

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

P049872560

FACILITY: BLUEWATER GAS STORAGE, LLC - KIMBALL GAS STORAGE		SRN / ID: P0498
LOCATION: 750 SCOTT ROAD, KIMBALL TWP		DISTRICT: Warren
CITY: KIMBALL TWP		COUNTY: SAINT CLAIR
CONTACT: James Jensen , Senior Engineer - Environmental		ACTIVITY DATE: 07/10/2024
STAFF: Noshin Khan	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: scheduled on-site inspection		
RESOLVED COMPLAINTS:		

On Wednesday, July 10, 2024 I, Noshin Khan, Michigan Department of Environment, Great Lakes, and Energy-Air Quality Division (EGLE-AQD) staff, performed a scheduled, on-site inspection of Bluewater Gas Storage, LLC - Kimball Gas Storage, located at 750 Scott Road, Kimball Township, Michigan 48074. (SRN: P0498). The purpose of the inspection was to determine the facility's compliance status with the requirements of the federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended (Act 451); the AQD administrative rules, and the conditions of Permit to Install (PTI) 158-14.

I met Bluewater staff at 9AM at Bluewater Gas Storage, LLC - Columbus Storage. Bluewater staff informed me it would be easier to review records at this site since it has a conference room and the Booster and Kimball stations do not. I met with Ron Churchill, Supervisor - Gas Control; Frank Rasmussen, Engineer; Jeffrey Westrick, Asset Manager - Gas Storage Power Generation; and Suzanne Coats, Administrative Assistant. James Jensen, Senior Engineer - Environmental (WEC Energy Group) is based out of Milwaukee, Wisconsin and joined the meeting over the phone.

Jeff explained the facility's processes. The Bluewater Kimball site is a storage site where natural gas is injected into reef formations underground during the warmer months and withdrawn for distribution through the pipeline during the winter months. During this meeting, I reviewed monitoring, inspection and maintenance records required by PTI 158-14 EUDEHY. I discuss these below in the *Permit Compliance Evaluation* section. After discussing operations for Bluewater Kimball and Bluewater Booster, Frank and Ron accompanied me to visit both sites.

At the Kimball site, gas was not being processed. I observed the blowdown stack at the corner of the site. I also observed glycol dehydration process equipment including a reboiler, pumps, and a drip tank. Frank pointed out the glycol recirculation continuous monitoring device on the process line. It read 0 gal/min. Frank explained that there were 2 meters for process gas: one was located on a new well just outside the gate of the site, and another was located on the line within the site. I observed both meters. Neither have their own displays but a reading is available in the control room on the site. Here, I read a value of 0 MMCF. The control monitor also showed a pressure of 1555 psig upstream and a pressure of 1551 psig downstream.

Frank and Ron walked me through the compressor building on site. Near the exit of the site is a small emergency generator. According to Frank, this is rated at 25 kW and James later confirmed that the generator has a maximum heat input capacity of 0.40 MMBtu/hr. Both the compressor engine and the emergency generator engine are rated below 10 MMBtu/hr and consequently exempt from permit requirements per Michigan Air Pollution Control Rule 285(2)(g). Since the compressor engine is a non-emergency engine, it is subject to 40 CFR Part 63 (MACT), Subpart ZZZZ. The AQD has not accepted delegation to enforce MACT Subpart ZZZZ at area sources and Bluewater Kimball is an area source of HAPs. I discuss the compressor engine's compliance with the federal regulation under *EU-KIMCOMP*, below.

Per James, facility has one natural gas line heater rated at 3.0 MMBtu/hr installed in 2000. The facility claims exemption Rule 282(b)(i) for the unit since it has a heat input capacity less than 50 MMBtu/hr; since the facility is an area source, the heater is not subject to NSPS or NESHAP.

Permit Compliance Evaluation: PTI 158-14, EUDEHY

The conditions of this permit section apply to the glycol dehydration system processing gas from an underground reservoir.

