Hydro Aluminum North America
200 Riviera Blvd.
St. Augustine, FL 32086

HYDRO

Startup, Shutdown & Malfunction Plan (SSM)

National Emissions Standards for Hazardous Air Pollutants

for

Secondary Aluminum Processing Unit

40 CFR Part 63 Subpart RRR

Last Revision:
November, 2011

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1.0 Introduction

Hydro Aluminum North America, Inc. (HANA) operates a secondary aluminum facility in St. Augustine, Florida (the "Facility") that is subject to certain provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Secondary Aluminum facilities, promulgated at 40 CFR-Part 63, Subpart RRR (Subpart RRR). Section 63.1516 of Subpart RRR governs the development and implementation of a Startup, Shutdown and Malfunction ("SSM") Plan for affected sources. This document constitutes Hydro's updated SSM Plan for the Facility. This SSM Plan addresses scenarios that could possibly cause the affected source to exceed the applicable emission limitation under Subpart RRR.

1.1 Purpose and Scope

The SSM Plan documents procedures for operating and maintaining the Remelt Furnace (EU004) during periods of startup, shutdown or malfunction, and a program of corrective action for malfunctioning process equipment used to comply with the Subpart RRR emission standard. During periods of startup, shutdown and malfunction, the Remelt Furnace No. 2 (EU004) shall be operated and maintained in accordance with procedures specified within the SSM Plan. The purpose of the SSM Plan is to:

- ensure that the affected source is maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions;
- ensure that malfunctions relevant to Subpart RRR will be corrected as soon as practicable after their occurrence in order to minimize emissions; and
- reduce the reporting burden associated with periods of startup, shutdown and malfunction, including corrective action taken to restore malfunctioning process equipment to its normal manner of operation.

Startup and shutdown events covered by this SSM Plan are those that have the potential to cause an exceedance of the emission limitation or deviation from relevant operating parameters under Subpart RRR.

1.2 Facility Description

Specific facility information is identified in the following table.

Primary Industrial Activity:	Aluminum casting and extrusions SIC Code: 3341
Owner/Operator:	Hydro Aluminum North America, Inc.
County and State: Latitude/Longitude:	St. Johns County, Florida 29° 45' 34" / 81° 18' 35"
Mailing Address:	Hydro Aluminum North America 200 Riviera Blvd. St. Augustine, FL 32086 (904) 794-1500

The Facility is properly classified as an area source of hazardous air pollutants ("HAPs") as defined in §63.2 because it emits or has the potential to emit less than ten (10) tons per year of a single HAP and less than 25 tons per year, in the aggregate, of all HAPs.

1.3 Source Identification

HANA operates under Florida Department of Environmental Protection Permit No(s):
1090447-011-AV

Applicable source(s) identified in the current permit and Subpart RRR as affected sources, and subject to the SSM Plan, are identified in Table 1-1. Among the sources comprising the Secondary Aluminum Processing Unit at the Facility and subject to Subpart RRR, only Remelt Furnace No. 2 (EU004) processes material that does not meet the definition of clean charge. Therefore, only that unit is subject to emission limits under Subpart RRR. Because the Holding Furnace/Remelt Furnace No. 1 (EU003) only processes clean charge and the existing in-line fluxer (EU010) uses only nonreactive, non-HAP containing/non-HAP generating gases or agents, neither unit is subject to emission limitations under Subpart RRR and neither unit emits HAP emissions regulated under Subpart RRR during startup, shutdown or malfunction. Therefore; these two emission units are not identified as Affected Sources in this SSM Plan.

In addition, because the Facility qualifies as an area source of HAPs, Remelt Furnace No. 2 (EU004) is subject only to the emission limitations for dioxin/furan under Subpart RRR. Further, as recently confirmed by performance testing in January 2011, Remelt Furnace No. 2 (EU004) complies with the dioxin/furan emission limitations under Subpart RRR without reliance upon any air emission control device. Therefore, although Hydro operates a polishing scrubber to provide enhanced particulate and opacity control for emissions from Remelt Furnace No. 2 (EU004), consistent with the air quality permit for the Facility, Remelt Furnace No. 2 (EU004) qualifies under Subpart RRR as a Group 1 Furnace without add-on control device, when other than clean charge is charged to the furnace. If only clean charge is charged to the furnace, Remelt Furnace No. 2 (EU004) qualifies as a Group 2 Furnace under Subpart RRR.

