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

M454740781

FACILITY: FRITZ PRODUCTS		SRN / ID: M4547
LOCATION: 255 MARION, RIVER ROUGE		DISTRICT: Detroit
CITY: RIVER ROUGE		COUNTY: WAYNE
CONTACT: U. Sam Amer, Environmental Manager		ACTIVITY DATE: 09/20/2017
STAFF: Jonathan Lamb	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Targeted Inspection, FY 2017. Inspection performed July 20 and September 20, 2017.		
RESOLVED COMPLAINTS:		

DATE OF INSPECTIONS: July 20 and September 20, 2017
 INSPECTION TYPE: Scheduled/Stack Test Observation
 INSPECTED BY: Jonathan Lamb, MDEQ-AQD
 FACILITY PERSONNEL PRESENT: Sam Amer, Environmental Manager; Dave Splan, Vice President; John Splan, Plant Superintendent; Jon Jarrett, Plant Manager
 COMPLIANCE CONTACT: Sam Amer
 FACILITY PHONE NUMBER: (313) 843-8000
 FACILITY FAX NUMBER: (313) 842-7860

FACILITY BACKGROUND:

Fritz Enterprises, Inc. performs secondary aluminum smelting to make aluminum ingots and sows used in aluminum die casting. The facility receives shredded scrap aluminum from its sister facility, Huron Valley Steel in Belleville. The scrap aluminum is processed through a gas-fired reverberatory furnace with a holding capacity of 130,000 pounds to produce aluminum alloy molds.

AQD and the U.S EPA have determined Fritz to be a major source of HAPs and subject to 40 CFR Part 63, Subpart RRR – National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production (Secondary Aluminum MACT). Per the MACT, the furnace is designated as a sidewall group 1 furnace/secondary aluminum production unit (SAPU) with add-on control equipment processing only clean scrap.

Production at the facility operates 24 hours per day, 7 days per week and there are about 30 employees.

COMPLAINT/COMPLIANCE HISTORY:

Fritz is currently involved in an ongoing enforcement action with U.S. EPA which was initiated in 2010. The U.S. EPA issued a Finding of Violation to Fritz on September 27, 2010 for noncompliance of provisions of Subpart RRR, including failure to demonstrate compliance with the emission limit for dioxin/furans (D/F) set in the Secondary Aluminum MACT. U.S. EPA and AQD have determined that the facility is a major source of HAPs and subject to the Title V permitting requirements and the Secondary Aluminum MACT and have cited the facility for failure to obtain a Renewable Operating Permit. The facility submitted an application for a Renewable Operating Permit in June 2014, but the application was determined to be incomplete since it did not include conditions required to demonstrate compliance with the Secondary Aluminum MACT. Processing of the application is on hold until the enforcement action is resolved through a consent order between Fritz and U.S. EPA.

Fritz was issued a Violation Notice on October 11, 2016, for exceeding the opacity limit of 5% over a 6-minute average and for not controlling emissions from the furnace operations, based on Method 9 visible emission observations performed on September 18, 2016. The emissions were caused by a failure in the ductwork along the roof between the furnace and the baghouse. To resolve the issue, the facility repaired the ductwork and revised its malfunction abatement plan to increase the frequency of inspections of the ductwork.

PROCESS DESCRIPTION AND EQUIPMENT:

Fritz receives shredded scrap aluminum from Huron Valley Steel. Fritz uses only "clean charge" as feedstock; clean charge is defined in Subpart RRR as aluminum scrap "entirely free of paints, coatings, or lubricants." All aluminum scrap received by Fritz has been washed, dried, and run through a magnetic separator at Huron Valley Steel prior to delivery to Fritz. After delivery, the scrap is placed into an indoor storage area. To begin

processing, the scrap is loaded into a feed hopper with a front-end loader and passes through an eddy current separator to remove any non-metals from the scrap. The scrap then goes up an incline conveyor to an overhead conveyor, which sends the scrap to the rotary drum preheater. The preheater is heated by exhaust gases from the furnace; no additional fuel is used. Once the scrap is preheated, it is charged into the reverberatory furnace where the aluminum is melted to create an "aluminum bath". The charging of aluminum into the furnace is basically a continuous process, with scrap being added to the furnace until the bath reaches a certain level in the furnace. As scrap is added to the furnace, the melted aluminum is mixed with a "well walker" while gaseous chlorine is injected continuously in the bottom of the aluminum bath. Silica and copper may also be added to the aluminum bath, depending on customer specifications for the alloy.

