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Mark A. Sowa
Senior Environmental Coordinator

CERTIFIED MAIL #: 7007 2680 0000 7313 6244

May 29, 2015

William F. Durham, Director
WVDEP, Division of Air Quality
601 57th Street SE
Charleston, WV 25304

**Re: Equitrans, LP – Burnsville Compressor Station
Facility ID No: 007-00006
General Permit G60-C 060
Application for Class I Administrative Amendment**

Dear Mr. Durham,

Equitrans, LP (Equitrans) is hereby submitting an application for a Class I Administrative Amendment to General Permit # G60C-060 at the existing Burnsville Compressor Station (Burnsville) located near Burnsville in Braxton County, West Virginia. Burnsville is a natural gas transmission facility that currently operates under Title V Permit #R30-00700006-2013 (Title V Permit) and General Permit #G60-C 060.

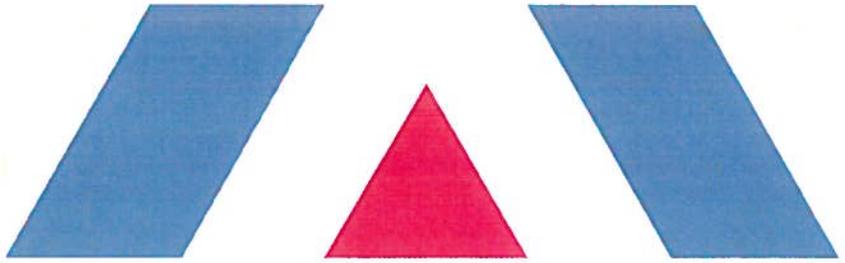
We are seeking to revise General Permit #G60-C 060 by replacing the diesel-fired emergency generator in the current permit with an equivalent gas-fired emergency generator. The diesel-fired generator has not been installed. The project will result in an overall decrease in potential emissions from the facility.

Please contact me at 412-395-3654 or via email at msowa@eqt.com if you have any questions regarding this application.

Sincerely,

A handwritten signature in blue ink that reads "Mark A. Sowa".

Mark A. Sowa
Senior Environmental Coordinator



CLASS I ADMINISTRATIVE UPDATE
EQUITRANS, LP
Burnsville Compressor Station

G60C-C060

TRINITY CONSULTANTS

4500 Brooktree Drive

Suite 103

Wexford, PA 15090

(724) 935-2611

May 2015

Project 143901.0037

Trinity
Consultants

Environmental solutions delivered uncommonly well

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1. INTRODUCTION

Equitrans, LP (Equitrans) is submitting this Class I administrative update application to the West Virginia Department of Environmental Protection (WVDEP) to install a natural gas fired emergency generator at a natural gas compressor station located in Braxton County, West Virginia (Burnsville Compressor Station). Specifically, this application seeks to replace the existing John Deere diesel fired emergency generator currently permitted under G60C-C060, issued on June 30, 2014. The proposed generator replacement will result in an emission decrease. As such, the proposed replacement qualifies as a Class I administrative update to the existing General Permit.

1.1. FACILITY AND PROJECT DESCRIPTION

The Burnsville Compressor Station (Burnsville) is a natural gas transmission facility that compresses and dehydrates natural gas from storage wells for transportation across the pipeline. The station also dehydrates gas from nearby production wells. The station has the potential to operate 24 hours per day, 7 days per week. The Burnsville station currently consists of the following equipment:

- One (1) 600-hp natural gas reciprocating engine/integral compressor
- Two (2) 1,350-hp natural gas reciprocating engine/integral compressor
- One (1) diesel fired 235 kW emergency generator.
- One (1) natural gas reciprocating engine driven generator
- 34 million standard cubic feet per day (MMSCFD) triethylene glycol (TEG) dehydration unit equipped with associated reboiler (rated at 0.025 MMSCFD) and flare (rated at 1.02 MMBtu/hr)
- One (1) natural gas heating boiler (rated at 1.25 MMBtu/hr)
- Six (6) miscellaneous storage tanks with capacities less than 15,000 gallons

Equitrans is proposing to install a 225 kilowatt (KW) Kohler emergency generator to replace the existing diesel fired emergency generator (G-002). The proposed generator will be powered by a natural gas fired four-stroke engine and will provide emergency power to the station. A process flow diagram is included as Attachment D.

1.2. APPLICATION ORGANIZATION

This West Virginia Code of State Regulations, Title 45 (CSR) Series 13 (45 CSR 13) Class II general permit registration application is organized as follows:

- Section 2: Emission Calculation Methodology
- Section 3: Regulatory Applicability Analysis
- Attachment A: Current Business Certificate
- Attachment B: Process Description
- Attachment C: Description of Fugitive Emissions (Not Applicable)
- Attachment D: Process Flow Diagram
- Attachment E: Plot Plan
- Attachment F: Area Map
- Attachment G: Affected Source Sheets (SI ICE Data Sheet)
- Attachment H: Air Pollution Control Device Data Sheet (Not Applicable)
- Attachment I: Emission Calculations
- Attachment J: Class I Legal Advertisement (Not Applicable)
- Attachment K: Electronic Submittal (Not Applicable)

2. EMISSION CALCULATION METHODOLOGY

The characteristics of air emissions from the emission units at the Burnsville Compressor Station, along with the methodology for calculating emissions, are briefly described in this section of the application. Detailed emissions calculations are presented in Attachment I.

As part of this proposed project, emissions will result from natural gas combustion in the emergency generator engine. Emissions of carbon monoxide (CO), carbon dioxide (CO₂), volatile organic compounds (VOC), and nitrogen oxides (NO_x), were calculated using manufacturer's emission data. All other criteria pollutants and hazardous air pollutants (HAPs) are calculated using the USEPA's AP-42 emission factors for natural gas fired combustion engines.¹ The project will not result in any emissions increase from the existing units (i.e., the compressor engines, TEG dehydrator, reboiler, and tanks) and will result in an overall decrease in emissions. Emissions of the greenhouse gases (GHGs) methane (CH₄) and nitrous oxide (N₂O) are calculated in accordance with Subpart C (General Stationary Fuel Combustion Sources) of the GHG Mandatory Reporting Rule (MRR), contained in 40 CFR 98.