Table 1-1
Affected Sources

Source	Description
E.U. ID No. 004 Remelt Furnace No. 2 (EU004)	Group 1 Furnace without add-on control device or Group 2 Furnace (depending on specific operating conditions) No Reactive Fluxing Performed

2.0 Startup and Shutdown Operations

2.1 Startup

The Startup of Remelt Furnace No. 2 (EU004) will be planned and conducted to reduce the potential for any excess D/F emissions from the furnace during the event.

Non-clean charge will not be introduced into the melting furnace until the process equipment has been started and is functioning within the acceptable values for normal operations.

The following steps are followed during start-up of the process:

Startup Procedures
1. Establish gas, electrical and compressed air.
2. Follow recommended startup procedures provided by the equipment manufacturer.[1]

All process startups, normal or otherwise, will be recorded on the "Startup, Shutdown, and Malfunction Form" (Appendix A). These records will include the date, time, and duration of the start-up, as well as an indication of whether the event was completed in accordance with the SSM Plan procedures.

2.2 Shutdown

The shutdown of Remelt Furnace No. 2 (EU004) will be planned and conducted to reduce the potential for excess D/F emissions. Shutdown events are limited to times when the process equipment is removed from service and allowed to cool down to ambient temperatures. Temporary production stoppages related to emptying the furnaces or brief maintenance events where the process equipment may be placed in idle condition are not considered shutdown or malfunction events in this SSM plan.

[1] In the event that the refractory of the furnace is rebuilt, the furnace temperature range will be established based on information and specifications from the refractory manufacturer.

A scheduled shutdown event will include the following steps:

Shutdown Procedures
1. Stop burner fire control according to recommended procedures provided by the original equipment manufacturer.
2. Lockout gas system.
3. Lock-out electrical.

All process equipment shutdowns, normal or otherwise, will be recorded on the "Startup, Shutdown, and Malfunction Form". These records will include the date, time, and duration of the shutdown, as well as a description of the event that confirms it was completed in accordance with the SSM Plan procedures.

3.0 Malfunctions & Corrective Actions

Malfunctions covered by this plan consist of any sudden, infrequent, and not reasonably preventable failure of Remelt Furnace No. 2 (EU004) that causes excess D/F emissions. The identified occurrences will be documented by identifying the type of malfunction, duration of the malfunction, the actions taken to prevent excess D/F emissions and other information relevant to document conformance with this SSM Plan. All malfunction events for Remelt Furnace No. 004 will be identified and corrected as soon as practicable in order to minimize excess D/F emissions.

During a malfunction event, Remelt Furnace No. 2 (EU004) will be shutdown as soon as reasonably practical, typically as soon as the charge cycle is completed, unless the process can be shutdown sooner in a manner that is more environmentally protective and meets appropriate safety and health standards and considerations. Remelt Furnace No. 2 (EU004) will not be restarted until the Facility reasonably anticipates that the furnace can be operated within appropriate thresholds of normal operating parameters and any process malfunction has been corrected.

Table 3-2 presents potential malfunction events that may cause or create a situation where Remelt Furnace No. 2 (EU004) is shutdown. Additionally, the table lists probable malfunction causes, as well as, operating and maintenance procedures during the malfunction event, and suggested corrective action procedures to restore the unit to normal operation.

In any malfunction situation, the following general response steps will be followed:

Table 3-1
Corrective Action Procedures

▪ Malfunctions Identification - Most foreseeable malfunction events are incorporated into the alarm notification system, which provides audible and visual identification of a malfunction occurrence. Other malfunctions will be identified through parameter monitoring equipment or by operator observations.
▪ Responsible official notification - Once a malfunction has been identified, an appropriate official at the facility (Environmental Engineer, Shift Supervisor, Plant Manager, Maintenance Supervisor, etc.) will be notified. The appropriate official will provide assistance and guidance, if necessary, to successfully complete the remaining response actions.
▪ Suspension of Operations – Once the charge that is in process is completed or sooner (as discussed above) the process equipment will be shutdown or idled until the malfunction is diagnosed and corrected. Process operations will not be re-started until the Facility reasonably anticipates that the furnace can be operated within appropriate thresholds of normal operating parameters and any process malfunction has been corrected.
▪ Diagnosis and malfunction cause determination - The cause of the malfunction must be identified to identify the appropriate corrective action steps. Table 3-2 provides a list of the potential conditions or factors that could cause each malfunction event covered by this SSM Plan.
▪ Corrective action procedures - Once the cause of the malfunction has been determined, appropriate corrective action measures will be implemented to resolve the malfunction and restore the affected process equipment back to normal operation. Potential corrective action measures are listed in Table 3-1 and 3-2. If a malfunction occurs that is not specifically covered by this SSM Plan, the operator and/or maintenance department will attempt to correct the problem based on experience, circumstance-specific information, and using the best professional judgment. A description of the probable cause of the malfunction, operation/maintenance procedure during the event and recommended response actions will be added to Table 3-2 of this plan.

▪ Malfunction Event documentation - The malfunction event will be appropriately documented using the "Startup, Shutdown and Malfunction Form" (Appendix A).
▪ Reporting – Malfunction events will be reported to the permitting authority as described in Section 4.2 of this SSM Plan.

The facility manager or designee is also responsible for following-up after the completion of the corrective action to ensure the following.

- The steps that were taken to correct the occurrence are reasonably likely to allow Remelt Furnace No. 2 (EU004) to be returned to normal operational condition.
- If repair or corrective action is a temporary action, see that the necessary additional work is scheduled and Remelt Furnace No. 2 (EU004) is restored to sound operational status as soon as practicable.
- If the malfunction was not a previously identified event, then steps are to be taken to update this SSM Plan to address this type of malfunction event.
- The SSM Plan is updated if procedures were not followed according to the SSM Plan.

3.1 Potential Malfunctions

The following table presents potential events that could constitute a malfunction of Remelt Furnace No. 2 (EU004). It is important to note that, even in the event of a malfunction, Remelt Furnace No. 2 (EU004) is able to maintain its normal range of operating temperatures for an extended period of time. An SSM Form will be completed only when the process equipment roof temperature drops below 1,200°F. Table 3-2 also provides one or more corrective action procedures for each listed malfunction event.

Table 3-2
Malfunctions and Corrective Actions

Malfunction Event		Procedures
Catastrophic Events (Events include fire, lightning, weather conditions and other Acts of God.)		• Corrective Action Procedures listed in Table 3-1
Sudden & Unavoidable Equipment Failure (Sudden and unavoidable equipment failure due to poor or faulty operation or maintenance does not constitute a malfunction to the applicable regulation.)		• Corrective Action Procedures listed in Table 3-1
Loss of Utilities (Loss of utilities includes electric power, natural gas, water and oxygen.)		• Notify Power Company if power failure is plant-wide. If not plant-wide trace power failure from equipment to power source. • Trace all utility lines from beginning to ending to determine if any leaks or breaks in the line exist. • Follow Corrective action procedures listed in Table 3-1.
Refractory Structure Failure		• Shut-down the furnace following normal shut-down procedures. • Follow Corrective Action Procedures listed in Table 3-1.
Burner Malfunction		• Immediately isolate the affected burner by shutting down the individual burner (or pair of burners). • Discontinue any contaminated or painted charge. • Reset the flame if the malfunction is a "flame failure". • Follow Corrective Actions Procedures listed in Table 3-1.
Sensor and Alarms		• Follow Corrective Action Procedures listed in Table 3-1.

4.0 Records and Reporting

4.1 Recordkeeping

Hydro will maintain and make available for inspection applicable records, logs, reports and/or notifications pertaining to startup, shutdown and malfunctions events for Remelt Furnace No. 2 (EU004), for at least five (5) years following each occurrence. Records will be kept which include:

- the occurrence and duration of each startup, shutdown or malfunction of Remelt Furnace No. 2 (EU004);
- actions taken during periods of startup, shutdown, and malfunction (including corrective actions to restore Remelt Furnace No. 2 (EU004) to its normal or usual manner of operation) when such actions cause Remelt Furnace No. 2 (EU004) to exceed the relevant D/F emissions standard; and
- information necessary to demonstrate conformance with this SSM Plan.

