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

N219943643

FACILITY: FRANKLIN METALS TRADING CORPORATION		SRN / ID: N2199
LOCATION: 609 TUPPER LAKE ST, LAKE ODESSA		DISTRICT: Grand Rapids
CITY: LAKE ODESSA		COUNTY: IONIA
CONTACT: Mark Clark, President		ACTIVITY DATE: 03/08/2018
STAFF: Eric Grinstern	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced Inspection		
RESOLVED COMPLAINTS:		

Unannounced inspection of Franklin Metals Trading Corporation.

Prior to entering the facility, a survey of the parameter was made. No opacity or odors were noted.

At the facility EG was informed that Mark Clark, President, was out of town. EG spoke with Mr. Clark via phone and arranged to conduct a tour/inspection of the facility in his absence. Any request for records or outstanding questions would be addressed with Mr. Clark at a later date.

An on-site meeting was held with Mr. Clark on March 23, 2018, to review the facility's records and to discuss the facility's operations.

FACILITY BACKGROUND

The facility is a metal processing plant that handles ferrous and non-ferrous metals. The facility processes metals from commercial/industrial accounts as well as street trade. The facility currently has a very large quantity of ferrous scrap (autos/white goods, etc.) stock-piled in the facility yard. Most scrap metals are brokered with minimal processing, such as sorting/bundling. Aluminum scrap is processed through a sweat furnace and sold as refined sow.

REGULATORY REVIEW

The facility holds one air use permit, PTI No. 447-89A, which covers the operation of a gas-fired aluminum sweat furnace. The aluminum sweat furnace is subject to Subpart RRR, Secondary Aluminum Production NESHAP. All other known activities at the facility are exempt from the requirements to obtain an air use permit.

COMPLIANCE EVALUATION

EG was accompanied by Ron Piercefield, Furnace Manager, and Lori Martin, Accountant, during the on-site inspection.

Permit to Install 447-89A

EUFURNACE

EUFURNACE is an aluminum furnace used to sweat iron containing scrap as well as to melt aluminum scrap that does not contain iron. The furnace has a holding capacity of 32,000 pounds and is equipped with a dry hearth and a sidewell. Emissions from the furnace are ducted to an afterburner followed by a lime coated baghouse. The furnace is custom made and is unique in design. The furnace has many of the attributes of a Group 1 reverberatory furnace, such as having a sidewell, is maintained with a heel in the holding chamber and is controlled by a baghouse.

Emission Limits

EUFURNACE restricts the emission of particulate, hydrogen fluoride (HF), hydrogen chloride (HCL) and dioxin/furans (D/F). Compliance with the pollutant emission limits can be demonstrated by requesting emissions testing, proper operation of the control equipment and material use restrictions.

The facility conducted testing in April 2006 to evaluate the emission of HF, and D/F and VOC. The test results showed compliance with the permitted limits as summarized below.

HF limit: 0.19 pph Test result: 0.045 pph (charge rate of 1.5 tph)

D/F limit: 0.80 ng TEQ/dscm Test result: 0.126 ng TEQ/dscm

VOC: No permit limit Test result: 0.85 lbs/ton of aluminum charge

Compliance with the particulate limit (2.60 pound per hour) is demonstrated through proper operation of the lime coated baghouse. Compliance with the HCL limit is also demonstrated through proper operation of the lime coated baghouse as well as the restriction that only sodium aluminum tetrafluoride can be used to flux the furnace. Review of the facility's baghouse maintenance records (attached), for the past 12-months, show that they have completed the daily, monthly, semi-annual and annual inspection and maintenance requirements per the O&M Plan.

EUFURNACE limits opacity to a six-minute average of 10%. At the time of the inspection and during previous observations, no opacity has been noted by staff. Review of facility's daily maintenance logs (attached) showed that no visible emissions have been identified over the past year.

Material Usage Limits

Flux usage is restricted to sodium aluminum tetra fluoride via Condition 1.3.

