



Operation, Maintenance, and Monitoring (OM&M) Plan and Start-up, Shutdown, and Malfunction (SSM) Plan for United AS-990 Aluminum Furnace

Plan Approval and Certification

This OM&M/SSM plan is for a natural gas fired aluminum sweat furnace which uses a dual burner natural gas fired afterburner for pollution control. The OM&M/SSM plan fulfills the requirements of 40 CFR Part 63 Subpart RRR.

I CERTIFY THE INFORMATION CONTAINED IN THIS PLAN TO BE ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE. I CERTIFY THAT THE OMM/SSM PLAN SATISFIES THE REQUIREMENTS OF 40 CFR 63.1510 AND 63.1516.

GARY KIPPUR
Name

Owner
Title

[Signature]
(Signature of Responsible Official)

4/21/10
(Date)

Normal Start Up

1. Visually inspect furnace for any broken equipment or items in need of repair.
2. Turn on combustion blowers.
3. Turn furnace primary/holding chamber burners and afterburners on. If unit was operating at reduced temperature from previous use then only turn on afterburner.
4. Allow for afterburner temperature to reach 1600°F.
5. Check the data logger for proper connection.
6. Begin loading scrap aluminum in the primary chamber.

Normal Shut Down

1. After molten aluminum is poured into molds for the day, reduce temperature to maintain refractory.
2. Shut down afterburner.
3. If unit will be shut down for an extended period, turn off all burners and turn off combustion fans after the temperature has dropped below 500°F.
4. During period of extended shutdown (over 1 week), note the on the Sweat Furnace Operation Log on the last date of operation prior to the period of extended shutdown.
5. Clean all chambers thoroughly.

**Emergency Shutdown (in the event of interrupted gas supply, gas leak, or power outage)
An emergency shutdown will occur at anytime the process can not be controlled or monitored for a period exceeding fifteen minutes.**

1. Turn off the gas supply.
2. Contact supervisor.
3. Keep records of service interruptions and make notes on Sweat Furnace Malfunction Log.

Maintenance Schedule

Furnace is to be maintained and records kept of the following:

1. Weekly Inspection and Maintenance
 - a) Inspect all chambers for refractory damage and repair as needed.
 - b) Inspect door raise cables for wear and replace if needed.
 - c) Inspect burner tube areas for blockage.
 - d) Clean blower fans.
2. Bi-weekly Inspection and Maintenance
 - a) Remove and clean igniters.
 - b) Inspect ignition cable and replace when necessary.
 - c) Clean UV Scanners.
 - d) Grease door raise bearings.
 - e) Oil any unsealed type motor bearings.
3. Monthly Inspection and Maintenance
 - a) Inspect and repair any structural area of the furnace.
 - b) Inspect and/or repair tap-out hole and spout.
 - c) Inspect and repair afterburner and stack refractory.
 - d) Check data logger records.
4. Semi-Annual Inspection and Maintenance
 - a) Calibrate all temperature controls and data logger.
5. Annual Inspection and Maintenance (for Afterburners)
 - a) Inspection of all burners, pilot light assemblies, and pilot light sensing devices for proper operation and clean pilot sensor.
 - b) Inspection for proper adjustment of combustion air.
 - c) Inspection of internal structures (e.g., baffles) to ensure structural integrity.
 - d) Inspection of dampers, fans, and blowers for proper operation.
 - e) Inspection for proper sealing.
 - f) Inspection of motors for proper operation.
 - g) Inspection of combustion chamber refractory lining (the Permittee shall clean and replace lining as necessary).
 - h) Inspection of afterburner shell for corrosion and/or hot spots.

Monitoring

The parameter monitored to determine compliance is temperature. The temperature will be controlled so that it meets the required 1600°F 3-hour block average. Once the unit is in operation and stable, the temperature will be controlled between 1600°F and 1850°F. Temperatures outside this range will require corrective action or troubleshooting to determine why the temperature is outside this range. Temperature will be monitored and recorded during operation of the unit.

The monitoring system consists of the following:

Temperature probe for the display monitor

Temperature probe for the datalogger

Datalogger (range includes zero and 1.5 times the average temperature)

Temperature monitoring device records the temperature in 15 minute block averages (with a minimum of one cycle of operation per 15 minutes) and 3-hour block averages.

Data logger is uploaded and saved to the PC every 30 days while in operation. Temperatures will be reviewed for compliance after download is complete.

The following information will be recorded into the Sweat Furnace Operation Log for each day of operation:

- a. Date
- b. Proper data logger connection confirmed
- c. Time of loading
- d. Time all material is racked out for each batch of material sweated
- e. Afterburner actual temperature during each batch
- f. Set point temperature of the afterburner during each batch
- g. Operator's name for each shift.
- h. Operator's initials for each shift
- i. Note if extended shutdown period (over 1 week) begins

The emissions at the exit of the stack will be observed after each charge and proper adjustments to the draft controls will be made if necessary to prevent emissions in excess of the opacity limitation. The set point for the afterburner will be determined by source personnel to prevent the afterburner chamber temperature from dropping below 1600° F during operation.

