

December 22, 2015

BY: U.S. CERTIFIED MAIL, RETURN RECEIPT REQUESTED

9590 9403 0977 5223 8996 91

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

RE: Dominion Transmission, Inc. – Pepper Compressor Station

R13 Class I Administrative Update and

Title V Administrative Amendment Application

Dear Mr. Durham:

Pursuant to Condition 2.7 of Permit R13-2866A, Dominion Transmission, Inc. (Dominion) is submitting the attached R13 and Title V Application. Enclosed are one complete original and two (2) CD copies of a R13 application to amend the dehydration unit reboiler rated capacity at Dominion's Pepper Compressor Station in Barbour County, West Virginia.

In the R13 and TV permit modification application dated November 5, 2010, Dominion provided approximate nominal vendor design rated capacity for the reboiler (RBV1). The 2010 application included the following approximate design capacities for RBV1: 0.994 MMBtu/hr (Attachment L and N), 0.996 MMBtu/hr (Attachment G), and 1.0 MMBtu/hr (Attachment I). The design capacity listed in the issued R13 and Title V Permits is the nominal 1.0 MMBtu/Hr. Dominion would like to amend the permitted rated capacity to match the nameplate maximum rated capacity of 1.155 MMBtu/hr.

Although the maximum rated capacity is increasing, the emissions from the reboiler (RBV1) will remain the same as presented in the 2010 R13 Permit application and required by the current R13 and Title V Permits. The estimated potential emissions have not increased because the potential emissions were based of the vendor maximum fuel consumption of 1,563 cf/hr, which has not changed.

If you require additional information, please contact Rebekah Remick at (804) 273-3536 or via email at Rebekah.J.Remick@dom.com.

Sincerely,

Amanda Tornabene

Director, Gas Environmental Services

Enclosures

R13 Class I Administrative Update Application

DOMINION TRANSMISSION, INC. PEPPER COMPRESSOR STATION

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• RBV1 – Glycol Dehydrator Reboiler Vent

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**Note – There are no Attachments C, H, K, M, O, P, Q, and R for this permit application

WEST VIRGINIA DEPARTMENT OF **ENVIRONMENTAL PROTECTION**

APPLICATION FOR NSR PERMIT

601 57th Street, SE Charleston, WV 25304 (304) 926-0475 www.dep.wv.gov/dag	Y	AND TITLE V PERMIT REVISION (OPTIONAL)					
PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KI CONSTRUCTION MODIFICATION RELOCATION TEMPORARY CLASS II ADMINISTRATIVE UPDATE AFTER-THE-I	N / FACT	PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY): ADMINISTRATIVE AMENDMENT MINOR MODIFICATION SIGNIFICANT MODIFICATION IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION					
FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.							
Sec	ction I.	General					
 Name of applicant (as registered with the WV Secreta Dominion Transmission, Inc. 	ary of Stat	te's Office):	2. Federal E	Employer ID No. <i>(FE</i> 550629203	EIN):		
3. Name of facility (if different from above): Pepper Compressor Station			4. The applicant is the: ☐ OWNER ☐ OPERATOR ☒ BOTH				
A. Applicant's mailing address: 925 White Oaks Blvd. Bridgeport, WV 26330 5B. Facility's present physical address: County Route 7 Philippi, WV 26416							
6. West Virginia Business Registration. Is the applican If YES, provide a copy of the Certificate of Incorpor change amendments or other Business Registration If NO, provide a copy of the Certificate of Authority amendments or other Business Certificate as Attach	ration/Org Certificate //Authorit	ganization/Limit e as Attachment	ted Partnersh t A.	hip (one page) inclu			
7. If applicant is a subsidiary corporation, please provide	the name	of parent corpo	ration: Domir	nion Resources Inc.			
 8. Does the applicant own, lease, have an option to buy of the control o		ise have control (of the <i>propose</i>	ed site? 🛚 YES	□NO		
 Type of plant or facility (stationary source) to be consadministratively updated or temporarily permitted crusher, etc.): Natural gas compressor station 				10. North America Classification 3 (NAICS) code 486210			
11A. DAQ Plant ID No. (for existing facilities only): 001-00100	ass R:		process (for	CSR30 (Title V) pern existing facilities on			
All of the required forms and additional information can be	found und	der the Permitting	Section of DA	Q's website, or requ	ested by phone.		

12A.		
 For Modifications, Administrative Updates or 	Temporary permits at an existing facility.	please provide directions to the
present location of the facility from the nearest s	tate road;	
 For Construction or Relocation permits, pleas road. Include a MAP as Attachment B. 	e provide directions to the proposed new s	site location from the nearest state
Interstate 79 North to the Nutterfork exit. Tu turn left onto Stewarts Run (CR18). Stay on Brushy Fork for 1 mile, station will be on righ	Stewarts Run until turning left onto Brushy	
12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
	Philippi	Barbour
12.E. UTM Northing (KM): 4337.79	12F. UTM Easting (KM): 574.20	12G. UTM Zone: 17
Briefly describe the proposed change(s) at the far Revising Glycol Dehydrator Reboiler Vent (RBV1)	-	capacity of 1.155 MMBtu/hr.
 14A. Provide the date of anticipated installation or ch If this is an After-The-Fact permit application, prochange did happen: / / 		14B. Date of anticipated Start-Up if a permit is granted: N/A
14C. Provide a Schedule of the planned Installation application as Attachment C (if more than one	•	units proposed in this permit
15. Provide maximum projected Operating Schedul Hours Per Day 24 Days Per Week 7		ation:
16. Is demolition or physical renovation at an existing	facility involved?	
17. Risk Management Plans. If this facility is subject		
changes (for applicability help see www.epa.gov/cd	· · · · · · · · · · · · · · · · · · ·	
		• •
proposed process (if known). A list of possible app (Title V Permit Revision Information). Discuss appl	•	
information as Attachment D.	icability and proposed demonstration(s) or	compliance (ii known). Provide this
	ottoobmonts and supporting d	ooumonto
	attachments and supporting d	
 Include a check payable to WVDEP – Division of A 45CSR13). 	Air Quality with the appropriate application	1 fee (per 45CSR22 and
20. Include a Table of Contents as the first page of	your application package.	
21. Provide a Plot Plan , e.g. scaled map(s) and/or sl source(s) is or is to be located as Attachment E		erty on which the stationary
 Indicate the location of the nearest occupied struct 	ure (e.g. church, school, business, residen	ce).
22. Provide a Detailed Process Flow Diagram(s) she device as Attachment F.	nowing each proposed or modified emissio	ns unit, emission point and control
23. Provide a Process Description as Attachment	G.	
 Also describe and quantify to the extent possib 	le all changes made to the facility since the	e last permit review (if applicable).
All of the required forms and additional information can	be found under the Permitting Section of DA	AQ's website, or requested by phone.
24. Provide Material Safety Data Sheets (MSDS) fo	r all materials processed, used or produce	d as Attachment H.

For chemical processes, provide a MSDS for each compound emitted to the air.

25.	Fill out the Emission Units Table and	provide it as Attachment I.	
26.	Fill out the Emission Points Data Sur	nmary Sheet (Table 1 and Tabl	e 2) and provide it as Attachment J.
27.	Fill out the Fugitive Emissions Data S	Summary Sheet and provide it a	s Attachment K.
28.	Check all applicable Emissions Unit I	Data Sheets listed below:	
	Bulk Liquid Transfer Operations	☐ Haul Road Emissions	☐ Quarry
	Chemical Processes	☐ Hot Mix Asphalt Plant	Solid Materials Sizing, Handling and Storage
	Concrete Batch Plant	☐ Incinerator	Facilities
	Grey Iron and Steel Foundry		☐ Storage Tanks
	General Emission Unit, specify		
Fill	out and provide the Emissions Unit Da	ita Sheet(s) as Attachment L.	
29.	Check all applicable Air Pollution Cor	ntrol Device Sheets listed below	:
	Absorption Systems	Baghouse	☐ Flare
	Adsorption Systems	☐ Condenser	
	Afterburner	☐ Electrostatic Precipitato	wr Wet Collecting System
	Other Collectors, specify		
Fill	out and provide the Air Pollution Cont	rol Device Sheet(s) as Attachm	ent M.
30.	Provide all Supporting Emissions Ca Items 28 through 31.	l culations as Attachment N, or	attach the calculations directly to the forms listed in
31.		ompliance with the proposed em	proposed monitoring, recordkeeping, reporting and issions limits and operating parameters in this permit
>		not be able to accept all measur	er or not the applicant chooses to propose such es proposed by the applicant. If none of these plans e them in the permit.
32.	Public Notice. At the time that the ap	pplication is submitted, place a Cl	ass I Legal Advertisement in a newspaper of general
	circulation in the area where the source	e is or will be located (See 45CS	R§13-8.3 through 45CSR§13-8.5 and <i>Example Legal</i>
	Advertisement for details). Please su	bmit the Affidavit of Publication	n as Attachment P immediately upon receipt.
33.	Business Confidentiality Claims. Do	oes this application include confid	lential information (per 45CSR31)?
	☐ YES	⊠ NO	
>		g the criteria under 45CSR§31-4.	itted as confidential and provide justification for each 1, and in accordance with the DAQ's "Precautionary structions as Attachment Q.
	Sec	tion III. Certification of	f Information
34.	Authority/Delegation of Authority. Check applicable Authority Form belo		er than the responsible official signs the application.
	Authority of Corporation or Other Busine	ess Entity	authority of Partnership
	Authority of Governmental Agency	_	authority of Limited Partnership
	omit completed and signed Authority Fo		
	· · · · · · · · · · · · · · · · · · ·		rmitting Section of DAQ's website, or requested by phone.
7111	or are required forms and additional lines		mining couldn't bree a mobalic, or requested by phone.

