

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

N375365945

FACILITY: Alter Trading Corporation		SRN / ID: N3753
LOCATION: 100 SUPERIOR AVE, KINGSFORD		DISTRICT: Marquette
CITY: KINGSFORD		COUNTY: DICKINSON
CONTACT: Darren Engbring , Regional Environmental Director		ACTIVITY DATE: 12/02/2022
STAFF: Joe Scanlan	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Site visit and inspection to determine compliance with PTI 16-15A		
RESOLVED COMPLAINTS:		

REGULATORY AUTHORITY

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

FACILITY DESCRIPTION:

Alter Metal Recycling (Alter) is a scrap metal recycling company that operates a facility located at 100 State Street, Kingsford, Michigan. The property is in a small industrial complex surrounded by undeveloped land. The facility performs fiber, plastics, and electronics recycling in addition to metals. The facility was previously owned by Schneider Iron & Metal, Inc.

PROCESS DESCRIPTION

In the scrap metal shredding process, metal-containing materials (including cars and appliances) are processed through the shredder and are broken down to smaller pieces. The processed material leaving the shredder passes through a ferrous separation system, which separates tramp iron and ferrous metals from non-ferrous material using a magnet feed shaker and z-box/cyclone system. The tramp iron will be recycled back into the separation system and ferrous metals will be removed as the product.

The non-ferrous material is conveyed through a non-ferrous separation system, where mixed and non-ferrous metals are separated from non-metallic materials (fluff and automotive shredder residue, or ASR). The metals will be collected as product and the accumulated fluff is hauled by truck to a landfill.

The facility currently operates a scrap metal shredder, permitted under PTI No. 16-15A.

Alter is a minor source for all pollutants.

REGULATORY SUMMARY

The facility currently operates under PTI 16-15A, which was modified in 2022. The original PTI 16-15 had emission limits for PM only. In July of 2021, US EPA released an Enforcement Alert regarding the potential for excess air emissions from auto and scrap metal shredders at metal recycling facilities.

Significant amounts of non-metal materials are contained in the shredded materials, which can vaporize and become organic air emissions. These materials include plastics, paints, caulks, sealants, rubber, switches, fluids, and fluid residues. The process of grinding and shredding scrap metal generates heat, resulting in residual fluids and fuels becoming gases. The violent nature of the process creates the potential for particulate matter emissions of various sizes. Thus, the process generates emissions of VOCs, particulate matter, and hazardous air pollutants including lead, zinc, cadmium, mercury, and organic pollutants.

Best industry practices include removal and recovery or proper disposal of scrap metal shredding operation that uses a fluids and certain materials prior to shredding (depolluting). These include removal of gasoline and diesel fuel, oil, antifreeze, brake fluid, transmission fluid, etc.; lead-acid batteries; vehicle air bags; capacitors and transformers; switches and light ballasts containing mercury; tires; compressed gas cylinders; and refrigerants in appliances such as air conditioners, dehumidifiers, and refrigerators, as required by the Clean Air Act.

In response to the July 2021 published Enforcement Action, the company proactively contacted EGLE AQD permitting in the Spring of 2022 to review and update PTI 16-15. The focus of the review was on VOCs, TACs, and HAPs. No changes were made to the process/emission unit and there is no increase in throughput/emissions or change in operation.

For the PTI review, Alter provided emissions calculations for the existing shredder (which included emissions from conveyers). Emission factors were pulled from various sources, including stack test reports from different facilities located within Michigan.

EMISSIONS

PM: Particulate emissions (PM₁₀ & PM_{2.5}) are controlled by a Smart Water Injection System. The water injection system is a type of automatic water spray that is common in metallic shredding operations and involves the targeted injection of water at various points in the shredder to reduce the level of dust, smoke, and visible emissions, and to limit the potential for explosions to occur in the shredder. The water is filtered and recirculated for reuse.

Additionally, the z-box is equipped with a cyclone to control PM emissions.

VOC emissions are largely controlled by depolluting material prior to being shredded, as described above.

