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

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FACILITY: ADVANCED HEAT TREAT CORP		SRN / ID: N6452	
LOCATION: 1625 ROSE ST, MONROE		DISTRICT: Jackson	
CITY: MONROE		COUNTY: MONROE	
CONTACT: Jeff J. Machcinski, V.P. of Engineering		ACTIVITY DATE: 08/15/2024	
STAFF: Diane Kavanaugh Vetort	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT	
SUBJECT: Complete FCE SM Opt Out facility.			
RESOLVED COMPLAINTS:			

# FACILITY: N6452 Advanced Heat Treat, 1625 Rose Street, Monroe 48162

# Contact: Jeff Machcinski, VP Engineering, (319) 291-3398, machcinskij@ahtcorp.com

On August 15, 2024 the Department of Environment, Great Lakes and Energy (EGLE), Air Quality Division (AQD) conducted a complete scheduled compliance inspection of the Advanced Heat Treat Corporation (AHTC) located at the above address in Monroe, MI. The purpose of the inspection was to determine the Facility's compliance with the applicable federal and state regulations, particularly Michigan Air Pollution Control Act 451, Part 55, the administrative rules, and the conditions of AHTC's Air Use Permits to Install (PTI) Nos. 281-01, 77-11 and 157-22. AHTC PTI 281-01 includes the limit for Hazardous Air Pollutants (HAP) to below the major source thresholds of 10 tons single HAP and 25 tons multiple HAPs. This is referred to as an Opt-Out permit. AHTC's Trichloroethylene batch vapor degreaser is subject to the National Emission Standards for HAPs for Halogenated Solvent Cleaners 40 CFR Part 63, Subpart T. This is also called the Degreaser Maximum Achievable Control Standard (MACT). They have an installed natural gas fired emergency generator subject to the federal 40 CFR Part 63, Subpart ZZZZ, Reciprocating Internal Combustion Engine (RICE) MACT.

AHTC is required by the Degreaser MACT to submit their emission estimates in Semi-annual and Annual Exceedance Reports to demonstrate compliance with the emission standard. They also are required to report annually through MIENVIRO (online AQD reporting system). Their 2023/2024 reports to date were received timely and indicate compliance.

AHTC is a specialty heat treating company. They conduct Plasma Nitriding & Gas Nitriding on a variety of metal parts; they are a batch type operation. They use numerous portable chambers, various shape, sizes and designs, to harden a wide variety of steel machine parts. The electric powered chambers accomodate various part sizes, including very long parts like cylinders. They remove oxygen by vacuum and inject gases which then heat the parts and bond with the metal surface for different types of hardness. The parts and gases have a purple neon glow when the gases are reacting with the metal. This can be seen through site glass in each chamber. Not all parts require degreasing prior to heat treatment. They also operate two blast machines (existing large and new small), and a Bake oven to clean or harden some parts and also use hand spray/wiping for some parts.

### SITE INSPECTION

AHTC is located in an industrial park. I met with Jeff Machcinski, V.P. of Engineering. Jeff and I conducted a pre-inspection meeting and he accompanied me during the physical walk through of the facility. Jeff was cooperative, he answered all my questions and requests for information. He informed me AHTC has approximately 22 employees and operates reduced hours currently only 6 AM to 5 PM Monday through Friday.

Per Jeff, the **significant changes** since the prior inspection include 1) they obtained PTI 157-22 and installed this equipment. 2) They participated in an EPA public hearing in December 2023 related to NESHAP Subpart T (Degreaser MACT) and the phase out of TCE. This will impact their remaining TCE degreaser and they have been researching options for replacing this solvent. Jeff said EPA indicated a final rule may be coming soon. I told him I was not aware of this and would look into this further. 3) Other changes include removal of two exempt devices: (3) cooling towers, aqueous parts washers, and a surface treatment of metal parts process. 4) the installation of a new small Tumblast blasting machine with collector and inplant exhaust (this was referred to above).

During the inspection Jeff gave me an updated hard copy of their Permit to Install Exemptions spreadsheet. He also gave me an updated Degreaser MACT report that includes July 2024, and the EUMGA12 month rolling nitrogen oxides (NOx) emissions record through July 2024. The remaining recordkeeping of Facility-wide HAPs 12 month rolling period ending July 2024 was requested to be submitted following the inspection. This was received in an email later in the day.

