

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N622070589

FACILITY: PLAINS LPG SERVICES RAPID RIVER TERMINAL		SRN / ID: N6220
LOCATION: 10955 US HWY 41, RAPID RIVER		DISTRICT: Marquette
CITY: RAPID RIVER		COUNTY: DELTA
CONTACT: Brett Lewis , Operations Supervisor		ACTIVITY DATE: 12/15/2023
STAFF: Drew Yesmunt	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Targeted Inspection FY24		
RESOLVED COMPLAINTS:		

Facility: Plains LPG Rapid River Terminal (SRN: N6220)

Location: 10955 US Hwy 41, Rapid River, Delta County, MI

Contact(s): Brett Lewis, Operations Supervisor

Regulatory Authority

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

Facility Description

Plains LPG Rapid River Terminal is a Plains Midstream Canada pipeline station that separates propane out of natural gas liquids. Plains Midstream Canada is a subsidiary of Plains All American Pipeline, a publicly traded partnership that works in the transport and storage of crude oil, natural gas liquids (NGLs), and natural gas across Canada and the United States. The company has been in business since 1981 and currently owns interest in 18,370 miles of pipeline. The Rapid River Terminal began operation in 1996 and currently has six full-time employees. The facility is located on Plains' Line 5 pipeline, 2 miles north of Rapid River in Delta County, an area that is in attainment for all criteria pollutants.

The Rapid River Terminal utilizes a depropanizer to separate propane out from NGLs. The facility has a fractionation capacity of 10,000 barrels of NGLs per day. Propane production varies with seasonal demand, ranging from approximately 500 to 3,500 barrels of propane per day which is stored in four 90,000-gallon bullets. From the bullets, propane is shipped by rail or truck and is distributed to customers for domestic use. The source operates a flare and hot oil heater as emission sources and utilizes fixed gas detectors to monitor the process equipment for leaks.

In October 1995, the facility received a letter from the AQD District Supervisor confirming the facility was able to use exemptions to construct and operate the site. As the site has not had any modifications or additions since its initial construction in September 1996, the facility is not subject to Rule 201 and is not required to have a PTI. The facility is subject to 40 CFR Part 60 Subpart KKK performance standards for equipment leaks of VOCs from onshore natural gas processing plants.

Process Description

Natural gas fractionation is a process by which natural gas produced from wells is separated into various products using pressure and temperature swing processes. Natural gas liquids are comprised of ethane, propane, butanes, pentanes, and hexanes.

In the fractionation process, heat is applied to an NGL mixture to allow lighter products, ethane and propane, to vaporize off from heavier products which get pumped back into the pipeline. The vaporized products are then cooled and pressurized, allowing the desired end-product, propane, to condense and separate from any lighter waste products, which are flared off. The propane is collected and transported to a storage vessel for later distribution.

Emissions

The primary pollutants emitted from the fractionation process are VOCs, specifically natural gas liquids that are gaseous under standard conditions. VOC emissions occur largely during leak events but also may be emitted from relief valves during emergency conditions. A small fraction of these gases also may go unburned and escape during the flaring of waste gases and the firing of the hot oil heating furnace.

Other less emitted pollutants from this source include carbon monoxide, particulate matter, nitrogen oxides, and sulfur dioxide. Carbon monoxide and particulate matter are formed from the incomplete combustion of NGLs during flaring and firing of the hot oil heater. NO_x is formed from the interaction of nitrogen and oxygen during combustion. Sulfur dioxide is formed during combustion as trace amounts of H₂S may be mixed with NGLs and burn off during flaring and firing of the oil heater.

Emissions Reporting

The table below shows the facility's Michigan Air Emissions Reporting System (MAERS) 2022 submittal.

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Pollutant	Emissions (PPY)	Emissions (TPY)
VOC	25825	12.9125
CO	4140	2.0700
NOx	4929	2.4645
PM10	375	0.1875
SO2	30	0.0150

Compliance History

The facility has not received any violation notices in the past five years. The facility was last inspected in June 2015 in response to a complaint regarding suspected improper handling of H2S. The facility was found to be in compliance with all applicable air quality rules and regulations at that time.

Inspection

On December 15, 2023, AQD staff (Drew Yesmunt) conducted a targeted inspection of the Plains LPG Rapid River Terminal in Rapid River, MI. AQD staff arrived at the facility and met with the operations supervisor, Brett Lewis. It was explained that the purpose of the inspection was to ensure compliance with all applicable air pollution control rules and federal regulations the facility was subject to. The inspection began with a site-specific safety training and site overview. A tour of the facility was then provided. It was explained to AQD staff that no additions or modifications had been made to the facility or equipment since the site was constructed in 1996. Following the inspection, a records request was sent to Brett Lewis. The request included an analysis as per Michigan Admin Code R 336.1278 for each emission unit at the source in order to allow the use of applicable exemptions from Rule 201.

EUFLARE

This emission unit is a John Zink EEF Series air assisted flare. The flare tip is mounted on a self-supported riser to provide a stack height of 100 ft. The unit has a design capacity of 2,750 MMBtu/h. At the time of the inspection, the unit was operating, but was paused to allow AQD staff to approach the nameplate. The nameplate of the unit confirmed the manufacturer and serial number of the flare. This unit is exempt from permitting under Rule 288(c) as a sweet gas flare.