In November 2016, the facility submitted documentation to demonstrate that changing bath fluxes would not result in a meaningful change under Rule 285(2)(c)(iii). Sodium aluminum tetrafluoride is no longer available, resulting in facility needing to seek an alternative flux. The demonstration compared the permitted sodium aluminum tetrafluoride to the replacement flux, Hall Cell Bath (SDS attached). Hall Cell Bath contains Na_3AlF_6 , $\text{Na}_5\text{Al}_3\text{F}_{14}$, NaCaAlF_6 and Al_2O_3 . The demonstration showed the fluorine content of the Hall Cell Bath to be slightly less than the permitted sodium aluminum tetrafluoride. EG discussed with Mr. Clark the need for the facility to submit a permit application for the use of the Hall Cell Bath for the following reasons. The meaningful change demonstration evaluated the "mid-range" content of each of the flux components, as opposed to the maximum listed percentages; the demonstration evaluated the fluorine content of each flux but did not evaluate the screening levels/hazard potential of each compound, per meaningful change guidance at the time of the submittal, for each of the fluxes; the permit specifically restricts flux usage to sodium aluminum tetrafluoride.

The facility will be submitting a permit application requesting the use of Hall Cell Bath in place of sodium aluminum tetrafluoride.

During compliance testing in 2006, flux usage was 86 pounds per ton of charge. The facility requested and received a permit modification based upon extrapolating the flux usage to an amount that would maintain compliance with the hydrogen fluoride emission limit of 0.19 pounds per hour. The facility extrapolated flux rate of 256 pounds per ton of charge was not established as a permit limit. Facility records for 2017 show a flux usage rate of 47 pounds per ton of charge.

Aluminum throughput to the furnace is restricted to 9,000 tons per year, based on a 12-month rolling average.

Facility records (attached) show a combined charge rate to the hearth and sidewall to be 4,121 tons in 2017.

Process/Operational Limits

EUFURNACE requires the afterburner used to control emissions from the sweat furnace hearth to have a minimum temperature of 1,600 degrees F and a retention time of 1.0 second. The afterburner manufacturer certified that the afterburner installed has a minimum residence time of 1.0 second or greater. During the inspection, observation of the afterburner controls showed a temperature of approximately 1,643 degrees F.

One of the underlying applicable requirements for the afterburner temperature of 1,600 degrees is Subpart RRR. Subpart RRR requires an operating temperature of 1,600 degrees based on a 3-hour block average. As required by Subpart RRR, compliance with the 3-hour block average is based on the operation of a monitoring system that is capable of recording the temperature in 15-minute block averages and the average temperature for each 3-hour block period (63.1510(g)(2)(ii)). In March 2004, the facility submitted an alternative monitoring request to use a continuous chart recorder that does not compute the 15-minute block average or 3-hour block period. The facility proposed to continue using a continuous chart recorder and maintain the temperature above 1,600 degrees at all times. AQD agreed with the alternative monitoring request since it was more stringent than the averaging allowed by the NESHAP. USEPA Region 5 also observed and agreed with the continuous temperature recording system during an inspection conducted in June of 2004.

Review of the temperature charts for the past 12-months showed 21 days where there were short term drops in the afterburner temperature below 1,600 degrees (charts attached). The Furnace Manager explained that the temperature drops were associated with opening the door to charge material. The facility stated that they believed they could average the temperature over a 3-hour period. With the inclusion of the periods when the temperature drops below 1,600 degrees, the 3-hour block is likely above 1,600 degrees. However, since the data is only recorded on a circle chart, calculating an accurate 3-hour block is not possible. Additionally, as approved, usage of the circle chart recorder in lieu of a block average recording system results in a deviation every time the temperature drops below 1,600.

A violation notice will be issued addressing the temperature deviations.

The facility is required to submit a MAP and O&M plan for the control equipment.

The facility previously supplied copies of the MAP and O&M plan.

Equipment

The facility is required to install and operate an afterburner and lime coated baghouse equipped with a pressure drop gauge.

The facility has installed and is operating the afterburner and baghouse with a pressure drop gauge.

