

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

N788851668

FACILITY: ALLOY RESOURCE CORPORATION		SRN / ID: N7888
LOCATION: 2281 PORT CITY BLVD, MUSKEGON		DISTRICT: Grand Rapids
CITY: MUSKEGON		COUNTY: MUSKEGON
CONTACT: Tony Trask, Plant Manager		ACTIVITY DATE: 12/11/2019
STAFF: Eric Grinstern	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced inspection		
RESOLVED COMPLAINTS:		

### FACILITY DESCRIPTION

The facility is a secondary aluminum processor that utilizes an 80,000-pound holding capacity reverberatory furnace and a 20,000-pound holding capacity rotary furnace to process secondary aluminum scrap. The facility process various forms of aluminum scrap, including die cast scrap, turnings and reverb furnace dross/slag.

### REGULATORY ANALYSIS

The facility holds one Permit to Install (PTI No. 340-07E) that covers one 80,000-pound holding capacity aluminum reverberatory furnace (EUALREVERB), one 20,000-pound holding capacity aluminum rotary furnace (EUROTARY), one 50,000-pound holding capacity aluminum reverberatory furnace (EUALREVERB50) and various space heaters (EUUTILITIES).

The three furnaces are subject to 40 CFR Part 63 Subpart RRR, Secondary Aluminum Production NESHAP. During the most recent compliance testing, only the 80k reverberatory and 20k rotary furnace were operating. The facility is not operating the 50k furnace and stated that there are plans to remove the furnace in 2020.

### COMPLIANCE EVALUATION

At the facility AQD staff consisting of Eric Grinstern (EG) met with Tony Trask, Plant Manager, and Victor Garcia, EHS Manager Port City Group/Alloy Resources Corporation.

Below is an evaluation of the compliance requirements for each regulated emission unit, based upon Permit to Install No. 340-07E and the applicable NESHAP requirements.

#### EUUTILITIES

Restricts natural gas-fired space heaters to not exceed 10 MMBtu/hour.

During the inspection, staff did not observe any natural gas space heaters that appeared to exceed 10 MMBtu/hour.

#### FGFURANCES

Flex group includes all three of the aluminum melting furnaces and the lime and carbon injected baghouse. The 50k reverb furnace is not in operation and is scheduled for removed in 2020. At the time of the inspection, the 80k reverb was not in operation, but will be brought back online in 2020. The facility stated that the furnace was taken offline in July 2019. Burners within the 80k furnace were being fired to help maintain baghouse temperature.

#### Emission/Material Limits/Records

Emissions of VE, PM, PM10, PM 2.5, HCL, HF, Cl, and D/F are restricted under FGFURANCES. Compliance with the emissions limits is demonstrated through compliance testing, throughput limitations and baghouse monitoring.

The facility conducted compliance testing in October 2016. The test results demonstrated compliance with the permitted emission limits. The facility tested under two sets of conditions. Condition 1 maximized the

aluminum production, under which the maximum amount of dioxin/furan emissions were expected. Condition 2 maximized the amount reactive flux used, under which the maximum amount of HCL emissions were expected. Dioxin/furan was only sampled during Condition 1 testing. The facility demonstrated compliance under all conditions.

Material throughput for aluminum melt and total reactive flux is limited within the permit. The facility is required to maintain, on a daily basis, a log of the hourly melt/throughput rate, a log of the feed/charge rate, types of material charged, individual flux charge rates, and chlorine injection rate for each furnace. The facility is also required to calculate and record the total weight of material charged to each emission unit in the SAPU for each 24-hour day of operation. Additionally, the facility is required to maintain records of total aluminum production in tons per 12-month rolling time period.

Total aluminum production is limited on a pound per hour basis in the permit to 11,600 pph, however, the permit allows for the facility to establish a new limit based on stack testing. During testing conducted in October 2016, the facility established a new charge limit of 12,380 pph. The facility also established a new total reactive flux injection rate. The permitted limit was 106.4 lb./chlorine/ton of charge. The rate established during testing was 288.3 lb. flux/ton of charge. Based on the chlorine content of the flux, the new limit is 144 lb./chlorine/ton charge. The facility previously used chlorine gas for fluxing, however they discontinued its use prior to performance testing and continue to only use granular flux. Observation of the location that previously housed the chlorine gas system showed that the equipment had been removed.

