DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N779554297

FACILITY: ZF Axle Drives Marysville		**SRN / ID:** N7795
LOCATION: 2900 Busha Highway, MARYSVILLE		**DISTRICT:** Warren
CITY: MARYSVILLE		**COUNTY:** SAINT CLAIR
CONTACT: Brian Miller , Environmental Specialist		**ACTIVITY DATE:** 07/30/2020
STAFF: Robert Elmouchi	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled inspection.		
RESOLVED COMPLAINTS:		

On July 30, 2020, I conducted a targeted virtual inspection of ZF Axle Drives Marysville, LLC **(SRN: P1048)**. This facility is located at 2900 Busha Highway, Marysville, MI. The purpose of this inspection was to determine the facility's compliance 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 PA 451, as amended (Act 451); the administrative rules; and Permit to Install No. 147-07C.

ZF Axle Drives Marysville (ZF) primarily produces axle drive components for major automotive manufacturers in the North America region.

RECORDKEEPING
On July 20, 2020, I received records from Mr. Brian Miller, ZF Environmental Specialist, via email.

EU-AMMONIA
Per VI.1, the permittee shall keep, in a satisfactory manner, records of the date of annual review and **approval of the emergency response plan with the local fire department** [emphasis added].

Per my request, ZF provided a copy of the St. Clair County L.E.P.C. Risk Analysis Subgroup Meeting Minutes. I reviewed the minutes of the ZF Marysville Axel Drives LLC Site Plan Review by the St. Clair County L.E.P.C. Risk Analysis Subgroup. The review was conducted on Tuesday, March 10, 2020. The minutes stated, “Moved by Bill Gilmer and supported by Trevor Floyd to approve the facility site plan.” This record appears to demonstrate compliance with this special condition.

Per emails with Brian Miller, on August 27, 2020, I confirmed that ZF does have a remotely operated shut-off valve is installed, which is compliant with special condition IV.1.

FG-HEATTREAT
I reviewed the permit required records. The highest 12-month rolling VOC emission from July 2019 through June 2020 was 1.6 tons per year, which complies with the 1.9 tons per year permit limit.

In 2019, the monthly quench oil usage rate varied from 1,930.0 gallons to 0.0 gallons.
In 2019, the monthly quench oil disposal rate varied from 470 gallons to -110 gallons. This variation appears acceptable because oil recycling is a batch process that does not occur monthly.

The ammonia usage records indicate that from July 2019 through June 2020, the greatest 12-month rolling emission was 6.0 tons per year, which complies with the permitted limit of 20.2 tons per year.

FGFACILITY
Per records provided, from July 2019 through June 2020 the greatest 12-month NOx emission total was 53.16 tons, which is in compliance with the permit of 90.0 tons per year.

Per records provided, from July 2019 through June 2020 the greatest 12-month rolling natural gas use was 238.46 MMcf, which is in compliance with the permitted limit of 908 MMcf. During this inspection, I asked if the natural gas meter reading was temperature compensated. Mr. Miller contacted the utility and forwarded the following reply, “Brian, yes our gas meter is temperature and pressure compensated. Your billing also reflects that reading.” This appears to indicate that the reported natural gas values are valid.

SITE INSPECTION
During the virtual on-site inspection, I observed the overall plant interior, the heat-treating furnaces, roof vents and stacks, bulk compressed gas storage, and the natural gas meter.

In addition to a 1,000-gallon ammonia tank, the permittee also has the following compressed gas storage tanks:

Argon, boiling point = -185.8 degrees C, tank size = 528 gallons
CO2, boiling point = -78.46 degrees C, tank size = 750 lbs.
Helium, boiling point = -268.9 degrees C, tank size = 2707 gallons
Nitrogen, boiling point = -195.8 degrees C, tank size = 792 gallons

Per R 336.1284(2)(j), the pressurized storage of acetylene, hydrogen, oxygen, nitrogen, helium, and other 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 is exempt from the permitting requirements of R 336.1201 (1). Therefore, these tanks appear to be exempt from air permitting requirements.