¹ Table 3:3-3 Uncontrolled Emission Factors for 4-Stroke Rich Burn Engines.
<http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf>

3. REGULATORY APPLICABILITY ANALYSIS

This section documents the applicability determinations made for Federal air quality regulations. Applicability or non-applicability of the following regulatory programs is addressed:

- Prevention of Significant Deterioration (PSD) permitting
- Title V of the 1990 Clean Air Act Amendments
- New Source Performance Standards (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAP)

In addition to providing a summary of applicable requirements, this section of the application also provides non-applicability determinations for certain regulations, allowing the WVDEP to confirm that identified regulations are not applicable. Note that explanations of non-applicability are limited to those regulations for which there may be some question of applicability to specific operations at the Burnsville Compressor Station. Regulations that are categorically non-applicable are not discussed (e.g., NSPS Subpart J, Standards of Performance for Petroleum Refineries).

3.1. FEDERAL REGULATORY APPLICABILITY

3.1.1. Prevention of Significant Deterioration (PSD) Source Classification

Federal construction permitting programs regulate new and modified sources of attainment pollutants under Prevention of Significant Deterioration (PSD) and new and modified sources of non-attainment pollutants under Non-Attainment New Source Review (NNSR). PSD and NNSR regulations apply when a major source makes a change, such as installing new equipment or modifying existing equipment, and a significant increase in emissions results from the change. The Burnsville Station is located in an area classified as attainment for all pollutants. Therefore, NNSR is not applicable. The Burnsville Compressor Station is a major source with respect to the NSR program as its potential emissions on NO_x are above all major thresholds. The emissions from the proposed project are below all major modification thresholds. As such, NSR/PSD permitting is not triggered by this construction activity. Equitrans will monitor future construction activities at the site closely and will compare any future increase in emissions with the NSR/PSD thresholds to ensure these activities will not trigger this program.

3.1.2. Title V Operating Permit Program

Title 40 of the Code of Federal Regulations Part 70 (40 CFR 70) establishes the federal Title V operating permit program. West Virginia has incorporated the provisions of this federal program in its Title V operating permit program in West Virginia Code of State Regulations (CSR) 45-30. The major source thresholds with respect to the West Virginia Title V operating permit program regulations are 10 tons per year (tpy) of a single HAP, 25 tpy of any combination of HAP and 100 tpy of all other regulated pollutants.² The Burnsville station is currently classified as a major source for the Title V program and operates under Title V operating permit No. R30-00700006-2013. After the proposed project, the potential emissions of at least one regulated pollutant will remain above the corresponding threshold(s) at this facility. Therefore, the Burnsville Compressor Station will remain a major source for Title V purposes.

² On June 23, 2014, the U.S Supreme Court decision in the case of *Utility Air Regulatory Group v. EPA* effectively changed the permitting procedures for GHGs under the PSD and Title V programs.

3.1.3. New Source Performance Standards

New Source Performance Standards (NSPS), located in 40 CFR 60, require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. Moreover, any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A, except where expressly noted. The following is a summary of applicability and non-applicability determinations for NSPS regulations of relevance to the Burnsville Compressor Station.

3.1.3.1. NSPS Subpart JJJJ - Stationary Spark Ignition Internal Combustion Engines

New Source Performance Standards 40 CFR Part 60 Subpart JJJJ (NSPS JJJJ) affects owners and operators of stationary spark ignition internal combustion engines (SI ICE) that commence construction, reconstruction or modification after June 12, 2006. Applicability dates are based on the date the engine was ordered by the operator. The proposed emergency generator engine is a 4-stroke rich burn, spark ignition engine manufactured after July 1, 2008, and as such will be subject to this subpart. The engine is certified to meet the emergency and non-emergency stationary emission standards in Table 1 of Subpart JJJJ. Equitrans will meet the compliance requirements in 60.4243(a)(1) and will maintain all applicable recordkeeping and reporting requirements in 60.4245(a)(1)-(3)

3.1.3.2. NSPS Subpart OOOO - Oil and Natural Gas Production, Transmission, and Distribution

This proposed subpart applies to certain affected facilities that have been constructed, reconstructed, or modified after August 23, 2011. The emergency generator is not an affected source under NSPS OOOO.

3.1.3.3. Non-Applicability of All Other NSPS

NSPS are developed for particular industrial source categories. Other than NSPS developed for natural gas processing plants (Subparts KKK and LLL) and associated equipment (Subparts D-Dc and K-Kb), the applicability of a particular NSPS to the Burnsville Compressor Station can be readily ascertained based on the industrial source category covered. All other NSPS are categorically not applicable to natural gas processing facilities.

3.1.4. National Emission Standards for Hazardous Air Pollutants (NESHAP)

Part 63 NESHAP allowable emission limits are established on the basis of a maximum achievable control technology (MACT) determination for a particular major source. A HAP major source is defined as having potential emissions in excess of 25 tpy for total HAP and/or potential emissions in excess of 10 tpy for any individual HAP. The Burnsville facility is an area source of HAP as emissions are less than applicable thresholds. Besides 40 CFR 63 Subpart A (NESHAP Subpart A), which is similar to 40 CFR 60 Subpart A (NSPS Subpart A), the following NESHAP could potentially apply to the Burnsville Compressor Station based on the proposed project:

40 CFR Part 63 Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE)

3.1.4.1. 40 CFR 63 Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines

Stationary reciprocating internal combustion engines (RICE) at both area and major sources of HAP emissions are potentially subject to Subpart ZZZZ – *NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE)*. Stationary RICE at facilities that are area sources of HAP are considered new if they are ordered after June 12, 2006. New area source stationary RICE are required to meet the requirements of this MACT standard by meeting the applicable requirements of the applicable New Source Performance Standard in 40 CFR 60 (Subpart

III for compression ignition engines and Subpart JJJJ for spark ignition engines). No further requirements apply to such engines under NESHAP Subpart ZZZZ.

The proposed Kohler emergency generator engine at the Burnsville Station is a new area source RICE and will comply with Subpart ZZZZ by complying with 40 CFR 60, Subpart JJJJ as described in the previous section.

3.2. FEDERAL REGULATORY APPLICABILITY

The wellpad is potentially subject to regulations contained in the West Virginia Code of State Regulations, Chapter 45 (Code of State Regulations). The Code of State Regulations fall under two main categories, those regulations that are generally applicable (e.g., permitting requirements), and those that have specific applicability (e.g., PM standards for manufacturing equipment)

3.2.1. 45 CSR 2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

45 CSR 2 applies to fuel burning units, defined as equipment burning fuel “for the primary purpose of producing heat or power by indirect heat transfer”. The generator engine does not qualify as a fuel burning unit.