The chlorine is used as a flux to remove magnesium from the aluminum scrap. Liquid chlorine is vaporized into a gas and injected into the pump well of the furnace, where it is mixed with the molten aluminum in the bottom of the furnace. The injection rate changes throughout the processing based on the varying magnesium content of the scrap added to the furnace; samples of the aluminum bath are taken about once an hour to determine the magnesium content and adjust the injection rate. The chlorine injection rate is electronically monitored and recorded on a continuous basis. A solid cover flux of sodium chloride and potassium chloride is also added to the top of the bath to remove impurities from the aluminum bath. Solid flux is added manually about once an hour and the amounts added are handwritten in a log sheet. Impurities from the scrap adhere to the flux and form a layer on top of the molten metal bath known as dross. The furnace is periodically "dedrossed" where the furnace doors are opened and the surface of the bath is skimmed into a container using the "well walker". Dedrossing occurs just prior to pouring. The dross is sent to Real Alloys in Wabash, Indiana, where it is further processed to reclaim any aluminum lost in the dedrossing.

The furnace is "poured" down a launder (trough) into molds on the ingot line conveyor or into molds on the sow wheel, depending on customer specifications. The ingots and sows are then cooled and stacked onto pallets for delivery to customers. Most of the aluminum is "380 alloy" used for die casting in automotive and other industries.

The aluminum processing is performed on a batch basis. One batch takes around three to three and half hours and produces about 43,500 pounds of aluminum molds per batch. The time between batches can range from 45 minutes to two hours.

PROCESS CONTROLS:

Emissions from the furnace and preheater are ducted to a negative pressure baghouse system comprised of a spark arrestor and three baghouses, and the whole system exhausts to a single stack. The three baghouses are run in parallel; the facility usually runs two baghouses at a time with the third baghouse on standby. Baghouse combinations are alternated as needed based on pressure drop and cleaning cycles. Baghouses are taken off line via a manual process of opening and closing of dampers. Magnehelic gauges are installed on each baghouse to monitor pressure drop.

Hydrated lime is used to control hydrogen chloride (HCl) emissions from the furnace; HCl is produced during the reaction of the magnesium with the chlorine. 50-pound bags of hydrated lime are manually added to a lime hopper and the lime is added into the ductwork upstream of the baghouse via a screw auger. A Powdered Activated Carbon (PAC) system was installed in November 2015 to control dioxin/furan (D/F) emissions below the limits set in Subpart RRR. Similar to the lime injection system, PAC is dumped from bags into a hopper which meters the PAC into the exhaust gas stream. The weight of lime and carbon in the hoppers is monitored by a scale; an alarm is activated if the level of lime or carbon in the hopper gets too low.

Various operating parameters, including baghouse pressure drop, chlorine injection rate, lime and carbon injection rates, and baghouse inlet temperatures, are monitored on a display screen near the furnace and are also monitored and recorded on a computer in the office.

APPLICABLE RULES/ PERMIT CONDITIONS:

Fritz operates under Permit to Install (PTI) No. 15-01A, issued on October 12, 2012. This permit originally set limits on hazardous air pollutants (HAPs) and sulfur dioxide (SO₂) below major source thresholds, allowing the facility to opt-out of Title V permitting requirements. However, MDEQ and U.S. EPA consider this facility to be a major source of HAPs and subject to Title V permitting requirements. The facility has submitted an application for a Renewable Operating Permit, but is contesting the determination that the facility is a major source.

