

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

P136172966

FACILITY: NATRON ENERGY INC		SRN / ID: P1361
LOCATION: 70 W 48TH STREET, HOLLAND		DISTRICT: Kalamazoo
CITY: HOLLAND		COUNTY: ALLEGAN
CONTACT: Bill Orabone , Engineer		ACTIVITY DATE: 05/22/2024
STAFF: Cody Yazzie	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled Inspection		
RESOLVED COMPLAINTS:		

On May 22, 2024 Air Quality Division (AQD) staff (Cody Yazzie and Mariah Scott) arrived at 70 West 48th Street, Holland Michigan at 10:30 AM to conduct an unannounced air quality inspection of Natron Energy, Inc. (hereafter Natron) SRN (P1361). Staff made initial contact with Kevin Gagnon, Natron, Plant Manager, and stated the purpose of the visit. Bill Orabone acted as the environmental contact during the inspection process and provided requested records and follow up correspondence.

Natron is a sodium-ion battery manufacturing facility that is producing back up power supply for servers. Natron received their permit to install September 13, 2023. As of the inspection the facility appeared to be in the trial operations stages and not yet operating anywhere near maximum manufacturing capacity. Due to this some emission units have not been installed yet or in a mechanical testing and engineering phase which would not be producing emissions.

In 2023 Natron Energy Inc. SRN (P1361) started leasing space from Clarios and operates their manufacturing process out of the same building as Clarios. While these two companies operate in the same building, they appear to be two separate stationary sources that do not interact with each other. The battery chemistries are different between the manufacturing operations and the ownerships are held by two separate entities.

The facility does appear to be a synthetic minor source of VOCs. FGRTD includes 12-month rolling VOC limits to remain below major source thresholds. Since the facility is new the facility should report emissions to see if the actual emission of the facility exceeds any of the reporting thresholds. The facility may not be subject to fees but could be subject to annual emissions reporting.

Since Natron is a new facility, it has not been inspected yet by the AQD. Staff asked, and Mr. Gagnon stated that the facility does not have any emergency generators, boilers, or cold cleaners.

Mr. Gagnon gave staff a tour of the facility. Required personal protective equipment are steel toe boots, safety glasses, hard hat, and hearing protection. Staff observations and review of records provided during and following the inspection are summarized below:

EUCALENDARING:

This emission unit is for the slitting, calendaring, second vacuum drying, and winding of anode and cathode materials. Emissions from this slitting and calendaring are vented to the general in-plant environment, while emission from the vacuum drying are routed to the RTO.

Special Condition VII.1 requires the facility to report within 30 days after completion of the installation, construction, reconstruction, relocation, or modification to the AQD District Supervisor. It is specified in the condition that completion of installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation. The Kalamazoo AQD District Office did receive a notification of then the RTO was started up but the notification did not include any of the associated emission units. It was clarified during the inspection process that EUCALENDARING started trial operations February 7, 2024.

Special Condition VIII.1 requires the exhaust gases from the slitting and calendaring processes be vented to general in-plant environment. During the inspection the facility appeared to meet this requirement.

EUASSEMBLY:

This emission unit is for the anode and cathode stacking, assembly, and welding operations. The emission from this emission unit is controlled by a high efficiency particulate air (HEPA) filtration system and vented to the general in-plant environment.

Special Condition VII.1 requires the facility to report within 30 days after completion of the installation, construction, reconstruction, relocation, or modification to the AQD District Supervisor. It is specified in the condition that completion of installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation. The Kalamazoo AQD District Office did receive a notification of then the RTO was started up, but the notification did not include any of the associated emission units. It was clarified during the inspection process that EUASSEMBLY started trial operations April 17, 2024.

Special Condition VIII.1 requires the exhaust gases from EUASSEMBLY be vented to general in-plant environment. During the inspection the facility appeared to meet this requirement.

EUELECTROLYTE:

The emission unit is the electrolyte addition and final cell assembly. Emissions occur during the cell connection and disconnection operations.

This emission unit has a 12-month rolling VOC limit and material limit that limits the amount of cells that can be produced in EUELECTROLYTE on a 12-month rolling basis. The facility is limited to 3.97 TPY of VOC emissions per 12-month rolling time period and 6,000,000 cells produced in EUELECTROLYTE per 12-month rolling time period.

Cell production appeared to start in February 2024. The facility provided records for the time period of February 2024 through June 2024. In this time the facility has produced 6779 cells which is well below the 12-month rolling limit. The emission calculation appears to be using a 0.0013 lb of VOC/cell emission factor which was used during the permit application. The emissions from this cell production were calculated and recorded as 0.0045 TPY of VOC emissions. This is well below the permitted limit.

Special Condition VII.1 requires the facility to report within 30 days after completion of the installation, construction, reconstruction, relocation, or modification to the AQD District

Supervisor. It is specified in the condition that completion of installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation. The Kalamazoo AQD District Office did receive a notification of then the RTO was started up, but the notification did not include any of the associated emission units. It was clarified during the inspection process that EUELECTROYLTE started trial operations February 2024.