3.2.2. 45 CSR 16: Standards of Performance for New Stationary Sources

45 CSR 16-1 incorporates the federal Clean Air Act (CAA) standards of performance for new stationary sources set forth in 40 CFR Part 60 by reference. As such, by complying with all applicable requirements of 40 CFR Part 60 at the wellpad, Equitrans will be complying with 45 CSR 16

ATTACHMENT A

Current Business Certificate

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

ISSUED TO:
**EQUITRANS LIMITED PARTNERSHIP
DBA EQT MIDSTREAM
1710 PENNSYLVANIA AVE
CHARLESTON, WV 25302-3934**

BUSINESS REGISTRATION ACCOUNT NUMBER: 1023-5643

This certificate is issued on: 06/22/2011

*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

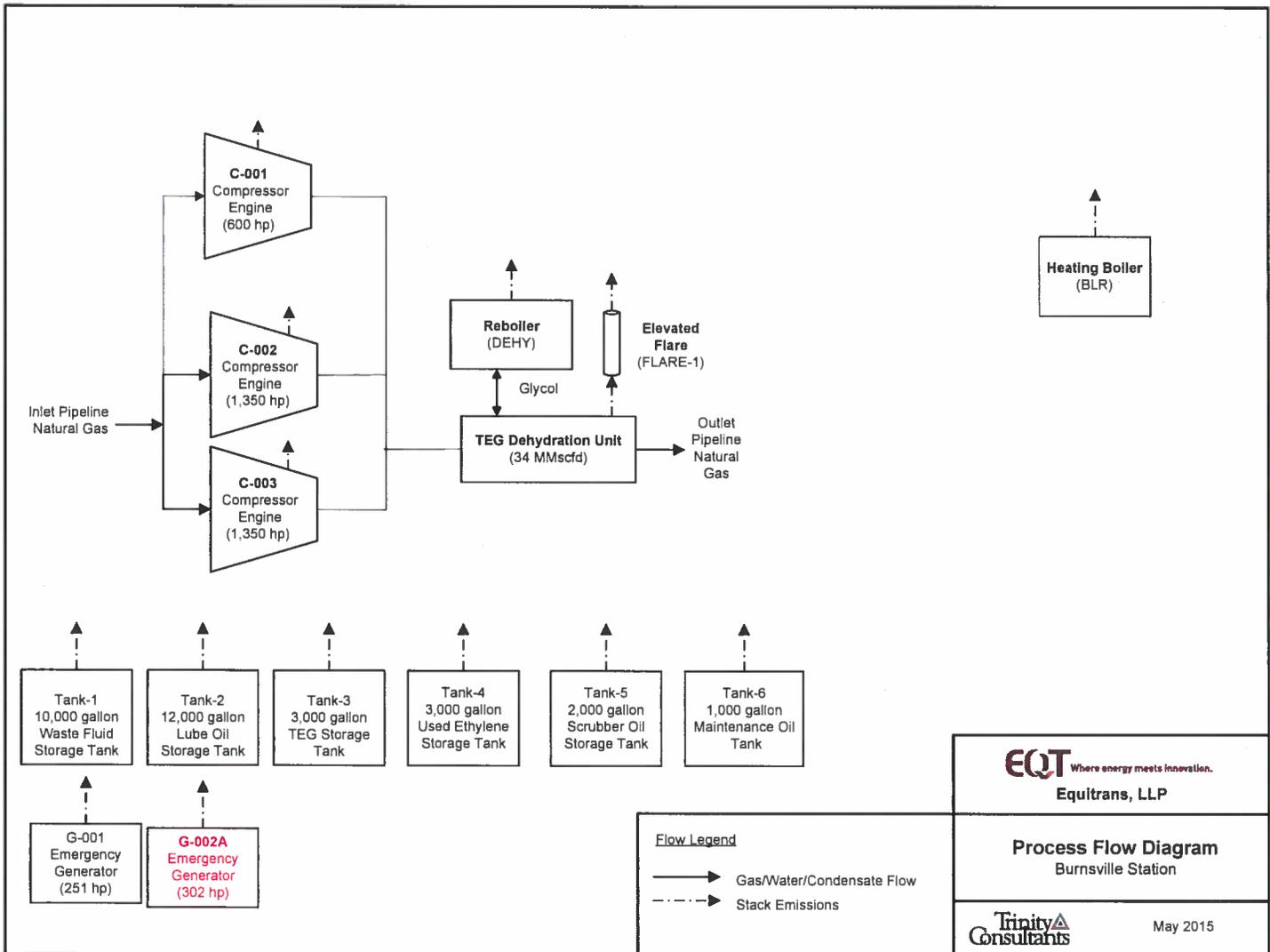
ATTACHMENT B - PROCESS DESCRIPTION

Equitrans is submitting the application to replace the existing diesel fired emergency generator with a natural gas-fired emergency generator at the Burnsville Compressor Station.

A process flow diagram is included as Attachment D.

ATTACHMENT D

Process Flow Diagram



EQT Where energy meets innovation.
 Equitrans, LLP

Process Flow Diagram
 Burnsville Station

Trinity
 Consultants

May 2015

ATTACHMENT E

Plot Plan

ATTACHMENT F

Area Map



Equipment Data Sheets and Registration Section Applicability Form



WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF AIR QUALITY
 601 57th 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 type="checkbox"/> G30-D – Natural Gas Compressor Stations | <input checked="" 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): Equitrans LP		2. Federal Employer ID No. (FEIN): 25-1776875	
3. Applicant's mailing address: P.O Box 191 Burnsville, WV 26335		4. Applicant's physical address: Kanawha Ave Burnsville, WV 26335	
5. If applicant is a subsidiary corporation, please provide the name of parent corporation: EQT 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 Station	8a. Standard Industrial Classification Classification (SIC) code: 4922	AND	8b. North American Industry System (NAICS) code: 486210
9. DAQ Plant ID No. (for existing facilities only): 0007-00006	10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only): __R30-0007000006-2013_____ ____G60-C060_____		