The records I received are available on the AQD shared drive at the following address: S:\Air Quality Division\STAFF\Noshin Khan\FY24\P0498 Bluewater Kimball.

Special Condition (S.C.) I.1, V.1, VI.4, VI.6: The unit is limited to a benzene emission limit of 0.285 tons based on a 12-month rolling time period as determined each calendar month.

Per James Jensen, benzene emissions calculations are performed using the GRI-GLYCalc program using the most recent wet gas analysis as inputs to the program, in compliance with S.C. VI.4. In accordance with S.C. VI.6, James provided copies of the results of wet gas analyses performed in 2022, 2023, and 2024, demonstrating that the test is performed annually as required by S.C. V.1.

The benzene emissions calculations provided show that from January 2022 through June 2024, the highest 12-month rolling benzene emissions were 0.000168 tons as calculated in January 2022. This is below the limit.

During the pre-inspection meeting, Bluewater staff showed me a spreadsheet containing the hourly benzene emission rate required by S.C. VI.4. James said that this is calculated using the GRI-GlyCalc program using the most recent wet gas analysis as inputs. The 2022 hourly benzene emission rate was 0.0466 lb/hr; the 2023 value was 0.0624 lb/hr; the 2024 value is 0 lb/hr because the wet gas analysis did not detect benzene in the sample.

S.C. II.1: According to Bluewater staff, stripping gas is not processed through EUDEHY as required by this condition.

S.C. III.1, VI.3, VI.5: Condition III.1 limits the glycol recirculation rate to 1.25 gallons per minute (gpm). Conditions VI.3 and VI.5 require that a device monitor and record the glycol recirculation rate of EUDEHY continuously, and I observed this device during the site walkthrough. Frank verified that an alarm sends a notification to the control room when a reading exceeds 1.25 gpm.

During the pre-inspection meeting, Bluewater staff showed me hourly glycol recirculation rate records for May 2022 through May 2024. Ron explained that the readings in this spreadsheet are the values recorded at the top of the hour. Bluewater staff pointed out one exceedance that occurred on December 30, 2022 because Bluewater was performing maintenance of the glycol pump. James provided records after the inspection showing that the glycol recirculation rate is recorded continuously (every 15 minutes). The records during the December 30, 2022 exceedance show that it occurred between 9:45AM and 11:00AM, with the highest recorded value at 1.61 gpm. James explained that maintenance was being performed on the glycol pump during this period and once maintenance was complete the recirculation rate decreased to below the limit.

The continuous glycol recirculation rate records also showed exceedances on December 23, 2022 (1, 15-minute reading at 10:15PM - 1.26 gpm); December 24, 2022 (1, 15-minute reading at 12:30AM - 1.27 gpm); and December 29, 2022 (2, 15-minute readings at 4:15PM and 4:30PM - 1.49 gpm and 1.44 gpm).

I asked James for additional information regarding these exceedances and he explained that the exceedances observed on the 23rd and 24th occurred when the facility was coming back on-line following a power outage and staff were in the process of resetting the pumps. The observed readings on December 29 and 30 occurred while performing maintenance on the pumps to resolve the issue. According to James, the power outage may have been the ultimate cause of all the elevated readings in that it may have resulted in the need to make multiple changes to the pump settings and to perform maintenance on the pump.

He also confirmed that natural gas was being processed during these exceedances and during the repair activities on December 29 and 30. Per James, compliance with the facility's benzene emission limit was demonstrated at all times on December 23, 24, 29 and 30. James said that using a glycol recirculation

rate of 1.7 gpm (higher than the highest recorded value of 1.61 gpm during the exceedances) in GRI-GLYCalc resulted in benzene emissions calculated at 0.0635 pounds/hour or 0.278 tons for one-year (8,760 hours) of continuous operation. This conservative calculation is below the permit limit of 0.285 tons. Based on this calculation, the glycol recirculation exceedances did not result in benzene emissions exceedances. The continuous records show that no glycol recirculation exceedances occurred after the repairs were completed on December 30. Since the issue causing the glycol recirculation exceedances was resolved and the benzene emission limit was not exceeded, I am utilizing enforcement discretion and a violation notice will not be issued at this time.