EMISSIONS REPORTING

This facility is not required to report annual emissions to MAERS.

COMPLIANCE HISTORY

This facility does not have any previous violations.

INSPECTION

On 12/02/22 AQD Marquette District staff (Joseph Scanlan) performed an onsite inspection of Alter Metal Recycling located at 100 State Street in Kingsford, MI. Upon arrival staff met with Darren Engbring, Regional Environmental Director for Alter Metal Recycling, and shredder

operator Andrew Reistad. After a brief introductory meeting, Engbring and Reistad provided a tour of the facility and went over onsite operations.

EU-SHREDDER

Emission Limits

Pollutant	Limit	Time Period / Operating Scenario
1. PM	0.050 lbs per 1000 lbs of dry exhaust gases	Hourly
2. PM10	2.0 pph	Hourly
3. PM2.5	2.0 pph	Hourly
4. VOC	16.1 tpy	12-month rolling time period as determined at the end of each calendar month

SC I.4 12-month rolling VOC emissions from November 2021 to November 2022 were 8.96 tpy, well below the 16.1 tpy limit. Records are attached to this report and on file in the district office.

SC I.5, I.6, & I.7: The hammermill, z-box, and conveyors of EU-SHREDDER shall not exceed a six-minute average of 10 percent. At the time of my inspection there were no visible emissions from any of these sources. The residual moisture in the hammer mill output stream significantly aids in control of fugitive emissions. The facility operates a cyclone in conjunction with the shredder.

Material Limits

SC II.1 The facility is not allowed to process more than 114,400 tons of material through EU-SHREDDER per 12 month rolling time period. The facility submitted records showing a 12-month material throughput of 63,967 tons through November 2022. This is well below the above permit limit.

SC II.2 The facility is not processing asbestos tailing or waste materials containing asbestos in EU-SHREDDER.

SC II.3 The facility does not process batteries. Any batteries are removed from the materials stream during the depolluting process, prior to entering the shredder.

SC II.4 The facility does not process gas tanks unless they have been flatted/punctured.

Process/Operational Restrictions

SC III.1 The permittee shall not operate EU-SHREDDER for more than 6 hours per calendar day and 1,430 hours per 12 month rolling time period. The facility submitted records showing monthly and 12 month rolling operating hours from January 2021 through November 2022. During these 23 months of records, 127 hours were the greatest monthly operating hours, occurring September 2021. Most months were well below these numbers. However, upon further analysis of the September 2021 daily operating record, it was noted the facility had exceeded the 6 hour daily operating limit on 6 of the 20 days the unit was operated that month. 12-month rolling operating hours peaked at 1,129 hours in December 2021, below permitted limits.

SC III.2 The facility removes fluid, freon, and mercury from all materials to be shredded during the depolluting process.

SC III.3 The facility removes and properly disposes freon or other chlorofluorocarbons/halogenated chlorofluorocarbons (CFCs/HCFCs) from materials to be shredded as specified in the Permit to Install Compliance Plan. The company utilizes a contractor with a mobile refrigerant capture unit.

SC III.4 The facility removes and/or inspects/documents removal of mercury-containing devices from vehicles, appliances, and industrial machinery and is properly disposed prior to materials being shredded, as specified in the Permit to Install Compliance Plan.

SC III.5 All non-metal and automotive shredder residue (e.g., fluff) generated by EU-SHREDDER is stored in 3-sided bunkers. Total volume of each bunker is 4200 cubic yards, well below the permitted limit of 7,200 cubic yards.

SC III.6 All fluids, non-metal, and waste materials generated by the EU-SHREDDER are contained and disposed of or recycled in compliance with all applicable state and federal rules and regulations.

SC III.7 A Permit to Install Compliance Plan ("Compliance Plan") has been implemented and maintained. A copy is on file in the district office and attached to this report.

SC III.8 An adequate Malfunction Abatement Plan (MAP) was last updated in 2015 and is implemented and maintained.

