Recycling Services International, LLC.
Qualified Reclaiming Furnace Specialists www.recyclingfurnaces.com
Aluminum, Copper, Precious Metal, & Transformer Furnaces
Pollution Control Upgrades and Consultation

6/24/16

Ronny Winn
Texas Auto Salvage
Cc: Tommy Winn

Subject: Flood conditions for MAX-4000 Aluminum Sweat Furnace

Dear Sirs:

As you are aware there are concerns about the safety of our equipment during a flood situation. We have had many of our furnaces withstand floods, hurricanes, tornados, and other natural catastrophes. During Hurricane Sandy, two of our furnaces were on that coastal area and were affected by high water. In one case the water was 5 ft. high and the other was 8 ft. There was no damage to the main body of the furnace but there were electrical components that had to be replaced due to the corrosion caused by salt water. There were also no contaminants released into the environment.

Typically we install all our electrical components that are on the furnace from the top of the furnace. The lowest electrical component on the furnace itself is 5 foot above grade with the furnace directly set on grade. All conduit below the 7 ft above grade point is made of seal tight (or liquid tight) conduit. The control panel is another matter as we want it accessible to the operator without much of a problem. In most cases the bottom of the NEMA 12 cabinet is 30 inches above grade. We can raise it to whatever your codes request as long as a platform with stairs is installed to access it with ease.

The bottom of the door ledge on our furnace is 3 ft. 6 inches from grade. If you require a 4 foot minimum from the bottom of the door to grade, a pedestal will be required to raise the furnace. This can be accomplished with concrete or a 6" I-beam skid. Over 1 foot height of a pedestal is not recommended as it will interfere with the safe operation of the furnace.

We can prepare for any type of emergency but in all cases, the attached Emergency Shut Down (SS&M) plan should be followed. Please review this plan and let me know if we need to add anything to it for your particular codes.

Best Regards.

Dave Conway, RSI, LLC & USF, LLC
Member

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Introducing US Furnaces, LLC Aluminum Sweat Furnace

"Now, that's an afterburner!"

US Furnaces, LLC., 20 Roosevelt Blvd. Cohoes, NY 12047
www.recyclingfurnaces.com PH: (518) 424-1168 FAX (518)233-0006

TEXAS AUTO RECYCLERS

Daily Operations for Aluminum Smelter Furnace

Startup

1. Fire up the furnace to achieve the required temperature to melt aluminum
2. Begin by loading prepped aluminum engines and transmissions into the furnace's primary chamber.
3. Once the aluminum is melted, remove all none aluminum metals from the chamber. Place the metal in a bin to be completely cool, then place in a scrap container.
4. Drain the melted aluminum into the molds.
5. Once the aluminum cools for 30 minutes remove from the molds and place the blocks on the concert slab underneath the awning for further cooling.

Shutdown

1. Turn off the furnace for the primary, holding and afterburners.
2. After the aluminum blocks have cooled completely, weigh, number, and record all blocks poured.
3. Place the blocks in the warehouse for storage.
4. For the last half of the day, bring more aluminum engines and transmissions into the warehouse to be prepped (remove plastic and all fluids from product). This product will be used for the next day production.

US Furnaces MAX Series Aluminum Sweat Furnaces
Startup, Shutdown and Malfunction Plan

Startup

1. Record the gas meter reading before starting the furnace.
2. Visually inspect furnace for any broken equipment or items in need of repair.
3. Turn furnace primary holding and afterburners on.
4. Allow for afterburner temperature to reach 1600° F.
5. Begin loading scrap aluminum in the primary chamber, not exceeding permit limits.

Shutdown

1. After molten aluminum is poured into molds for the day, turn off furnaces for the primary, holding and afterburners.
2. Record the gas meter reading after turning off furnace.
3. After primary chamber has cooled, remove all none aluminum metals.
4. Weigh, number and record all molds poured.

Complete Operating Instructions (SOP)

Turn power and main gas valves on and record the gas meter reading.
Raise all doors and inspect all chambers.

1. Start combustion blowers. Start "Primary 1", "Primary 2" "Holding chamber 1", "Holding chamber 2" and "Afterburner burners" as it applies by turning the selector switches to the on position. Observe that each burner did in fact ignite by observing burner on lights and physically observing the flame by site.
2. Close all doors.
3. Prepare work area for production day.
4. Install the afterburner data logger.
5. Select material to be charged and load on the table. Note: Refer to "Items not to be charged into the chamber" as described by the permit and on the instruction plate, i.e. magnesium, cadmium, radioactive, PCB's, PVC's, etc. materials.
6. When the afterburner temperature has reached at least 1600 deg. F and the primary and holding chamber have reached the desired set point the furnace may be charged.
7. The afterburner temperature is recorded as 15-minute block averages and also 3-hour block averages by a data logger.
8. Turn the "Hi – Low Fire" switch to low. Raise the primary charge door and push material into the chamber.
9. Close the door and observe the temperature controls. Note: Specifically observe that the afterburner chamber did not drop below 1600 deg. F. If said chamber does drop below the required temperature, the set point will need to be raised to

prevent a violation during the time the door is open. The standard set point is 1650 deg. F to prevent a violation.