EUHOTOILHEATER

This emission unit is a furnace produced by Optimized Process Furnaces, Inc. to heat oil for the fractionation process. The unit has a design capacity of 17.652 MMBtu/h and has a 61.74 ft vertical stack. At the time of the inspection, the unit was in operation. The nameplate confirmed the manufacturer and serial number. This unit is exempt from permitting under Rule 282(b)(i) as fuel-burning equipment which is used for oil and gas production or processing and burns only sweet natural gas, synthetic natural gas, liquefied petroleum gas, or a combination thereof, and has a rated heat input capacity under 50,000,000 Btu per hour.

EULEAKS

This emission unit encompasses any leak events that come from the process equipment and relief valves on-site. There are fixed gas detectors across the facility that are able to detect and alert people on-site to the presence of a leak. As per 40 CFR 60 Subpart KKK, the facility is required to maintain records of all leaks detected, and these records must be retained for two years on-site. Over the past two years, no leaks have been detected. The process equipment for this unit is exempt from permitting under Rule 288(a) as gas odorizing equipment and Rule 288(d) as equipment for the separation or fractionation of sweet natural gas.

EUTANKS

This emission unit includes a 30,000-barrel sphere used to hold NGLs and effluent from the fractionation process, four 90,000-gallon bullets used to hold propane, and a 2,350-gallon tank used to hold oil for indirect heating. The sphere and bullet units are exempt from permitting under Rule 284(j) as pressurized storage of substances, excluding chlorine and anhydrous ammonia, in a quantity of more than 500 gallons, that have a boiling point of 0 degrees Celsius or lower. The oil tank unit is exempt from permitting under Rule 284(c) as storage and surge capacity of indirect heat transfer fluids.

Compliance

Based on this inspection and records reviewed, Plains LPG Rapid River Terminal appears to be in compliance with all applicable air pollution control rules and federal regulations. It was conveyed to the facility that no violations were observed during the on-site inspection.

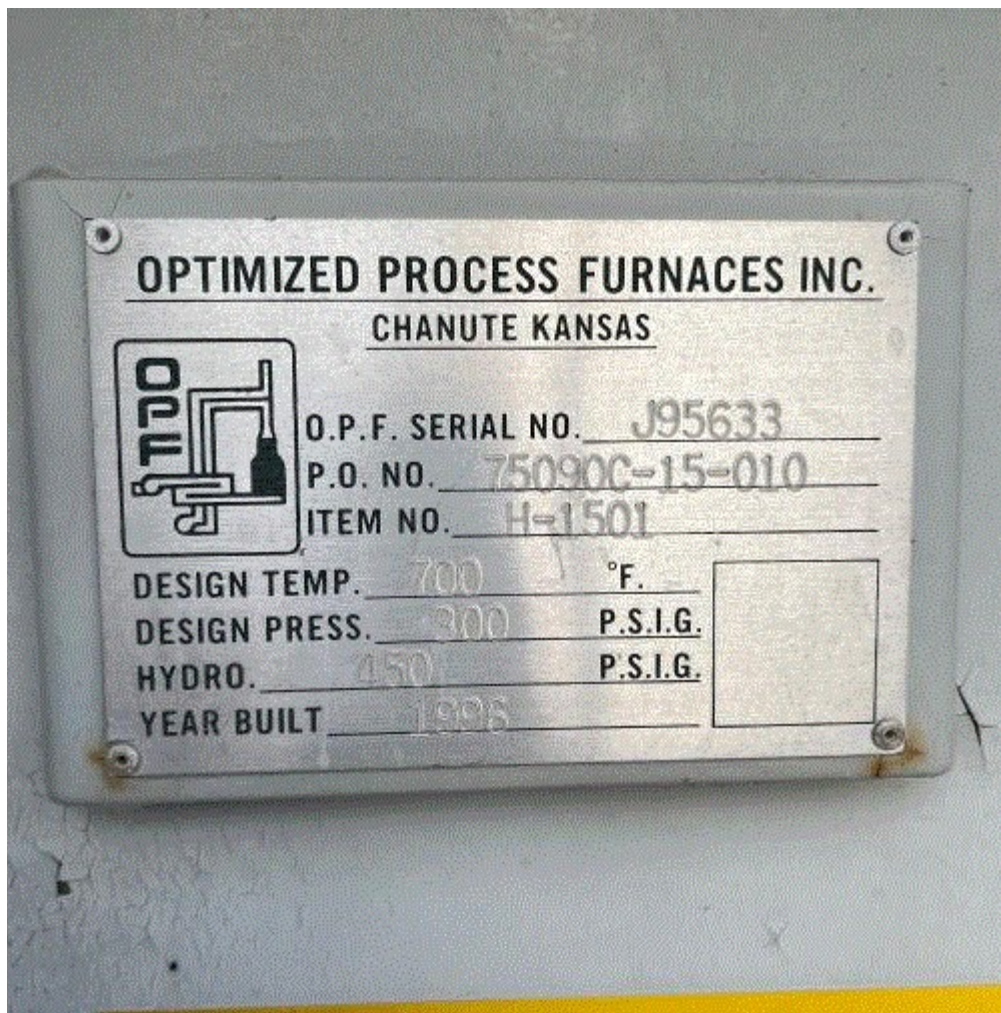


Image 1(Heater Nameplate) : Nameplate for EUHOTOILHEATER.



Image 2(Flare Nameplate) : Nameplate for EUFLARE.



Image 3(Stacks) : EUFLARE (left) and EUHOTOILHEATER (right) stacks.

NAME *Drew Yerman*

DATE 1-22-2024

SUPERVISOR *Michael Kline*