

Fact Sheet



For Final Renewal Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Number: **R30-05100145-2024**
Renewal Application Received: **June 27, 2023**
Minor Modification Application Received: **April 21, 2023**
Plant Identification Number: **03-54-051-00145**
Permittee: **Appalachia Midstream Services, L.L.C.**
Facility Name: **Sand Hill Compressor Station**
Mailing Address: **100 Teletech Drive, Suite 2, Moundsville, WV 26041-2352**

Physical Location: Dallas, Marshall County, West Virginia
UTM Coordinates: 537.897 km Easting • 4,426.495 km Northing • Zone 17
Directions: From Dallas, WV: Head south on Number 2 Ridge Road ~2.3 miles, then turn right onto Golden Rd/ McCausland Hill Rd ~1.4 miles, destination is on the right.

Facility Description

The Appalachia Midstream Services, L.L.C., Sand Hill Compressor Station is covered by Standard Industrial Classification (SIC) 1389. The station has the potential to operate seven (7) days per week, twenty-four (24) hours per day, fifty-two (52) weeks per year. The facility compresses and dehydrates up to 165 MMscf of locally produced natural gas per day. The primary equipment includes: Twelve (12) natural gas compressors, and three (3) natural gas dehydrators, each with flash tank, regenerator/still and reboiler. The auxiliary equipment includes: two (2) electricity generators, two (2) heater treaters, and eight (8) storage tanks.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Regulated Pollutants	Potential Emissions	2022 Actual Emissions
Carbon Monoxide (CO)	106.82	23.79
Nitrogen Oxides (NO _x)	105.98	69.85
Particulate Matter (PM _{2.5})	8.11	5.89
Particulate Matter (PM ₁₀)	8.11	5.89
Total Particulate Matter (TSP)	8.11	5.89
Sulfur Dioxide (SO ₂)	0.49	0.36
Volatile Organic Compounds (VOC)	202.81	141.36

PM₁₀ is a component of TSP.

Hazardous Air Pollutants	Potential Emissions	2022 Actual Emissions
Acetaldehyde	1.53	1.18
Acrolein	0.94	0.73
Benzene	1.26	0.20
1,3- Butadiene	0.05	0.04
Ethylbenzene	0.31	0.07
Formaldehyde	8.17	4.06
n-Hexane	5.14	2.51
Methanol (MeOH)	1.58	0.95
Polycyclic Organic Matter (POM/PAH)	0.07	0.05
Toluene	2.07	0.21
2,2,4- Trimethylpentane (TMP)	0.31	0.13
Xylenes	2.61	0.13
Other/Trace HAP*	0.06	NA
TOTAL HAPs	24.10	10.26

Some of the above HAPs may be counted as PM or VOCs.

Title V Program Applicability Basis

This facility has the potential to emit 106.82 tpy of CO, 105.98 tpy of NO_x, 202.81 tpy of VOC. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Appalachia Midstream Services, L.L.C. is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR2	To Prevent And Control Particulate Air Pollution From Combustion Of Fuel In Indirect Heat Exchangers
	45CSR6	Open burning prohibited.
	45CSR11	Standby plans for emergency episodes.
	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
	45CSR16	Standards Of Performance For New Stationary Sources
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for Hazardous Air Pollutants
	40 C.F.R. Part 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
	40 C.F.R. Part 60, Subpart OOOO	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015
	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. Part 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities
	40 C.F.R. Part 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
	40 C.F.R. Part 82, Subpart F	Ozone depleting substances
State Only:	45CSR4	No objectionable odors.
	45CSR17	To Prevent And Control Particulate Matter Air Pollution from Materials Handling, Preparation, Storage And Other Sources Of Fugitive Particulate Matter

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (<i>if any</i>)
R13-2913E	November 9, 2023	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table," which may be downloaded from DAQ's website.

Determinations and Justifications

This is the first renewal of this Title V Permit. R13-2913D was issued on June 27, 2023 and the associated minor modification R30-05100145-2019(MM01) has been combined with the Title V renewal.