A: PRIMARY OPERATING SITE INFORMATION

<p>11A. Facility name of primary operating site:</p> <p>Burnsville Compressor Station</p>	<p>12A. Address of primary operating site:</p> <p>Mailing: P.O Box 191 Burnsville, WV 26335</p> <p>Physical: Kanawha Ave Burnsville, WV 26335</p>	
<p>13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>– IF YES, please explain: Property is leased and held under production rights</p> <p>– IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		
<p>14A. – For Modifications or Administrative Updates 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 MAP as Attachment F.</p> <p>From Charleston, WV take Interstate 79 North to the Burnsville Exit. Go to the Exxon station and turn left. Turn left at the next intersection. Stay on this road, as it passes the grade school and goes under the interstate. Cross the railroad tracks and go down the bank. Station is on the right</p>		
<p>15A. Nearest city or town:</p> <p>Burnsville</p>	<p>16A. County:</p> <p>Braxton</p>	<p>17A. UTM Coordinates:</p> <p>Northing (KM): 4,301.40 Easting (KM): 529.40 Zone: 17</p>
<p>18A. Briefly describe the proposed new operation or change (s) to the facility:</p> <p>Equitrans is proposing to replace the existing diesel fired emergency generator with a natural gas fired emergency generator.</p>		<p>19A. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):</p> <p>Latitude: <u>38.186363°</u> Longitude: <u>-80.65857°</u></p>

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

<p>11B. Name of 1st alternate operating site:</p> <p>_N/A_</p>	<p>12B. Address of 1st alternate operating site:</p> <p>Mailing: _____ Physical: _____</p>	
<p>13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>– IF YES, please explain: _____</p> <p>– IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		

<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;</p> <p>— 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.</p> <p>_____</p> <p>_____</p>		
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: 2ND ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits):

11C. Name of 2 nd alternate operating site: _N/A_____	12C. Address of 2 nd alternate operating site: Mailing: _____ Physical: _____	
<p>13C. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>— IF YES, please explain: _____</p> <p>_____</p> <p>— IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		
<p>14C. — For Modifications or Administrative Updates 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 MAP as Attachment F.</p> <p>_____</p> <p>_____</p>		
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>____/____/2015____</p> <p><input type="checkbox"/> If this is an After-The-Fact 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>____/____/2015____</p>
<p>22. Provide maximum projected Operating Schedule 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 <u>24</u> Days per week <u>7</u> Weeks per year <u>52</u> Percentage of operation <u>100</u></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 Table of Contents 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"> <input checked="" type="checkbox"/> ATTACHMENT A : CURRENT BUSINESS CERTIFICATE <input checked="" type="checkbox"/> ATTACHMENT B: PROCESS DESCRIPTION <input type="checkbox"/> ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS <input checked="" type="checkbox"/> ATTACHMENT D: PROCESS FLOW DIAGRAM <input checked="" type="checkbox"/> ATTACHMENT E: PLOT PLAN <input checked="" type="checkbox"/> ATTACHMENT F: AREA MAP <input checked="" type="checkbox"/> ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION APPLICABILITY FORM <input type="checkbox"/> ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS <input checked="" type="checkbox"/> ATTACHMENT I: EMISSIONS CALCULATIONS <input type="checkbox"/> ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT <input type="checkbox"/> ATTACHMENT K: ELECTRONIC SUBMITTAL <input type="checkbox"/> ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE <input type="checkbox"/> ATTACHMENT M: SITING CRITERIA WAIVER (<i>Not Applicable</i>) <input type="checkbox"/> ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS) (<i>Not Applicable</i>) <input type="checkbox"/> ATTACHMENT O: EMISSIONS SUMMARY SHEETS <input type="checkbox"/> OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.) (<i>Not Applicable</i>) <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)

[X] 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

[] I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

[] I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

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

FOR A JOINT VENTURE

[] I certify that I am the President, General Partner or General Manager

FOR A SOLE PROPRIETORSHIP

[] I certify that I am the Owner and Proprietor

[X] I hereby certify that (please print or type) Diana Charletta 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 Diana M. Charletta 5/29/15
Responsible Official Date

Name & Title Diana Charletta, Sr. Vice President- Midstream Operations

Signature
Authorized Representative (if applicable) Date

Applicant's Name Mark Sowa - Sr Environmental Engineer

Phone & Fax 412-395-3654 412-395-7027
Phone Fax

Email msowa@eqt.com

G60-C REGISTRATION APPLICATION FORMS

General Permit G60-C Registration Section Applicability Form

General Permit G60-C was developed to allow qualified registrants to seek registration for emergency generator(s).

General Permit G60-C allows the registrant to choose which sections of the permit that they wish to seek registration under. Therefore, please mark which sections that you are applying for registration under. Please keep in mind, that if this registration is approved, the issued registration will state which sections will apply to your affected facility.

- | | | |
|-----------|---|-------------------------------------|
| Section 5 | Reciprocating Internal Combustion Engines (R.I.C.E.)* | <input checked="" type="checkbox"/> |
| Section 6 | Tanks | <input type="checkbox"/> |
| Section 7 | Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (40CFR60 Subpart IIII) | <input type="checkbox"/> |
| Section 8 | Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (40CFR60 Subpart JJJJ) | <input checked="" type="checkbox"/> |

* Affected facilities that are subject to Section 5 may also be subject to Sections 7 or 8. Therefore, if the applicant is seeking registration under both sections, please select both.

EMERGENCY GENERATOR ENGINE DATA SHEET

Source Identification Number ¹		G-002A		G-002			
Engine Manufacturer and Model		Doosan- D111TIC		John Deere; 6068HFG85			
Manufacturer's Rated bhp/rpm		302		315			
Source Status ²		NS		RS			
Date Installed/Modified/Removed ³		2015		2015			
Engine Manufactured/Reconstruction Date ⁴		2014					
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart IIII? (Yes or No) ⁵		No		Yes			
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJJ? (Yes or No) ⁶		Yes		No			
Engine, Fuel and Combustion Data	Engine Type ⁷	4SRB		CI			
	APCD Type ⁸	NSCR		N/A			
	Fuel Type ⁹	PQ		2FO			
	H ₂ S (gr/100 scf)	0		N/A			
	Operating bhp/rpm	302		315/1800			
	BSFC (Btu/bhp-hr)	N/A					
	Fuel throughput (ft ³ /hr)	2115					
	Fuel throughput (MMft ³ /yr)	1.1					
	Operation (hrs/yr)	500		500			
Reference ¹⁰	Potential Emissions ¹¹	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
MD	NO _x	0.01	0.004	2.07	0.52		
MD	CO	0.17	0.04	<0.01	<0.01		
MD	VOC	0.17	0.04	2.07	0.52		
AP-42	SO ₂	<0.01	<0.01	<0.01	<0.01		
AP-42	PM ₁₀	0.02	0.01	0.10	0.03		
AP-42	Formaldehyde	0.05	0.01				

1. Enter the appropriate Source Identification Number for each emergency generator. Generator engines should be designated EG-1, EG-2, EG-3 etc. If more than three (3) engines exist, please use additional sheets.
2. 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

3. Enter the date (or anticipated date) of the engine's installation (construction of source), modification or removal.
4. Enter the date that the engine was manufactured, modified or reconstructed.
5. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4210 as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

6. Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart JJJJ. If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance according to 40CFR§60.4243a(2)(i) through (iii), as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

7. Enter the Engine Type designation(s) using the following codes:

LB2S	Lean Burn Two Stroke	RB4S	Rich Burn Four Stroke
LB4S	Lean Burn Four Stroke		

8. Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	SCR	Lean Burn & Selective Catalytic Reduction

9. Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas
2FO	#2 Fuel Oil	LPG	Liquid Propane Gas

10. Enter the Potential Emissions Data Reference designation using the following codes. Attach all referenced data to this *Compressor/Generator Data Sheet(s)*.