Records (required by Condition VI.3 – daily records) for the previous 30 days were requested and provided by the facility. The records provide the hours of operation for the furnaces on a daily total basis and three-hour block. The records also document the furnace feed/charge rate on a daily and three-hour block; combined and for each individual furnace. Flux usage is documented for each individual furnace and combined. For the period of time that records were requested, only the rotary furnace was operated.

Review of the records showed compliance with the charge rate for the operating cycling during performance testing (3-hours). The established limit is 12,380 pph. Review of the supplied records showed a pound per hour high (based on a 3-hour average) of 7,225 pounds. The average was generally around 4,000 pounds per hour.

Review of the flux records showed all recorded rates to be below the rate established during performance testing, 288.3 pounds of flux/ 144 lbs. chlorine/ton of charge. The highest observed rate for the records provided was 95 lbs. chlorine/ton of charge.

Records (required by Condition VI.4 – 24-hour charge records) for the previous 30 days were requested and provided by the facility. The facility provided 24-hour charge records for each individual furnace and for the combined total for the two furnaces. 24-hour charge records are used in determining the 3-day, 24-hour rolling average emissions of D/F for NESHAP compliance. The maximum 24-hour charge rate observed was 52 tons. As noted earlier, only the rotary furnace was in operation for the period of time that records were reviewed.

Records (required by Condition VI.5 – monthly production records) for the previous 12 months were requested and provided by the facility. The 12-month rolling total ending in November 2019 was 13,036 tons, which is below the permitted limit of 55,800 tpy on a 12-month rolling average.

#### **Process/Operational Restrictions/Records Design/Equipment Parameters/Records**

Requires the facility to operate under a current SSM Plan. The facility has submitted and is operating under an approved SSM Plan.

FGFURNACES is required to have an installed and properly operating lime and carbon injected baghouse system. The facility is controlling emission from FGFURNACES with a lime and carbon injection baghouse system. Both the lime and carbon injection systems were observed during the inspection. The baghouse is required to operate in accordance with an SSM Plan. The facility has installed and is operating with a SSM Plan

The lime and carbon injection systems are required to operate in a manner that injects lime at a rate equal to or greater than necessary to achieve compliance with the hydrogen chloride limit, as determined during testing. During testing, the lime injection rate was established at 32.5 pounds per hour and the carbon injection rate was established at 6 pounds per hour. During the inspection, observation of the lime injection system showed lime being fed into the exhaust system to the baghouse. The control panel showed a setting of 15.0 Hz.. The

baghouse monitoring system readout showed a setting of 15.2 Hz and a feed rate of 34.6 pounds per hour, based on a 3-hour average. Lime weight records located at the feeder showed pound per hour feed rates of 40 lbs., 34 lbs., and 35 lbs. for the previous three hours.

Observation of the carbon injection system showed carbon being fed to the exhaust system of the baghouse. The control panel showed a setting of 32.0 Hz. The baghouse monitoring system readout showed a setting of 32.3 Hz and a 3-hour average of 6.0 lbs. per hour. Carbon weight records located at the feeder showed pound per hour feed rates of 7 lbs., 7 lbs., and 4 lbs. for the previous three hours.

Both the lime and carbon injection systems are required to be equipped with a device to monitor and record the feed rates on a continuous basis. The systems are equipped with monitoring and recording devices.

Records (required by Condition VI.7 – continuous lime feed records) for the previous 30 days were requested.

Due to the volume of records associated with the request, the facility provided sample records and offered on-site review of lime records. The facility continuously (every minute) records the lime injection rate via the lime weight scale and lime feed Hz..

Both the lime and carbon records document periodic drops in feed rate. These drops have previously been identified to be associated with baghouse cleaning. The facility ceases furnaces charging/tapping during baghouse cleaning and stops lime and carbon injection. The facility is scheduled to upgrade the baghouse this year to allow for isolated cell cleaning to avoid shutting down the baghouse for cleaning. The facility previously provided documentation regarding the proposed baghouse upgrade.

Records (required by Condition VI.8 – maintenance records for lime feed system) for the previous 30 days were requested.

Due to the volume of records associated with the request, the facility provided sample records of "Daily Inspection/PM record" as well as the November and December 2019 lime and carbon feed rate tests.

