



REGION 8

DENVER, CO 80202

EOG Resources – Compressor Station Full Compliance Evaluation (FCE) On-Site Clean Air Act (CAA) Inspections

Inspection Date(s): February 6, 2024

Inspection Report Date: March 11, 2024

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Company Representatives: None

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Applicable Rules: 40 C.F.R Part 49, Subpart C: Federal Implementation Plan for Managing
Air Emissions From True Minor Sources in Indian Country in the Oil
and Natural Gas Production and Natural Gas Processing Segments of
the Oil and Natural Gas Sector (Indian Country FIP)

40 C.F.R Part 60, Subpart OOOOa: Standards of Performance for Crude
Oil and Natural Gas Facilities for which Construction, Modification or
Reconstruction Commenced After September 18, 2015 (NSPS OOOOa)

Other Rules Investigated: 40 C.F.R Part 60, Subpart JJJJ: Standards of Performance for Stationary
Spark Ignition Internal Combustion Engines (NSPS JJJJ)
40 C.F.R. Part 63, Subpart HH: National Emission Standards for
Hazardous Air Pollutants From Oil and Natural Gas Production
Facilities (MACT HH)

40 C.F.R Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (MACT ZZZZ)

Compliance Assistance

None

Enforcement History

EOG Resources, Inc. (EOG) was issued an administrative complaint and consent agreement for constructing major stationary sources located in Fort Berthold Reservation without first obtaining a PSD permit (Court Docket Number CAA-08-2011-0023) in 2012.

EOG/Pecan Pipeline Company Relationship

Based on available information, Pecan Pipeline Company (Pecan Pipeline) is a wholly-owned subsidiary of EOG. Although Pecan Pipeline's name is on the official entry sign for the sites in Table 1, EOG submits NSPS OOOOa reports for the sites, its personnel operate and maintain the sites, and its legal representative provided responses to EPA questions about the sites after the inspection. Therefore, EPA uses both EOG and Pecan Pipeline throughout this report in referring to the owner/operator of the sites in Table 1.

Areas of Concern

1. Per Pecan Pipeline's submitted Registration for Existing Sources under the Federal Minor New Source Review Program in Indian Country for both the Parshall LCS and Fertile LCS compressor stations, "normal emissions from condensate storage are considered to be zero, because condensate storage occurs on an emergency basis only." During the EPA inspection at the Fertile LCS compressor station, liquids unloading of the condensate tanks via a pumper truck were observed, with significant emissions discharged to the tank flare. Based on questions from EPA, EOG provided the information for years 2018 through 2023 in Tables 2 and 3, after the onsite inspection. As shown in Tables 2 and 3, Pecan Pipeline unloaded liquids an average of 129.2 and 18.8 times from the Fertile LCS and Parshall LCS compressor station condensate tanks, respectively, during the period, meaning the tanks are not used only on an emergency basis. Also according to Tables 2 and 3, the non-registered VOC emission impacts from the storage and unloading activities for the Fertile LCS and Parshall LCS compressor stations, respectively, averaged 4.198 tons per year (tpy) and 0.600 tpy during the period, with a maximum VOC impact of 9.856 tpy and 1.254 tpy. Pecan Pipeline submitted existing source registrations for both sites in 2013, and reported total site VOC emissions of 10.44 tpy and 10.48 tpy, respectively, for Fertile LCS and Parshall LCS, meaning VOC emissions could be roughly double for the Fertile LCS site.
2. The EPA detected hydrocarbon emissions from an unlit flare at the Fertile LCS Compressor Station site.

See Table 1 below for more details regarding inspected locations and Tables 4 and 5 for inspection observation details for all sites. A log of images and videos captured during the inspections is provided in Appendix A.

General Inspection Information

Unannounced inspections were conducted jointly by U.S. EPA and Fort Berthold Indian Reservation (FBIR) Tribal inspectors on February 6, 2023, at EOG facilities located on the FBIR.

The EPA evaluated each EOG site listed in Table 1 using audio, visual, and olfactory (AVO) inspection methods including the use of an optical gas imaging (OGI) camera and EPA Reference Method 22. At each facility, inspectors scanned the crude, condensate, and water storage tanks, closed vent system and flares onsite for any detectable emissions. Specifically, inspectors scanned storage tank covers and closed vent systems for hydrocarbon emissions to determine compliance with the Clean Air Act, including NSPS OOOOa, and other possibly-applicable regulations.

Each site inspection followed the approach below:

1. Record the entry sign of the site when available. Survey the entire site with OGI camera. Record the number and type of site process equipment such as tanks, engines, dehydration units and emission control devices.
2. Record AVO indications of emissions from the storage tanks, closed vent system to the control devices and control devices.
3. Using the OGI camera, survey each process in infrared modes (auto, manual, and/or high-sensitivity modes). Record any uncontrolled emissions with the OGI camera and describe the frequency and magnitude of emissions in the field notebook.
4. Observe control devices (enclosed combustor or utility flare) for visible emissions. If there is visible emissions present, conduct Method 22 and record the observations.
5. If there are operators present onsite, share any Areas of Concern.