R30-05100145-2019(MM01) incorporates changes approved under R13-2913D to update glycol dehydration unit requirements to be consistent with the recently issued Miller Compressor Station Permit R13-2831F, update compressor rod packing emissions, add emissions from upstream methanol injection, increase MDHI of heater treaters from 0.50 mmBtu/hr to 1.00 mmBtu/hr, remove two stabilized condensate storage tanks, reduce maximum throughput, and increase the estimated natural gas throughput during pigging operations.

Appalachia Midstream Services, L.L.C. (AMS) was issued Class I Administrative Update permit R13-2913E on November 9, 2023 to update permit conditions to show pneumatic controllers are not subject to NSPS OOOO/OOOOa requirements, to remove the Caterpillar G3616LE A4 compressor engine (Emission Unit EUCE-13) and associated NSPS OOOOa requirements for fugitive emissions, and to correct the design heat input rating for each heater treater (Emission Units EUHT-1 and EUHT-2) from 0.50 MMBtu/hr to 1.00 MMBtu/hr. This Class I Administrative Update had no associated Title V modification, but these changes were also included in this Title V renewal. Changes to the Title V Permit due to the issuance of R13-2913E are included in the Minor Modification R30-05100145(MM01) discussion below since some of the changes made in R13-2913E were corrections to R13-2913D.

Changes due to Minor Modification R30-05100145-2019(MM01):

Section 1.1. Emission Units

- Engine EUCE-13 was removed from the emission units table and control devices table.
- Updated the design capacities of the Heater Treater Burners (EUHT-1 and EUHT-2) from 0.50 MMBtu/hr to 1.0 MMBtu/hr.

- Removed Stabilized Condensate Storage Tanks EUTK-7 and EUTK-8.
- Updated the Emission Unit IDs for the Produced Water Storage Tanks from EUWTK-9 and EUWTK-10 to EUWTK-1 and EUWTK-2. Also updated the Emission Point IDs from EPWTK-9 and EPWTK-10 to EPWTK-1 and EPWTK-2.
- Updated the design capacity of the pigging operations (EUIPIG) from 104 events/yr to 208 events/yr.

Section 4.0 Engines, Generator, Compressor Rod Packing

- Removed Condition 4.1.2 and renumbered and updated remaining conditions due to the removal of EUCE-13/EPCE-13 from R13-2913E.
- Revised the emission limits for compressor rod packing (EUCRP) in condition 4.1.4.

Section 5.0 40 C.F.R.60 Subpart JJJJ Requirements

- Due to changes in R13-2913E, removed EUCE-13/EPCE-13 from the section title; from conditions 5.1.1, 5.1.6, and 5.4.2; and from the citations of conditions 5.1.3, 5.3.1, 5.4.1, and 5.5.1.

6.0. 40 C.F.R.60 Subpart OOOO Requirements

- Removed EUCE-13 from the section title, and removed all 40 C.F.R. 60 Subpart OOOOa requirements since EUCE-13 was the only emission unit subject to 40 C.F.R. 60 Subpart OOOOa.

Section 7.0. Natural Gas Dehydration Units Not Subject to MACT Standards and being controlled by Condenser and Recycling the Dehydration Unit Back to Flame Zone of Reboiler

- Updated condition 7.1.3 to incorporate changes made to R13-2913D condition 9.1.3.
- Updated emission limits in condition 7.1.4 to incorporate changes made to R13-2913D condition 9.1.4.
- Updated condition 7.2.2 to incorporate changes made to R13-2913D condition 9.2.2.

Section 8.0. Reboilers and Heat Treaters

- Updated condition 8.1.1. to incorporate changes made to R13-2913D condition 10.1.1.

Section 9.0. Storage Tanks

- Updated emission points in the section title to account for the removal of storage tanks EUTK-7 and EUTK-8 and the renaming of emission units EUWTK-1 and EUWTK-2.
- Updated conditions 9.1.1, 9.1.2, 9.1.3, 9.1.4, and 9.2.1 to account for the removal of storage tanks EUTK-7 and EUTK-8 and the renaming of emission units EUWTK-1 and EUWTK-2.
- Updated condition 9.1.2 to incorporate changes made to the annual throughput of EUTK-1 - EUTK-6 in R13-2913D condition 11.1.3.