The facility is required to maintain a list of the current flux material used. Records (required by Condition VI.6 – flux SDS records) were requested and provided by the facility. The facility is using the same flux as was observed during previous inspections, Amcor A-538-2.

The baghouse is required to be equipped with a device to monitor and record the pressure drop on a continuous basis. The facility has a device that continuously monitors and records the pressure drop. During the inspection the pressure drop reading was 3.41 inches, with a 15-minute average of 3.27" and a 3-hour average of 5.39". During stack testing the facility established a pressure drop range of 3-8 inches.

The facility supplied copies of pressure drop trend from the CMS. Due to the volume of data, the facility requested that further review be conducted on-site. As was noted with lime and carbon feed, there are observed drops in the baghouse pressure drop associated with shutdown and cleaning.

The facility is restricted to burning only pipeline quality natural gas. No other type of gas sources has been observed at the facility.

### **Testing/Sampling**

Performance testing for FGFURNACES was required within 180 days of startup of EUROTARY. The facility tested in October 2016, which was within 180 days of startup. Test results demonstrated compliance with both the permit limits as well as the NESHAP limits. Additionally, testing to verify the lime and carbon injection rates was required within 180 days of the startup of EUROTARY. The injection rates were verified during the performance test.

### **Observations**

Observation of the rotary furnace during the inspection showed good capture associated with the door during operation and when it was opened. Smoke was observed escaping the hood on the back side of the rotary furnace. The facility stated that the curtain was due to be replaced, which reduces emission escaping the hood. The facility will be requested to evaluate enhancing preventative maintenance associated with the rear curtain to prevent fugitive emissions.

Observation of the baghouse showed no opacity and good housekeeping practices.

### **FGMACT-RRR**

The three furnaces, EUALREVERB, EUALREVERB50 (Scheduled for removal) and EUROTARY are subject to the Secondary Aluminum Production NESHAP, Subpart RRR. The facility is an area source; therefore, the affected sources are only subject to emission limits for dioxin/furan. Additionally, the facility is subject to applicable process, operating, testing and monitoring requirements.

### **Emission/Material Limits**

The furnaces are subject to a dioxin/furan limit of 0.00021 grain per ton of feed/charge. The facility last tested the SAPU, which included the operation of EUALREVERB and EUROTARY, in October 2016. Dioxin/furan emissions were reported as  $5.7 \times 10^{-6}$  (demonstrating compliance with the NESHAP limit)

### **Process/Operational Restrictions/Design Parameters/Records**

Subpart RRR requires capture and collection systems meet specified standards. When the system was originally installed, the facility provided documentation of compliance with proper capture and collection standards. The facility is required to inspect the capture/collections and closed vent system at least once each calendar year in accordance with 40 CFR 63.1506(c). Addressed below under Monitoring/Recordkeeping.

The facility is required to submit an OM&M plan for each subject emission unit. The facility submitted an OM&M plan within 90 days of conducting the required performance test.

The facility is required to install and operate a device to measure and record the weight of feed/charge for each operating cycle. The facility has installed a device to measure the feed charge for each cycle.

In accordance with Subpart RRR, the facility has installed a lime-injected baghouse that controls emissions from the affected furnaces. The baghouse is equipped with a bag leak detection system and a device that continuously monitors and records the baghouse inlet temperature.

### **Testing/Sampling**

The facility conducted performance testing within 180 days of the installation of EUROTARY to demonstrate compliance with the dioxin/furan limits, are required by Subpart RRR.

### **Monitoring/Recordkeeping**

Summary of monitoring and recordkeeping requirements under Subpart RRR:

#### **Bag leak detection system:**

The baghouse is equipped with a bag leak detection system. The facility previously provided a written procedure for testing and establishing the set-point for the BLD system. The facility provided the alarm reports for November and December 2019. In 2019 the facility documented a review and recalibration of the BLDS on June 18, 2019 to address repeat false alarms. On August 19, 2019, the facility documented a particulate alarm and excess smoke. The facility documented that the process was shut down the same day and bags were changed to address the problem. Additionally, the facility provide a summary of a BLDS review completed by Bergeson Technology Services in August 2019.