This SSM Plan, as may be amended from time to time, shall be maintained and made available for inspection for the life of Remelt Furnace No. 2 (EU004), or until the source is no longer subject to Subpart RRR, plus an additional period of 5 years. If the SSM Plan is revised, the previous version(s) of the SSM Plan shall be kept on record and available for review for a period of five (5) years following the date of that revision of the SSM Plan.

4.2 Immediate and Semi Annual Reports

Actions Consistent with the SSM Plan

When actions taken by the Facility during a startup or shutdown, or malfunction of Remelt Furnace No. 2 (EU004) are consistent with the procedures specified in this SSM Plan, the Facility will keep records for that event which demonstrate that the procedures specified in the SSM Plan were followed. In addition, the Facility will keep records of the occurrence and duration of each startup or shutdown or malfunction of operation of Remelt Furnace No. 2 (EU004).

Actions Not Consistent with the SSM Plan

If an action taken by Hydro during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) of Remelt Furnace No. 2 (EU004) is not consistent with the procedures specified in this SSM Plan, and D/F emissions from Remelt Furnace No. 2 (EU004) exceed the applicable D/F emission limitation under Subpart RRR, then the Facility will record the actions taken for that event and will report such actions within 2 working days after commencing actions inconsistent with the SSM Plan, followed by a letter within 7 working days after the end of the event. The letter will explain the circumstances of the event and the reasons for not following the SSM Plan. Semi-annual SSM reports will be submitted to applicable regulatory agencies within sixty (60) days following the end of each calendar half. The semiannual report will summarize any startup, shutdown or malfunction event involving Remelt Furnace No. 2 (EU004) when the Facility did not act in accordance with this SSM Plan.

4.3 Plan Modification and Revisions

Modifications may be made to the SSM Plan as necessary to satisfy the requirement of the rule or to reflect changes in equipment at the affected source. In addition, to the extent that HANA determines that modifications to the SSM Plan are appropriate to address any changes involving individual equipment or changes in procedures, operating parameters or other relevant factors, then the Facility will prepare a revision to the SSM Plan.

If this plan fails does not adequately address an event characterized as a malfunction of Remelt Furnace No. 2 (EU004), the SSM Plan will be revised within 45 days after the event. Such revisions will include the detailed procedures for operating and maintaining the Remelt Furnace No. 2 (EU004) during similar events and a program of corrective actions for similar malfunctions.

In the event of any revisions to this SSM Plan that alter the scope of the activities involving Remelt Furnace No. 2 (EU004) which are deemed startup, shutdown, or malfunction, or otherwise modifies the applicability of the D/F emission limit (other than operation of Remelt Furnace No. 2 (EU004) as a Group 2 furnace), work practice requirement applicable to Remelt Furnace No. 2 (EU004) (or that would become applicable to Remelt Furnace No. 2 (EU004) or another unit at the Facility as a result of the revision), or other requirement under Subpart RRR, the revised SSM Plan shall not take effect until after the Facility has provided a written notice describing the revision to the permitting authority.

Appendix A
Startup, Shutdown and Malfunction Form

Startup, Shutdown and Malfunction (SSM) Plan

Date:

Type of Event (Select one):

STARTUP **SHUTDOWN** **MALFUNCTION**

Melt furnace (EU004):
Time Event Began:
Time Event Ended:
Duration of Event: hours/ minutes

If Malfunction, Suspected Cause:

Corrective Actions Taken:

Was event covered by the Startup, Shutdown and Malfunction (SSM) Plan? Yes No

Explain:

Were your actions consistent with the SSM plan?
YES

NO

Describe actions taken that deviated from SSM Plan:

If your actions were not consistent with the SSM Plan, explain why you took other actions:

Where actions were not consistent with the SSM Plan reported to the FLDEP by telephone or fax within 2 working days of event, and by letter within 7 working days of the event?

YES NO

Do you believe that any excess emissions of air pollutants occurred during the event?

YES NO

Do you believe that monitored operating parameters for the equipment were exceeded during the event?

YES NO

Please provide recommendations or suggestions for actions to be taken in future, similar events:

Your Name: _____ Signature: _____

Supervisor Comments:

Supervisor: _____ Signature: _____