S.C. III.2, VI.2: Condition III.2 limits the natural gas processing rate to 2.92E+6 scf per hour. Condition VI.2 requires that a device monitor and record the natural gas processing rate of EUDEHY continuously, and I observed two monitors during the site walkthrough.

During the pre-inspection meeting I reviewed the hourly natural gas processing rate records (recording values at the top of the hour) on the same spreadsheet as the glycol recirculation rate, with data from May 2022 through May 2024. Bluewater staff pointed out a value of 2.94 MMSCF/hr on November 15, 2022. James later provided continuous (15-minute) and hourly average data showing that the exceedance lasted for one 15-minute reading at 4:00PM. The hourly average for the hour during which this exceedance occurred was 2.89 MMSCF/hr, which is below the limit. The record did not indicate any other exceedances through May 2024.

During the inspection, I asked if an alarm system similar to the one in place for the glycol recirculation rate is installed to sound if the processing rate nears the exceedance limit. Bluewater staff informed me that there was no alarm, but after the inspection James informed me that the facility will be installing one for the natural gas processing rate by fall 2024. Since the hourly average of the gas processing rate during the exceedance was below the limit, the facility is installing a meter/alarm system, and no other exceedances occurred through May 2024, I am utilizing enforcement discretion and no violation notice will be issued at this time.

S.C. IV.1: This condition requires that natural gas only be processed through EUDEHY if the flash tank is installed, maintained, and operated in a satisfactory manner. During the pre-inspection meeting, Bluewater staff said that a third party is contracted to perform an annual inspection and maintenance on the flash tank relief valve. I reviewed maintenance and inspection work orders for November 2021, November 2022, and October 2023. These records indicate regular inspection and maintenance of the flash tank and compliance with the condition.

S.C. VIII.1: The dehydration unit stack is limited to a height of 13.5 feet. I did not verify compliance with this condition.

EU-KIMCOMP

The facility has a Caterpillar G3516, 4SLB, 9.9 MMBtu/hour compressor engine (EU-KIMCOMP), briefly discussed above. Bluewater Gas has a similar compressor engine at the Bluewater Booster Station (N8044), but the units are not identical. James provided an engine specification sheet from the manufacturer which indicates that the fuel consumption of the unit at 100% is 7405 Btu/bhp-hr. The engine is rated at a maximum power of 1340 bhp, so the resulting heat input capacity is 9.9 MMBtu/hr, making the unit exempt from permit requirements since its heat input capacity is less than 10 MMBtu/hr.

EU-KIMCOMP is subject to 40 CFR Part 63, Subpart ZZZZ. The facility has performed annual compliance demonstrations to verify compliance with the emission limits in this regulation and has submitted semi-annual compliance reports. The most recent test was performed on June 20, 2023 and the result reported was a CO emission rate of 0.668 ppmvd @ 15% O₂. The limit is 47 ppmvd. The 2024 test is scheduled for September 11. Bluewater Kimball is an area source of HAPs and the AQD has not accepted delegation to enforce Subpart ZZZZ at area sources. However, based on the reports submitted and testing performed on EU-KIMCOMP the unit is operated in compliance with the regulation.

The facility had exceedances of the glycol recirculation rate on December 23, 24, 29, and 30 in violation of PTI 158-14, EUDEHY S.C. III.1. However, the issue identified was promptly resolved and GRI-

GLYCalc emissions calculations show that the facility maintained operation below the benzene emission limit of 0.285 tons per year. I am utilizing enforcement discretion and a violation notice will not be issued at this time.

NAME Noshin Khan

DATE 10/01/2024

SUPERVISOR K. Kelly