Calibration

The temperature probes and unit are calibrated and accuracy is certified every 6 months per the manufacturer's instructions.

Possible Malfunctions and Corrective Actions

For all malfunctions:

- Record date and time the malfunction began and ended in the Sweat Furnace Malfunction Log.

- Record the cause of the malfunction and the deviation or excursion in the Sweat Furnace Malfunction Log.
- Record the corrective actions taken including date and time the corrective action(s) began and when it was completed, also in the Sweat Furnace Malfunction Log.
- Record the operator signature and initials in the Sweat Furnace Malfunction Log.
- Other Reporting Requirements:

If the malfunction is not identified here, modify this plan within 60 days of the malfunction to include the identified malfunction and the corrective actions.

Excess or permit conditions deviation reporting: Notification by telephone or facsimile within 24 hours of the time the Permittee first learned of the occurrence of excess emission that includes all available information pursuant to PCC 17.12.040.B. To report excess emissions call **520-724-7400** or fax to **520-838-7432**. Detailed written notification by submission of an excess emissions report within 72 hours of the notification in I.B.1 above. Send to **PDEQ 33 N. Stone Ave, Suite 700, Tucson, Arizona 85701**.

Semi annual report for SSM plan, see 63.6(e)(3).

Deviation from OM&M plan, see 63.1516.

Semi annual compliance status reports and annual compliance certification.

1. Burner will not light or stay lit and/or chamber will not reach set-point temperature:
 - a) Check that combustion blower is on and the airflow switch has closed to allow line voltage to the flame safety device. If blower is not operating check fuses or circuit breakers. If voltage is supplied to the motor and the motor still does not work, replace the motor.
 - b) Check flame safety relays for proper operation and replace if necessary.
 - c) Check flame rod for proper operation and clean or replace if necessary.
 - d) Check ignition electrode for proper operation and clean or replace if necessary.
 - e) Check reset button on flame safety device for proper operation.
 - f) Check that the proper gas supply is present and all valves are open.
2. Control does not display the temperature:
 - a) Check fuse and power to the control.
 - b) Remove “positive” and “negative” thermocouple leads from the back of the control. Install a jumper wire between the terminals. If there is power at the control and still no temperature readout, perform the following test: between the terminals that the wire was removed from, observe the digital display for an ambient temperature display. If the display is present refer to item c.

- c) Remove temperature probe and remove the element from the probe housing. Inspect the element for signs of damage or breaks. Check housing for pitting or burnout. Replace damaged items if necessary.
 - d) If there is still no temperature display after following items a, b, & c instructions, replace and program a new temperature control.
 - e) Do not operate the sweat furnace until the new data logger is installed and operational.
3. Data logger did not record temperatures properly or no readings whatsoever.
- a) Observe the afterburner control temperature readout. If no digital display is present, follow the instruction for problem number 2. Note that the afterburner temperature probe has a double element, one for the control and one for the data logger.
 - b) Check all connections from the probe to the data logger.
 - c) Refer to the Sweat Furnace Operation Log to see that furnace was operating during the temperature reading period.
 - d) Check that the data logger was “Started” when connected to the computer using the Omni Log software management program.
 - e) Check logger while connected to the computer for proper temperature range and type (a in C or F).
 - f) Check internal battery power while connected to the computer.
 - g) Program and install. Run the logger for a two-hour test. Remove logger and download information to check for proper operation. Reinstall logger.
 - h) Program and install the backup logger if necessary.
4. Visible emissions are present out of the stack:
- a) Turn “Hi-Low” switch to the low position.
 - b) Turn the primary burners to the off position of smoke is still present.
 - c) Open the afterburner draft door to a 4” opening. Note: Close the afterburner draft door when combustible material is not present to prevent over cooling of the afterburner.
 - d) Check material to find the source of excessive emissions and remove all future charges.
 - e) Record time and duration for excessive emissions in the Sweat Furnace Malfunction Log.
 - f) Note and record the afterburner temperature in said log.

Attachments:

Sweat Furnace Operation Log
Sweat Furnace Malfunction Log

Tucson Iron Metal
Air Quality Operating Permit #127

SWEAT FURNACE OPERATION LOG

Type Of Material

BATCH #	DATE	Confirm Proper Data		AFTER-BURNER, Actual	AFTER-BURNER, Set Point	OPERATOR NAME	OPERATOR INITIALS	EXTENDED SHUTDOWN (OVER 1 WEEK) NOTES
		Logger Connection	TIME IN OUT					
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