Note: PTI No. 15-01A includes conditions for an iron cupola which was never fully installed; installation was interrupted for more than 18 months, thus voiding the conditions in the PTI No. 15-01A relating to this emission unit. The facility submitted an application for a new permit, PTI No. 157-15, on August 26, 2015, to resume installation of the iron cupola, but withdrew the application and the application was voided on September 15, 2015.

The initial inspection was performed on July 20, 2017. I performed additional follow up and record review on September 20, 2017, while on site to observe HCl and D/F emissions testing. Katy Bellairs of U.S. EPA was also on site to observe the emissions testing on September 20, 2017.

Emission, production, and monitoring records from January 2016 through June 2017 were reviewed to evaluate compliance during this inspection. Copies of all records obtained can be found in the orange facility file.

EUReverbFurnace1 – Reverberatory furnace used to melt aluminum.

II. Material Limits:

1. NOT DETERMINED. The facility provided records showing the amount of chlorine per ton of aluminum charge based on a monthly average. These records show the facility to be below the permit limit of 50 pounds of chlorine per ton; highest monthly average during the compliance evaluation period was 47.18 pounds of chlorine per ton of aluminum in June 2017. However, AQD believes compliance with this limit is required to be determined on an hourly basis, not monthly average. This is supported by the hourly recordkeeping requirement of chlorine addition and the fact that HCl has an hourly screening level that was used in setting the HCl limit in the permit. Therefore, compliance with this condition is undetermined at this time due to noncompliance with the recordkeeping requirement in SC VI.2, and will be reevaluated once the facility submits the chlorine usage rate based upon calculations acceptable to AQD.

III. Process/Operational Restrictions:

1. IN COMPLIANCE. Doors over the charge bin are kept closed when active loading is not taking place. Note: During the inspection, it was noted that there were large holes on the metal above the doors of the furnace, likely due to corrosion.
2. IN COMPLIANCE. Doors over fluxing well are kept closed when fluxing is not being performed.
3. NOT IN COMPLIANCE. At the time of inspection, the cyclone was not in use due to malfunction of the spark arrestor. Facility was running all three baghouses to compensate for this.

VI. Monitoring/Recordkeeping:

1. IN COMPLIANCE. The amount of liquid chlorine used is monitored and recorded on a per hour and per day basis.
2. NOT IN COMPLIANCE. The amount of liquid chlorine used is not monitored and recorded on a pound per ton feed basis. Chlorine usage rate is calculated based on an hourly average based on monthly aluminum throughput.

VIII. Stack/Vent Restrictions:

1. IN COMPLIANCE. Reverb furnace stack appears to meet permit specifications.

EUCUPOLA – 25 ton per hour capacity grey iron cupola.

This emission unit was never fully installed. Since installation of the equipment was interrupted for more than 18 months of permit issuance, these conditions are no longer valid and were not evaluated during this inspection. Installation of the equipment described by this emission unit would require the application of a new permit to install.

EUCASTING – Cupola pouring and casting operations, including an electrically-heated holding vessel and water-cooled continuous caster.

This emission unit was never installed. Since installation of the equipment was interrupted for more than 18 months of permit issuance, these conditions are no longer valid and were not evaluated during this inspection. Installation of the equipment described by this emission unit would require the application of a new permit to install.

EULIMESILO – Lime injection air pollution control equipment storage silo and lime handling.

This emission unit was never installed. Since installation was not commenced within 18 months of permit issuance, these conditions are no longer valid and were not evaluated during this inspection. Installation of the equipment described by this emission unit would require the application of a new permit to install.

FGAluminumMelt – This flexible group consists of EURverbFurnace1 and EUPreheat (Rotary Drum Cylinder used to preheat aluminum fed into EURverbFurnace1), controlled by a shared cyclone and baghouse.

I. Emission Limits:

Pollutant	Limit	Highest Reported Emissions	Compliance Status
1. PM	0.0095 lb./1,000 lb. exhaust gases	0.0015 lb./1,000 lb. exhaust gas ^a	IN COMPLIANCE
2. HCl	2.0 pounds per hour	1.37 pounds per hour ^a	IN COMPLIANCE
3. HCl	8.8 tons per 12-month rolling time period	5.5 tons in 12-month rolling time period ending July 2017	IN COMPLIANCE
4. Visible Emissions	5%, 6-minute average	0%, 6-minute average ^b	IN COMPLIANCE
5. Visible Emissions	5%, 6-minute average	<5%, 6-minute average ^b	IN COMPLIANCE

^aBased on results of emission testing performed September 11-12, 2014.

