



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3116A
Plant ID No.:	091-00041
Applicant:	E2 Energy Services, LLC
Facility Name:	Curry Well Pad Station
Location:	Bridgeport, Taylor County
NAICS Code:	211111
Application Type:	Class II Administrative Update
Received Date:	August 25, 2014
Engineer Assigned:	Steven R. Pursley, PE
Fee Amount:	\$2,800
Date Received:	August 26, 2014
Complete Date:	September 18, 2014
Due Date:	November 17, 2014
Applicant Ad Date:	August 28, 2014
Newspaper:	<i>The Exponent-Telegram</i>
UTM's:	Easting: 574.028 km Northing: 4,356.124 km Zone: 17
Description:	Replacement one of two existing dehydration units with a larger unit.

DESCRIPTION OF PROCESS

E2 Energy currently operates natural gas dehydration and compression equipment at a well pad owned by others. Natural gas and produced water is received from wells on the Curry Well Pad at approximately 500 psi. The gas is then passed through a separator where it is separated from produced water. Currently, the wells are producing "dry" gas (virtually no condensate or NGL). The gas is then routed to two compression units and then, to two TEG dehydration units where water vapor content in the gas flow is reduced to required concentrations. Upon completion of dehydration, the gas is discharged to a gathering line owned and operated by others. Produced water is routed to two existing 400 BBL tanks. The tanks are periodically emptied into trucks that take the contents to a third party off site disposal facility. These tanks also receive condensed water from the dehydration process.

Currently the facility has two 17mmcf/day dehydration units for a total of 34 mmcf/day of capacity. With this application, E2 Energy is seeking to replace one of the two 17 mmcf/day units (DEHY-1) with a 60 mmcf/day unit (DEHY-3) and limit the other 17 mmcf/day unit (DEHY-2) to 500 hours of operation yearly.

SITE INSPECTION

No site inspection was deemed necessary considering one was performed for the original permit on September 19, 2013. The following is taken directly from the engineering evaluation R13-3116:

"A site inspection was conducted by the writer on September 19, 2013. The writer did not see any problems with locating the facility at the proposed site. The closest residence was approximately 2,000 feet from the site."

Latitude: 39.351389

Longitude: -80.140833"

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Reboiler emissions from the new 60 mmcf/day dehydration unit are based on AP-42 emission factors. Still and flash tank emissions from the new unit are based on GRI Glycalc 4.0. Emissions from the existing dehydration units were taken directly from the engineering evaluation for R13-3116.

Existing Emissions from the effected emission units:

Source	NO _x		CO		VOC		PM/PM ₁₀ /PM _{2.5}		SO ₂	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Dehy #1 Still Vent	--	--	--	--	0.04	0.18	--	--	--	--
Dehy #2 Still Vent	--	--	--	--	0.04	0.18	--	--	--	--
Dehy #1 Reboiler	0.05	0.22	0.05	0.19	0.01	0.02	0.01	0.02	0.01	0.01
Dehy #2 Reboiler	0.05	0.22	0.05	0.19	0.01	0.02	0.01	0.02	0.01	0.01
Total	0.10	0.44	0.10	0.38	0.10	0.40	0.02	0.04	0.02	0.02

New emissions from the effected emission units:

Source	NO _x		CO		VOC		PM/PM ₁₀ /PM _{2.5}		SO ₂	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Dehy #1 Still Vent	0	0	0	0	0	0	0	0	0	0
Dehy #2 Still Vent	--	--	--	--	0.04	0.01	--	--	--	--
Dehy #3 Still Vent	--	--	--	--	0.38	1.64	--	--	--	--
Dehy #1 Reboiler	0	0	0	0	0	0	0	0	0	0
Dehy #2 Reboiler	0.05	0.02	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Dehy #3 Reboiler	0.15	0.66	0.13	0.55	0.01	0.04	0.02	0.05	0.01	0.01
Total	0.20	0.68	0.18	0.56	0.44	1.70	0.03	0.06	0.02	0.02

As can be seen from the above tables, the increase in PTE due to this project will be as follows:

NO _x		CO		VOC		PM/PM ₁₀ /PM _{2.5}		SO ₂	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
0.10	0.24	0.08	0.18	0.34	1.30	0.01	0.02	--	--

The new total facility PTE after this modification will be as follows (based on adding the increases to the above table to the facility wide PTE as listed in Engineering Evaluation R13-3116:

Pollutant	PTE (tons per year)
NO _x	39.22
CO	3.24
VOCs	5.09
PM/PM ₁₀ /PM _{2.5}	0.74
SO ₂	0.04

REGULATORY APPLICABILITY

The following state and federal rules apply to the new dehydration unit (DEHY-3):

STATE RULES

45CSR2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

The DEHY-3 Reboiler has been determined to meet the definition of a “fuel burning unit” under 45CSR2 and is, therefore, subject to the applicable requirements therein. However, pursuant to the exemption given under §45-2-11, as the MDHI of the Reboiler is less than 10 mmBtu/hr, the unit is not subject to sections 4, 5, 6, 8 and 9 of 45CSR2. The only remaining substantive requirement is under Section 3.1 - Visible Emissions Standards.

Pursuant to 45CSR2, Section 3.1, the reboiler is subject to an opacity limit of 10%. Proper maintenance and operation of the reboiler (and the use of natural gas as fuel) should keep the opacity of the unit well below 10% during normal operations.

45CSR13: Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

The addition of the new dehydration unit will increase emissions above what is permitted in R13-3116. Therefore, E2 is required to change their permit under 45CSR13. However, since the increase in emissions will be less than 6 pounds per hour and 10 tons per year, they are eligible for a Class II Administrative Update.

As required under §45-13-8.3 (“Notice Level A”), E2 placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on August 28, 2014 in the *Exponent-Telegram* and the affidavit of publication for this legal advertisement was submitted on September 18, 2014.

45CSR22: Air Quality Management Fee Program

This facility is a minor source and not subject to 45CSR30. E2 is required to keep their Certificate to Operate current.

FEDERAL RULES

40CFR63 Subpart HH: National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities

Fact Sheet R13-3116A
E2 Energy Services, LLC
Curry Facility

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. The new glycol dehydration unit will be subject to the area source requirements for glycol dehydration units. However, because the facility is an area source of HAP emissions and the actual average benzene emissions from the glycol dehydration unit is below 0.90 megagram per year (1.0 tons/year) it is exempt from all requirements of Subpart HH except to maintain records of actual average flowrate of natural gas to demonstrate a continuous exemption status.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Only trivial amounts (much less than 0.01 pounds per hour) of non-criteria regulated pollutants (HAPs) should be emitted by the new dehydration unit.

AIR QUALITY IMPACT ANALYSIS

Because this is a minor modification to an existing minor source as defined in 45CSR14, no modeling was performed.

MONITORING OF OPERATIONS

No monitoring beyond what is already required by R13-3116 is deemed necessary.

CHANGES TO PERMIT R13-3116

The following changes were made to R13-3116:

- * Table 1.0 was updated to replace DEHY-1 with DEHY-3.
- * Conditions 6.1.1 and 6.1.2 were changed to reflect the MDHI and throughputs of DEHY-3.
- * Condition 6.2.1 was changed to replace the reference from 5E to 11E.
- * Condition 6.4.1 was changed to replace the reference from 5E to 11E.
- * Condition 7.1.1 and 7.1.2 were changed to reflect the emission point ID, throughput and associated emissions of DEHY-3 instead of the removed DEHY-1. Additionally, an annual limit on hours of operation for DEHY-2 was added to Condition 7.1.1 to reflect the basis of the emission calculations as presented in the application.

- * Condition 7.1.4 was changed to replace the reference from 5E to 11E and from 3E to 10E.
- * Condition 7.2.1 was changed to replace the reference from 3E to 10E.
- * Condition 7.4.1 was changed to replace the reference from 3E to 10E.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-3116A for the replacement of a dehydration unit with a bigger unit at the Curry Well Pad near Bridgeport, Harrison County, be granted to E2 Energy Services, LLC.



Steven R. Pursley, PE
Engineer



December 10, 2014