35A. Certification of Information. To certify 2.28) or Authorized Representative shall check	this permit applica	ation, a Responsible Offici	al (per 45CSR§13-2.22 and 45CSR§30-				
Certification of Truth, Accuracy, and Completeness							
I, the undersigned Responsible Official / [application and any supporting documents appreasonable inquiry I further agree to assume restationary source described herein in accordar Environmental Protection, Division of Air Quality and regulations of the West Virginia Division of business or agency changes its Responsible Conotified in writing within 30 days of the official of	Authorized Reponded hereto, is to esponsibility for the nee with this applicity permit issued in a fair Quality and Wofficial or Authorized	true, accurate, and comple e construction, modificatio cation and any amendmen n accordance with this app V.Va. Code § 22-5-1 et sec	ete based on information and belief after n and/or relocation and operation of the ts thereto, as well as the Department of lication, along with all applicable rules q. (State Air Pollution Control Act). If the				
Compliance Certification							
Except for requirements identified in the Title V that, based on information and belief formed at compliance with all applicable requirements.	' Application for whater reasonable inc	hich compliance is not act quiry, all air contaminant s	nieved, I, the undersigned hereby certify ources identified in this application are in				
SIGNATURE 13		D.	ATE: <u>12-11-15</u>				
(Please	use blue ink)	Í	(Please use blue ink)				
35B. Printed name of signee: Brian Sheppard			35C. Title: Vice President, Pipeline Operations				
35D. E-mail: Brian.C.Sheppard@dom.com	36E. Phone: 681	1-842-3733	36F. FAX: 681-842-3323				
36A. Printed name of contact person (if differe	nt from above): R	ebekah Remick	36B. Title: Environmental Consultant				
36C. E-mail: Rebekah.J.Remick@dom.com	36D. Phone: 804	4-273-3536	36E. FAX: 804-273-2964				
PLEASE CHECK ALL APPLICABLE ATTACHMEN	TS INCLUDED WIT	H THIS PERMIT APPLICATION	ON:				
 △ Attachment A: Business Certificate △ Attachment B: Map(s) △ Attachment C: Installation and Start Up Sche △ Attachment D: Regulatory Discussion △ Attachment E: Plot Plan △ Attachment F: Detailed Process Flow Diagrar △ Attachment G: Process Description △ Attachment H: Material Safety Data Sheets (Note Attachment I: Emission Units Table △ Attachment J: Emission Points Data Summar Please mail an original and three (3) copies of the address listed on the first 	dule	Attachment L: Emissions Attachment M: Air Pollution Attachment N: Supporting Attachment O: Monitoring Attachment P: Public Noti Attachment Q: Business Of Attachment R: Authority of Attachment S: Title V Peri	on Control Device Sheet(s) g Emissions Calculations g/Recordkeeping/Reporting/Testing Plans ice Confidential Claims Forms mit Revision Information ure(s) to the DAQ, Permitting Section, at the				
FOR AGENCY USE ONLY – IF THIS IS A TITLE V Forward 1 copy of the application to the Title For Title V Administrative Amendments: NSR permit writer should notify Title V For Title V Minor Modifications: NSR permit writer should send applications processes NSR permit writer should notify Title V For Title V Significant Modifications processes NSR permit writer should notify a Title V Public notice should reference both 4 EPA has 45 day review period of a drawn of the required forms and additional informations.	e V Permitting Group V permit writer of diversite notification V permit writer of diversite to the land of the lan	Iraft permit, n to EPA and affected states Iraft permit. NSR Permit revision: f draft permit, I permits,					
All of the required forms and additional informat	ion can be found u	inder the Permitting Section	of DAQ's website, or requested by priorie.				

Attachment A

Current Business Certificate

WEST VIRGINIA STATE TAX DEPARTMENT BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:

DOMINION TRANSMISSION INC

445 W MAIN ST

CLARKSBURG, WV 26301-2843

BUSINESS REGISTRATION ACCOUNT NUMBER:

1038-3470

This certificate is issued on:

06/8/2011

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 injustible 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.

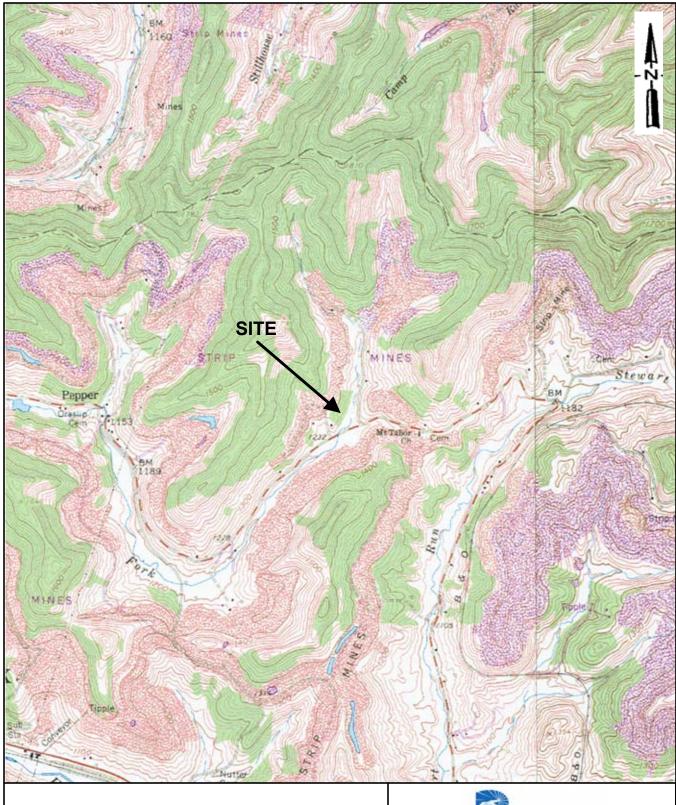
Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

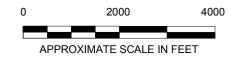
TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them. CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.4 L0228957312

Attachment B

Map







BASE MAP SOURCE: Browton, WV (1961, Photorevised 1976) 7.5 Minute Series Topographic Map.



FIGURE 1
SITE LOCATION MAP
PEPPER COMPRESSOR STATION
BARBOUR COUNTY, WEST VIRGINIA



Attachment D

Regulatory Discussion

REGULATORY DISCUSSION

This section provides an air quality regulatory review of the proposed Class I Administrative Update to Pepper Compressor Station. To determine the regulations of concern, a regulatory applicability analysis has been conducted. Regulations that require an applicability determination include:

- Classification of Ambient Air Quality (40 CFR 81)
- Prevention of Significant Deterioration (PSD) Regulations (40 CFR 52.21)
- Non-Attainment New Source Review (NSR) Regulations (40 CFR 52.24)
- West Virginia Minor Source Permitting (WV Regulation 13)
- New Source Performance Standards (40 CFR 60)
- National Emissions Standards for Hazardous Air Pollutants (40 CFR 63)

Classification of Air Quality

Pepper Compressor Station is located on a property on County Route 7, Philippi, in Barbour County, West Virginia. The area is classified as attainment with respect to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

Prevention of Significant Deterioration (PSD)

The WVDEP is delegated the authority to implement federal air quality requirements. West Virginia's PSD regulations are found in 45 CSR 14. The PSD program is a new source review process used to ensure that a new source will not cause a significant deterioration of local ambient air quality. PSD applies only to "major" new sources or "major" modifications to an existing source located in attainment areas. A "major" stationary source is defined as one of the 28 source categories identified in 40 CFR 52.21, which has a potential to emit of 100 tons or more per year of any regulated pollutant, OR any other stationary source which has the potential to emit 250 tons or more per year of a regulated pollutant. Pepper Compressor Station is not one of the 28 categories identified in 40 CFR 52.21 and has potential emissions below 250 tons per year of all regulated pollutants. Therefore, is not classified as a major source and the PSD regulations do not apply.

Non-Attainment New Source Review

As identified above, Barbour County, West Virginia, is currently classified as attainment with respect to the NAAOS for all criteria pollutants. Therefore, the nonattainment regulations are not applicable.