^bTesting per GC 13 has not been requested by AQD. Facility performs and records Method 9 visible emission readings on a daily basis. These records were reviewed during the inspection and appear to indicate the facility is operating in compliance with these opacity limits. No issues with visible emissions were noted during the inspections.

II. Material Limits:

Material	Limit	Highest Reported Emissions	Compliance Status
Aluminum Throughput	60,000 tons per 12-month rolling time period	33,476 tons in 12-month rolling time period ending June 2017	IN COMPLIANCE
Natural Gas Usage	96.36 MMscf per 12-month rolling time period	69.41 MMscf in 12-month rolling time period ending June 2017	IN COMPLIANCE
Flux Fluoride Content Limit	5% by weight	Facility uses sodium chloride and potassium chloride as solid flux, which do not contain fluorides.	IN COMPLIANCE

III. Process/Operational Restrictions

1. IN COMPLIANCE. Fugitive dust control plan, as described in Appendix A, is implemented and maintained. During the inspections, I did not observe issues with fugitive dust.

2. IN COMPLIANCE. A Malfunction Abatement Plan (MAP) for the lime injection system and baghouse has been approved by AQD and is implemented and maintained. Per AQD request, an updated Operation, Maintenance, and Monitoring (OM&M) Plan, which includes the MAP, was submitted by Fritz on December 14, 2016. During a teleconference with AQD and U.S. EPA on June 29, 2017, Fritz notified the agencies that the cyclone/spark arrestor was not currently in operation; the cyclone was having trouble with blockage and needed to be replaced.

Until the cyclone could be replaced, the facility was running all three baghouses simultaneously and believed this would sufficiently maintain compliance with applicable emission limits.

IV. Design/Equipment Parameters:

1. NOT IN COMPLIANCE. The baghouse associated with FGA Aluminum Melt was not properly installed, operating, and maintained in accordance with OM&M Plan, including the MAP, while the equipment was in operation. During the inspection, the cyclone/spark arrestor was no longer in operation and was scheduled to be replaced in a few weeks. To compensate for that, the facility was operating all three baghouses (rather than just two at a time). Fritz had notified AQD and U.S. EPA regarding this temporary operating scenario and believed that emission control would be equal to or greater than normal operation of two baghouses with the cyclone. During stack testing performed on September 20, 2017, the cyclone/spark arrestor unit had been completely removed and replaced by an in-duct spark arrestor with no cyclone; however, the OM&M Plan, including the MAP, specifically describes the use of a "cyclone mechanical separator" as a component of the baghouse control system.
2. NOT DETERMINED. Automatic lime injection system is installed, maintained, and operated in accordance with manufacturer's instructions and MAP. However, the facility has not demonstrated that the system is able to achieve 95% destruction efficiency through testing, as required in SC V.1, so compliance with the 95% destruction efficiency requirement is undetermined at this time.
3. IN COMPLIANCE. A device to monitor and record lime injection feed rate on a continuous basis is installed and maintained. The device is calibrated every six months, per the OM&M Plan. The inspection and calibration records were reviewed during the inspection.
4. IN COMPLIANCE. A device to monitor and record natural gas usage on a continuous basis is installed and maintained.
5. IN COMPLIANCE. A device to monitor and record baghouse pressure drop on a continuous basis for each baghouse is installed and maintained. Each device is calibrated every six months, per the OM&M Plan. The inspection and calibration records were reviewed during the inspection.

V. Testing/Sampling:

1. NOT IN COMPLIANCE. Facility has not performed testing to verify destruction efficiency of the lime injection system. Testing to verify compliance with the PM and HCl emission rates of PTI No. 15-01A was performed on September 11-12, 2014. Note: The results of testing performed September 11-12, 2014, were not accepted by U.S. EPA as demonstration of compliance with Subpart RRR performance testing requirements.