EU-AMMONIA IV.3.
Per IV.3, “any vapor or liquid line, exclusive of couplings, requiring venting after ammonia transfer shall be vented through a water trap of 55 gallons minimum size.”

Each furnace has an ammonia flow regulator. Mr. Miller and I discussed the potential of an ammonia release that may occur if an ammonia regulator diaphragm fails. Mr. Miller explained that the ambient pressure side of each regulator is connected to a pipe that is vented through the roof. If a regulator diaphragm fails, there would be a brief release of ammonia followed by an automatic shutoff. I observed one of the regulator vents on the roof during this inspection.

Per conversations with Mr. Miller, it appears that the regulator vents were not identified in the permit application. Furthermore, it is impractical for the permittee to comply with special condition IV.3 because the back pressure from venting a regulator through a water trap will cause the regulator to malfunction. It is also logical to assume that if the permittee were aware that this special condition applied to the regulator vents, an appropriate control device would have been specified. Special condition IV.3 was written to control toxic emissions from the ammonia tank. This special condition applies to any vapor line requiring venting after ammonia transfer and therefore the ammonia regulators appear to be subject to this special condition. This non-compliance shall be cited in a violation notice.

On August 27, 2020, I sent the following email message to Mr. Brian Miller, which states in part,

“Hi Brian,

I wanted to answer your question regarding the requirement to vent ammonia through a 55-gallon drum of water per PTI 147-07C, EU-AMMONIA, IV.3.

These permit conditions are based upon two rules: R 336.1225, and R 336.1901 (complete text rules below).

R 336.1225 (Rule 225) states in part,
“Rule 225. (1) A person who is responsible for any proposed new or modified emission unit or units for which an application for a permit to install is required by R 336.1201 and which emits a toxic air contaminant shall not cause or allow the emission of the toxic air contaminant from the proposed new or modified emission unit or units in excess of the maximum allowable emission rate which results in a predicted maximum ambient impact that is more than the initial threshold screening level [ITSL] or the initial risk screening level [IRSL], or both, except as provided in subrules (2) and (3) of this rule and in R 336.1226."

Ammonia (CAS No. 7664417) has an ITSL of 350 micrograms per cubic meter (Fig. 1), which is the basis of applying Rule 225 and requiring a control device (55-gallon water drum).

R 336.1901 (Rule 901) regulates air contaminants that are injurious to human health or create an unreasonable interference. Ammonia emissions have the potential to be injurious or create an unreasonable interference.

In conclusion, the 55-gallon drum of water is a control device. Rule 225 and Rule 901 are the regulatory basis for Special Conditions IV 1. & 3.

Additionally, per your message below, “In order for the regulator to operate properly, the vent line must be open to the atmosphere without any back pressure.” I agree with your concern that venting through a 55-gallon drum of water may interfere with proper regulator function. Therefore, it appears that compliance with Special

Condition IV.3 is not practical. Nevertheless, ammonia emissions must comply with the rules.

I suggest that ZF Axle Drives Marysville submit a permit to install (PTI) application. In the application, you can provide detailed information about the potential to emit ammonia during a 12-month period (e.g. emissions during normal regulator operation, and emissions from a regulator failure, regulator failure frequency, the height of vent above ground and above the roof, etc.). Additional information may provide compliance options."

[end of email text]

Per subsequent emails with Mr. Miller, I have determined that the pressure release vent on the ammonia storage tank is not vented through a water trap of 55 gallons minimum size. This con-compliance with EU-AMMONIA, IV.3 shall also be cited in a violation notice.

CONCLUSION
It appears that ZF Axle Drives Marysville is in compliance with all evaluated conditions except EU-AMMONIA, IV.3 for failing to install water traps of 55 gallons minimum size on the ammonia storage tank vent. This non-compliance shall be cited in a violation notice.

NAME Robert Ulmer DATE September 22, 2020 SUPERVISOR Joyce