Section 10.0. Truck Loading

- Updated condition 10.1.1 to incorporate changes made to the maximum quantity of stabilized condensate loaded per year in R13-2913D condition 12.1.1.

Section 11.0. Compressor Blowdowns and Pigging Operations

- Updated condition 11.1.1 to remove the maximum number of blowdown events for EUCE-13 due to removal of this compressor per R13-2913E.
- Updated condition 11.1.2 to incorporate changes made to the maximum quantity of pigging events per year and associated volume estimates in R13-2913D condition 13.1.2.

12.0. 40 C.F.R. 60 Subpart OOOOa Requirements, Fugitive Emission Components

- This section was removed from the Title V permit since, with the issuance of R13-2913E and the removal of EUCE-13, there is no longer any equipment at the facility subject to 40 C.F.R.60 Subpart OOOOa.

Changes as part of Title V Renewal R30-05100145-2024:

Section 4.0. Engines, Generator, Compressor Rod Packing

- This section has requirements from R13-2913. The changes to this section associated with R13-2913E were addressed in the discussion for Minor Modification R30-05100145-2019(MM01).

Section 5.0. 40 C.F.R.60 Subpart JJJJ Requirements

- This section has requirements from R13-2913 and 40 C.F.R 60 Subpart JJJJ. There have been no changes to the R13 permit requirements of this section since the last Title V renewal. However, 40 C.F.R. 60 Subpart JJJJ was amended on December 4, 2020, June 29, 2021, August 10, 2022, and January 24, 2023 resulting in the following changes:
 - Updated language of Condition 5.1.2.
 - Updated condition 5.1.10 to remove “emergency demand response”. Also added 40 CFR §60.4243(d)(1) - (3) to the condition since they had previously only been incorporated by reference.
 - Updated language of Condition 5.4.2.3.

Section 6.0 40 C.F.R.60 Subpart OOOO Requirements

- This section has the 40 C.F.R. 60 Subpart OOOO requirements for reciprocating compressors EUCE-1 - EUCE-12 and requirements from R13-2913. There have been no changes to 40 C.F.R. 60 Subpart OOOO since the previous Title V permit was issued. All changes to this section were due to the removal of EUCE-13 and discussed above in the discussion for Minor Modification R30-05100145-2019(MM01).

Section 7.0. Natural Gas Dehydration Units Not Subject to MACT Standards and being controlled by Condenser and Recycling the Dehydration Unit Back to Flame Zone of Reboiler

- This section has requirements from R13-2913 and 40 C.F.R. 63 Subpart HH. The changes to this section due to the issuance of R13-2913D are addressed in the Minor Modification R30-05100145-2019(MM01) section above. There have been no changes to the applicable requirements of 40 C.F.R. 63 Subpart HH in this section since the initial Title V permit was issued.

- **40 CFR Part 64 – Compliance Assurance Monitoring (CAM)**

This rule applies to the dehydrator still vents (EUDHY-1, EUDHY-2, and EUDHY-03) for VOC emissions pursuant to 40CFR§64.2(a) because they are: Pollutant-specific emission units (PSEUs) at a major source that is required to obtain a Title V operating permit; Subject to an emission limitation or standard (i.e., emission limit for VOC (R13-2913E, 9.1.4)); Use a control device (i.e., BTEX Busters (BTEX-01, BTEX-02 and BTEX-03)) to achieve compliance with the VOC limit; and have potential pre-control device emissions of VOC greater than 100 TPY. The post control emissions are below Major Source Threshold Levels which qualify the units as “other” PSEUs, and therefore a CAM plan has been submitted as part of the Title V permit renewal application as specified in 40CFR§64.5(b). Pursuant to 40CFR§64.2(b)(1)(i), since the dehydrators are subject to 40 CFR 63, Subpart HH, they are exempt from CAM for HAP emissions. The remainder of the equipment is not subject to CAM. The engines are subject to 40CFR60, Subpart JJJJ and are, therefore, exempt per 40CFR§64.2(b)(1)(i). The remaining PSEUs do not have pre-control device emissions that are classified as a major source, do not use a control device to achieve compliance, or are not subject to an emission limit or standard.