#### **Annual inspection of capture and collection system:**

A complete evaluation was conducted in December 2016 and submitted with the NOCSR. The facility provided a summary of the evaluations conducted in November 2018 and August 2019, verifying no change in total flow rate. The evaluation also documented no changes to the hoods, ductwork, fan settings and controls. The facility is using Bergeson Technology Services to conduct the annual inspections.

#### **Lime injection system:**

Inspection of the feed hopper or silo is required at least once each 8-hour period. The facility provided records of the hourly checks for lime flow, scale weight, and details of lime bag changes. The facility also provided copies of MACT Baghouse PM checks that are conducted six times a day. The checks include Hz setting, lime flow, scale weight, blower and auger operation. Additionally, the facility provided screen shots of the continuous monitoring system that tracks feed Hz., supply scale, actual, 15-minute and 3-hour average feed rate.

### **3-day, 24-hour rolling average emissions of D/F:**

The facility provided records of the 3-day, 24 hour rolling average emissions for D/F. The intent of the 24-hour rolling average is to allow for averaging of multiple emission units within a SAPU. Since the facility tested and demonstrated compliance with both emission units in the SAPU operating at the same time, averaging does not appear to be necessary, or applicable. Subpart RRR contains an alternative under 63.1510(t) to demonstrate compliance based on each individual emission unit. This appears to be applicable based on the testing of the two furnaces operating simultaneously.

### **Baghouse inlet temperature:**

The NESHAP requires the facility to maintain 15-minute and 3-hour block average baghouse inlet temperatures. The inlet temperature is required to remain below the maximum temperature established during compliance testing, plus 25 degrees F.

The maximum temperature for the inlet has been established at 212 degrees F. The facility did not report any temperature deviations in the first semi annual report for 2019. The facility provided samples of records documenting the continuous monitoring and recording of the inlet temperature. Since the facility has only been operating the rotary furnace, the 3-hour temp. average is around 100 degrees F.

The facility runs the burners in the reverb. to maintain the temp. in the baghouse to prevent condensation and other issues.

### **Total reactive flux usage records:**

The facility is required to track and record flux usage to demonstrate compliance with the flux limit established during performance testing. Since the facility currently only adds solid flux intermittently, they record usage to document compliance during a 3-hour block time period. Performance testing established a flux usage limit of 288.3 pounds per ton of charge, which equated to 144 lbs. chlorine/ton of charge. Review of the previous 30 days worth of records showed flux rates well below 288.3 pounds per ton of charge. The highest observed 3-hour average was 170 pounds per ton of charge. The flux rate established during the most recent round of performance testing occurred during testing to maximize the emissions of HCL/HF. During the testing that established the maximum flux rate, D/F was not evaluated. Subpart RRR is not clear in regard to whether the maximum flux rate is required to be established during D/F testing at an area source. The facility maximized fluxing during HCL/HF testing to provide the worst case for emissions. The facility is not subject to HCL/HF under the NESHAP but needed to test to verify they are an area source under Subpart RRR.

### **Feed/charge records:**

Records of the charge rate are required to demonstrate compliance with the maximum throughput rate established during compliance testing. The facility provided records for the last 30 days demonstrating compliance.

### **Reports**

The facility has submitted semiannual compliance reports, as required by Subpart RRR. Reported events for the first half of 2019 primarily address a lime feed issue and a calibration of the BLDS. It appears that the facility took proper action to address in accordance with the SSMP.

### **FGFACILITY**

FGFACILITY establishes opt-out limits for HAPs and requires records documenting compliance with the emission limits.

Records from the past couple of years were provided to document compliance with the 12-month rolling total HAP limit. Based on the records provided the facility is below the single and aggregate HAP limits. The highest

single HAP, HCL had a 12-month rolling total of 0.21 tons.

### Miscellaneous

During the previous inspection, a large amount of powdery material was observed on the surface lot on the SE side of the facility. In response, the facility completed paving the lot in August 2019 to reduce the potential for fugitive emissions. The facility has a sweeper and contracts to have an outside company sweep every Sunday night.

### Summary

Based on the information obtained and observations made through this inspection, the facility appears to be in compliance with applicable air quality rules and regulations. The facility will be requested to evaluate and address the fugitive emissions observed from the rotary furnace.

NAME



DATE

1/9/20

SUPERVISOR

