EXCO Resources (PA), LLC
260 Executive Drive, Suite 100 • Cranberry Township, PA 16066
Phone (724) 720-2500 • Fax (724) 720-2505

VIA OVERNIGHT MAIL

August 21, 2015

Mr. William F. Durham, Director
West Virginia Department of Environmental Protection
Division of Air Quality 601 57th Street, SE
Charleston, West Virginia, 25304

RE: Request for Class I Administrative Update to Existing G35-A Permit
Green Hills Compressor Station
EXCO Resources (PA), LLC

Dear Director Durham:

EXCO Resources (PA), LLC is pleased to submit this written request for a Class I Administrative Update to an existing G35-A Permit for the Green Hills Compressor Station located near Ravenswood, in Jackson County, West Virginia. The Green Hills Compressor Station currently operates under permit number G35-A008A, issued on November 29, 2012. An original hard copy and two electronic copies of the written request are included with this submission.

EXCO Resources (PA), LLC submits this Class I Administrative Update to correct a typographical error with emission Unit ID CE-1. The compressor engine is currently permitted as subject to the standards of 40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. The determination of applicability for CE-1 was based upon a typographical error of an incorrect engine manufacture date. Emission Unit CE-1 is a 670 bhp Caterpillar G3508LE four stroke lean burn compressor engine that was manufactured in March of 2007 and constructed/installed in August of 2011.

The New Source Performance Standards (NSPS) for spark ignition reciprocating internal combustion engines (RICE) are codified in 40 CFR 60 Subpart JJJJ. Four stroke lean burn engines that were manufactured after January 1, 2008 are subject to the standards of this Rule. With a manufacturer date of March 2007, CE-1 does not qualify as a new source that would be subject to 40 CFR 60 Subpart JJJJ.

The National Emission Standards for Hazardous Air Pollutants (NESHAP) for RICE engines are codified in 40 CFR 63 Subpart ZZZZ. NESHAP ZZZZ classifies engines as "new" and "existing" engines. Under this Rule, engines that were manufactured or modified/reconstructed prior to June 6, 2012 qualify as existing engines. Engines constructed or modified/reconstructed after this date qualify as new stationary engines. New stationary engines comply with the requirements of the NESHAP Rule by complying with the requirements of the applicable NSPS Rule (40 CFR §63.6590(c)). Emission unit CE-1 qualifies as a new stationary RICE under 40 CFR 63 ZZZZ, since it was manufactured after June 6, 2012 and has not been modified or reconstructed.

In an October 19, 2010 memo from Melanie King of the USEPA Office of Air Quality Planning and Standards Energy Strategies Group, Ms. King states that there are some engines that fall into a window where they would not have any requirements under either 40CFR60 Subpart JJJJ or 40CFR63 Subpart ZZZZ. CE-1 qualifies as one of these engines, since it qualifies as a new engine under the NESHAP Rule but does not meet the applicability criteria for the NSPS Rule.

EXCO Resources (PA), LLC requests that the requirements of 40 CFR 60 Subpart JJJJ be removed from the current permit with the submittal of this Class I Administrative Update.

No other updates are requested with the submittal. To aid the WVDEP, Division of Air Quality, information is being included with this submittal to provide verification of the engine manufacture date.

If you have any questions about the information submitted or if you would like to discuss this project, please contact me at (724) 720 - 2550.

Sincerely,

G. Shawn Meenihan
Senior Water and Air Quality Specialist

cc: Grant Morgan, ERM – Grant.morgan@erm.com
file

Enclosures

EXCO Resources (PA), LLC

G35-A General Permit
Request for Class I Administrative Update
Green Hills Compressor Station
G35-A008A

Ravenswood, West Virginia

Prepared By:

ENVIRONMENTAL RESOURCES MANAGEMENT, Inc.
Hurricane, West Virginia

August 2015

NATURAL GAS COMPRESSOR/GENERATOR ENGINE DATA SHEET

Source Identification Number[1]		CE-1					
Engine Manufacturer and Model		Caterpillar G3508 LE					
Manufacturer's Rated bhp/rpm		670 HP @ 1400 RPM					
Source Status[2]		NS					
Date Installed/Modified/Removed[3]		09/13/2011					
Engine Manufactured/Reconstruction Date[4]		03/07					
Is this a Certified Stationary Spark Ignition Engine according to 40CFR60 Subpart JJJJ? (Yes or No)[5]		Yes					
Engine, Fuel and Combustion Data	Engine Type[6]	LB4S					
	APCD Type[7]	A/F - LEC					
	Fuel Type[8]	RG					
	H_2S (gr/100 scf)	0.25					
	Operating bhp/rpm	670 HP @ 1400 RPM					
	BSFC (Btu/bhp-hr)	7,510					
	Fuel throughput (ft^3/hr)	4,931					
	Fuel throughput ($MMft^3$/yr)	43.2					
	Operation (hrs/yr)	8,760					
Reference[9]	Potential Emissions[10]	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
MD	NO_X	2.95	12.92				
MD	CO	2.72	11.91				
MD	VOC	0.44	1.93				
AP-42	SO_2	0.003	0.013				
AP-42	PM_{10}	0.00004	0.002				
MD	Formaldehyde	0.27	1.18				
AP-42	Benzene	0.002	0.009				
AP-42	Ethylbenzene	0.0002	0.0009				
AP-42	n-Hexane	0.006	0.03				
AP-42	Toluene	0.002	0.009				
AP-42	Xylene	0.0009	0.004				

1. 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.