The baghouse is a lime coated baghouse, not a lime injected baghouse. The facility introduces lime to the baghouse (150 pounds per compartment) once a month by drawing it up through the collection hopper discharge. With the baghouse running, the lime is drawn into the system and coats the bags. The facility stated that they re-bagged the entire baghouse and replaced the fan in January 2018.

During the inspection the pressure drop across each of the chambers was -0.5". The facility observes the pressure drop daily and records whether or not the pressure drop is below 10.0".

Monitoring/Recordkeeping

The permit requires the facility to install and maintain a device to monitor and record the temperature and residence time of the afterburner on a continuous basis.

The afterburner temperature is monitored and recorded on a continuous basis. The residence time of the afterburner is based upon the design and certification by the manufacturer. Staff is not aware of a residence time monitor and considers this part of the condition to be an error.

The facility is required to monitor on a daily basis, the lime injection or coating rate. EG reviewed records that showed compliance with the requirement. Consistent with the facilities historical lime

coating practices and O&M plan, the facility adds 150 pounds of lime to each compartment of the baghouse once per month. The lime is added to the bottom of the compartments which results in it being drawn up to the bags. Review of the facility records for the past 12-months showed that they have added lime every month.

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Recordkeeping

Condition No. 1.12 requires the facility to maintain monthly and annual records of aluminum throughput and fluxing amount to EUFURNACE.

The facility provided (attached) aluminum throughput and flux use records.

Secondary Aluminum Production NESHAP – Subpart RRR

The facility's aluminum sweat furnace is subject to Subpart RRR.

Area source sweat furnaces are only subject to dioxin/furan limit under the NESHAP.

The hearth is controlled by an afterburner and baghouse, while the sidewall emissions go directly to the baghouse. Emission testing was conducted in 2006, at which time compliance with the dioxin/furan limits was demonstrated at the baghouse exhaust.

The facility is currently in compliance with the NESHAP requirements regarding the submittal of semi-annual/annual excess emission certifications. Recent compliance certifications reported no excursions. The deviations resulting from the afterburner temperature dropping below 1,600 degrees should have been reported as excursions. However, since the facility thought they were over 1,600 degrees on a 3-hour average, they did not report any excursions. The facility will be advised to submit updated/revised excursion reports to account for the deviations.

The facility has in place the required OM&M and SSM plans. Review of the facility records showed that they have been performing and documenting the required inspection/maintenance actions required by Subpart RRR and contained in the OM&M plan.

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Subpart RRR, 63.1510(d) requires the source to inspect each capture and collection system at least once per year. This inspection requires the collection of the actual volumetric measurements to verify the minimum volumetric flow rate is being maintained in accordance with Chapters 3 and 5 of ACGIH manual. The facility is conducting this inspection annually. The most recent inspection was conducted on March 1, 2018 (flow rate measurements) and submitted on March 20, 2018.

The facility has previously asked about running the afterburner control while the furnace if being idled. The facility generally idles the furnace with a heel over the weekends. The facility maintains the afterburner above 1,600 degrees during periods of idle to comply with the NESHAP. As part of the last revisions, the NESHAP was amended to allow for turning off the control equipment associated with a Group 1 furnace during periods of idle that last longer than 24 hours. The possibility of reclassifying the furnace from a sweat furnace to a Group 1 furnace or submitting a determination request to USEPA seeking to idle the furnace was discussed. If the facility was to seek reclassification of the furnace, there would be additional monitoring and testing requirements.

Conclusion

Based on the information and observations made during this inspection, the facility is in compliance with all applicable rules and regulations, with the exception of the following:

- Failure to maintain the furnace afterburner temperature above 1,600 degrees at all times during furnace operation. A Notice of Violation will be issued to address this violation.

Additionally, the facility will submit a permit application requesting a change to the allowed flux usage. The facility will also submit revised semi-annual/annual certification reports addressing the temperature deviations.

NAME 

DATE 4/10/2018

SUPERVISOR 