EUFORMATION:

This emission unit is for the formation operations involving the placement of a temporary seal on the battery cells, followed by heating and cooling, and replacement of the temporary seal with a permanent seal.

During the inspection this emission unit appeared to be in a mechanical testing and engineering phase which would not produce any emissions. Since Staff was told that the emission unit has not been operated in a manner that would produce emissions no records were requested.

Special Condition VII.1 requires the facility to report within 30 days after completion of the installation, construction, reconstruction, relocation, or modification to the AQD District Supervisor. It is specified in the condition that completion of installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation. Once trial operations have commenced the facility should send a notification as required by the condition.

EUINK:

This emission unit is the ink jet marking system used to identify off-specification or defective materials. During the inspection Staff were shown where the emission would be located in the manufacturing process however the emission units were not installed at the time of the inspection. Since the emission units were not yet installed no records were requested.

Special Condition VII.1 requires the facility to report within 30 days after completion of the installation, construction, reconstruction, relocation, or modification to the AQD District Supervisor. It is specified in the condition that completion of installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation. Once trial operations have commenced the facility should send a notification as required by the condition.

EUCLEANUP:

This emission unit is for the cleaning of dry clean room and other areas within the plant with solvent for particle count reduction.

This emission unit has a 0.50 TPY VOC emission limit and a 206 gallon of VOC containing solution usage limit on 12-month rolling time periods. The facility utilizes a 70/30 isopropyl alcohol (IPA) cleaning solvent.

Records provided showed that the facility for the time period of January 2024 through June 2024 Natron used a total of 70 gallons of VOC containing solutions which resulted in 0.1754 Tons of VOC emissions. These are below the permitted limit.

FGDRYMATERIALS:

This flexible group is the dry materials handling and mixing prior to solvent addition. The emissions from this flexible group are controlled by a high efficiency particulate air (HEPA) filtration system. The emission units included in this flexible group are EUANDRYMIX and EUCATDRYMIX.

Special Condition III.1 requires Natron to not operate FGDRYMATERIALS unless a malfunction abatement plan (MAP) for the HEPA filtration system is implemented and maintained. At the time of the inspection the facility did not have a MAP for the HEPA filtration system submitted to the Kalamazoo District Office. From discussions with Natron Staff FGDRYMATERIALS appeared to start operation in March 2024. The facility did submit a MAP for review to the Kalamazoo District Office on July 24, 2024.

Special Condition VI.2 requires the facility to maintain daily pressure drop readings for each dust collector on a calendar day basis when FGDRYMATERIAL is in operation. Staff request the pressure drop records since the start of operation. It was indicated to staff that the facility has not been maintaining records, but the filtration systems are equipped with a system that automatically locks out when a preset differential pressure is exceeded and indicated that a lockout has not happened since operation started. Natron further responded indicating that they have recording pressure drops on days that FGDRYMATERIALS are operated. The facility appears to be in violation of Special Condition VI.2.

Special Condition VI.4 requires the facility to take visible emission readings for FGDRYMATERIAL at a minimum once per calendar month. These records can be either certified or non-certified. The records should include the date time, name of the observer, whether the reader is certified, and status of visible emissions. It was indicated to Staff that the facility has not been maintaining these visible emission records. The facility appears to be in violation of Special Condition VI.4.

Staff indicated to Natron that a violation notice would be sent for operating FGDRYMATERIALS without an approved MAP and not being able to provide recordkeeping for the visible emissions and differential pressure readings.

FGRTO:

This flexible group is for the battery manufacturing operations that are routed to a regenerative thermal oxidizer (RTO). The emission units included in this flexible group are EUCOATING, EUCALENDARING, EUPILOT, EUSOLSTORAGE. On January 3, 2024 the Kalamazoo District Office received a notification indicated that the RTO started operation.

Special Condition III.1 requires the facility to submit a MAP within 90 days of permit issuance. The permit was issued September 13, 2023. This deadline for submittal would occur was December 12, 2023. At the time of the inspection a MAP had not been submitted to the Kalamazoo District Office. On July 25, 2024 Natron submitted a MAP for the RTO.

Special Condition V.1 requires the facility verify the VOC destruction efficiency of a representative RTO stack testing within 180 days of initial start-up. The deadline for this is July 1, 2024. On July 25, 2024 the facility submitted a request to extend the stack testing date. In the extension request the facility indicated that the manufacturing operations are still in the trial stages and

various operations are still only operated in limited quantities roughly 1-2 days per week. The approval letter for the stack testing extension request was sent to the facility on July 29, 2024. In the approval letter it was indicated that the Natron must continue to monitor and maintain the combustion temperature at a minimum 1600 F combustion chamber temperature. The approval letter indicated that the testing deadline was extended an addition 180 days which would make the new deadline January 1, 2025.

The facility is monitoring and recording the combustion temperature in the RTO. Special Condition VI.2 indicates that temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. Staff was provided with temperature data that started in April 2024. The Data provided recorded data in one-minute intervals that would show a maximum temperature and minimum temperature for that minute. A majority of the data showed that the minute intervals only varied a few degrees for the maximum and minimum temperatures.