AHTC submited MIENVIRO (new annual reporting system started in 2023) for the Ammonia Tank, TCE Vapor Degreaser and other exempt equipment emissions. AHTC's **2023** annual VOC emissions as reported in MIENVIRO were 10.35 tons; HAPs 4.8 tons. Steel processed 968.75 tons. TCE 769.7 gallons.

**AHTC's PTI No. 281-01** covers two vapor degreasers FGDEGREASERS. The smaller sized vapor degreaser was removed from service in 2005 leaving only the larger EUDEGREASER2 Model TI-144E, 155 gallons, still operating. I observed that the degreaser was not operating during the inspection and the cover was in place. I observed the overhead crane lifts used to move parts into/out of the unit. I observed the 55 gallon drums of TCE both full and empty in the area. The full drums were observed to be sitting on containment skids (spill trays). Jeff explained they are transferring the TCE solvent into the EUDEGREASER2 by pumping the solvent directly into the degreaser below the vapor line. During the prior inspection I observed the chemical pump, the pump hose that is directly attached to the unit. Jeff explained they also pump out the spent liquid and solvents from the bottom of the unit as needed and these are placed in drums and disposed of through US Ecology.

#### Emission Limits

Condition 1.1a Trichloroethylene **limit 1708 lb/month-three month rolling time period** as determined at the end of each month. Condition 1.1b Trichloroethylene **limit 9.9 tons/year-12 month rolling time period** as determined at the end of each calendar month.

AHTC has chosen to comply with the **Degreaser MACT** by using the Alternative Standard - Overall Emission limit. The MACT requires the EUDEGREASER2 meet an **emission limit of 150 kg/m2/month**.

For the Semi-Annual reporting period January – June 2024, AHTC TCE emissions for the three month rolling average time period ending June 2024: **808.00 lbs average = 78.98 kg/m2/month < 150 kg/m2/mo**. Total pounds solvent 2024 to date through July 5739. COMPLIANT

Following the inspection I received AHTC spreadsheet record of individual and combined HAPs 12 month rolling emissions. As of month ending July 2024 the overall combined **HAP emissions reported are 5.18 tons** for the12 month rolling time period. COMPLIANT

### Material Usage Limits

Condition 1.2 states they shall **not use more than 1600 gallons of trichloroethylene (TCE) per year based on a 12-month rolling period** as determined at the end of each calendar month.

Following the inspection I received AHTC recordkeeping spreadsheet reporting **TCE usage - 12 month** rolling = 810.6 gallons. COMPLIANT

## Process/Operational Limits

Condition 1.3 states the company shall not operate FGDEGREASERS except in compliance with the overall emission limit requirements of 40 CFR 63.464(a)(1).

AHTC reported emissions are below established emission limits based on 40 CFR 63.464(a)(1). SEE ABOVE under Emission Limits. Condition 1.4 states the company shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63, Subparts A and T. AHTC appears to be in compliance with 40 CFR Part 63, Subparts A and T.

### Recordkeeping/Reporting/Notification

All records shall be kept on file for five years. AHTC is keeping the required records.

Condition 1.5 requires AHTC record the amount solvent used each month and on a 12-month rolling time period. AHTC is keeping the required records.

Condition 1.6 requires calculations of the Trichloroethylene emissions shall be kept on a monthly, 3-month rolling time period, and on a 12-month rolling time period. AHTC is keeping the required records.

Condition 1.7 requires records shall be kept as required by 40 CFR 63.476.

a) The dates and amounts of solvent that are added to and removed from degreasers. AHTC is keeping the records of the dates and amounts of solvents added and removed.

b) The solvent composition of waste removed from degreasers using the procedures described in 40 CFR 63.465(c)(2). AHTC contracts with US Ecology, Detroit since @1995 to pick up and haul their solvent waste composition for disposal.

c) Calculations sheets showing how monthly emissions and rolling 3-month average emissions from degreasers were determined and the results of all calculations. AHTC records are being kept.

Condition 1.8 requires submittal of reports to AQD as specified in 40 CFR 63.468. (R336.1205 (3), R336.1225, R336.1702 (A), 40 CFR Part 63 Subpart T). AHTC has been submitting these required reports twice a year.