VI. Monitoring/Recordkeeping:

1. IN COMPLIANCE. Required emission and production records for FGA Aluminum Melt are calculated and maintained in an acceptable format.
2. IN COMPLIANCE. Aluminum throughput is recorded on a monthly and 12-month rolling time period basis.
3. IN COMPLIANCE. Natural gas usage is recorded on a monthly and 12-month rolling time period basis.
4. IN COMPLIANCE. HCl emissions are calculated and recorded on a monthly and 12-month rolling time period basis.
5. IN COMPLIANCE. Facility maintains a listing of the chemical composition of each flux material used, including the weight percent of each component.
6. IN COMPLIANCE. Lime slurry feed rate is monitored and recorded on a continuous basis.
7. IN COMPLIANCE. Pressure drop across each baghouse is monitored and recorded on a continuous basis.

VIII. Stack/Vent Restrictions:

1. IN COMPLIANCE. Baghouse stack dimensions appear to meet permit specifications.

IX. Other Requirements:

1. NOT IN COMPLIANCE. The facility is currently in enforcement action with U.S. EPA over noncompliance with the requirements of Subpart RRR and, as such, is determined to be in noncompliance with this condition. Therefore, a full evaluation of the facility's compliance with the provisions of Subpart RRR was not performed during this inspection. However, it was noted that the facility has not submitted semiannual compliance reports, as required per 40 CFR 60.1516(b).

FGCUPOLA

This flexible group was never installed. Since installation was not commenced within 18 months of permit issuance, these conditions are no longer valid and were not evaluated during this inspection. Installation of the equipment described by this emission unit would require the application of a new permit to install.

FGFACILITY

I. Emission Limits:

Pollutant	Limit	Reported Emissions	Compliance Status
1. CO	342 tons per 12-month rolling time period	3.0 tons for 12-month rolling time period ending July 2017	IN COMPLIANCE
2. NOx	69 tons per 12-month rolling time period	3.9 tons for 12-month rolling time period ending July 2017	IN COMPLIANCE
3. SO₂	97 tons per 12-month rolling time period	0.68 tons for 12-month rolling time period ending July 2017	IN COMPLIANCE
4. VOC	41 tons per 12-month rolling time period	4.8 tons for 12-month rolling time period ending July 2017	IN COMPLIANCE
5. PM	35 tons per 12-month rolling time period	2.8 tons for 12-month rolling time period ending July 2017	IN COMPLIANCE
6. PM10	22 tons per 12-month rolling time period	0.27 tons for 12-month rolling time period ending July 2017	IN COMPLIANCE
7. Individual HAP	Less than 10.0 tons per 12-month rolling time period	5.5 tons of HCl for 12-month rolling time period ending July 2017	IN COMPLIANCE
8. Aggregate HAPs	Less than 24.0 tons per 12-month rolling time period	5.5 tons of HCl for 12-month rolling time period ending July 2017^a	IN COMPLIANCE

a. The facility reports HCl as the only HAP of significance. Since the facility currently uses a non-fluoride flux, emissions of hydrogen fluoride (HF) are not calculated.

III. Process/Operational Restrictions:

1. NOT EVALUATED. The emission unit subject to Subpart ZZZZZ was never installed, so this condition was not evaluated.
2. IN COMPLIANCE. Facility implements and maintains an approved Fugitive Dust Plan.

VI. Monitoring/Recordkeeping:

1. IN COMPLIANCE. Facility maintains a spreadsheet to calculate emissions from FGFACILITY.
2. IN COMPLIANCE. Facility calculates and maintains records for CO, NOx, SO₂, VOC, PM, PM10, and individual and aggregate HAPs on a monthly and 12-month rolling basis, as required.
3. NOT EVALUATED. The emission unit subject to Subpart ZZZZZ was never installed, so this condition was not evaluated.
4. NOT EVALUATED. The emission unit subject to Subpart ZZZZZ was never installed, so this condition was not evaluated.
5. IN COMPLIANCE. Facility maintains records and calculations for FGFACILITY in an acceptable format.
6. NOT EVALUATED. The emission unit subject to Subpart ZZZZZ was never installed, so this condition was not evaluated.

