OPERATION, MAINTENANCE
AND MONITORING PLAN
including Startup, Shutdown and Malfunction Plan
(OM&M PLAN)

TRADEMARK METALS RECYCLING, LLC –Tampa Furnace Facility (Facility ID 0570119)
Tampa, Hillsborough County, FLORIDA

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1.0 INTRODUCTION:

This Operation, Maintenance and Monitoring Plan (OM&M Plan) includes the Startup, Shutdown, and Malfunction Plan (SSM Plan) for Trademark Metals Recycling, LLC's Tampa Furnace Facility located at 6912 East 9th Avenue; Tampa, Florida (Facility ID No. 0570119).

The process equipment covered by this Plan includes the aluminum holding furnace (EU 004) and the Aluminum Rotary Furnaces No. 1 and No. 2 (EU 005 and 006, respectively). A Control Design & Integration (CDI) Model SMF-50-3.0 baghouse is the control device for the two rotary furnaces (EU 005 and EU 006). There is no control device for the aluminum holding furnace (EU 004).

A continuous feed lime injection system is associated with the baghouse. The automatic lime feed is manufactured by Haberny. It has the capacity to hold 2,500 pounds of lime and is set at a minimum feed rate of 25 pounds per hour (lb/hr). During the most recent successful performance test conducted on September 5, 2012, the lime feed rate was set to 50 lb/hr.

2.0 PARAMETERS TO BE MONITORIED TO DETERMINE COMPLIANCE AND ESTABLISH OPERATING LEVELS OR RANGES

The following operational practices shall be followed at all times:

EU 004: Aluminum Holding Furnace

A. The maximum charging rate is 7,000 lb/hr (daily average).
B. Only clean charge shall be processed in the holding furnace.
C. No reactive HAP-containing or HAP-generating fluxes may be used in the holding furnace.

EU 005: Rotary Furnace No. 1

A. Observe the furnace door opening and furnace door position relative to the hood for every charge.
B. The furnace shall operate only when the baghouse is in operation and the fumes are being evacuated by the baghouse.
C. Only aluminum scrap shall be charged into the rotary furnace. Acceptable furnace charge material are presented below [Reference: Letter to Mr. Jason Waters, P.E., Chief Industrial Air Compliance, Air Management Division – Hillsborough County Environmental Protection Commission; dated April 21, 2011]. In addition, the facility may also process aluminum extrusion, clip (aluminum sheeting):

A list of the scrap aluminum products used for charge material at the time of the Performance Test conducted on May 18, 19, 20 and 23, 2011 are as fo11ows:

- *Rotary Furnace No. 1*
  - *Run No. 1: Aluminum Cans, Aluminum Turnings, and Irony Sheet*
  - *Run No. 2: Engine/Auto Parts and Aluminum Castings, and*
  - *Run No. 3: Engine/Auto Parts and Aluminum Castings.*

D. A list of the aluminum alloys produced at the time of the performance test conducted on May 18, 19, 20 and 23, 2011 are as follows:
   - Rotary Furnace No. 1
     - Run No. 1: Sow (Deox)
     - Run No. 2: Sow (380)
     - Run No. 3: Sow (380)
E. The maximum charging rate is 6,000 lb/hr (daily average).
F. The thermocouple set point for the damper is set at 500°F

EU 006: Rotary Furnace No. 2

A. Observe the furnace door opening and furnace door position relative to the hood for every charge.
B. The furnace shall operate only when the baghouse is in operation and the fumes are being evacuated by the baghouse.
C. Only aluminum scrap shall be charged into the rotary furnace. Acceptable furnace charge material are presented below [Reference: Letter to Mr. Jason Waters, P.E., Chief Industrial Air Compliance, Air Management Division – Hillsborough County Environmental Protection Commission; dated April 21, 2011]. In addition, the facility may also process aluminum extrusion, clip (aluminum sheeting):

A list of the scrap aluminum products used for charge material at the time of the Performance Test conducted on May 18, 19, 20 and 23, 2011 are as fo11ows:

- *Rotary Furnace No. 2*
  - *Run No. 1: Aluminum Cans, Aluminum Painted Siding, and Aluminum Turnings*
  - *Run No. 2: Aluminum Cans, Painted Aluminum Siding, and Aluminum Turnings, and*
  - *Run No.3: Aluminum Cans, Aluminum Painted Siding, and Aluminum Turnings.*

D. A list of the aluminum alloys produced at the time of the performance test conducted on May 18, 19, 20 and 23, 2011 are as follows:

- Rotary Furnace# 2
  - Run No. 1: Sow (3105)
  - Run No. 2: Sow (3105)
  - Run No. 3: Sow (3105)

E. The maximum charging rate is 6,000 lb/hr (daily average).

F. The thermocouple set point the damper is set at 350°F.

<u>Baghouse for Rotary Furnaces Nos. 1 and 2</u>

A. Observe the baghouse pressure gauge during the shift and record them once per shift. The pressure range must be between 0 – 12 inches of water.