West Virginia Minor Source Permitting (R13)

The requirement for new or modified sources to make application to the WVDEP is provided in 45 CSR 13 (Permits for Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants) – Regulation 13. Regulation 13 is applicable to new sources or modifications that result in an emissions increase of:

- 6 lbs/hr and 10 tons/yr of any regulated pollutant, or
- 144 lbs/day of any regulated pollutant, OR
- 2 lbs/hr or 5 tons/yr of HAPs

The correction of the glycol dehydrator reboiler design capacity is considered a Class I Administrative Update in accordance with R13 regulations since it is a correction of a typographical error as stated in 45-13-4.2.a.1. No emission changes are associated with this permit action as they are already accounted for in the Pepper Compressor Station R13 permit.

New Source Performance Standards (NSPS) Subpart Dc Small Industrial-Commercial-Institutional Steam Generating Units

40 CFR 60 Subpart Dc applies to steam generating units of various sizes, all greater than 10 MMBtu/hr. The glycol dehydrator reboiler is rated at 1.155 MMBtu/hr; therefore, the requirements of NSPS Subpart Dc does not apply.

National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart JJJJJJ Industrial, Commercial, and Institutional Boilers.

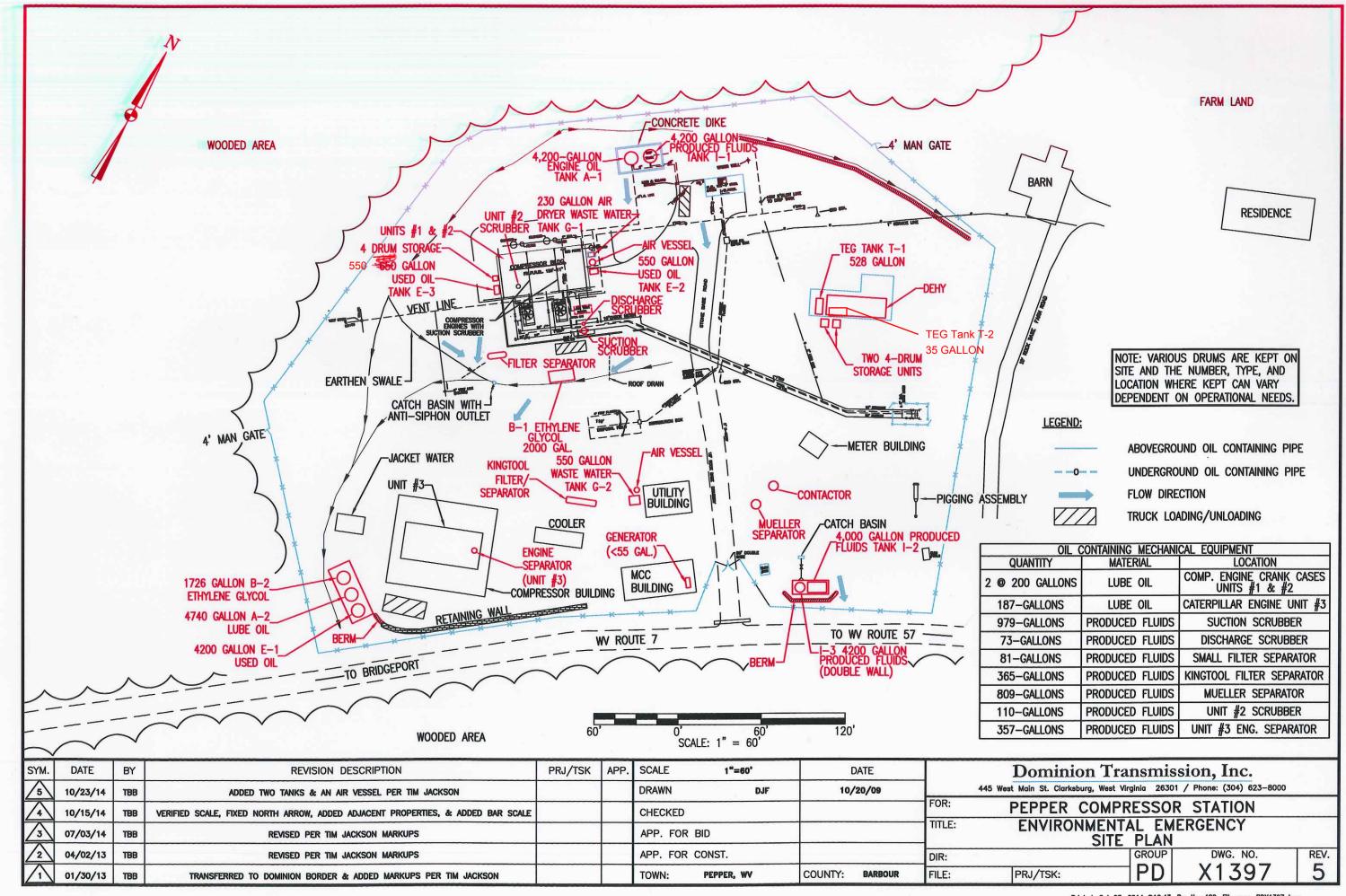
According to 40 C.F.R. §63.11195(e), a gas-fired boiler as defined in §63.11237 is not subject to this subpart and to any requirements of this subpart. The definition states that a "Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year." The gas-fired dehydration unit reboiler (RBR01) meets the definition of a "process heater" §63.11237. Only "boilers" are subject to this subpart §63.11193; therefore, the reboiler (RBR01) is not subject to this subpart.

<u>National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart DDDDD</u> *Industrial, Commercial, and Institutional Boilers and Process Heaters.*

This subpart does not apply to the facility because the facility is not a major source of HAPs.

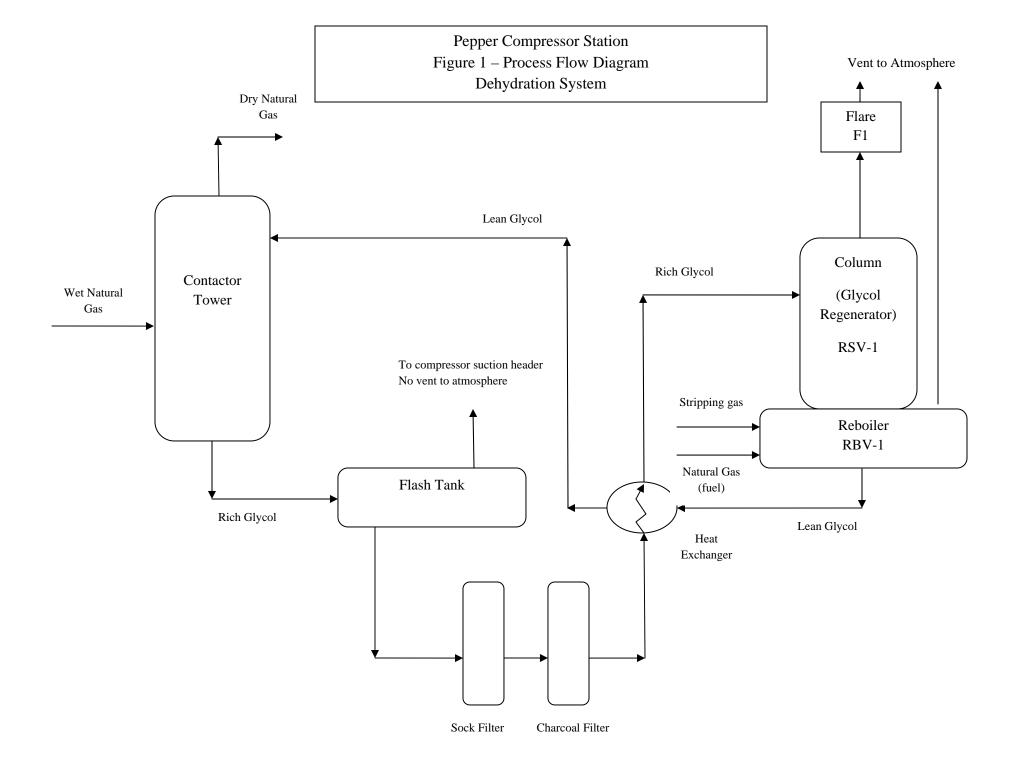
Attachment E

Plot Plan



Attachment F

Detailed Process Flow Diagram



Attachment G

Process Description

PROCESS DESCRIPTION

Pepper Compressor Station is a compressor facility that services a natural gas pipeline system. The compressor engines (EN01 - EN03) at the facility receive natural gas flowing through a valve on the pipeline and recompresses the natural gas in order to further transport the natural gas through the pipeline system. Prior to exiting the facility through the pipeline, the compressed natural gas is processed by the dehydration unit (RSV1). The dehydration unit removes moisture and impurities from the gas stream. Emergency backup power is supplied by emergency generator (EN05).