Table 1 lists general inspection and facility details for each inspected facility. The site information located in the Table 1 is from the North Dakota Industrial Commission (NDIC) index located online at <https://www.dmr.nd.gov/oilgas/>.

Table 1

Date	Arrival Time	Departure Time	Pad Name	API	NDIC #	Latitude	Longitude
2/6/2024	15:54	16:16	FERTILE LCS Compressor Station	NA	NA	47.8705	-102.2159
2/6/2024	10:30	11:05	PARSHALL LCS (1, 2 3 & 4)	NA	NA	47.9628	-102.1744

Observations and Regulatory Applicability

Fort Berthold FIP and Clean Air Act regulations which are potentially relevant to the inspections are summarized in this section.

Tables 4 and 5 at the end of this report summarize inspection observations and findings. Table 4 contains storage tank observations. Table 5 includes details of control devices and related observations. See Appendix A for a log of images and videos taken during the inspections.

Indian Country FIP, Registration program for minor sources [40 CFR 49.160]

Under 40 CFR 49.160(c)(2), each registration must include, among other things, a list of all emissions units, and the allowable and estimated actual annual emissions of each regulated NSR pollutant in tpy (tons per year). Per Pecan Pipeline's submitted Registration for Existing Sources under the Federal Minor New Source Review Program in Indian Country for both the Parshall LCS and Fertile LCS compressor stations, "normal emissions from condensate storage are considered to be zero, because condensate storage occurs on an emergency basis only. ... the condensate storage tank at this facility is intended to store hydrocarbon liquids in an emergency or malfunction capacity only, in the event of upstream equipment failure. ... If a tank is utilized for hydrocarbon storage, Pecan will calculate related emissions from the event necessitating the tank use and will report those emissions under applicable requirements for unplanned emergency releases to the air."

Pecan Pipeline maintains two (2) condensate storage tanks at each site. During the EPA inspection at the Fertile LCS compressor station, liquids unloading of the condensate tanks via a pumper truck were observed, with significant emissions discharged to the tank flare. Based on questions from EPA, EOG provided the information for years 2018 through 2023 in Tables 2 and 3, after the onsite inspection. As shown in Tables 2 and 3, Pecan Pipeline unloaded liquids an average of 129.2 and 18.8 times from the Fertile LCS and Parshall LCS compressor station condensate tanks, respectively, during the period, meaning the tanks are not used only on an emergency basis. Also according to Tables 2 and 3, the non-registered VOC emission impacts from the storage and unloading activities for the Fertile LCS and Parshall LCS compressor stations, respectively, averaged 4.198 tons per year (tpy) and 0.600 tpy during the period, with a maximum VOC impact of 9.856 tpy and 1.254 tpy. Pecan Pipeline submitted existing source registrations for both sites in 2013, and reported total site VOC emissions of 10.44 tpy and 10.48 tpy, respectively, for Fertile LCS and Parshall LCS, meaning VOC emissions could be roughly double for the Fertile LCS site [Area of Concern 1]. According to the response provided by EOG with the information in Tables 2 and 3, Pecan Pipeline is preparing Part 1 and Part 2 Registrations to reflect the change in unloading activity for the tanks at each facility.

Table 2

Year	Fertile LCS				
	No. of Unloading Events	Barrels of Condensate	Tank VOC Emissions (tpy)	Loadout VOC Emissions (tpy)	Total Non-Registered Emissions (tpy)
2018	80	18,537	0.722	1.813	2.535
2019	51	11,933	0.474	1.167	1.641
2020	78	18,606	0.725	1.82	2.545
2021	310	72,568	2.758	7.098	9.856
2022	86	21,231	0.824	2.077	2.901
2023	170	41,945	1.604	4.103	5.707
Avg	129.2	30803.3	1.185	3.013	4.198
Max	310	72568	2.758	7.098	9.856

Table 3

Year	Parshall LCS				
	No. of Unloading Events	Barrels of Condensate	Tank VOC Emissions (tpy)	Loadout VOC Emissions (tpy)	Total Non-Registered Emissions (tpy)
2018	40	9,077	0.366	0.888	1.254
2019	25	5,813	0.243	0.569	0.812
2020	10	2,374	0.113	0.239	0.352
2021	10	2,201	0.107	0.223	0.33
2022	13	3,061	0.139	0.303	0.442
2023	15	2,825	0.13	0.281	0.411
Avg	18.8	4225.2	0.183	0.417	0.600
Max	40	9077	0.366	0.888	1.254

While at the Fertile LCS Compressor Station site, the EPA observed un-combusted hydrocarbon emissions from an unlit flare at the site [Area of Concern 2]. Per Pecan Pipeline's Registration for the site, the flare is expected to operate 365 days per year at a 98% combustion efficiency.