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 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.

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

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

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

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

8. Enter the Fuel Type using the following codes:

   PQ Pipeline Quality Natural Gas
   RG Raw Natural Gas

9. 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
   GR GRI-HAPCalc™
   AP AP-42
   OT Other _____

(please list)

10. 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*.

From: Chris Magee [mailto:CMagee@usacompression.com]
Sent: Monday, August 03, 2015 10:07 AM
To: Shawn Meenihan
Cc: Barry Brock; David Reed
Subject: RE: EXCO - Green Hills Compressor Station - Maintenance Records

Shawn,

Attached are the service reports for the requested date range. The engine manufacture date for this engine (serial number WPN00170) is: 3-7-2007.
If there is anything else let me know.

Best Regards,

Chris Magee
Emissions Compliance, N.E. Region
USA Compression
21722 Route 6, LL East
Warren, PA 16365
814-746-6942– mobile
814-723-2431 – fax
cmagee@usacompression.com

From: Shawn Meenihan <smeenihan@EXCOResources.com>
Date: July 30, 2015 at 5:46:35 PM EDT
To: "jkirk@usacompression.com" <jkirk@usacompression.com>
Subject: Re: EXCO - Green Hills Compressor Station - Maintenance Records

Jeff,

Can you as well provide me the manufacture date of the engine. I have it as March 2007, please confirm.

Thanks

Shawn

USA COMPRESSION

Emissions Report

08/21/2015

USA Compression Unit 1825 G3508TALE/JGE2

Engine Serial Number :	WPN00170	Engine Manufactured Date :	03/07/2007
Max HP :	630	Max RPM :	1400
Number of Engine Cylinders :	8	Total Displacement (in3) :	2105
Combustion Type & Setting :	4 Stroke Lean Burn	Fuel Delivery Method:	Carburetor
Compression Ratio :	8:1	Combustion Air Treatment :	Turbocharged and Aftercooled
Engine Modified/Reconstructed? :	Not Applicable - reconstruction last reviewed 12/7/12		
Compressor Frame Serial # :	F26267 ELP	Unit Packaged Date :	04/11/2007
Compressor Frame Max RPM :	1400	# of Compressor Throws :	2

AIR ENVIRONMENTAL REGULATIONS

County and State Selected for Quote: Jackson WV

NSPS JJJJ	NOx	g/hp-hr	CO	g/hp-hr	VOC	g/hp-hr		
Ozone Non-Attainment / General Permit	NOx	g/hp-hr	CO	g/hp-hr	VOC	g/hp-hr	CH2O	g/hp-hr

RAW ENGINE EMISSIONS

(based on assumption of burning 900-970 LHV BTU/SCF or 80-85 Fuel Methane # Fuel Gas with little to no H2S)

Fuel Consumption : 8,533 HHV BTU/bhp-hr

	g/bhp-hr	lb/MMBTU	lb/hr	TPY
Nitrogen Oxides (NOx) :	2.00		2.778	12.168
Carbon Monoxide (CO) :	1.60		2.222	9.732
Volatile Organic Compounds (NMNEHC excluding CH2O) :	0.28		0.389	1.704
Formaldehyde (CH2O) :	0.25		0.347	1.520
Particulate Matter (PM) Filterable+Condensable :		0.0100	0.054	0.235
Sulfur Dioxide (SO2) :		0.0006	0.003	0.014

	g/bhp-hr	lb/MMBTU	lb/hr	Metric Tonne/yr
Carbon Dioxide (CO2) :	500.00		694.44	2,758.88
Methane (CH4) :	2.35		3.26	12.97

CONTROLLED EMISSIONS

Catalytic Converter Make and Model:	IQ-22-10
Catalyst Element Type:	Oxidation
Number of Catalyst Elements currently in Housing:	0
Air/Fuel Ratio Control :	No
Other Engine Emissions Control Equipment :	None

	% Reduction Required to Comply with JJJJ & Non-Attainment / General Permit Limits	lb/hr	TPY
Nitrogen Oxides (NOx) :	0	2.778	12.168
Carbon Monoxide (CO) :	0	2.222	9.732
Volatile Organic Compounds (NMNEHC excluding CH2O) :	0	0.389	1.704
Formaldehyde (CH2O) :	0	0.347	1.520
Particulate Matter (PM) Filterable+Condensable :	0	0.054	0.235
Sulfur Dioxide (SO2) :	0	0.003	0.014

	% Reduction Required to Comply with JJJJ & Non-Attainment / General Permit Limits	lb/hr	Metric Tonne/yr
Carbon Dioxide (CO2) :	0	694.44	2,758.88
Methane (CH4) :	0	3.26	12.97

1) g/bhp-hr are based on Engine Manufacturer Specifications assuming a "Pipeline Quality" fuel gas composition, 1200 ft elevation, and 100- 110 F Max Air Inlet. Note that g/bhp-hr values are based on 100% engine load operation and some g/hp-hr values are Nominal and are not representative of Not- To-Exceed values. It is recommended to apply safety factor (i.e. increase the value by a nominal percentage) to the g/hp-hr values for Air Permitting to allow for operational flexibility and variations in fuel gas composition .

2) lb/MMBTU emission Factors are based on EPA's AP-42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combution Sources (Section 3.2 Natural Gas-Fired Reciprocating Engines).