The dehydration process begins with the compressed natural gas entering the unit and then being passed through a triethylene glycol dehydration system consisting of a contactor bed, a reboiler (RBV1), and associated equipment. As a result of this process, the natural gas is stripped of moisture and impurities, along with a small amount of hydrocarbons. The wet gas enters the contactor where moisture and some hydrocarbons are absorbed into the lean glycol. The glycol, which has become rich with absorbed moisture and hydrocarbons, is regenerated in the still column (RSV1) using the heat generated from the natural gas-fired reboiler (RBV1) to liberate the moisture and hydrocarbon vapors. The regenerator vapors are vented to the enclosed flare (F1) to combust the hydrocarbons; thereby, reducing overall emissions and odor. The flare is permitted with a destruction efficiency of 98% for VOCs and volatile HAPs. The compressed, dehydrated gas then enters the pipeline.

Attachment I

Emissions Unit Table

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID ¹	Emission Point ID ²	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type ³ and Date of Change	Control Device ⁴
RBV1	RBV1	Glycol Dehydrator Reboiler Vent	2011	1.155 MMBTU/hr	Change: Revise Design Capacity	None

¹ For Emission Units (or \underline{S} ources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation. ² For \underline{E} mission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.

New, modification, removal For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Attachment J

Emission Points Data Summary Sheet

Attachment J EMISSION POINTS DATA SUMMARY SHEET

						Т	able 1	: Emissions Data	a						
Emission Point ID No. (Must match Emission Units Table-& Plot Plan)	Emission Point Type ¹	Thro	sion Unit Vented ugh This Point <i>Emission Units Table</i> & <i>Plot Plan)</i>	De (Musi Emission U	ion Control evice t match Jnits Table & Plan)	for Er U (che prod	t Time mission Init emical esses nly)	All Regulated Pollutants - Chemical Name/CAS ³ (Speciate VOCs & HAPS)	Maximum Uncon Emiss	trolled	Maximu Controlled	m Potential d Emissions ⁵	Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁶	Emission Concentration ⁷ (ppmv or mg/m ⁴)
		ID No.	Source	ID No.	Device Type	Short Term ²	Max (hr/yr)		lb/hr	ton/yr	lb/hr*	ton/yr*			
								PM Filterable	0.0030	0.0130	0.0030	0.0130	Solid	AP-42	
								PM-10 (Filterable)	0.0030	0.0130	0.0030	0.0130	Solid	AP-42	
								PM-2.5 (Filterable)	0.0030	0.0130	0.0030	0.0130	Solid	AP-42	
			Glycol Dehydrator					PM Condensable	0.0089	0.0390	0.0089	0.0390	Solid	AP-42	
RBV1	Vertical	RBV1	Reboiler Vent	-	-	-	-	SO2	0.0009	0.0041	0.0009	0.0041	Gas/Vapor	AP-42	
								NOx	0.2466	1.0800	0.2466	1.0800	Gas/Vapor	AP-42	
								CO	0.1507	0.6600	0.1507	0.6600	Gas/Vapor		
								VOC	0.1164	0.5100	0.1164	0.5100	Gas/Vapor	AP-42	
								Total HAP	0.0029	0.0129	0.0029	0.0129	Gas/Vapor	AP-42	

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

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

Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

⁵ Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m³) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO₂, use units of ppmv (See 45CSR10).

Attachment J **EMISSION POINTS DATA SUMMARY SHEET**

Table 2: Release Parameter Data									
Emission	Inner Exit Gas				Emission Point Ele	evation (ft)	UTM Coordinates (km)		
Point ID No. (Must match Emission Units Table)	Diameter (ft.)	Temp. (°F)	Volumetric Flow ¹ (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height ² (Release height of emissions above ground level)	Northing	Easting	
RBV1	1.33 ft	900 – 950 F	720 cfm	12 fps	1250 ft	18 ft	4337.79	574.2	

¹ Give at operating conditions. Include inerts. ² Release height of emissions above ground level.

Attachment L

Emissions Unit Data Sheet

Attachment L Emission Unit Data Sheet

(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form): RBV1

Equipment Information

1. Manufacturer: Enginerring Technology Inc (ETI)	2. Model No.
	Serial No.
3. Number of units: One	4. Use: Heat dry gas that will be used for the Glycol Dehydration Unit
5. Rated Boiler Horsepower: hp	6. Boiler Serial No.:
7. Date constructed: 2011	8. Date of last modification and explain: NA
9. Maximum design heat input per unit:	10. Peak heat input per unit:
1.155 ×10 ⁶ BTU/hr	×10 ⁶ BTU/hr
11. Steam produced at maximum design output:	12. Projected Operating Schedule:
NA LB/hr	Hours/Day 24
	Days/Week 7
psig	Weeks/Year 52
13. Type of firing equipment to be used: Pulverized coal Spreader stoker Oil burners Natural Gas Burner Others, specify	14. Proposed type of burners and orientation: Vertical Front Wall Opposed Tangential Others, specify
15. Type of draft: ☐ Forced ☐ Induced	16. Percent of ash retained in furnace: %
17. Will flyash be reinjected? Yes No	18. Percent of carbon in flyash: %
Stack or V	Vent Data
19. Inside diameter or dimensions: 1 1/3 ft.	20. Gas exit temperature: 900-950 °F
21. Height: 18 ft.	22. Stack serves: ☐ This equipment only
23. Gas flow rate: 720 ft ³ /min	 Other equipment also (submit type and rating of all other equipment exhausted through this
24. Estimated percent of moisture: %	stack or vent)

Fuel Requirements

25.	Туре	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:			
	Quantity (at Design Output)	gph@60°F	1562.5 ft ³ /hr	ft ³ /hr	TPH				
	Annually	×10³ gal	13.72 ×10 ⁶ ft ³ /hr	×10 ⁶ ft ³ /hr	tons				
	Sulfur	Maximum: wt. % Average: wt. %	Negligible gr/100 ft ³	gr/100 ft ³	Maximum: wt. %				
	Ash (%)		NA		Maximum				
	BTU Content	BTU/Gal. Lbs/Gal.@60°F	1,000 BTU/ft ³	BTU/ft ³	BTU/lb				
	Source	LDS/Gai.@00 1	Pipeline						
	Supplier		NA						
	Halogens (Yes/No)		No						
	List and Identify Metals		NA						
26.	Gas burner mode	☐ Aut	omatic hi-low	7. Gas burner mar					
29.	If fuel oil is used, h	now is it atomized?	Oil Pressure Compresse Other, spec	ed Air 🔲 Rotary Cu					
30.	Fuel oil preheated:	: Yes [⊠ No 3	1. If yes, indicate t	emperature:	°F			
32.	above actual cubic	feet (ACF) per uni	t of fuel:		e fuel or mixture o	of fuels described			
33	@ Emission rate at ra	°F,	PSIA, lb/hr	% m	oisture				
	33. Emission rate at rated capacity: lb/hr34. Percent excess air actually required for combustion of the fuel described: %								
54.	T CICCIII CACCSS all	actually required i	Coal Charac		70				
35.	Seams:								
36.	Proximate analysis	% of	Fixed Carbon: Moisture: Ash:		% of Sulfur: % of Volatile Matter	:			

Emissions Stream

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
СО	0.151			
Hydrocarbons				
NO _x	0.247			
Pb	Negligible			
PM ₁₀	0.003			
SO ₂	0.0009			
VOCs	0.116			
Other (specify)				
Pollutant	lb/hr	grain/ACF	@ °F	PSIA
СО	0.151			
CO Hydrocarbons	0.151			
	0.151			
Hydrocarbons				
Hydrocarbons NO _x	0.247			
Hydrocarbons NO _x Pb	0.247 Negligible			
Hydrocarbons NO _x Pb PM ₁₀	0.247 Negligible 0.003			
Hydrocarbons NO _x Pb PM ₁₀ SO ₂	0.247 Negligible 0.003 0.0009			
Hydrocarbons NO _x Pb PM ₁₀ SO ₂ VOCs	0.247 Negligible 0.003 0.0009			
Hydrocarbons NO _x Pb PM ₁₀ SO ₂ VOCs	0.247 Negligible 0.003 0.0009			
Hydrocarbons NO _x Pb PM ₁₀ SO ₂ VOCs Other (specify)	0.247 Negligible 0.003 0.0009	rol equipment be dis	posed of?	

42.	Proposed Monitoring, Recordkeeping, Reporting, and Testing Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits. MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this
	process equipment operation or air pollution control device. Refer to Regulatory Discussion in Attachment D for a description of all monitoring, testing, recordkeeping and reporting requirements.
	TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.
	Refer to Regulatory Discussion in Attachment D for a description of all monitoring, testing, recordkeeping and reporting requirements.
	RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.
	Refer to Regulatory Discussion in Attachment D for a description of all monitoring, testing, recordkeeping and reporting requirements.
	REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.
	Refer to Regulatory Discussion in Attachment D for a description of all monitoring, testing, recordkeeping and reporting requirements.
43.	Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
	Manufacturer's Data Sheet Attached.



ENGINEERING TECHNOLOGY INCORPORATED

5555 East 71st St., Suite 8100 Tulsa, Oklahoma 74136-6553 918-492-0508, Fax 918-488-9042 eti@engtechinc.com

DOMINION TRANSMISSION, INC.