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

11. Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

EMERGENCY GENERATOR EMISSION SUMMARY SHEET FOR CRITERIA POLLUTANTS										
Emergency Generator Location: Burnsville Compressor Station						Registration Number (Agency Use) <u>G60-C</u>				
	Potential Emissions (lbs/hr)					Potential Emissions (tons/yr)				
Source ID No.	NO _x	CO	VOC	SO ₂	PM ₁₀	NO _x	CO	VOC	SO ₂	PM ₁₀
GEN-002A	0.01	0.17	0.17	<0.01	0.04	0.004	0.04	0.04	<0.01	0.01
Total	0.01	0.17	0.17	<0.01	0.02	0.004	0.04	0.04	<0.01	0.01

EMERGENCY GENERATOR EMISSION SUMMARY SHEET FOR HAZARDOUS/TOXIC POLLUTANTS												
Emergency Generator Location: Burnsville Compressor Station							Registration Number (Agency Use) <u>G60-C</u>					
	Potential Emissions (lbs/hr)						Potential Emissions (tons/yr)					
Source ID No.	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formaldehyde	Benzene	Ethyl-benzene	Toluene	Xylenes	n-Hexane	Formaldehyde
GEN-002A	3.51E-3	5.51E-5	1.24E-3	4.33E-4	---	4.55E-2	8.77E-4	1.38E-5	3.10E-4	1.08E-4	---	1.14E-2
Total	3.51E-3	5.51E-5	1.24E-3	4.33E-4	---	4.55E-2	8.77E-4	1.38E-5	3.10E-4	1.08E-4	---	1.14E-2

**General Permit Levels
Construction, Modification, Relocation, Administrative Update**

Class II General Permits – G10-C (Coal Preparation and Handling), G20-B (Hot Mix Asphalt), G30-D (Natural Gas Compressor Stations), G35-A (Natural Gas Compressor Stations with Flares/Glycol Dehydration Units), G40-B (Nonmetallic Minerals Processing), G50-B (Concrete Batch Plant), G60-C (Emergency Generators)

Class I General Permit - G65-C (Emergency Generators)

General Permit	Public Notice	Review Period as per 45CSR13	Application Fee	Criteria	Application Type
Class II General Permit (Construction)	30 days (applicant)	90 days	\$500 + applicable NSPS fees	6 lb/hr and 10 tpy of any regulated air pollutant OR 144 lb/day of any regulated air pollutant, OR 2 lb/hr of any hazardous air pollutant OR 5 tpy of aggregated HAP OR 45CSR27 TAP (10% increase if above BAT triggers or increase to BAT triggers) or subject to applicable standard or rule, but subject to specific eligibility requirements	Registration Application
Class II General Permit (Modification)	30 days (applicant)	90 days	\$500 + applicable NSPS fees	Same as Class II General Permit (Construction) but subject to specific eligibility requirements	Registration Application
Administrative Update (Class I)	None	60 days	None	Decrease in emissions or permanent removal of equipment OR more stringent requirements or change in MRR that is equivalent or superior	Registration Application or Written Request
Administrative Update (Class II)	30 days (applicant)	60 days	\$300 + applicable NSPS fees	No change in emissions or an increase less than Class II Modification levels	Registration Application
Relocation	30 days (applicant)	45 days	\$500 + applicable NSPS fees	No emissions increase or change in facility design or equipment	Registration Application
Class I General Permit	None	45 days	\$250	Same as Class II General Permit (Construction) but subject to specific eligibility requirements	Registration Application

ATTACHMENT I

Emission Calculation

Generator- (G-002A)

Source/Designation:

Manufacturer:	Kohler
Model No.:	200 REZXB
Year Installed:	
Type of Engine:	4SRB
Fuel Used:	Natural Gas
Higher Heating Value (HHV) (Btu/scf):	1,050
Rated Horsepower (bhp):	302
Electrical Output (kW):	224.5
Heat Input (MMBtu/hr)	2.22
Maximum Fuel Consumption at 100% Load (MMscf/hr):	0.002
Maximum Fuel Consumption at 100% Load (MMscf/yr):	1.1

Operational Details:

Potential Annual Hours of Operation (hr/yr):	500
Potential Fuel Consumption (MMBtu/yr):	1,110

Criteria and Manufacturer Specific Pollutant Emission Factors:

Pollutant	Emission Factors ^a	Units
NO _x	0.03	g/kW-hr
CO	0.35	g/kW-hr
SO ₂	5.88E-04	lb/MMBtu
PM ₁₀ (Filterable)	9.50E-03	lb/MMBtu
PM _{2.5} (Filterable)	9.91E-03	lb/MMBtu
PM Condensable	9.91E-03	lb/MMBtu
PM Total	1.94E-02	lb/MMBtu
VOC	0.34	g/kW-hr
CO ₂	622.75	g/kW-hr
CH ₄	1.00E-03	kg/MMBtu
N ₂ O	1.00E-04	kg/MMBtu

Criteria and Manufacturer Specific Pollutant Emission Rates:

Pollutant	Potential Emissions	
	(lb/hr) ^b	(tons/yr) ^c
NO _x	0.01	0.004
CO	0.17	0.04
SO ₂	0.00	0.00
Total Particulate Matter (TSP)	0.02	0.01
PM (Filterable)	0.02	0.01
PM ₁₀ (Filterable + Condensable)	0.04	0.01
PM _{2.5} (Filterable + Condensable)	0.04	0.01
VOC	0.17	0.04
CO ₂	308.22	77.06
CH ₄	0.00	0.00
N ₂ O	0.00	0.00

Hazardous Air Pollutant (HAP) Potential Emissions:

Pollutant	Emission Factor (lb/MMBtu) ^a	Potential Emissions (lb/hr) ^b	Potential Emissions (tons/yr) ^c
HAPs:			
Acetaldehyde	2.79E-03	6.20E-03	1.55E-03
Acrolein	2.63E-03	5.84E-03	1.46E-03
Benzene	1.58E-03	3.51E-03	8.77E-04
1,3-Butadiene	6.63E-04	1.47E-03	3.68E-04
Carbon Tetrachloride	1.77E-05	3.93E-05	9.83E-06
Chlorobenzene	1.29E-05	2.86E-05	7.16E-06
Chloroform	1.37E-05	3.04E-05	7.61E-06
1,3-Dichloropropene	1.27E-05	2.82E-05	7.05E-06
Ethylbenzene	2.48E-05	5.51E-05	1.38E-05
Ethylene Dibromide	2.13E-05	4.73E-05	1.18E-05
Formaldehyde	2.05E-02	4.55E-02	1.14E-02
Methanol	3.06E-03	6.80E-03	1.70E-03
Methylene Chloride	4.12E-05	9.15E-05	2.29E-05
Styrene	1.19E-05	2.64E-05	6.61E-06
Toluene	5.58E-04	1.24E-03	3.10E-04
1,1,2,2-Tetrachloroethane	2.53E-05	5.62E-05	1.40E-05
1,1,2-Trichloroethane	1.53E-05	3.40E-05	8.49E-06
Vinyl Chloride	7.18E-06	1.59E-05	3.99E-06
Xylene	1.95E-04	4.33E-04	1.08E-04
Polycyclic Organic Matter:			
Naphthalene	9.71E-05	2.16E-04	5.39E-05
PAH	1.41E-04	3.13E-04	7.83E-05
Total HAP		7.20E-02	1.80E-02

^a HAP emission factors are from AP-42 Section 3.2, Table 3.2-3 "Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines," Supplement F, August 2000. Non CO₂ greenhouse gas emission factors are based on 40 CFR Part 98, Subpart C, Tables C-1 and C-2 for natural gas combustion.

^b Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr or kW) × Emission Factor (lb/MMBtu or g/kW-hr).

^c Annual Emissions (tons/yr)_{potential} = (lb/hr)_{Emissions} × (Maximum Allowable Operating Hours, 500 hrs/yr) × (1 ton/2000 lb).

^d NO_x, CO, CO₂, and VOC emission factors are based on Manufacturer Vendor Sheet

**Generator- (G002)
Removed**

Source Designation:	Generator
Engine Manufacturer	John Deere
Model No	6068HFG85
Engine Family	EJDXL13 5103
Year Installed	2014
Type of Engine	4 Stroke CI
Fuel Used	Diesel
Higher Heating Value (HHV) (Btu/lb)	19,300
Rated Horsepower (bhp)	315
Rated Power (KW)	235
Heat Input (MMBtu/hr)	3.36
Fuel Consumption (gal/hr) per unit	24.50
Annual Fuel Consumption at 100% Load (gal/yr) per unit	12,250

Operational Details:

Potential Annual Hours of Operation (hr/yr)	500
Annual Heat Input (MMBtu/yr) per unit	1,679

Criteria and Manufacturer Specific Pollutant Emission Factors:

Pollutant	Emission Factors	Units
NO _x ^a	0.03	lb/hp-hr
NO _x +NMEHC ^b	4.0	g/kw-hr
CO ^b	3.50	g/kw-hr
SO ₂ ^b	0.00001	g/bhp-hr
Particulate Matter (TSP) ^b	0.200	g/kw-hr
PM ₁₀ (Filterable + Condensable) ^b	0.200	g/kw-hr
PM _{2.5} (Filterable + Condensable) ^b	0.200	g/kw-hr
VOC ^b	4.00	g/kw-hr
CO ₂ ^c	73.96	kg/MMBtu
CH ₄ ^c	0.003	kg/MMBtu
N ₂ O ^c	0.001	kg/MMBtu

Criteria and Manufacturer Specific Pollutant Emission Rates:

Pollutant	Potential Emissions (per unit)	
	(lb/hr) ^{d,e,f}	(tons/yr) ^g
NO _x	2.07	0.52
CO	1.81	0.45
SO ₂	0.00	0.00
Total Particulate Matter (TSP)	0.10	0.03
PM ₁₀ (Filterable + Condensable)	0.10	0.03
PM _{2.5} (Filterable + Condensable)	0.10	0.03
VOC	2.07	0.52
CO ₂	547	137
CH ₄	0.02	0.01
N ₂ O	0.00	0.00
CO _{2e}	549	137

Hazardous Air Pollutant (HAP) Potential Emissions:

Pollutant	Emission Factor (lb/MMBtu) ^a	Potential Emissions (per unit) (lb/hr) ^e	Potential Emissions (per unit) (tons/yr) ^g
HAPs:			
Acetaldehyde	7.67E-04	2.57E-03	6.44E-04
Acrolein	9.25E-05	3.11E-04	7.76E-05
Benzene	9.33E-04	3.13E-03	7.83E-04
Formaldehyde	1.18E-03	3.96E-03	9.90E-04
Toluene	4.09E-04	1.37E-03	3.43E-04
Xylene	2.85E-04	9.57E-04	2.39E-04
Polycyclic Organic Matter:			
Naphthalene	8.48E-05	2.85E-04	7.12E-05
Acenaphthylene	5.06E-06	1.70E-05	4.25E-06
Acenaphthene	1.42E-06	4.77E-06	1.19E-06
Fluorene	2.92E-05	9.80E-05	2.45E-05
Phenanthrene	2.94E-05	9.87E-05	2.47E-05
Anthracene	1.87E-06	6.28E-06	1.57E-06
Fluoranthene	7.61E-06	2.55E-05	6.39E-06
Pyrene	4.78E-06	1.60E-05	4.01E-06
Benz(a)anthracene	1.68E-06	5.64E-06	1.41E-06
Chrysene	3.53E-07	1.19E-06	2.96E-07
Benzo(b)fluoranthene	9.91E-08	3.33E-07	8.32E-08
Benzo(k)fluoranthene	1.55E-07	5.20E-07	1.30E-07
Benzo(a)pyrene	1.88E-07	6.31E-07	1.58E-07
Indeno(1,2,3-cd)pyrene	3.75E-07	1.26E-06	3.15E-07
Dibenz(a,h)anthracene	5.83E-07	1.96E-06	4.89E-07
Benzo(g,h,i)perylene	4.89E-07	1.64E-06	4.10E-07
Total HAP		0.01	0.003

