

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

P009161260

FACILITY: XALT Energy, LLC		SRN / ID: P0091
LOCATION: 2700 S Saginaw Rd, MIDLAND		DISTRICT: Bay City
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Jaimen Waha, EHS		ACTIVITY DATE: 12/07/2021
STAFF: Benjamin Witkopp	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Facility inspection		
RESOLVED COMPLAINTS:		

Ben Witkopp of the Michigan Department of Great Lakes and Energy - Air Quality Division (AQD) met with Jaimen Waha of XALT. Jaimen is the environmental, health, and safety contact at the company. He has been there for about a year. An engineer was also available to answer questions as the need arose. The company makes individual lithium ion battery cells which are subsequently assembled to make battery packs. A large portion of XALT's customers use the battery packs in buses and ferries, though there are many other uses. The facility has air permit 72-10E which was issued in 2016.

Binder raw material and handling is conducted in a single room with the material then routed to anode or cathode production. The site initially uses two separate steps; one for anode production and the other for cathodes. The emissions from anode and cathode production are controlled by their own separate dust collector and high efficiency particulate arrestor (HEPA) filter. Once anodes and cathodes are made, they are coated. Emissions are controlled by a condenser and a concentrating system. The coatings used vary depending on the desired product. Thin copper foil is used in forming anodes while aluminum is used for cathodes. The process is conducted to very tight thickness constraints using roll coating. The process after coating is referred to as SRPO (slit rollpress punching oven) for cell assembly. Eight total cathode and anode punches are used to make the desired sizes / shapes and ovens are used to drive off volatiles. Four lines are then used where pouches are filled and a wetting agent (electrolyte) utilized. This is the first step of what is termed formation. The cell pouches are then heated for about two days. During this period the cells are individually charged and tested for quality. This is currently the bottleneck in production. Jaimen did say there is discussion of potentially adding more capacity to eliminate the bottleneck. The cells are then punctured to allow them to degas. Cell pouches are charged and tested again before being made into battery packs. XALT has significantly cut down on adhesives and subsequent solvent cleanup when making and testing cell pouches. Heat is now used to seal the pouches. The facility also has an area set aside for research / development / testing.

Production records were checked. The months of June, July, and August 2021 were the highest and therefore examined. The largest compound emitted is N- methyl - 2- pyrrolidone and it is a volatile organic compound (VOC). Emissions and controls information is captured via programmable logic controller (PLC). Emissions are calculated by emission factors based upon the number of cells produced.

EUBINDER

The VOC limit is 66 pounds per 12 month rolling time period. Actual emissions were 7.8 pounds.

EUANODE

There is a requirement to follow manufacturers specifications for the dust collectors. The pressure differential is measured in mbar. There are 2.48 mbar per inch of water. The highest dust collector reading was 7 - 8 mbar while the HEPA filter was 1.5 - 1.6. Both were within specifications.

Another requirement is to conduct visible emissions (VE) readings once per calendar month. Those readings are logged by hand and not contained in the PLC. No VEs were observed.

EUCATHODE

Conditions for the cathode line are similar to those of the anode presented above. The ranges found on the cathode line were 1.8 - 10.2 mbar for the dust collector and 1.88 to 2.27 for the HEPA filter. Both were within specifications. No VEs were observed.

EUCCELLPACK

This process step consists of the cell pouch formation and degassing operation. The VOC limit is 8.6 tons on a 12 month rolling time period. Records showed 1.44 tons. Keep in mind adhesive is no longer used to form the pouches; heat is used instead. Therefore, the requirement to track adhesive is irrelevant. The emissions result primarily from the degassing operations.

EUCCELLSTACK

Cell stacking involved the used of solvent based adhesives. This process has been retired and is no longer conducted.

EUELECTROLYTE

The VOC limit is 8.6 tons on a 12 month rolling time period. Records revealed 1.5 tons.

FGCOATING

This process step consists of the roll coating and drying operations. Emissions are controlled by a condenser and a concentrating system. The controls have operating temperature requirements. The condenser air outlet temperature must be less than 30 degrees C. Records showed 17.8 degrees C. The concentrator air inlet temperature must be greater than 170 degrees C. Records showed 190 degrees C.

The process has a VOC limit of 2.2 tons on a 12 month rolling time period. Records showed 0.178 tons.

FGFACILITY

The facility has limits on acetone, methyl ethyl ketone, and isopropyl alcohol. The solvents are used for cleanup. The limits are in tons per 12 month rolling time period. The acetone limit is 11 tons. Methyl ethyl ketones limit is also 11 tons. The limit for isopropyl alcohol is 4.8 tons Usage volumes are tracked but the emissions are not converted to tons per 12 month rolling time period. This was pointed out and should be corrected. However, usages are extremely small. Acetone usage was 18 gallons. Methyl ethyl ketones usage was only 6 gallons. Isopropyl alcohol usage was 11 gallons. Those were the highest usages found and would be tiny fractions of a ton therefore there are no emissions limit concerns.

Emergency engine

The facility does have an emergency engine. Jaimen said it is compression ignition (diesel fired) and rated at 750 KVA. That rating equates to approximately 1,000 horsepower. It was reported as being manufactured in April 2011. Information concerning federal regulation of engines was shared with the company. Jaimen was also provided with information concerning air quality permit exemptions. The engine would be exempt from air permitting via rule 285 (g).

Conclusion

The facility is considered to be in compliance.

NAME B. Z. Thompson

DATE 12-29-21

SUPERVISOR

Chris Hare