VII. Reporting:

- 1 through 4. NOT EVALUATED. The emission unit subject to Subpart ZZZZZ was never installed, so these conditions was not evaluated.

Additional Permits

The following permits have been issued to Fritz but will be voided because the equipment was either never installed, has been removed, or is now covered by PTI No. 15-01A:

- PTI No. 90-11, issued on September 19, 2011, for a 2.5-ton/hour capacity copper melting furnace. This emission unit was removed from this site and shipped to a Fritz facility in Arizona.
- PTI No. 39-10, issued on May 18, 2010, for an 8-ton/hour capacity nickel melting furnace. This emission unit was never installed.
- Wayne County Permit Nos. C-10062 through C-10064, issued on September 24, 1993, for an aluminum dross cooler with two baghouses. This equipment is no longer in operation.
- Wayne County Permit Nos. C-3945 through C-3956, issued on May 18, 1977, for an iron oxide pelletizing and sintering plant. This equipment is no longer in operation.
- Wayne County Permit Nos. C-7095 through C-7101, for three coreless induction furnaces, induction drum holding furnace, vertical channel induction furnace, and scrap pre-heater. These permits are in the AQD permit database. The Wayne County permit log book shows these applications as being received on September 10, 1985, but do not indicate that these permits were ever approved and issued.

FINAL COMPLIANCE DETERMINATION:

At the time of inspection, Fritz was determined to be in noncompliance with the following conditions of PTI No. 15-01A:

- EUReverbFurnace1, SC III.3: Cyclone of the baghouse system was not properly installed and operated at the time of the inspections.
- EUReverbFurnace1, SC VI.2: Facility failed to monitor and record the amount of liquid chlorine used on a pound per ton feed basis.
- FGAluminumMelt, SC IV.1: Facility failed to operate the baghouse system in accordance with the OM&M Plan/MAP. During the inspections, the cyclone was not properly installed and operated, as described in the pollution control equipment for FGAluminumMelt and the OM&M Plan.
- FGAluminumMelt, SC V.1: Facility has not conducted performance testing to demonstrate compliance with the 95% control efficiency of the lime injection system and baghouse.
- FGAluminumMelt, SC IX.1: The facility is currently in enforcement action with U.S. EPA over noncompliance with the requirements of Subpart RRR and, as such, is determined to be in noncompliance with this condition. Therefore, a full evaluation of the facility's compliance with the provisions of Subpart RRR was not performed during this inspection, and violations cited in the U.S. EPA's Finding of Violation letter will be addressed through the U.S. EPA's current enforcement action. However, it was noted that the facility has not submitted semiannual compliance reports since 2014, as required per 40 CFR 60.1516(b); this violation was not included in the U.S. EPA's initial Finding of Violation, so it will be specifically addressed as a violation as part of this compliance evaluation.

As a result of these violations, Fritz will be issued a Violation Notice.

In addition, compliance with the following conditions were unable to be determined at this time due to noncompliant conditions listed above and will need to be evaluated once the information required to determine compliance is submitted to AQD:

- EUReverbFurnace1, SC II.1: Facility was unable to demonstrate compliance with the permit limit of 50 pounds of liquid chlorine per 1 ton of aluminum processed on an hourly basis due to noncompliance with the recordkeeping requirement of EUReverbFurnace1, SC VI.2.
- FGAluminumMelt, SC IV.2: Facility has not demonstrated that the lime injection system is able to achieve 95% control of HCl emissions due to noncompliance with the testing requirement of FGAluminumMelt, SC V.1.

The following permits will be voided: PTI Nos. 90-11 and 39-10; Wayne County Permit Nos. C-3945 through C-

3956, C-7095 through C-7101, and C-10062 through C-10064.

NAME Anthony Lopez

DATE 9-29-17

SUPERVISOR JK