NSPS OOOOa Applicability

To be subject to NSPS OOOOa, EOG must commence construction, modification, or reconstruction of one or more onshore affected facilities within the Crude Oil and Natural Gas Production source category, which includes compressor stations, after September 18, 2015. Based on information reported by EOG in NSPS OOOOa reports, the sites in Table 1 contain affected facilities—reciprocating compressors and fugitive emission equipment—which are subject to NSPS OOOOa requirements.

Reciprocating Compressor Requirements [§ 60.5365a(c)]

Under 40 CFR 60.5365a(c), each reciprocating compressor, which is a single reciprocating compressor, is an affected facility subject to NSPS OOOOa requirements. Rod packing emissions must either be routed under negative pressure through a closed vent system to a control device, or the rod packing must be replaced within 26,000 hours or 36 months of initial startup, since August 2, 2016, or since the previous reciprocating compressor rod packing replacement (whichever is latest). At both the Parshall LCS and Fertile LCS compressor stations, EOG operates three (3) reciprocating compressors subject to the control requirements of NSPS OOOOa. Based on EOG's 2023 reporting year report for the sites, the cumulative number of months of operation since the previous reciprocating compressor rod packing replacement was reported to be 3.1 months for the Parshall LCS compressor station, and 3.5 months for the Fertile LCS compressor station.

Good Air Pollution Control Practices [§60.5370a(b)]

Under 40 CFR 40 CFR 60.5370a(b), facility owner/operators must, at all times, including periods of startup, shutdown, and malfunction, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. The EPA, using an OGI camera, observed emissions from the unlit air-assisted Flare Industries flare at the Fertile LCS compressor station, indicating poor air pollution control practice for minimizing emissions. See Area of Concern #2 above.

NSPS JJJJ Applicability

NSPS JJJJ applies to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE). Based on observations by the EPA inspectors, no SI ICE were identified onsite. At both the Parshall LCS and Fertile LCS compressor stations, EOG uses electric motors to operate the three (3) reciprocating compressors at each site. Therefore, it is believed that NSPS JJJJ does not apply to the facilities.

MACT HH Applicability

MACT Subpart HH applies to oil and natural gas production facilities which are either major or area sources under 40 CFR Part 63. Based on information reported by EOG in its registrations for both the Fertile LCS and Parshall LCS compressor stations, the sites have a potential to emit hazardous air pollutants (HAP) which is less than 10 tons per year of any individual HAP, and less than 25 tons per year of combined HAPs, and are therefore considered area sources. Total HAPs were reported to be 0.13 tons per year.

Area sources under MACT HH are only subject to requirements for triethylene glycol (TEG) dehydration units. TEG dehydration units are exempt from control requirements if the actual annual average flowrate of natural gas to the glycol dehydration unit is less than 85 thousand standard cubic meters per day, or the actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram per year. Based on information in EOG's registration for both sites in Table 1, as well as piping observed by the EPA inspectors, EOG captures emissions from the dehydration unit process vents and re-routes them to the process, resulting in reported annual benzene emissions less than 0.02 tons per year. EOG is therefore exempt from TEG dehydration unit control requirements at both sites.

MACT ZZZZ Applicability

MACT ZZZZ applies to stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. Based on observations by the EPA inspectors, no RICE were identified onsite. At both the Parshall LCS and Fertile LCS compressor stations, EOG uses electric motors to operate the three (3) reciprocating compressors at each site. Therefore, it is believed that MACT ZZZZ does not apply to the facilities.

Table 4: Inspection Details: Storage Tank Observations				
Site	Number of Storage Tanks	AVO (Audio, visual, olfactory) Observations	Emissions Description	Media File Name
FERTILE LCS Compressor Station	2	None		
PARSHALL LCS (1, 2 3 & 4)	2	None		

Table 5: Inspection Details: Control Devices and AVO/OGI Observations									
Site	Number of Control Device	Control Device Type	Visible Pilot Flame (Y/N)	Active Flaring (Y/N)	Method 22 Observations	Emission Description	Media File Name	Slope to K/O Drum	Notes
FERTILE LCS Compressor Station	2	Air assist	Y, N	Y	None	Large air assist (likely Flare Industries similar to Parshall LCS), unlit. UBHC from large air assist. Other flare, smaller Cimarron flare, operating and flaring (truck loading during onsite inspection). Manual mode used for second OGI video	MOV_3486, MOV_3488		
PARSHALL LCS (1, 2 3 & 4)	2	Air assist	Y	No	None				Air assist flares, one was Flare Industries, #10-0246

APPENDIX A: Photograph and Video Log

File Name Prefix	File Number	Description	Site Name
IMG	17	Entry Sign Photo	PARSHALL LCS (1, 2 3 & 4)
IMG	32	Entry Sign Photo	FERTILE LCS Compressor Station
DC/MOV	3456	Site Overview	PARSHALL LCS (1, 2 3 & 4)
DC/MOV	3485	Site Overview	FERTILE LCS Compressor Station
DC/MOV	3486	Unlit flare	FERTILE LCS Compressor Station
DC/MOV	3488	Unlit flare	FERTILE LCS Compressor Station