SC III.9 Residual moisture from the shredding process prevents any chance of fires starting in the pile of non-metal and automotive shredder residue. Once processed, these materials are typically not on site long enough to dry out. If necessary, the facility has a water truck on site to wet the materials.

SC III.10 A nuisance minimization plan as specified in Appendix A of PTI 16-15A shall be implemented and maintained. There was no visible fugitive dust during my inspection. The facility has a mobile sweeper unit that is operated daily which keeps fugitive dust at bay and if necessary, has a water truck to wet the road and storage piles. Records of sweeping activity are kept; however, the facility has not found it necessary to apply water since the sweeping is so effective and storage piles are usually moist from being processed through the shredder. Therefore, there are no records of water application.

Design/Equipment Parameters

SC IV.1 The facility operates a smart water injection system and cyclone, maintenance is outlined in the MAP.

SC IV.2 The facility monitors the water injection rate, however there is no meter on the unit to record the injection rate. Instead, the facility provided a copy of the water bill for the entire location. From 8/18/2022 to 10/18/2022 the entire facility used 322 gallons of water. The facility needs to install a proper monitoring device on the Smart Water Injection System to be in full compliance with SC IV.2. Shredder motor current is recorded while operating.

SC IV.3 A Z-Box is installed, maintained, and operated satisfactorily on EU-SHREDDER in accordance with the MAP.

Testing/Sampling

SC V.1 All testing/sampling for PM and VOCs is to be completed upon request of the AQD District Supervisor. No requests for testing have been made.

Monitoring/Recordkeeping

SC VI.1, VI.3, VI.4, VI.5 Monthly and 12-month rolling calculations for operating hours, throughput, and VOC emissions and emission factors from June 2019 to November 2022 were proved by the company upon request. Records are attached to this report and on file in the district office.

SC VI.2 The facility does not have a satisfactory method of monitoring daily records of water injection rate for the Smart Water Injection System; they currently use a monthly water usage for the entire location. Daily shredder motor current records are on file.

FGFACILITY

Emission Limits

Pollutant	Limit	Time Period / Operating Scenario	12-month rolling Emissions from Nov 2021 through Nov 2022
1. Ethylbenzene (CAS No. 100-41-4)	0.23 tpy	12-month rolling time period as determined at the end of each calendar month	0.128 tpy
2. Benzene (CAS No. 71-43-2)	0.23 tpy	12-month rolling time period as determined at the end of each calendar month	0.127 tpy
3. PCBs	20.0 lb/yr		11.2 lb/yr

Pollutant	Limit	Time Period / Operating Scenario	12-month rolling Emissions from Nov 2021 through Nov 2022
		12-month rolling time period as determined at the end of each calendar month	

Monitoring/Recordkeeping

SC VI.1 Monthly calculations for Ethylbenzene, Benzene, and PCB emissions and emission factors are being completed and recorded in an acceptable format.

SC VI.2 Records of monthly and 12-month rolling calculations for Ethylbenzene, Benzene, and PCB emissions and emission factors from June 2019 to November 2022 were provided by the company upon request. Records are attached to this report and on file in the district office.

Based on the records provided, facility is using emission factors established in PTI 16-15A and has reported emissions for Ethylbenzene, Benzene, and PCBs well below permitted limits.

CONCLUSION

During the records review, it was discovered that the 6-hour daily operating limit established in SC III.1 of EU-SHREDDER in PTI 16-15 was exceeded on multiple days during September 2021. Additionally, the lack of an adequate monitoring and recording device for the Smart Water Injection System is not compliant with EU-SHREDDER SC IV.2 & SC VI.2 of both PTI 16-15 and PTI 16-15A. To establish compliance, the facility shall not exceed the daily operating limit of 6 hours per calendar day and will install a device(s) to monitor and record the water injection rate of the Smart Water Injection System on a continuous basis and shall keep all records at the facility. A Violation Notice (VN) will be issued to the company regarding these violations.

NAME 

DATE 1/19/2023

SUPERVISOR 