B. Observe at least once a day the exhaust.

C. The three (3) hour rolling average temperature for the baghouse inlet should be 204°F (204 + 25 =229) or less. This reading should not exceed 229°F.

D. The bag leak detection system is a model EM 30LGX by FilterSense with the upgraded capability to measure to 10 mg/m^3 required by the MACT standard. It continuously monitors and records data and uses alarms. It uses charge induction sensing and protection probes. There is a probe exhaust duct that monitors the combined exhaust from the four compartments.

E. The lime feeder system has a green stacked light that indicates the system is injecting limestone. The red power indicator lights stays on when the power is on.

The following data will be recorded:

<u>EU 004: Aluminum Holding Furnace</u>

A. Daily:
   a. Month/Day/Year
   b. Total aluminum charged to the holding furnace (lbs)
   c. Total flux charged to the holding furnace (lbs)
   d. Total aluminum alloy produced by the holding furnace (lbs)
   e. Total hours of operation of the holding furnace (hrs)
   f. Average charging rate for the holding furnace using the daily total aluminum charged to the holding furnace (Item b above) and the daily total hours of operation of the holding furnace (Item e above) (lb/hr). The maximum charging rate is 7,000 lb/hr, daily average.

B. Monthly:
   a. Total aluminum charged to the holding furnace (tons)
   b. Total flux charged to the holding furnace (tons)
   c. Total aluminum alloy produced by the holding furnace (tons)

d. Total hours of operation of the holding furnace (hrs)
e. Average charging rate for the holding furnace using the monthly total aluminum charged to the holding furnace (Item a above) and the monthly total hours of operation of the holding furnace (Item d above) (TPH)
f. Amount of natural gas used in the holding furnace (MMCF)
g. Running 12-month total of total aluminum charged to the holding furnace (TPY); total aluminum alloy produced by the holding furnace (TPY); and amount of natural gas used in the holding furnace (MMCF/yr). The maximum charging rate is 30,660 TPY

<u>EU 005 and 006: Aluminum Rotary Furnace Nos. 1 and 2</u>

A. Daily:
   a. Month/Day/Year
   b. Total aluminum charged to each rotary furnace (lbs). The feed rate is recorded on the operator's daily log sheet.
   c. Total flux charged to each rotary furnace (lbs). The flux addition weight for each charge. This is recorded on the operator's daily log sheet.
   d. Total aluminum alloy produced by each rotary furnace (lbs).
   e. Total hours of operation of each rotary furnace (hrs).
   f. Average charge rate for each rotary furnace using the daily total aluminum charged to each rotary furnace (Item b above) and daily total hours of operation (Item e above) (lb/hr). The maximum charging rate for each furnace is 6,000 lb/hr, daily average. Scrap feed rate (lb/hr) is recorded while charging.
   g. Average production rate for each rotary furnace using the daily total aluminum alloy produced (Item d above) and daily total hours of operation (Item e above) (lb/hr).
   h. Natural gas usage (CF) and daily average heat input rate (MMBTU/hr) per rotary furnace.
   i. Pressure drop of the baghouse chambers is recorded once per shift.
   j. The baghouse filter temperatures are recorded by the bag leak detection system and are not manually recorded unless the leak detection system is down.

B. Monthly
   a. Total aluminum charged to each rotary furnace (tons).
   b. Total flux charged to each rotary furnace (tons).
   c. Total aluminum alloy produced by each rotary furnace (tons).
   d. Total hours of operation of each rotary furnace (hrs).
   e. Average charge rate for each rotary furnace using the monthly total aluminum charged to each rotary furnace (Item a. above) and monthly total hours of operation (Item d above) (TPH).
   f. Average production rate for each rotary furnace using the monthly total aluminum alloy produced by each rotary furnace (Item c above) and monthly total hours of operation (Item d above) (TPH).
   g. Total natural gas usage per rotary furnace (CF).
   h. Running 12-month total of the total aluminum charged to each rotary furnace (TPY); total aluminum alloy produced by each rotary furnace (TPY); and total natural gas usage for each rotary furnace (CF/yr). The maximum charging rate is 26,280 TPY per furnace. The monthly report summarizes the daily totals for each month and this data is used to create the manager's report, which keeps the running 12-month total.
   i. Daily log sheets of the processing of aluminum scrap to each furnace, including times, are also required. These log sheets are not specified as part of specific reporting

requirements, but must be available upon request to support the daily summary sheets noted above.

