Title V Air Operation Permit Renewal
Permit No. 1090047-011-AV

APPLICANT

The applicant for this project is Hydro Aluminum of North America, Inc. The applicant's responsible official and mailing address are: Mr. Bob Gregory, Director of Operations, Hydro Aluminum of North America, Inc., 200 Riviera Boulevard, St. Augustine, Florida 32086.

FACILITY DESCRIPTION

Hydro Aluminum of America, Inc. is a secondary aluminum production facility. The standard industrial classification (SIC) codes for the facility's activity are 3354 (extrude aluminum products) and 3341 (secondary smelting and refining of non-ferrous metals). The facility consists of an aluminum melting furnace, a holding furnace, two homogenizing ovens, aluminum extrusion operations, wet and powder paint operations, and ancillary operations.

The remelt facility or cast house contains natural gas fired melting and holding furnaces, an in-line argon fluxer/degasser, casting pit and homogenizing ovens. Clean and painted scrap aluminum mixed with prime (ingot, sows) is loaded into the melting furnace in pre-determined ratios.

Hot dross is skimmed from the molten aluminum and cooled prior to stockpiling in the dross room pending transport to an off-site facility for metal recovery. Molten aluminum is fed from the melting furnace to the holding furnace. Alloying materials may be added during this transfer and while the metals is being stirred in the holder. The metal is transferred from the holding furnace to the casting table for vertical, direct-chill casting into logs. During the transfer from the holder to the casting process, the in-line fluxer or degassing unit injects argon gas into the molten metal.

Degassing removes hydrogen, oxides and other impurities that can lead to formation of porosity/inclusions in the solidified metal. The cast aluminum logs are placed in a homogenizer for heat treatment to achieve uniform grain size in the metal prior to saw cut for shipment to an extrusion plant.

Extrusion operations occur via three aluminum press operations and two drawn tube operation. Aluminum billets are heated and extruded through various dies to form various shaped products. Aluminum tubes and shapes are further processed in age ovens and drawn tubing and OPC departments age ovens for heat treating. In some areas (GDT and OPC), aluminum tubes are dipped into a solvent tank to remove drawing oils.

The facility also operates two paint lines: a vertical wet paint operation and a horizontal electrostatic powder coat operation.

Before aluminum can be painted, it must go through a pretreatment process in which the metal is cleaned and etched, then coated with a microscopic layer of chrome which helps the paint adhere to the aluminum and provide some underlying corrosion protection.

The facility operates two chromium conversion pretreatment lines, a horizontal line and a vertical line. These pretreatment lines are coordinated with the facility's two paint lines.

Approximately 15 percent of extruded product produced at the St. Augustine facility goes through this chromium conversion pretreatment process followed by one of the paint line process. In addition, extruded product from the Hydro Aluminum North America, Inc. facility in Belton, SC is also processed through the paint line (estimated as less than 0.5 percent of the painted product in the St. Augustine facility).

There are also a small percentage of extruded products that undergo the chromium conversion pretreatment process without being followed by the painting line processes(less than 1 percent of the painted product).

Electrostatic powder coat paint line:

Approximately 95 percent of the aluminum that goes through the paint process is pretreated in the horizontal, pretreatment dip tanks and then power painted. The horizontal pretreatment line is operated in open tanks.

Aluminum parts are placed in racks and then dipped into the first pretreatment tank of a 3-5 percent sodium hydroxide caustic solution. The solution is heated to approximately 120 degrees F by steam generated from the Paint Line Boiler (insignificant emissions unit). This pretreatment aids in the removing of surface oils from the aluminum and provides a slight etch.

The aluminum parts then are dipped in a water rinse tank followed by the chromium conversion bath. The chromium bath consists of 1-2 percent chromium, 3-6 percent phosphoric acid, less than 0.07 percent hydrofluoric acid, and the balance water. The solution is heated to 120-130 degrees F by steam also generated from the Paint Line Boiler. This treatment coats the aluminum so that the powder paint will adhere and also provides some corrosion protection should the finished painted product becomes chipped or the paint comes off the aluminum. Following the chromium conversion bath, the aluminum parts are dipped into a water rinse tank before being sent to a drying oven. The aluminum parts are then taken out of the racks, hung on an overhead conveyor that carries the parts through the automatic powder-paint spray operation followed by the bake oven.