Condition 9.1.3. of R13-2913E (7.1.3. of the Title V permit) in part requires that the BTEX Busters be fully functional and that they shall be operated according to manufacturer’s specifications and that they shall be properly maintained in a manner which prevents the units from freezing. The non-condensable gas from each BTEX Accumulator shall be routed to a reboiler and combusted through a closed vent system. This condition also requires that for each reboiler burner, the pilot light shall be lit at all times when the dehydration unit is in operation. Therefore, continuous monitoring of the condenser outlet temperature and the presence of the reboiler pilot flame will provide reasonable assurance of ongoing compliance with the VOC limit. Conditions 7.2.2. through 7.2.10., 7.4.6., and 7.5.2. contain the CAM requirements.

		EUDHY-1, EUDHY-2, and EUDHY-3	
		Indicator No. 1	Indicator No. 2
I.	Indicator	Reboiler Burner Pilot Flame operation	BTEX Condenser Exit Temperature
	Monitoring Approach	Continuous monitoring of the pilot flame using a thermocouple and burner management system (BMS) to ensure the pilot flame is present at all times the dehydration units are in operation	Continuous monitoring of the condenser exit temperature using a thermocouple.
II	Indicator Range	Indicator provides data regarding presence or absence of pilot flame.	Temperature shall not be above 150 °F
	A. QIP threshold	The permittee has chosen not to propose a threshold at this time since it is not required for this permitting action by 40 C.F.R. §64.8(a). Although the threshold is not required, the language for a QIP as it relates to other applicable requirements is set forth as permit condition 7.2.9.	The permittee has chosen not to propose a threshold at this time since it is not required for this permitting action by 40 C.F.R. §64.8(a). Although the threshold is not required, the language for a QIP as it relates to other applicable requirements is set forth as permit condition 7.2.9.

		EUDHY-1, EUDHY-2, and EUDHY-3	
		Indicator No. 1	Indicator No. 2
III	Performance Criteria		
	A. Data Representativeness	The thermocouple is installed, in accordance with manufacturer’s specifications and monitored by the BMS.	The thermocouple is installed, in accordance with manufacturer’s specifications downstream of the condenser.
	B. Verification of Operational Status	All manufacturer’s recommendations regarding periodic testing/checks for the proper installation and operations of the flame detecting device will be followed.	The BTEX Condensers are regularly inspected and properly maintained in conformance with the manufacturer’s recommendations
	C. QA/QC Practices and Criteria	The thermocouples are checked annually and maintained including but not limited to, maintaining necessary parts for routine repairs.	The thermocouples are checked annually and maintained including but not limited to, maintaining necessary parts for routine repairs.
	D. Monitoring frequency	Continuous	Daily
	E. Data Collection Procedure	The pilot flame will be monitored daily during the operational round and manual log entries will be performed and recorded via mobile forms.	The condenser exit temperature will be monitored daily during the operational round and manual log entries will be performed and recorded via mobile forms
	F. Averaging Period	There is no averaging period since the pilot flame is either present or absent.	Daily

Section 8.0. Reboilers and Heat Treaters

- This section has requirements from R13-2913 and 45CSR2. The changes to this section due to the issuance of R13-2913E are addressed in the Minor Modification R30-05100145-2019(MM01) section above. There have been no changes to the applicable requirements of 45CSR2 since the initial Title V permit was issued.

Section 9.0 Storage Tanks

- This section has requirements from R13-2913. The changes to this section due to the issuance of R13-2913D are addressed in the Minor Modification R30-05100145-2019(MM01) section above.

Section 10.0. Truck Loading

- This section has requirements from R13-2913. The changes to this section due to the issuance of R13-2913D are addressed in the Minor Modification R30-05100145-2019(MM01) section above.