Dominion Transmission, Inc.

445 West Main Street

Clarksburg, WV 26301

Attention: Mr. Randy Willett

Quotation No.:

DO081010

Date: Your Ref: Job Site: August 25, 2010 RFO #RW10-25

Pannan Station W

Pepper Station, Weston, WV Appalachian Gateway Project

Thank you for the opportunity to quote your equipment needs. Our base proposal includes an absorber constructed with bubble cap trays. The recon & contactor is designed with pneumatic controllers, an option is provided for an all electronic option with transmitters with I/P transducers, with all of the data going to the PLC. In addition, options are included for additions for flow transmitters in lieu of the base offering of flow indication and manual bypass. The final option offers VFD drives for the pump motor control, so that the pumps could be controlled with the VFD units rather than relying on the slip-stream bypass operation. The unit is designed to operate with stripping gas. The unit is designed to operate with a 400°F reboiler temperature with a conservative firetube flux. This excess reboiler capacity, by increasing the heat flux, will facilitate cold weather startups.

We have presented a price for a shielded ground flare system capable of handling one (1) TEG unit. This device does not tolerate free water. We have quoted a blow case separator with pneumatic controls as an option to handle this condition.

GAS DEHYDRATION SYSTEM

One (1) ETI TRIETHYLENE GLYCOL TYPE GAS DEHYDRATION SYSTEM, designed for:

Maximum Design Working Pressure

Inlet Gas Rate

Inlet Gas Temperature Inlet Operating Pressure

Gas Specific Gravity

Inlet Gas Water Content

Outlet Gas Water Content

Outlet Gas Dew Point Lean Glycol Purity

Reconcentration Temperature

Circulation Rate

Gallons Glycol/lb Water Removed

740 psig @ 100°F/692@180°F

30/15 MMscfd 50°F - 120°F

350 / 500 psig

0.6080

244.2 lb/MMscf @ T/P

7 lb/MMscf

14.2°F

99.5% 380-400°F

20 gpm

4.0

--and consisting of:

ITEM I - GLYCOL ABSORBER

One (1) ETI 48" ID x 34'-0" Glycol Absorber, ASME Code constructed and stamped for a maximum allowable working pressure of 740 psig @ 100°F. Vessel to be complete with:

VESSEL INTERNALS

- a) Eleven (11) bubble cap trays, carbon steel materials
- b) One (1) combo absorber mist extractor, 4" thick full area, 304 stainless steel knitted wire mesh, 304 stainless steel vane. One (1) integral scrubber 304 stainless steel knitted wire mesh pad.
- c) One (1) chimney tray with integral scrubber

VESSEL EXTERNALS

- a) Lifting lugs
- b) Exchanger mounting lugs
- c) Ladder and platform lugs (future)
- d) Skirt

VESSEL CONNECTIONS, ANSI Class 300# RF Flanges, unless noted

- a) One (1) 10" gas inlet
- b) One (1) 10" gas outlet
- c) Two (2) 2" level control, 3000# coupling
- d) One (1) 2" NPT glycol inlet, 6000# coupling
- e) One (1) 2" NPT glycol outlet, 6000# coupling
- f) Two (2) 2" NPT level switch for low, high, low-low level, 3000# coupling
- g) Two (2) 24" manways with blind
- h) Two (2) 3/4" level glass connections, 6000# coupling
- i) One (1) 1" NPT vent connection, 6000# coupling
- j) One (1) 2" drain
- k) One (1) 1/2" pressure gauge, 6000# coupling
- 1) One (1) 2" thermal relief
- m) Twelve (12) 1" 6000# coupling for tray drain with manual valve and plug

ACCESSORIES

- a) One (1) pressure gauge, 4½" dial with isolating valve
- b) Three (3) 5" dial-type thermometers with stainless steel thermowells
- c) One (1) relief valve 1" x 1" set @ 740 psig thermal relief with locking full-port isolation valve
- d) One (1) 2" NPT pneumatic level controller
- e) One (1) 1" NPT level control valve
- f) One (1) 2" Flanged drain valve
- g) One (1) 1" NPT SDV valves with 3-way solenoid
- h) Two (2) 2" flanged isolation valves in glycol outlet

PAINT

3-Coat Paint System - Sherwin Williams or equal

Note: No skid or piping is included.

ESTIMATED WEIGHT & DIMENSIONS

Estimated shipping weight is 40,931 pounds. Estimated shipping dimensions are 498" L x 60" W x 60" H

ITEM II - GAS/GLYCOL EXCHANGER

One (1) gas/glycol exchanger, 19" OD x 45" x 1220 psig @ 180°F, type "WLD" with design duty of 0.2 MM Btu/hr.

PAINT

3-Coat Paint System - Sherwin Williams or equal

Note: This exchanger mounts on side of contactor. No piping or skid is furnished.

ESTIMATED WEIGHT & DIMENSIONS

Estimated shipping weight is 1,090 pounds. Estimated shipping dimensions are 45" L x 26" W x 26" H.

ITEM III - GLYCOL RECONCENTRATOR

One (1) ETI 2.94 MM Btu/hr total duty Glycol Reconcentrator, with the following equipment mounted, piped, wired and interconnected: (Note: Includes 20% over design).

- 1. One (1) 48" OD x 30'-0" x 0 psig non-code reboiler assembly with integral surge section, 2" superheat coil, complete with:
 - a) One (1) 0.994 MM Btu/hr removable firetube assembly, 16" x 17'-6" U-tube, heat flux of 7,000 Btu/hr / Sq. Ft. / firetube
 - b) One (1) 16" OD stack complete with:
 - 1. one (1) anti-downdraft stack head
 - c) One (1) main fuel gas manifold, complete with: (FM approved)
 - 1. one (1) 10³/₄" x 36" x 125# fuel gas scrubber
 - 2. one (1) 1" NPT Fisher regulator set @ 50 psig
 - 3. two (2) 1" NPT isolation valves
 - 4. one (1) 1" x 1" thermal relief set @ 125 psig complete with 1" NPT full port ball valve
 - 5. one (1) 3/4" main fuel gas Fisher regulator set @ 15 psig
 - 6. two (2) 3/4" NPT isolating valves
 - 7. two (2) pressure switches, PSH/PSL, complete with ½" NPT isolating valves
 - 8. two (2) 3/4" NPT solenoid valves, 120 VAC for SDV
 - 9. one (1) 1/4" NPT solenoid valve, 120 VAC for vent valve
 - 10. one (1) 1" NPT temperature control valve (controller by pneumatic TC on the reboiler)
 - 11. two (2) pressure indicators with 1/2" NPT isolation valves
 - d) One (1) 1/4" pilot gas manifold complete with:
 - 1. two (2) 1/4" isolation valves
 - 2. one (1) 1/4" NPT solenoid valve 120 VAC for SDV
 - 3. one (1) pressure gauge, 0-15 psig with ¼" NPT isolation valve
 - 4. one (1) 1/4" Fisher regulator set @ 5 psig
 - e) One (1) flame arrestor rated @ 1.5 MM Btu/hr, complete with:
 - 1. one (1) 3" air gas mixer head
 - 2. one (1) 3" H-120 compound injector
 - 3. one (1) ignitor and ignitor rod
 - 4. one (1) Honeywell flame rod safety flame guard
 - 5. one (1) manual air controller

f) One NEMA 4X, glycol dehydration natural draft burner management/control panel suitable for operation in a Class 1 Division 2 area.

The panel is provided with one flame relays for pilot/burner management for reboiler and one RTD for burner management of the ground flare. A panel light display is included for indication of burner chamber purge, pilot ignition, burner control and flame relay diagnostics.

A programmable logic controller (PLC) is provided for control system logic and alarm annunciation. All alarms will be indicated on the face of the enclosure via alarm lamps on a "first out" basis, to include the following:

One (1) NEMA 4X, 316 S.S., glycol dehydration control systems suitable for Class 1, Division 2 area of operation. The reboiler and flare burner management flame programmer relays are suitable for flame rode pilot flame detection provided in a NEMA 7 spin-top window enclosure. The flame programmer relay is provided with a flame relay display for viewing pilot flame strength, pilot energized, ignition and main burner energized. The control system includes the following major components:

- NEMA 4X, 60"H X 36"W X 8"D, 316 S.S., enclosure
- Modicon Momentum 24VDC, 32 PT input module
- Modicon Momentum 24VDC, 32 PT output module
- Modicon Momentum combination analog module
- Phoenix mini-MCR series RTD transducer module
- Phoenix mini-MCR series TC transducer module
- Phoenix Ethernet switch # 2891314
- Allen-Bradley 700-FSK series WatchDog timer
- Honeywell RM7898 series programmer relay for reboiler and flare
- Cutler-Hammer 10250T series operator and LED indicators
- 120VAC ignitor

The following operator/indicators are located on the face of the enclosure:

- Power ON lamp
- Power OFF/ON switch
- Local/remote ESD lamp
- ESD push-pull operator
- Reboiler flame failure lamps
- Reboiler high stack temperature lamp
- Fuel gas low pressure lamp
- Fuel gas high pressure lamp
- Reboiler high temperature lamp
- Surge tank low level lamp
- Flash separator low level lamp
- Flash separator high level lamp
- Contactor low level lamp
- Glycol pump high discharge pressure
- WatchDog system OK lamp

- Reboiler start pushbutton
- Reboiler stop pushbutton
- Lamp test pushbutton
- Alarm reset pushbutton
- Common active alarm lamp (Global)
- Common unacknowledged alarm lamp (Global)
- Flare fuel gas high pressure
- Flare fuel gas low pressure
- Flare stack high temperature lamp
- Flare flame arrestor high temperature
- Flare flame failure
- Flare start pushbutton
- Flare stop pushbutton

All process status and control loops are resident in the PLC for access by others via Ethernet communications.

