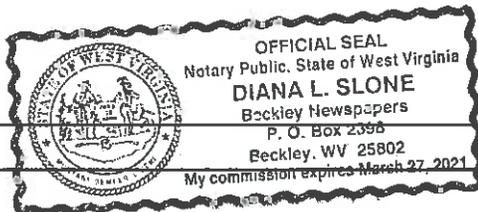
Signed:

  
\_\_\_\_\_

Taken, subscribed and sworn before me this  
31st day of August, 2015

My Commission expires March 27, 2021.

  
\_\_\_\_\_



**AIR QUALITY  
PERMIT NOTICE  
Notice of Application**

Notice is given that EnerVest Operating, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a General Permit Registration for a Natural Gas Compressor located on Glen Rodgers Road, near Glen Rogers, in Wyoming County, West Virginia. The latitude and longitude coordinates are: Latitude: 37.709955 Longitude: -81.438008.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: PM (0.047 TON/YR), PM10 (0.046 TON/YR), VOCs (0.224 TON/YR), CO (1.960 TON/YR), NOx (33.758 TON/YR), SO2 (0.003 TON/YR), and HAPS (0.322 TON/YR).

Startup of operation is planned to begin on or about the 30th day of September, 2015. 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 18th day of August, 2015.

By: EnerVest  
Operating, LLC.  
James McKinney  
Senior Vice President  
and General Manager  
EVOC  
300 Capitol Street,  
Suite 200  
Charleston, WV 25301  
8-31-WCR-2; LG 55