10. Record the charge time, material type, afterburner temperature and the size of the load in the "Daily Operators Log".
11. Turn the "Hi-Low Fire" switch to high after most of the combustible material has burned off. Note that some units have an automatic high fire delay timer and the "Hi-Low Fire" switch can be turned to "Hi" immediately after closing the door. Stir and rake the material as required by the material being processed. Average stir time is 10 to 15 minutes after charging the load. An additional stir and preliminary rake is usually required within 5 to 10 minutes. Average final rake out time is 25 to 40 minutes after charging. Record all stir and rake times on the "Daily Operators Log".
12. Observe temperature controls throughout the operating day to assure proper operation of all chambers.
13. Observe the exit of the stack for emissions after each charge and make the proper adjustments to the draft controls if necessary.
14. Drain the holding chamber as necessary. Note: Follow all required safety procedures outlined on the "Tap-Out Instruction" label during the draining of the holding chamber.
15. When process day is complete, turn off all burners and leave the combustion fans on until the temperature has dropped below 400 deg. F.
16. Turn off the main gas valve.
17. Clean all chambers thoroughly.
18. Record the weight of material processed on the daily log sheet.

Possible Malfunctions and Corrective Actions

For all malfunctions:

- Record the date and time the malfunction began and ended in the Malfunction Log.
- Record the corrective actions taken including the date and time the corrective action(s) began and when it was completed.

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 still does not work, replace the motor.
   b) Check flame safety relays for proper operation and replace if necessary.
   c) Check flame rod or scanner eye 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) If there is power at the control and still no temperature readout, perform the following test: Remove "positive" and "negative" thermocouple leads from the back of the control. Install a jumper wire 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 "Daily Operations Log" to see that furnace was operating during the temperature recording 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 (as 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 if 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 from all future charges.
   e) Record the time and duration of excessive emissions in the "Daily Operators Log".
   f) Note and record the afterburner temperature in said log.

5. Data logger records values less than 1600°F.
   a) Noticed by the operator reading the digital temperature at the controller.
   b) Could occur due to a blown fuse in the burner or low air flow in the burner.
   c) Follow the corrective actions under item 1 above.
   d) Record the corrective action taken to bring the temperature back up to 1600°F.
   e) Record the date and time the corrective action began and the time it was completed on the Malfunction Log.

6. If the malfunction is not identified here, modify this report within 45 days of the malfunction to include it and the corrective actions.
   a) If emissions standard was exceeded, report the malfunction within 2 days to the VADEQ.
   b) Submit a letter within 7 working days explaining the circumstances of the event, the reasons for not following this plan and whether or not any excess emissions and/or parameter monitoring exceedances have occurred.

Emergency Shutdown (in the event of interrupted gas supply, gas leak, natural disaster, or power outage)

1. Turn off main electrical supply and gas supply and empty the molten aluminum.
2. Contact supervisor.
3. Supervisor is to contact the appropriate utility for leak checks or explanation of interrupted service.
4. Keep records of service interruptions and make notes on data logger spreadsheets should the afterburner temperature drop prior to the batch process completion.
5. In the case of imminent flooding, set molds in area above recorded flood levels and close all doors on the equipment.

Power disconnect for this furnace is to the left of the control panel and is labeled: **MAIN DISCONNECT. Please refer to the Sweat Furnace SOP, OMM and SSM plans for proper procedure to turn the furnace off.** Contact Authorized Employee to inform there is a problem with machine.

1) Notify affected employees that the machine will be shutdown and locked out.

DEENERGIZE:

This furnace will be hot (1000 degrees F if it was operation for more than 5 min. Precautions must be taken:

1**) Please refer to the Sweat Furnace SOP, OMM and SSM plans for proper procedure to turn the furnace off.**

2) Located on the east side of the overhang is a gas riser. Chained to it is a wrench turn of the gas (see picture #1). Place a lock in eyelet and lock out the gas. Place tag on lock, sign and date.

3) Turn Gauge valve to T position to close valve (see Picture #2).

LOCKOUT / TAGOUT

Authorized employee will have LOCK and TAG for this procedure.

Power disconnect for this furnace is to the left of the control panel and is labeled: **MAIN DISCONNECT**. Pull disconnect lever to OFF POSITION.

1) If authorized employee can safely turn power back on, do so.
2) Do not turn flame on. Open both doors to the furnace and place steel cylinders at both sides of door (these are safety door locks). Gently lower doors on the locks.
3) Place arm on disconnect box to off position and put lock on power box (Picture 3).
4) Attach tag and label the time, date and name of authorized employee locking out machine.

Removal of LOCKOUT / TAGOUT

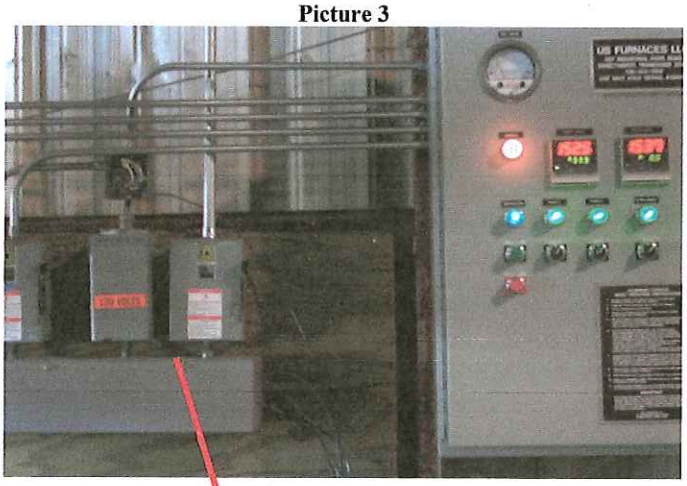
Authorized employee:

1) Should make necessary repairs / maintenance on the machine.
2) Make sure machine is operationally intact safety guards / shields where applicable.
3) Visually inspect the work area removing all non essential tools from work area.
4) Place employees in a safe position.
5) Remove tags and locks.
6) Raise the disconnect lever to the ON position resorting electric power to machine.
7) Refer to SOP and SSM for proper start-up of this furnace.

Picture #1

Picture #2

Picture 3



Power Disconnect Box