A common alarm "dry" contact is included for customer use.

An ESD interposing relay is included for customer remote safety shutdown.

The PLC programming will be provided in Modicon Concept Version 2.5, SR2, Patch F. Function block (FB) sequential function chart (SFC) programming will be provided.

- g) One (1) pneumatic temperature controller
- h) One (1) thermocouple temperature safety high
- i) Two (2) thermometers, 5" dial-type with stainless thermowell [bath + ovhd]
- j) One(1) 2" drain valve
- k) Insulated with 1½" thick Easy Wrap high density fiberglass insulation with aluminum jacketing
- 1) Two (2) gauge columns with gauge valves and drain valves
- m) One (1) 16" Stahl column packed with 1" stainless steel pall rings
- n) Three (3) level switches
- o) One (1) sparge gas regulator, isolation and check valve
- p) Four (4) 6" inspection/drain connections with blinds
- 2. One (1) 24" OD x 10'-0" x 0 psig non-code removable still reflux column, complete with:
 - a) Insulated with 2" thick Easy Wrap high density fiberglass insulation with aluminum jacketing
 - b) Column to be packed with 1" stainless steel pall rings
 - c) One (1) temperature controller
 - d) One (1) 3-way temperature control valve
- 3. Two (2) external rich-lean glycol heat exchangers, each consisting of finned multitube sections. Heat transfer rating 1.673 MM Btu/hr.
- 4. One (1) sock filter 20.9 gpm capacity, 8.625" OD x 36" long, 150 psig design, complete with:
 - a) One (1) set of replacement filter elements
 - b) Isolating and by-pass valves
 - c) One (1) drain valve
 - d) Differential Pressure Indicator with isolation valves and 5-valve manifold
- 5. Two (2) glycol pumps (100% capacity each), mounted and piped, complete with the following:
 - a) One (1) 3" lean glycol strainer for each flow line
 - b) One (1) 3" isolating valve for each flow line
 - c) One (1) 1" discharge check valve for each flow line
 - d) One (1) 1" discharge block valve for each flow line
 - e) One (1) discharge pressure gauge with isolating valve in common discharge line

- f) One (1) 10 Hp motor, 460 VAC/3Ø/60 Hz, TEFC
- g) One (1) 1" x 1" pressure safety valve for each flow line with startup bypass valve
- h) One (1) flow indicating meter (common to both) Halliburton type
- One (1) 1" flow control valve for flow return to surge vessel
- j) Two (2) discharge dampeners Coors-Tek Model C-14001-T
- k) One (1) Pressure transmitter on the pump discharge
- 1) One (1) discharge line isolating valve
- 6. One (1) 48" OD x 15'-0" S/S x 125 psi maximum design pressure, 3-phase glycol flash drum, 30 minute retention time, complete with:
 - a) One (1) pressure gauge, 4½" dial, and one pressure transmitter, with isolating valve
 - b) One (1) 5" dial type thermometer with stainless steel thermowell
 - c) One (1) relief valve, 1" x 1" set @ 125 psig
 - d) Three (3) gauge columns with gauge valves and drain valves, one in each section.
 - e) Two (2) 1" level control valves
 - f) Insulated with 1½" thick Easy Wrap high density fiberglass insulation with aluminum jacketing
 - g) Two (2) level controllers
 - h) Two (2) level switches
 - i) Two (2) manual drain valves
 - j) One (1) back pressure control valve set @ 75 psig with isolating block valves to hold pressure on the flash tank and one (1) pressure control valve set @ 60 psig
- 7. One (1) charcoal filter rated @ 100% of total flow rate, 20.9 gpm, 36" OD x 91" O.A.L., complete with:
 - a) Isolating drain and by-pass valves
 - b) One (1) spare set filters
 - c) Differential Pressure Indicator with isolation valves and 5-valve manifold
- 8. One (1) sock filter 20.9 gpm capacity, 3½" OD x 36" long, 740 psig, 300# class nozzles, design, complete with:
 - a) One (1) set of replacement filter elements
 - b) Isolating and by-pass valves
 - c) One (1) drain valve
 - d) Differential Pressure Indicator with isolation valves and 5-valve manifold
- 9. One (1) structural steel skid, approximately 13'-0" wide x 54'-0" long and constructed from W.F. beam and complete with lifting lugs and deck plate with containment lip.

PAINT

Unit to be painted in accordance with paint specifications as listed in bid specifications.

ESTIMATED WEIGHT & DIMENSIONS

Estimated shipping weight is 86,049 pounds.

Estimated shipping dimensions are 648" L x 156" W x 120" H. Ship loose items include reboiler stack, stripping column with reflux coil, ladder & platform, and miscellaneous instruments.

NET PRICE, ITEMS I, II AND III, F.O.B. MANUFACTURERS FACILITY, TULSA, OKLAHOMA......\$701,758.00

ESTIMATED DELIVERY FOR ALL ITEMS

Delivery shall be made sixteen (16) to eighteen (18) weeks after receipt of drawing approval. Drawings will be submitted for approval three (3) weeks after receipt of purchase order.

The skid in this proposal has been quoted from <u>existing</u> unused material in inventory and has been discounted to provide Dominion the greatest cost savings. This material, however, is subject to prior sale from other offerings, and should Dominion issue a purchase order and the material is no longer available, ETI will revise its proposal accordingly.

One (1) Enclosed Ground Flare ITEM IV

Design Conditions

477.3 lb/hr or 9050 scfh overhead + 331 scfh flash tank Inlet Flow Rate

Heat Release Contribution, MMbtu/h 0.428 MMbtu/h Flash Tank

3.545 MMbtu/h Recon Overhead [includes stripping gas]

Turndown 20:1

212-250°F (superheated vapor—not saturated) Inlet Temperature

Inlet Pressure 2" W.C.

1400°F to 1500°F, set at control panel Combustion Chamber Temperature

Residence time 1.0 Second >98.0 to 99% Combustion Efficiency

Controllers in Dehy Panel/J-Box attached to flare base. Control Panel

-- and consisting of:

1. One (1) vertical Enclosed Ground Flare, complete with the following:

- 36'-0" overall height x 36" x 42" x 42" diameter design
- Pad mounted design self supporting
- Three Natural draft flame arrestor elements for Class I, Division II area
- High temperature thermocouples (high-high stack, high-high burner, high flash arrestor)
- Combustion chamber material 3" refractory lined carbon steel combustion chamber.
- Sump with level switch and drain valve
- FM approved fuel train on makeup gas, with shutdowns on pilot and waste flash tank gas.
- 3" In-line flash arrestor, vertically mounted
- One (1) Burner System Rated @ 2.0 MM Btu/hr
 - 4" Eclipse with single stage/burner nozzle (fuel gas is mixed with waste gas to yield a combustible vapor)
 - 4" waste gas nozzle to disperse recon waste gas
 - 0.35 MM Btu/hr pilot gas burner (continuous pilot)
 - Pilot automatic ignition with high intensity spark transformer

For automated blow case for removal of overhead condensate liquids see Option 'A".

Shipping Dimensions: 34'-0" L x 48" W x 48" H Weight: 8,136 lbs

Flame monitoring and safeguards are incorporated in the flare control panel.

(Please see the attached air pollution data sheets).

Delivery will be made twelve (12) to fourteen (14) weeks after receipt of drawing approval. Drawings will be submitted for approval three (3) weeks after receipt of purchase order.

OPTIONAL ITEMS

Option "A" Automated Blow Case

A1. One standard Jatco no brass model J5000CX NBO Blow Case complete with check valves, pressure switch, level switch, relief valve (see P&ID).

NET PRICE ADDITION Option "A1".....\$1,723.00

A2. One standard Jatco all stainless model J5000CX SS Blow Case complete with check valves, pressure switch, level switch, relief valve (see P&ID).

NET PRICE ADDITION Option "A2".....\$2,274.00

Option "B" Level and temperature Transmitters

B. Option "B" offers temperature transmitters, I/P transducers in lieu of temperature pneumatic controls and level transmitters, I/P transducers in lieu of level pneumatic controls. A total of three level and two temperature controls are impacted. These controls will allow customer to follow via the control panel temperatures and levels.