## PTI 281-01 FGFACILITY HAPS

All records shall be kept on file for five years. AHTC is keeping the required records.

### **Emission Limits**

2.1a. Individual HAP-Less than 10 tons per year, and 2.1b. Combined HAPs-Less than 25 tons per year. As stated above the primary HAP is TCE and emissions of all HAPs as of month ending July 2024 were **5.18 tons.** COMPLIANT

## Recordkeeping/Reporting/Notification

2.2 Calculations of the individual HAPs and combined HAPs emissions shall be kept on a monthly and 12month rolling time period. AHTC is keeping the required records. COMPLIANT

**AHTC's PTI No. 77-11** covers the Anhydrous Ammonia Storage Tank EU-AMMONIA used in the gas nitriding heat treat process. Tank storage capacity is @ 2,000 gallons. Jeff explained the atmosphere is NH3 which breaks down to 25% N2 and 75% H2. The exhaust gases pass through what AHTC calls incinerators, which I observed appeared to be the size of a catalytic convertor or muffler type section located prior to the exhaust exit (horizontal out building wall). The permit references compliance with Part 78, Storage and Handling of Anhydrous Ammonia - (1910.111) or Rule 7801. It appears Department of Labor and Economic Growth General Industry Standards apply and MIOSHA may inspect. The AQD underlying applicable requirement is Rule 901.

## Process/Operation Restrictions and Design Equipment Parameters

This tank is located behind the facility which is located in an industrial park. It was observed to be fenced. AHTC relies on supplier, AIRGAS, who delivers material to also maintain the tank. Ammonia transfer is direct from Truck to tank.

AHTC is responsible for portion leaving the tank and entering the facility which includes the remotely operated internal or external positive shut-off valves. There is one outside the building so no one has to enter during an alarm/emergency. I observed one location within the plant at an exit and another on the top piping of the Tank where the emergency shut off buttons are located. Per Jeff, loss of power automatically shuts the valve where the second button is and the button requires power to operate. There are no hoses located on or used for this storage tank since it is not an agricultural application. It is hard piped into the facility.

During the prior inspection, Jeff had told me that AHTC does have an on-site Pollution Incident Plan (PIP) or emergency response plan involving the applicable State and Local agencies including the Fire Department. Jeff confirmed they have not had a spill or reported release since last year 2023. At that time AQD was notified under Rule 912 and the incident was properly handled and is documented in AHTC's plant files.

**AHTC's PTI 157-22** covers the new Anhydrous Ammonia Storage Tank EUMGANH3 used in the new gas nitriding heat treat process EUMGA. Tank storage capacity is @ 1,000 gallons.

## Emission Limits

Condition 1. EUMGA required **NOx limit of 4.8 tons per year**, based on a 12 month rolling time period.

AHTC records show NOx emissions of **0.04 tons as of the 12 month period ending July 2024**. The current Emission Factor is 0.86 lb NOx/ton metal. COMPLIANT

AHTC record also lists the PVC lbs/input per month. Most months indicated 2.20 lbs PVC.

## Material Usage Limits

Condition II.1 states they shall not process more than 10 tons of metal per batch.

AHTC record reports Tons Metal input /month (not batch) and their record indicates from January 2023 through July 2024, the monthly total did not even exceed 10 tons except in two months, May"23 was 10.2 tons, and Aug"23 was 10.1 tons. Appears to be COMPLIANT

#### <u>Process/Operational Restrictions and Design/Equipment Parameters</u> EUMGANH3 is held to the same, similar or more stringent conditions as the existing EUAMMONIA Tank (above).

## Testing / Sampling

AQD may require testing of EUMGA for NOx compliance. No testing has been required to date.

## Monitoring Recordkeeping

Records are required of NOx emissions, tons of metal processed, the amount of PVC used, to be kept monthly and on a 12 month rolling time period. COMPLIANT

Detailed records are required for any malfunction or leak from any emission unit in FGMGA. An emergency response plan is also required with any recordkeeping. AHTC stated no malfunction or leak has occurred since the known event in 2023.