3.0 MONITORING SCHEDULE

The monitoring schedule for aluminum rotary furnace Nos. 1 and 2 (EU 005 and 006) and for the baghouse is as follows:

3.1 EU 005 and 006: Aluminum Rotary Furnace Nos. 1 and 2:

A. Each furnace operator records the number of scoops charged into the furnace.
B. Each furnace operator records the number of sows produced per day.
C. Observe the furnace door opening, furnace door position relative to the hood for every charge.

3.2 Baghouse:

A. At least once a day observe the exhaust vent.
B. Once per shift the pressure drops of the baghouse chambers should be recorded.
C. The bag leak detection software will record the baghouse inlet temperatures and a continuous three (3) – hr average calculated.
D. The lime feeder setting will be observed once per shift and recorded once per day on the operator's log sheet. The normal operating position of the lime feed system is at position #9, which is a minimum of 25 lb/hr of limestone introduced.
E. The lime feeder system will be inspected for the operating condition of free flowing (YES or NO) once per shift logged on the operator's daily log sheet.
F. Once per month, the operator will confirm that the operating condition labels are intact and legible. The form will be labeled with the Inspector's Name, Inspection Date, and Inspection Pass or Fail.

4.0 OPERATION AND MAINTENANCE PROCEDURES

4.1 EU 005 and 006: Aluminum Rotary Furnace Nos. 1 and 2 Operation

The starting procedure is as follows:

A. First, the baghouse must be operating before starting any furnace.
B. Turn blower on for burner.
C. Allow 15 seconds for the furnace purge.
D. Turn switch to ignite.
E. Start drive that turns drum
F. Allow 45 – 90 minutes warm-up time
G. When furnace is red, it is ready to start.
H. Weigh the flux material and put into furnace. The normal range of flux material to add per charge is 100 - 2,000 pounds, depending on the alloy. Record this data on the Operator's daily log form. The flux material is typically 50% potash and 50% salt by weight blend. Plus cryolite and calcium, 3 – 5% weight of flux.
I. In approximately five (5) minutes, the furnace is ready to be charged with scrap.
J. Begin by recording each scoop, or amount in pounds, from the loader and then charging (adding) scrap to the furnace. Use the Operator's Daily Log form to record the number of scoops or pounds.
K. Allow approximately 10 – 30 minutes to melt.
L. Continue charging the furnace until it is full (i.e. repeating step I).
M. Pour off the liquid aluminum into the sow molds. Use the "Operator's Daily Log" form to record the number of sows produced.
N. Repeat steps I – L until the end of the shift.
O. Roll out the salt cake.
P. The iron is sold as scrap and the used salt cake material is sent to the landfill.

4.2 Baghouse Operation:

The Control Design & Integration (CDI) Model SMF-50-3.0 Baghouse (hereafter referred to as the baghouse) is a four-chamber design. The filter bags are made of Nomex and are rated at 400°F.

Each chamber has a magnehelic pressure gauge that measures inches of water. The automatic cleaning cycle operates when the differential pressure reaches its upper level set point. If the automatic system does not operate, then the system is operated manually.

The pressure gauges are observed once a day by the Rotary Supervisor to monitor the performance of the baghouse. The operator records the pressure reading on the Operator's Daily Log Form once per shift.

The furnace exhaust gas becomes the inlet to the baghouse. The exhaust gas temperature is monitored and controlled by a digital controller via a thermocouple for each furnace. When the set point of 500°F is reached for the Aluminum Rotary Furnace No. 1 (EU 005) furnace temperature, a solenoid opens a valve to bring fresh air (NOTE: This controller is located in the #1 control room). The exhaust gases from Aluminum Rotary Furnace No. 2 (EU 006) are controlled in the same manner, with a temperature set point of 350°F (NOTE: This controller is located in the baghouse control room).

In addition, each chamber of the baghouse has a thermocouple that measures the gas temperature of that chamber. If the temperature set point of 380°F is reached, the baghouse blower shuts down to prevent the bags from becoming too hot and catching on fire.

4.3 Operating Schedule:

The current furnace(s) schedule is determined by production needs and can operate up to 24 hours/day, 7-days/week.

5.0 OPERATION AND MAINTNENANCE PROCEDURES FOR MONITORING DEVICES

5.1 Calibration and Certification of Accuracy of Each Monitoring Device

Baghouse

A. The magnehelic pressure gauges will be calibrated annually.
B. The thermocouple for the inlet to the baghouse temperature will be calibrated every six months.
C. Baghouse automatic cleaning system does not require calibration.