NET PRICE ADDITION Option "B"......20,756.00

Option "C" Flow Transmitters

C. Option "C" flow transmitter, I/P transducer, and control valve in lieu of local flow indication and manual bypass valve. These controls will allow customer to follow via the control panel flow rate.

NET PRICE ADDITION Option "C".....\$ 6,375.00

Option "D" VFD drives

D. Option "D" VFD drives for each of the injection pump motors in lieu of conventional motors.

NET PRICE ADDITION Option "D".....\$ 7,131.00

NOTE: The attached P&ID show incorporation of Option A1, B, and C. The pricing information uses pneumatic controls as the basis of this offering with adders to achieve an electronic/PLC interfaced control scheme.

Option "E" Ladder & Platform

E. Ladder and Platform

Two (2) galvanized ladders and platforms, one each for reboiler and flash tank.

NET PRICE ADDITION Option "E"\$13,410.00

Option "F" Suction Dampeners

- F. Suction Dampeners For Glycol Pumps
 - 1. Two (2) suction dampeners, Coors-Tek Model C-14002-T

APPENDIX 13.2 COMPLETED BY VENDOR

Project:

GENERAL			
No. of the second secon	Manufacturer's Model Number	48" BC CONTACTOR 1 MM RECON	
	Delivery Quoted	16-18 Weeks ARAD	
	Electrical Power Required for Panel	120 Volts Amps	
	Instrument Air Pressure Required	100 psig	
	Contactor Gas Connection Size, Type	10" R.F. Flange	
PERFORMANCE			
	Outlet Gas Water Content (lbs/MMscf)	7.0	
	Lean Glycol Purity (wt%)	99.5%	
	Reconcentration Temperature (°F)	390-400	
	Glycol Circulation Rate (gpm)	20	
	Recirculation Ratio,	4	
	Gallon Glycol/lb H₂0		
	Flash Tank Operating Pressure (psig)	70	
	Flash Tank Operating Temperature (°F)	190	
	Stripping Gas / Gallon Glycol	1.3-2.23	
GLYCOL HEATER			
	Number of Firetubes	1	
	Number of Burners/Firetube	1	
	Firetube Material	SA-106B	
	Firetube Size/Wall Thickness	16"/0.25"	
	Total Firetube Area (FT ²)	142.4	
	Firetube Heat Flux (≤ 10,000 BTU/hr/ft²)	6,982	
	Number of Stacks	1	
	Stack Height (ft.)	15	
	Number of Coils	2 x 0.5" 304 SS	
	Number of Passes per Coil	33	
The state of the s	Coil Area (ft²)	39.6	
	Coil Heat Flux (≤10,000 BTU/hr/ft²)	1,154	
FLARE	Jenniest ist (=10,000 b) on it		
	Manufacturer/Model No.	ETI	
	Stack Height (ft.)	34	
	Liquid Sump Capacity (gal.)	4	
e) in the first of	Pilot Gas Rate (SCFM)	0.55-0.95	
	Guy Wires Required?	NOT REQUIRED, AVAILABLE	
OTHER	2.7 11.00 1,040.00.		
OTTLE	Estimated operating capacity of TEG for all		
	vendor supplied items (neglect DTI supplied		
	interconnection pipe)	2445 gallons	

APPENDIX 13.3

Seller shall warrant that the equipment supplied will meet the performance specifications below and as stated on the attached Vendor completed portion of the Glycol Dehydration Unit Data Sheets, Appendix 13.2

<u>Fuel Consumption</u> - Manufacturer shall warrant that the fuel consumption of the subject unit will not exceed the fuel consumption specified below.

<u>Unit Emissions</u> - Manufacturer shall warrant that the subject unit will not exceed the quoted emission rates specified below for nitrogen oxides ($NO_{x)}$, carbon monoxide (CO), total Hydrocarbons (HCT), and non-methane hydrocarbons (NMHC).

FOR REBOILER

	MAX LOAD		PPMvd @ 3% O2	Tons / Year
Nitrogen Oxides Carbon Monoxides Total Hydrocarbons Nonmethane Hydrocarbons Fuel Rate (CFH)	NO _x CO HCT NMHC	Warranted Warranted Warranted Warranted Warranted	125 125 125 50 1562.5	1.08 0.66 0.41 0.51 317.2
	MIN LOAD		PPMvd @ 3% O2	Tons / Year
Nitrogen Oxides Carbon Monoxides Total Hydrocarbons Nonmethane Hydrocarbons Fuel Rate (CFH)	NO _x CO HCT NMHC	Warranted Warranted Warranted Warranted Warranted	78.5	
Fuel		Natural Gas	Natural Gas,	
Fuel Consumption	1.155		MM btu/hr	
Exhaust Diameter	16"		inches	
Exhaust Height	18'		Ft. from skid base	
Exhaust Temperature		900-950	⁰ F	
Exhaust Velocity		12	Ft/sec	

If the equipment fails to comply with performance specifications, it shall be the manufacturer's responsibility to make modifications to the equipment to ensure compliance. All modifications will be subject to purchaser's approval.

FOR FLARE

J	MAX LOAD		PPMvd @ 3% O2	Tons / Year
Nitrogen Oxides Carbon Monoxides Total Hydrocarbons Nonmethane Hydrocarbons Fuel Rate (CFH)	NO _x CO HCT NMHC	Warranted Warranted Warranted Warranted Warranted	60 80 80 8 1906	1.94 1.57 0.99 0.30
	MIN LOAD		PPM @ 3% O2	Tons / Year
Nitrogen Oxides Carbon Monoxides Total Hydrocarbons Nonmethane Hydrocarbons Fuel Rate (CFH)	NO _x CO HCT NMHC	Warranted Warranted Warranted Warranted Warranted	191	
Fuel		Natural Gas	Natural Gas, F	uel Oil, etc.
Fuel Consumption	2.0		MM btu/hr (m	ax)
Exhaust Diameter	36"		inches	
Exhaust Height	34'		Ft. from skid base	
Exhaust Temperature	1475-1500		° _F	
Exhaust Velocity		26	Ft/sec	

General Notes/Terms and Conditions

1. Progress Payments

Progress Payments: We suggest the following schedule for progress payments for your consideration.

- 10% Order Placement
- 15% Submittal of Approval Drawings
- 15% Requisition of major buyouts
- 20% Receipt of vessel shell/head material
- 25% Receipt of Major Buy-Outs
- 15% At shipment or notification that equipment is ready to be shipped

Terms: Net thirty (30) days from date of invoice.

2. Validity

This quotation is valid for thirty (30) days from date of quotation.

3. Inspection

Any inspection or mechanical calculation/drawing/code review required by a third party would be to Client's account. Free access to fabricator's workshops for inspection purposes would be available during all stages of construction. All acceptance or rejection of the described equipment shall be ex-works, Seller's point of manufacture.

4. Change Orders

Once an order is placed and additions and/or deletions are required, a lump sum price, plus or minus, will be submitted to Client, by telefax or letter, for approval.

The Engineering Change Order will include for:

- Project engineering and related charges
- Drafting changes and related charges
- Materials cost
- Freight, delivery and/or restocking costs
- Administration charges
- Project delivery revisions

The Engineering Change Order will be approved by Client's representative in writing by telefax or letter prior to implementation by the ETI project engineer.

The Engineering Change Order will be approved by Client's representative in writing by telefax or letter prior to implementation by the ETI project engineer.

5. Project Manager

ETI will assign a project manager for the duration of the project. He will be responsible for all aspects of the project, including the project staff, contract documents, customer specifications, schedule and quality standards. He ensures the successful completion of the project on schedule. A monthly project report and a weekly update will be submitted showing the current status of all project events. All correspondence will be handled by the project manager.

6. Coating Warranty

Due to the variable consistency of the quality of available coating materials and due to the lack of control of the characteristics of the use and the elements involved, ETI guarantees only to apply coatings in accordance with practices and standards recommended by the manufacturers of the coating material. We invite inspection during the application. In the event the said inspection, either by the Customer or by ourselves reveals that the application is below standard, we will bring the application up to standard. Our guarantee covers the proper method of application only, and does not cover the quality of coating materials and does not cover loss of contents or loss or costs due to corrosion or for consequential damages of any kind. Third party inspectors, if required, and the resultant additional expense incurred thereof, will be chargeable to Customer's account.

7. Shipment Preparation

Unit will be furnished uncrated with all openings plugged or covered. If the Customer specifies the unit to be crated, an extra charge will then be made, depending on the type of crating specified.

Prices include preparation for shipment, to the extent that all loose fittings and accessories will be packed in suitable wooden crates. To facilitate shipment of unit, certain assembly items may be removed and shipped loose. Reassembly of such items in the field will be for the Customer's account.

8. Cancellation, Suspension, or Delay

After acceptance by Engineering Technology, Inc., this proposal or purchaser's order based on this proposal, shall be a firm agreement and is not subject to cancellation, suspension, or delay except upon payment by Purchaser of appropriate charges which shall include all costs incurred by Engineering Technology, Inc. to date of cancellation, suspension or delay.