Special Condition IV.1 requires that the facility not operate any emission unit in FGRTTO unless the RTO is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes a minimum VOC destruction efficiency of 99 percent (by weight) and maintaining a minimum temperature of 1600 F and a minimum retention time of 0.7 seconds. It was indicated to Staff that exhaust streams from emission units controlled from the RTO (EU COATING, EU CALENDARING, EU PILOT, and EU SOL STORAGE) are indicated as being sent to the RTO when the blower speed has a value greater than zero.

From the records provided for the RTO operation the facility appeared to have several instances where the RTO was not maintaining the 1600 F minimum temperature and exhaust streams were being sent to the RTO. A few of the longer time periods appeared to be on startup. These startup times that did not maintain the minimum temperature are noted as the following: 4/29/2024 7:09 – 8:52 (1 hour 43 minutes) in this time period combustion temperature ranged from approximately 363 F – 1599 F; 5/7/2024 8:12 – 9:52 (1 hour 40 minutes) in this time period combustion temperature ranged from approximately 415 F – 1598 F.

Several periods of time during operation the RTO maximum temperature did not maintain a maximum combustion temperature of 1600 F for an interval greater than 15 minutes. The facility appears to operate RTO at a combustion temperature set point that will allow for extended periods of time where the combustion temperature is not maintaining the required minimum operating temperature. The following are time periods where records showed that the minimum combustion temperature was not maintained for a period of 15 minutes or longer: 4/16/2024 9:22 – 9:37 (15 minutes) in this time period the maximum combustion temperatures ranged from approximately 1551 F – 1599 F; 4/17/2024 6:25 – 6:47 (22 minutes) in this time period the maximum combustion temperatures ranged from approximately 1560 F – 1599 F; 4/17/2024 7:04 – 7:19 (15 minutes) in this time period the maximum combustion temperatures ranged from approximately 1578 F – 1599 F; 4/17/2024 8:41 – 9:00 (19 minutes) in this time period the maximum combustion temperatures ranged from approximately 1573 F – 1599 F; 4/18/2024 19:34 – 19:50 (16 minutes) in this time period the maximum combustion temperatures ranged from approximately 1594 F – 1599 F; 4/26/2024 11:29 – 11:52 (23 minutes) in this time period the maximum combustion temperatures ranged from approximately 1575 F – 1598 F; 4/29/2024 9:20 – 10:05 (45 minutes) in this time period the maximum combustion temperatures ranged from

approximately 1536 F – 1598 F; 4/30/2024 8:20 – 8:38 (18 minutes) in this time period the maximum combustion temperatures ranged from approximately 1589 F – 1597 F; 5/2/2024 16:04 – 5/3/2024 00:45 (8 hours 41 minutes) in this time period the maximum combustion temperatures ranged from approximately 1577 F – 1599 F; 5/3/2024 7:53 – 9:06 (1 hour 13 minutes) in this time period the maximum combustion temperatures ranged from approximately 1562 F – 1598 F; 5/3/2024 9:45 – 10:13 (28 minutes) in this time period the maximum combustion temperatures ranged from approximately 1570 F – 1599 F; 5/3/2024 14:21 – 15:17 (56 minutes) in this time period the maximum combustion temperatures ranged from approximately 1548 F – 1599 F; 5/7/2024 11:09 – 11:32 (23 minutes) in this time period the maximum combustion temperatures ranged from approximately 1536 F – 1599 F; 5/31/2024 11:03 – 11:22 (19 minutes) in this time period the maximum combustion temperatures ranged from approximately 1525 F – 1596 F. The facility appears to be in violation of Special Condition IV.1.

FGRTO has two emission limits that require 12-month rolling records. The VOC emission limit in FGRTO is 27.08 TPY and the decahydronaphthalene (DHN) emission limit is 16.40 TPY both are based on 12-month rolling time periods. Records were provided for the time period of January 2024 through June 2024. The largest calculated VOC emissions are noted as 0.6670 TPY in June 2024. The largest calculated DHN emissions are noted as 0.6283 TPY in June 2024. These are below the permitted limits.

The facility also has a material limit on the amount (in pounds) of DHN that can be used in FGRTO. This limit is 3,280,740 lbs stated in Special Condition II.2. Natron provided DHN usage records for the time period January 2024 through June 2024. The records showed that the largest total DHN usage was 125,651 lbs as of June 2024. The facility appears to be well below the facility limit.

Conclusion:

At the time of the inspection and based on a review of records obtained during or following the inspection, the facility appears to be in non-compliance with PTI No. 79-23 for the pressure drop and visible emission reading record requirements in FGDRYMATERIAL, the operation of FGDRYMATERIAL and FGRTO without a submitted and approved MAP, and not operating the RTO in a satisfactory manner by not maintaining 1600 F combustion temperature when operating emission units in FGRTO. Staff stated to Mr. Orabone that a report of the inspection would be sent to the facility for their records. Staff concluded the inspection at 12:00 PM.-CJY

NAME Cody Yegor

DATE 8/7/24

SUPERVISOR Theresa Holt