^a Emission factor from AP-42 Section 3.31, "Gasoline and Diesel Industrial Engines" Tables 3.3-1, October 1996. Sulfur dioxide factor incorporates 15 ppm Sulfur limit for ULSD

^b Emission factor from US EPA Engine Certification Data for Tier 3 Non Road Compression Ignition Engines Rated Power 225 ≤KW≤450 Certificate Number EJDXXL13.5103-014. Separately assumes NO+NMEHC is equal to NOX and all NMEHC

^c Greenhouse gas emission factors are taken from Table C-1 and C-2 of 40 CFR Part 98 for distillate oil # 2 combustion

^d Emission Rate (lb/hr) = Rated Horsepower (bhp) × Emission Factor (g/bhp-hr) × 2.2046 (lb/kg) / 1000 (g/kg)

^e Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (lb/MMBtu)

^f Emission Rate (lb/hr) = Rated Capacity (MMBtu/hr) × Emission Factor (kg/MMBtu) × 2.2046 (lb/kg)

^g Annual Emissions (tons/yr)_{Potential} = (lb/hr)_{Emissions} × (Maximum Allowable Operating Hours, 500 hr/yr) × (1 ton/2000 lb).

KOHLER.
Power Systems

PSII 2014 Stationary & Mobile 60 Hz Certified Power Generation Rating Data																
Generator Model	Engine	Speed		Fuel	Duty Cycle	BHP	KWm	Flywheel power ^{2,3}		Engine Family	CO ₂ ⁸	NO _x ⁸	CO ⁸	VOC ^{8,7}	bsfc ⁸	Catalyst
		RPM	Hz					HP	kW							
200REZXB	D111TIC, 11.1L	1800	60	NG	Emergency/Non-Emergency	302	225	301	224.5	EPSIB11.1NGP	622.75	0.03	0.35	0.34	0.26	Yes
	D111TIC, 11.1L	1800	60	LP	Emergency	302	225	208	155.0	EPSIB11.1NGP	898.68	0.02	0.33	0.09	0.30	Yes

¹ Standby and overload ratings based on ISO3046 Continuous ratings based on ISO 8528

² All ratings are gross flywheel horsepower corrected to 77°F at an altitude of 328 feet with no cooling fan or alternator losses using heating value for NG of 1015 BTU/SCF.

³

⁴ Production tolerances in engines and installed components can account for power variations of +/- 5%. Altitude, temperature and excessive exhaust and intake restrictions should be applied to power calculations

⁵ Electrical ratings are an estimated based on assumed fan and generator losses and may vary depending on actual equipment losses

⁶ Bsfc is based on 100% gross flywheel power rating and does not include fan or generator losses

⁸ Emissions shown are certified third-party Zero-hour data points suitable for site permitting calculations

⁷ For NG, NMHC is reported in place of VOC for this report

For additional questions contact:
Power Solutions International, Inc.
1455 Michael Drive – Wood Dale, IL 60191
630.350.9400 (M) – 630.350.9900 (F)
www.kohlerpower.com info@kpe.com

Model: **200REZXB**

KOHLER POWER SYSTEMS

208-600 V

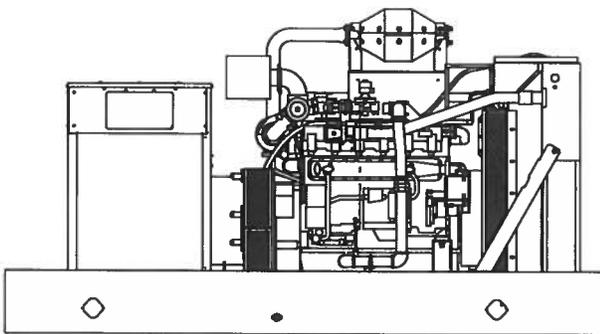
Gas



EPA-Certified for Stationary and Mobile Emergency and Non-Emergency Applications

Ratings Range

		60 Hz	
Standby:	kW	130-200	
	kVA	163-250	
Prime:	kW	174-176	
	kVA	218-220	



Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all systems and components. Two- and five-year extended warranties are also available.
- Alternator features:
 - The unique Fast-Response™ II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
 - The brushless, rotating-field alternator has broadrange reconnectability.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	Rich-Burn Natural Gas				Rich-Burn LP Gas (Vapor)	
				130°C Rise		105°C Rise		130°C Rise	
				Standby Rating	Prime Rating	Standby Rating	Prime Rating	Standby Rating	Prime Rating
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
4UA10	120/208	3	60	200/250	694	174/218	604	130/163	451
	127/220	3	60	200/250	656	175/219	574	130/163	426
	120/240	3	60	200/250	601	174/218	523	130/163	391
	139/240	3	60	200/250	601	176/220	529	130/163	391
	220/380	3	60	200/250	380	174/218	330	130/163	247
	240/416	3	60	200/250	347	174/218	302	130/163	226
	277/480	3	60	200/250	301	176/220	265	130/163	195
	347/600	3	60	200/250	241	176/220	212	130/163	156
4UA13	120/208	3	60	200/250	694	176/220	611	130/163	451
	127/220	3	60	200/250	656	176/220	577	130/163	426
	120/240	3	60	200/250	601	176/220	529	130/163	391
	139/240	3	60	200/250	601	175/219	526	130/163	391
	220/380	3	60	200/250	380	176/220	334	130/163	247
	240/416	3	60	200/250	347	176/220	305	130/163	226
	277/480	3	60	200/250	301	175/219	263	130/163	195
	347/600	3	60	200/250	241	175/219	210	130/163	156

RATINGS: All three-phase units are rated at 0.8 power factor. **Standby Ratings:** The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. **Prime Power Ratings:** At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3048-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. For dual fuel engines, use the LP gas ratings for both the primary and secondary fuels.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V	4UA10
480 V	4UA13
	790 (60Hz)
	990 (60Hz)

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	
Manufacturer	Doosan
Engine model	D111TIC
Engine type	11.1 L, 4-Cycle, Turbocharged, Aftercooled
Cylinder arrangement	6, Inline
Displacement, L (cu. in.)	11.05 (674)
Bore and stroke, mm (in.)	123 x 155 (4.84 x 6.10)
Compression ratio	10.5:1
Piston speed, m/min. (ft./min.)	558 (1831)
Main bearings: quantity, type	7, Precision Half-Shell
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	225 (302)
Cylinder head material	Cast Iron
Piston: type, material	—
Crankshaft material	Forged Steel
Valve material	—
Governor: type	Electronic
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.5%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Wet
Exhaust flow at rated kW, kg/hr. (cfm)	850 (1211)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	600 (1112)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3)
Engine exhaust outlet size, mm (in.)	Flanged Outlet at Catalyst, see ADV drawing

Engine Electrical

Engine Electrical System		
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		24
Ampere rating		45
Starter motor rated voltage (DC)		24
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating each		Two, 1000
Battery voltage (DC)		12

Fuel

Fuel System - Rich Burn		
Fuel type		Natural Gas, LP Gas, or Dual Fuel
Fuel supply line inlet		2.0 NPTF
Natural gas fuel supply pressure, kPa (in. H ₂ O)		1.74-2.74 (7.0-11.0)
LPG vapor withdrawal fuel supply pressure, kPa (in. H ₂ O)		1.24-2.74 (5.0-11.0)
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H ₂ O)		1.24 (5.0)
Fuel supply pressure, measured at the generator set fuel inlet downstream of any fuel system equipment accessories.		