Bag Leak Detection System

A. The bag leak detection system will be calibrated per the manufacturer's requirements.

Yard Scales

A. The scales are calibrated annually by the State of Florida.

5.2 Quality Control and Quality Assurance Procedures of Continuous Emission or Opacity Monitoring Systems

The current permit does not require opacity monitoring equipment.

6.0 PROCEDURES FOR MONITORING PROCESS AND CONTROL DEVICE PARAMETERS, INCLUDING ANNUAL INPSECTIONS

The baghouse is generally inspected on a weekly basis for the condition of the bags and any torn, ripped, or deteriorated bags are replaced. The baghouse magnehelic pressure gauges are calibrated annually. Furnaces are inspected daily prior to use.

7.0 CORRECTIVE ACTIONS TO BE TAKEN WHEN PROCESS OR OPERATING PARAMETERS DEVIATE FROM THE VALUE OR RANGE ESTABLISHED

7.1 Corrective Actions:

Operating equipment deviations or excursions usually occur with the baghouse and not with the furnace. The parameters for the furnace that are variable are the speed (0-7 RPM) and the tilt angle. The tilt angle is used only to pour out the molten aluminum and is not used to control the operation. Different speeds are chosen for different types of alloys. The burner-firing rate is constant and is not a control parameter. Furnace upsets are handled by turning the furnace off and pouring out the molten metal.

The baghouse operation is dependent upon several parameters, first is the inlet gas temperature and volume. The gas temperature and volume varies with how many furnaces are operating. The other factor that affects the baghouse is the condition of the bags.

The following is a list of potential baghouse problems and corrective actions to take:

PROBLEM: Too high gas temperature.
SOLUTION: The air inlet valve is controlled by the thermocouple and will automatically open. The operator will reduce the firing rate at the furnace.

PROBLEM: Visible emissions.
SOLUTION: Go to the bag leak detection system and identify problem chamber, acknowledge the alarm condition and isolate that chamber by closing the inlet damper at the baghouse control room until repairs are performed. Record the date and time of the alarm and the date and time the repairs were completed.

PROBLEM: High differential pressure on chambers.
SOLUTION: Initiate bag cleaning procedure.

PROBLEM: One chamber still has high pressure after the bags have been cleaned.
SOLUTION: Inspect each pressure leg for possible blockage. If the pressure reading is still high, then isolate the valve and inspect the chamber for blockage or build-up on the bags.

PROBLEM: Gas temperature unusually low.
SOLUTION: Inspect the air bypass valve and insure it is closed.

7.2 Procedures for Recording Corrective Actions Taken and Cause of Deviations or Excursions:

Corrective actions are taken and recorded in the maintenance logbook kept in the office. The items recorded will include (1) the corrective action taken; (2) the time corrective action was initiated; and (3) the time/date that the corrective action was completed. The cause of any deviations or excursion, including the beginning and ending time will also be recorded in the maintenance log book.

8.0 MAINTENANCE SCHEDULE FOR EACH PROCESS AND CONTROL DEVICE THAT IS CONSISTENT WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR ROUTINE AND LONG-TERM MAINTENANCE

Routine maintenance is performed on a daily basis and plant maintenance is performed monthly. The baghouse is inspected weekly for the condition of the bags and any torn, ripped, or deteriorated bags are replaced. The burner is inspected and updated as needed. The State of Florida calibrates the scales on a yearly basis. The condition of the hood is inspected monthly and replaced on an as needed basis. The bag leak detection system is calibrated per the manufacturer's recommendation.

8.1 Calibration Schedule

The magnehelic pressure gauges will be calibrated annually. The thermocouple for the inlet to the baghouse temperature will be calibrated every six months.

9.0 DOCUMENTATION OF THE WORK PRACTICE AND POLLUTION PREVENTION MEASURES USED TO ACHIEVE COMPLIANCE WITH EMISSION LIMITS AND THE SITE-SPECIFIC MONITORING PLAN

The following data from the aluminum rotary furnaces (EU 005 and EU006) and baghouse will be recorded and kept on file for at least two years in the office:

A. Scrap feed rate (lb/hr while charging); Operator's daily log
B. Scrap feed rate (lb/month); Monthly report
C. Running 12-month total of monthly scrap feed rate
D. Operator's daily logs
E. Record daily that the lime is free flowing. The flux using is recorded daily and maintained in the office.
F. Maintenance person logs on Furnace or Baghouse (Logs for any maintenance performed).
G. Scale calibration certificate is on the scale.
H. The maintenance log records the baghouse inspection results.

The maximum feed rate is 6,000 lb/hr and 26,280 TPY per aluminum rotary furnace (EU 005 and EU006). The number of scoops is recorded on the operator's daily log sheet.