

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

U13240207572763

FACILITY: Heritage Crystal Clean Battle Creek	SRN / ID: U132402075
LOCATION: 4039 W Columbia Ave, Battle Creek	DISTRICT: Kalamazoo
CITY: Battle Creek	COUNTY: CALHOUN
CONTACT: Kenneth McDaniel , Facility Manager	ACTIVITY DATE: 03/28/2024
STAFF: Jared Edgerton	COMPLIANCE STATUS: Compliance
	SOURCE CLASS:
SUBJECT: Inspection conducted by staff to determine if facility was compliant with exemption requirements. Facility had a complaint sent in due to air quality issues inside the facility. Staff determined that additional complaints and investigations are necessary before further action can be taken.	
RESOLVED COMPLAINTS:	

On March 28th, 2024, Air Quality Division (AQD) staff (Jared Edgerton and Cody Yazzie) arrived at 4039 W Columbia Ave, Battle Creek Michigan at 12:15 PM to conduct an unannounced air quality inspection of Heritage Crystal Clean (HCC) Battle Creek. Staff met with Ken McDaniel, facility manager. He is listed as the onsite contact for the facility, and he answered all operational questions.

Crystal Clean is an unregistered facility, exempt from the requirement to obtain a PTL. The facility operates under Rule 336.1291 for emission units with de minimis emissions. This was the first time AQD staff have performed an inspection here at this location, and it was prompted by an anonymous complaint call. Below is a summary of the onsite inspection.

Inspection Walkthrough:

The inspection started with Mr. McDaniel contacting Rebekah Schulenberg, who is the specialist for environmental compliance. Ms. Schulenberg informed AQD staff that the facility is an antifreeze recycling operation and has the capacity to accept up to 1.9 million gallons of spent antifreeze per year. She stated that the facility operates under exemptions and that a potential to emit (PTE) demonstration was performed when a new ammonia scrubber was added to the building. The PTE demonstration is attached to this report and explains the exemption status of the facility. After a short pre-inspection meeting, AQD staff were led to the beginning step of the process. Spent antifreeze comes in on large trucks and is stored in twelve above-ground storage tanks ranging in size from 80 gallons to up to 25,000 gallons. These tanks were located in one large room. Mr. McDaniel stated that the antifreeze that comes into the facility has about 70 percent water, 25 percent glycol product, and 5 percent impurities. These glycol products are assumed to be ethylene glycol which is a listed Hazardous Air Pollutant (HAP). One of the impurities in the antifreeze is ammonia, approximately 400 parts per million by volume (ppmv). This is also a listed Toxic Air Contaminant (TAC).

Mr. McDaniel stated that the spent antifreeze is then pumped from the storage tanks through a filter press to remove the solid impurities. The antifreeze then goes to a glycol still bottom tank. This tank is used to remove the sludge material that settles at the bottom out of the antifreeze. During the inspection a tanker truck was pumping out the still bottom. Once the solids have been removed, the liquid is sent to the vacuum distillation process to remove the water, and to concentrate the glycol antifreeze product. A boiler is used to heat the antifreeze up to 235 degrees Fahrenheit and vaporize the water out of the antifreeze. It is assumed by the facility that this steam is 95% water, and 5% ethylene glycol by volume. With the water

removed, the distillation vessel is heated up to 345 degrees Fahrenheit to vaporize the ethylene glycol. The distillate of concentrated glycol is routed through a condenser to be collected in 10,000-gallon storage tanks. In an adjacent room, the liquid is stored in three storage tanks. AQD staff noticed that one of the tanks had a venting tube that releases to the ambient air. Mr. McDaniel stated that this tank is used to store the antifreeze after the water is removed, and that the exhaust is mostly water. The heating process in the distillation vessel uses non-contact water from the boiler. At this stage, the concentrated glycol has ammonia impurities in it. The glycol is then pumped to an air stripper to remove the ammonia. The glycol from the stripper is then sent through a carbon filter to remove additional impurities before flowing into storage tanks for blending and distribution. In these final tanks, the concentrated glycol is about 50 percent glycol and 50 percent water. It is then mixed with a virgin 80 percent glycol product and then packaged for distribution.

AQD staff were led to the final room where final product is stored to be shipped. Staff then requested to walk around the building to inspect stacks and the ammonia scrubber. No elements of the stack dimensions were concerning. A cooling tower on the side of the building had a leak and was spraying water. Mr. McDaniel stated that this problem was known and being addressed. All observed mist from the leak was just water, and not additional emissions release. Staff inspected the ammonia scrubber and made a note to investigate whether it would be able to comply with an exemption. The inspection concluded back in an office where Ms. Schulenburg was called. AQD staff informed her that more investigation was needed on the one storage tank that releases steam outside of the building and the ammonia scrubber to make sure they meet exemption requirements. Ms. Schulenburg stated that a PTE demonstration was already conducted for the facility and that this document would show the facility's compliance with exemptions. After the inspection, this PTE demonstration was requested on April 8th, 2024. The PTE was sent by email to AQD staff on May 14, 2024, and hard copy was also requested.

Conclusion of Inspection / PTE Determination

Based on what was observed during the walkthrough, no air quality concerns were observed at the facility. A PTE demonstration was requested to determine compliance with Michigan air pollution control rules.

This PTE demonstration was performed by Trihydro Corporation on behalf of Heritage-Crystal Clean. This letter has been attached to this report, and a summary of the demonstration is below:

The letter outlines air emission units and processes at the facility that meet the air permit exemption criteria in Rule 278 and are eligible for specific exemptions listed in Rule 280 and 291. Emission sources at the HCC location include two vacuum distillation systems, two natural gas fired boilers, antifreeze storage tanks, ammonia air scrubber, and a cooling tower. These emission sources emit criteria pollutants including carbon monoxide, nitrogen oxides, particulate matter less than 10 microns, particulate matter less than 2.5 microns, sulfur oxides, and volatile organic compounds. Additionally, these emission sources emit ethylene glycol which is a hazardous air pollutant (HAP) and toxic air contaminant (TAC). Ammonia is also released which is a toxic air contaminant.

HCC Battle Creek facility is not subject to prevention of significant deterioration or New Source Review for major sources in nonattainment areas. It is not a major source for HAPs, and not subject to 40 CFR Part 61. Based on the PTE data, the facility does not exceed the Rule 119 significance levels. Therefore, Rule 278 does not apply, allowing the facility to claim exemptions. The facility-wide potential emissions for each air contaminant are less than the thresholds listed in Table 23 of Rule 291, and the emissions meet the conditions listed in subdivisions (a) through (d) of exemption 291. The boilers used at the facility are both less than 10 million British thermal units per hour, which meets the exemption criteria under Rule 282.

After reviewing what was observed during the on-site inspection and reviewing the PTE demonstration from Trihydro, it appears that the facility is currently in compliance. Staff concluded the inspection at 1:20 PM. -JLE

NAME



DATE

7/23/24

SUPERVISOR