Fuel Composition Limits *	Nat. Gas	LP Gas
Methane, % by volume	90 min.	—
Ethane, % by volume	4.0 max.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume	0.1 max.	5.0 max.
C ₄ and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass		25 max.
Lower heating value, MJ/m ³ (Btu/ft ³), min.	33.2 (890)	84.2 (2260)

* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

Application Data

Lubrication

Lubricating System

Type	Full Pressure
Oil pan capacity, L (qt.)	25 (26.4)
Oil pan capacity with filter, L (qt.)	27 (28.8)
Oil filter: quantity, type	1, Cartridge
Oil cooler	Water-Cooled

Cooling

Radiator System

Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	21 (5.5)
Radiator system capacity, including engine, L (gal.)	116 (30.6)
Engine jacket water flow, Lpm (gpm)	284 (75)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	142.3 (8100)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	26.3 (1500)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	965 (38)
Fan, kWm (HP)	13.4 (18)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

* Weather and sound enclosures with internal silencer reduce ambient temperature capability by 5°C (9°F).

Operation Requirements

Air Requirements

Radiator-cooled cooling air, m ³ /min. (scfm) †	510 (18000)
Combustion air, kg/hr. (cfm)	800 (390)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	60.3 (3430)
Alternator, kW (Btu/min.)	16.0 (910)

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption‡

Natural Gas, m ³ /hr. (cfh) at % load	Standby Rating
100%	59.9 (2115)
75%	46.7 (1649)
50%	32.8 (1158)
25%	20.0 (706)

Natural Gas, m ³ /hr. (cfh) at % load	Prime Rating
100%	53.6 (1893)
75%	41.7 (1473)
50%	29.7 (1049)
25%	17.6 (622)

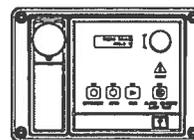
LP Gas, m ³ /hr. (cfh) at % load	Standby Rating
100%	19.9 (703)
75%	17.0 (600)
50%	11.5 (406)
25%	7.2 (254)

‡ Nominal fuel rating: Natural gas, 37 MJ/m³ (1000 Btu/ft.³)
LP vapor, 93 MJ/m³ (2500 Btu/ft.³)

LP vapor conversion factors:

8.58 ft.³ = 1 lb.
0.535 m³ = 1 kg.
36.39 ft.³ = 1 gal.

Controllers

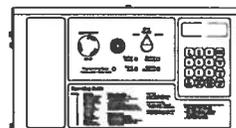


Decision-Maker® 3000 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-100 for additional controller features and accessories.

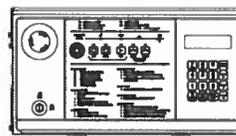


Decision-Maker® 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-46 for additional controller features and accessories.



Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Closed Crankcase Ventilation
- Integral Vibration Isolation
- Local Emergency Stop Switch
- Low Coolant Level Shutdown
- Oil Drain Extension
- Operation and Installation Literature
- Three-Way Exhaust Catalyst

Available Options

Approvals and Listings

- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing

Enclosed Unit

- Sound Enclosure with Internal Silencer (Aluminum)
- Sound Enclosure with Internal Silencer (Steel)
- Weather Enclosure with Internal Silencer (Steel)

Open Unit

- Exhaust Silencer, Critical (kit: PA-324470)
- Flexible Exhaust Connector, Stainless Steel

Fuel System

- Dual Fuel NG/LPG (Automatic Changeover)
- Flexible Fuel Lines
(required when the generator set skid is spring mounted)
- Gas Filter
- Secondary Gas Solenoid Valve

Controller

- Common Failure Relay
- Communications Products and PC Software
- Customer Connection (Decision-Maker® 550 controller only)
- Decision-Maker® Paralleling System (DPS)
(Decision-Maker® 6000 controller only)
- Dry Contact Kit (isolated alarm)
(Decision-Maker® 550 and 6000 controllers only)
- Input/Output Module (Decision-Maker® 3000 controller only)
- Prime Power Switch (Decision-Maker® 550 and 6000 only)
- Remote Audiovisual Alarm Panel
(Decision-Maker® 550 and 6000 controllers only)
- Remote Emergency Stop
- Remote Serial Annunciator Panel
- Run Relay

Cooling System

- Block Heater, 2500 W, 90-120 V, 1 Ph
- Block Heater, 2500 W, 190-208 V, 1 Ph
- Block Heater, 2500 W, 210-240 V, 1 Ph
- Block Heater, 2500 W, 380-480 V, 1 Ph
(recommended for ambient temperatures below 10°C [50°F])
- Radiator Duct Flange

Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

Miscellaneous

- Air Cleaner Restriction Indicator
- Certified Test Report
- Engine Fluids Added
- Rated Power Factor Testing
- Rodent Guards

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty

- 2-Year Basic
- 2-Year Prime
- 5-Year Basic
- 5-Year Comprehensive

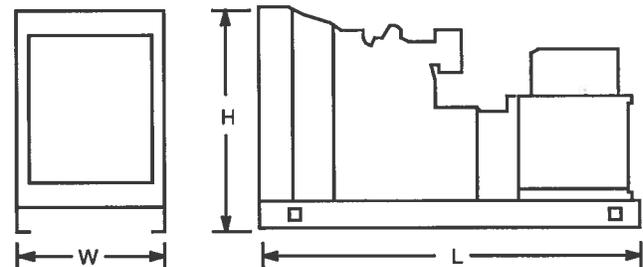
Other Options

- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, max., mm (in.): 3575 x 1350 x 1908
 (140.7 x 53.1 x 75.1)

Weight (radiator model), wet, max., kg (lb.): 2722 (6000)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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