Section 11.0. Compressor Blowdowns and Pigging Operations

- This section has requirements from R13-2913. The changes to this section due to the issuance of R13-2913D and R13-2913E are addressed in the Minor Modification R30-05100145-2019(MM01) section above.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

- a. 40CFR60, Subparts D, Da, Db, and Dc—Steam Generating Units. These rules do not apply because there are no steam generating units (including line heaters) at this facility with a maximum design heat input capacity greater than 1.0 MMBtu/hr, which is well below the applicability thresholds in these rules specified in 40CFR§§60.40(a), 60.40Da(a), 60.40b(a), and 60.40c(a).
- b. 40CFR60, Subparts K, Ka, and Kb—Storage Vessels. These rules do not apply because all tanks were constructed after July 23, 1989 and there are no tanks with capacity of 75 m³ (471.7 bbl or 19,813 gal) or greater, as specified in 40CFR§60.110b(a), that are used to store volatile organic liquids (VOL) at this subject facility.
- c. 40CFR60, Subpart GG—Stationary Gas Turbines. This rule does not apply because there are no stationary gas turbines at this facility with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million Btu) per hour, based on the lower heating value of the fuel fired. (40CFR§60.330).
- d. 40CFR60, Subpart KKK—Leaks from Natural Gas Processing Plants. This rule does not apply because this facility is not a natural gas processing plant as defined in 40CFR§60.331.
- e. 40CFR60, Subpart LLL—SO₂ Emissions from Onshore Natural Gas Processing Plants. This rule does not apply because there are no gas sweetening operations at this facility, as required in 40CFR§60.640(a).
- f. 40CFR60, Subpart IIII—Stationary Compression Ignition Internal Combustion Engines. This rule does not apply because there are no stationary compression ignition engines at this facility.
- g. 40CFR60, Subpart KKKK—Stationary Combustion Turbines. This rule does not apply because there are no stationary gas turbines at this facility with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million Btu) per hour, based on the higher heating value of the fuel fired, as specified in 40CFR§60.4305(a).
- h. 40CFR63, Subpart HHH—Natural Gas Transmission and Storage Facilities. This rule does not apply because this facility is not a natural gas transmission or storage facility transporting or storing natural gas prior to local distribution and is not a major source of HAP emissions, as specified in §63.1270(a).
- i. 40CFR63, Subpart YYYY—Stationary Combustion Turbines. This rule does not apply because this facility is not a major source of HAP emissions and does not have a stationary combustion turbine, as specified in 40CFR§63.6085.
- j. 40CFR63, Subpart DDDDD—Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters. This rule does not apply because this facility is not a major source of HAP emissions, as specified in 40CFR§63.7485.
- k. 40CFR63, Subpart JJJJJ—Industrial, Commercial, and Institutional Boilers and Process Heaters Area Sources. This rule does not apply because all reboilers (EPRBL-1, EPRBL-2, and EPRBL-3) and heater treater burners (EPHT-1 and EPHT-2) at this facility are gas-fired, as exempted in 40CFR§63.11195(e).

Request for Variances or Alternatives

None.

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: January 23, 2024
Ending Date: February 22, 2024

Point of Contact

All written comments should be addressed to the following individual and office:

Robert Mullins
West Virginia Department of Environmental Protection
Division of Air Quality
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Charleston, WV 25304
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Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Response to Comments (Statement of Basis)

On January 24, 2024, Appalachia Midstream Services, L.L.C. asked for clarification on why “quarterly excess emission reports” were required in condition 7.5.2.a when 40 CFR §64.9(a) requires semi-annual reports. On reviewing the language, it was found to be an error carried over from CAM language used in another permit which required quarterly reporting. Condition 7.5.2.a. has been corrected to read: “On and after the date specified in 40 C.F.R. §64.7(a) by which the permittee must use monitoring that meets the requirements of 40 C.F.R. 64, the permittee shall submit monitoring reports to the DAQ in accordance with permit condition 3.5.6.”