9. Guarantees Related to Materials and Equipment Furnished by Others

Seller shall, for the protection of Buyer, procure from all of its vendors and sub-contractors, for the benefit of Buyer, available guarantees with respect of the equipment manufactured or furnished by other such vendors and sub-contractors and used and installed hereunder, which shall be made available to Buyer to the full extent of the terms thereof. Seller obligations shall be limited to procuring such available guarantees for Buyer and rendering all reasonable assistance to Buyer for the purpose of enforcing the same.

10. Taxes

SJR/csq

ETI will charge the appropriate taxes and/or duties at the time of sale, applicable to the goods and services provided. Sales or use tax will not be charged to those with valid tax exemption certificates or direct pay tax permits.

11. Erection, Start-up and Commissioning

ETI can provide qualified service personnel to assist in installation, start-up and commissioning of the described equipment. Also for training on site of Client's operating and maintenance staff. For this service, as may be required, a daily charge shall be made based upon the following:

- Charges for ETI personnel while on U.S. based field trips shall be at a standard daily rate of \$1250.00 per day minimum.
- Charges are portal-to-portal commencing at time of departure from the city of residence and continue until time of return. Travel days are chargeable at standard daily rate.
- Subsistence (food & lodging) at \$350.00 per day, if not provided.
- Round trip air fare at documented cost.
- Rental car (if required) at documented cost.
- Material and parts will be charged in addition to the field service charges.
- Any taxes imposed are to customers account.

Date:	8/25/10	By: <u>Stephen J. Rehm</u>
		STEPHEN J. REHM, Ph.D., P.E.

ENGINEERING TECHNOLOGY, INC.

STANDARD WARRANTY

Engineering Technology, Inc., warrants it's products to be free from defective workmanship and material for a period of twelve (12) months from date of equipment start-up or eighteen (18) months from date of Engineering Technology, Inc.'s transmittal of notice of readiness for shipment to Purchaser, whichever period expires first, provided Purchaser subjects the equipment only to the operating conditions specified by Purchaser when the order is placed and in accordance with Engineering Technology, Inc.'s written operating instructions.

Installation

Unless specifically identified as a separate item in Seller's quotation, Seller's price does not include installation advisory services. Buyer assumes full responsibility for installation and operation of the equipment, including but not limited to, the actual physical installation and initial operation.

Limitation of Consequential Loss

Seller shall not be liable to the Buyer under the terms of this contract for consequential damages, including, but not limited to, loss of actual or anticipated profits, loss of use or loss of production caused by any breach of contract by Seller, howsoever such loss may arise.

If any material or part is found to be defective within the first thirty (30) days of initial start-up of equipment in the field then Engineering Technology, Inc., agrees to send qualified technical personnel to the job site at no charge to the purchaser to assist in the repair of replacement of the defective part or material.

Attachment N

Supporting Emissions Calculations

Reboiler (RBV1) Potential Emissions

<u>Dominion Transmission, Inc.</u>

Pepper Compressor Station

Input Data: ETI

Design Class: Natural Gas-Fired

Fuel Input: 1.155 MMBtu/hr Heating Value of Natural Gas: 1,000 Btu/scf

Fuel Input: 0.001563 MMscf/hr (ETI Quotation No. D0081010, 8-25-10)

Maximum Hours of Operation: 8,760 hrs/yr

Emission Calculations

Pollutant	Emission Factor		Potential Emissions	
Pollutalit	EIIIISSIO	in ractor	(lb/hr)	(tons/yr)
PM (filterable)	1.9	lb/MMscf	0.0030	0.0130
PM-10 (filterable)	1.9	lb/MMscf	0.0030	0.0130
PM-2.5 (filterable)	1.9	lb/MMscf	0.0030	0.0130
PM (condensibles)	5.7	lb/MMscf	0.0089	0.0390
SO ₂	0.6	lb/MMscf	0.0009	0.0041
со	0.660	ton/yr	0.1507	0.6600
NO_X	1.080	ton/yr	0.2466	1.0800
voc	0.510	ton/yr	0.1164	0.5100
Benzene	2.10E-03	lb/MMscf	0.0000	0.0000
Formaldehyde	7.50E-02	lb/MMscf	0.0001	0.0005
Hexane	1.80E+00	lb/MMscf	0.0028	0.0123
Naphthalene	6.10E-04	lb/MMscf	0.0000	0.0000
Toluene	3.40E-03	lb/MMscf	0.0000	0.0000
TOTAL HAP:			0.0029	0.0129

⁽¹⁾ CO , NOx and VOC annual emission rates based on Manufacturer's Specification Sheet (ETI Quotation No. D0081010, 8-25-10)

⁽²⁾ PM and SO2 emission factors from AP-42, Section 1.4, Natural Gas Combustion, Table 1.4-2, 7/98

⁽³⁾ HAP emission factors from AP-42, Section 1.4, Natural Gas Combustion, Tables 1.4-3, 4, 7/98

<u>Attachment S</u>

Title V Permit Revision Information

Attachment S

Title V Permit Revision Information

1. New Applicable Requirements Summary				
Mark all applicable requirements associated with the changes involved with this permit revision:				
□ SIP	☐ FIP			
☑ Minor source NSR (45CSR13)	☐ PSD (45CSR14)			
☐ NESHAP (45CSR15)	☐ Nonattainment NSR (45CSR19)			
Section 111 NSPS (Subpart(s))	Section 112(d) MACT standards (Subpart(s))			
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP			
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)			
☐ Section 129 Standards/Reqts.	Stratospheric ozone (Title VI)			
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1			
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule			
☐ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)			
☐ Emissions Trading and Banking (45CSR28)	Compliance Assurance Monitoring (40CFR64) (1)			
□ NO _x Budget Trading Program Non-EGUs (45CSR1)	□ NO _x Budget Trading Program EGUs (45CSR26)			
(1) If this box is checked, please include Compliance Assurance Monitoring (CAM) Form(s) for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why Compliance Assurance Monitoring is not applicable:				
2. Non Applicability Determinations				
List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination. Refer to Regulatory Discussion in Attachment D for complete regulatory review.				
☐ Permit Shield Requested (not applicable to Minor Modifications)				
All of the required forms and additional information can be found unde	·			
120 of the required forms and distinction information can be found and	so the remaining section of 2112 s weesnes, or requested by phones			

3. Suggested	3. Suggested Title V Draft Permit Language					
Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision? Yes No If Yes, describe the changes below.						
Also, please provide Suggested Title V Draft Permit language for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.						
		nission Units: for RBV1 to read 1.155 MMBtu/hr.				
TK01, T	Remove Tanks: TK01, Tank containing Drip Gas – Replace with TK10 TK02, Tank containing New Engine Oil – Replace with TK11					
Revise Tank	<u>s:</u>					
Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Devices	
TK06	TK06	Tank containing TEG	2012	400 528 gallons	N/A	
New Tanks:						
Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Devices	
TK10	TK10	Tank containing Drip Gas	2001	4200 gallons	N/A	
TK11	TK11	Tank containing Lube Oil	2006	4200 gallons	N/A	
TK12	TK12	Tank containing Drip Gas	2012	4200 gallons	N/A	
TK13	TK13	Tank containing Used Oil	2012	550 gallons	N/A	

4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision			
Permit or Consent Order Number Date of Issuance Permit/Consent Order Condition Number			
R13 – 2866A	07/22/2013	Section 4.0 – Source-Specific Requirements	

2014

2014

550 gallons

550 gallons

N/A

N/A

Tank containing Used Oil

Tank containing Waste Water

TK14

TK15

TK14

TK15

5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision			
Permit or Consent Order Number Date of Issuance Permit/Consent Order Condition Number			
NA	/ /		

6. Change in Potential Emissions	
Pollutant	Change in Potential Emissions (+ or -), TPY
NA	NA
All of the required forms and additional information can be fo	ound under the Permitting Section of DAQ's website, or requested by phone.

7.	Certification For Use Of Minor Modification Procedures (Required Only for Minor Modification
,.	Requests)
Note	This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:
proc perr proc the	 i. Proposed changes do not violate any applicable requirement; ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit; iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis; iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act; v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19; vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification; withstanding subparagraph 45CSR§30-6.5.a.l.A. (items i through vi above), minor permit modification redures may be used for permit modifications involving the use of economic incentives, marketable mits, emissions trading, and other similar approaches, to the extent that such minor permit modification redures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V rating permit issued under 45CSR30.
of N	suant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use Ainor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor mit modification procedures are hereby requested for processing of this application.
(Signed	Date: 12 / 11 / 15
Named	(Please use blue ink) (Please use blue ink) (Title:
rumed	Brian C. Sheppard VP, Pipeline Operations
Note: P	lease check if the following included (if applicable):
	Compliance Assurance Monitoring Form(s)
	Suggested Title V Draft Permit Language
All of the	e required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.