AHTC was required to submit notice of completion of installation of this EUMGA equipment within 30 days after completion, to the AQD District Supervisor in writing. Record indicates submitted February 15, 2023. COMPLIANT

During the facility inspection I observed the majority of the Plasma Nitriders were not operating, or were in preparation to operate. Only one was observed in operation and this was near to the facility's loading dock. Per Jeff they are all electric. The names of each unit are similar, Jeff identified them as MB, MC, MD, and a larger unit was MF. I observed MT, MW, MH, then MA and MJ (smaller blue horizontal units). I observed MK was taken apart with workers in area.

The Gas nitriders, MN, MV and MGA (new) were also not operational. The newest one was installed. I observed the MN and MV's Ring burners (incinerators) are located on a scaffold type structure and sit next to each other, these control emissions. MGA has its own separate unit. Ductwork observed includes cooling air intake from ambient. Stack exhaust exit north plant wall and then are vertical with a rain cap. Jeff explained the two different Nitrider style units, one is a Base style, and other is Inverted style. The Units sit in a pit partially below the main floor and the "tops or bottom" can be removed to load them depending on the style.

We then walked outside the building on the north side to observe the Ammonia Tanks, the Gas Nitrider exhaust stacks, and the Blast room dust collector. Housekeeping was good and I did not observe anything unusual or of concern.

### MISCELLANEOUS EXEMPT EQUIPMENT

During my inspection I observed other processes installed and operating at AHTC that qualify for exemption from the Rule 201 Permit to Install requirement. I received an updated spread sheet listing all exempt process equipment. AHTC appears to have all applicable processes listed includes: HVAC ventilation, Blast Room w/exhaust/control, (new) small Tumblast Unit, Heat treating stress relief oven, small Emergency Generator (2012), laboratory equipment, Storage of 2,500 gallon Nitrogen and Hydrogen (Material Management Division permitted), Ion Nitriding Vessels (vacuum pump oil emissions and Ammonium Chloride/HCI emissions).

I have previously observed the Emergency Generator, located outside near the AirGas Nitrogen and Hydrogen fenced storage. It is natural gas and is automatically run monthly to test. Per Jeff there have been no power losses requiring its use. Jeff later provided the details of the unit: Generac Power Systems, Model 6412710100 SN# 2087505 Engine Model WSG1068 Engine SN# 050544675 Engine 6.8 L Max HP 225 Continuous HP 160 Fuel Nat Gas Volts 480 Amps 225.5 kW 150 Phase 3 Freq 60 Hz PF .80

I observed the Clemco Ind. Metal parts blast cleaning booth – a large enclosed booth (with door) with ambient exhaust proceeded by an appropriately designed and operated dust collector. It was not operating today. It uses 150/180 grit aluminum oxide. The pulse jet cartridge type collector is outside and has two enclosed drums collecting waste material. I observed the collector had a Magnehelic gauge and Jeff said they monitor this and dispose of the collected material in their regular waste disposal to landfill (Stevens is their waste hauler). It appeared to be in good condition and the housekeeping was good. Note: AHTC had the incorrect exemption citation in their spreadsheet. I advised Jeff it should be updated to Rule 285(2)(I)(B) and/or (C). I also observed the new smaller Tumblast Unit, it wasn't operating but the Dust Collector was running. This also appears to qualify for the same exemption.

AHTC also operates a large Jenson 2 MMBTU/hr rated capacity natural gas-fired Batch furnace used for "stress relieving" metal parts, brittleness etc... The inside chamber temperature is operated within a range of 300 degrees F to 1200 degrees F. Per Jeff it is normally operated between 500-600 degrees F, and rarely at 1200 degrees F for stress relief/annealing. It has an exhaust system gas passes through prior to exiting (horizontal out the rear wall). There are no coating operations at the facility and this is not a "burn off" oven. This oven was not operating during the inspection.

All AHTC records received during and following the inspection are attached to this report and placed in AQD's plant files.

#### COMPLAINCE SUMMARY

At this time it appears that AHTC is in substantial compliance with the applicable state and federal requirements and the conditions of their PTI Nos. 157-22, 281-01 and 77-11 and the Halogenated Solvent Cleaner NESHAP (Degreaser MACT). The overall housekeeping at the facility was very good and I did not observe any ambient odor, visible emissions, or fugitive dust issues or concerns. AHTC was advised to continue to comply with the federal RICE MACT ZZZZ for their emergency generator.

NAME Miane Kavanaugh Vetort

DATE 08/22/2024

& C SUPERVISOR