Both the caustic solution and the chromium conversion tanks are 5,000 gallons in capacity.

Wet, vertical paint line:

Approximately 5 percent of the aluminum that goes through the paint process is pretreated in the vertical spray line and then painted in the wet paint process. The vertical pretreatment line is contained in closed tanks.

Aluminum parts are hung on an overhead conveyor that carries the parts through the entire pretreatment and painting process. The parts first enter a tank and treated with an acidic cleaner. An acidic solution is used in this line because it is just as effective as the caustic solution used in the horizontal pretreatment line, but at a lower pH. The acidic solution is heat to approximately 120 degrees F by steam generated from the Paint Line Boiler (insignificant emissions unit). Following the acidic cleaner, parts pass through a spray water rinse before being sent to the chromium conversion pretreatment spray process. The chromium solution consists of 1-2 percent chromium, 3-6 percent

phosphoric acid, less than 0.07 percent hydrofluoric acid, and the balance water. The solution is heated to 120-130 degrees F by steam also generated from the Paint Line Boiler. Following the chromium conversion spray, the aluminum parts go through two, clean water spray rinses before being sent to a drying oven. After the drying oven, the aluminum parts are painted using a wet spray gun and followed by the bake oven.

The paint lines include ancillary equipment, including a pyrolysis oven for the removal of overspray paint from the paint line equipment (parts and conveyor hooks).

The Remelt Furnace (EU 004), the Holding Furnace (EU 003), and the In-Line Fluxer (EU 010) are subject to the requirements of 40 CFR 63, Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production, and the 40 CFR 63 Subpart A General Provisions which are adopted by reference in Rule 62-204.800(8), F.A.C., for area sources.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to renew the existing Title V permit for the above referenced facility.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Revised Title V Air Operation Permit issued September 5, 2006
Application for a Title V Air Operation Permit Renewal received January 21, 2011
Notice of Intent to Issue Air Permit issued September 1, 2011
Public Notice Published **[Month day, year]**

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is not identified as a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major source of air pollution in accordance with Rule 62-212.400, F.A.C. The facility is one of the 28 categories listed in Rule 62-210.200 (195), F.A.C. - secondary metal production plants, and has the potential to emit more than 100 tons per year of PSD pollutant (VOC).

NSPS: The facility does not operate units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility does operate units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63. Emission Unit 003, 004, and 010 are subject to the area source standards of 40 CFR 63, Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production. The facility also operates two diesel fired engines that are subject to the requirements of 40 CFR Part 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Pursuant to facility correspondence received February 28, 2011, and June 16, 2011, the facility has two chromium conversion pretreatment processes that are subject to regulation under 40 CFR 63, Subpart

WWWWWW – National Emissions Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations. The facility is not subject to either 40 CFR 63 Subpart MMMM- Surface Coating of Miscellaneous Metal Parts and Products or 40 CFR 63 Subpart HHHHHH- Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources. The facility operates two industrial boilers; both classified as insignificant emissions units (5.25 MMBtu/hr Paint Line Steam Boiler and 0.63 MMBtu/hr OPC Steam Boiler). These boilers are operated on gas fuel only and therefore pursuant to 63.1194(a)(1) of 40 CFR 63 Subpart JJJJJJ- National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, are not affected sources.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

CAM: In accordance with 40 CFR 64.2(b)(1), CAM is not applicable to either Emission Unit 003, 004, and 010, as they are subject to 40 CFR 63, Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production, which was promulgated after November 15, 1990 pursuant to 112 of the Act. In accordance with 40 CFR 64.2(a)(1) and (2), CAM is not applicable to either Emission Unit 001 or 006 as they are not subject to an emission limitation or standard, and do not have a control device.

PROJECT REVIEW (Project 1090447-011-AV)

Changes that were made as part of this renewal (011-AV) include reformatting: Title V Permit format effective 10/28/2010, replacement of TV-6 with Appendix TV – Title V General Conditions dated 11/01/2010, Appendix TR – Facility-Wide Testing Requirements dated 9/12/2008, and Appendix RR – Facility-Wide Reporting Requirements dated 9/17/2009.

New Emission Units 011 and 012 have been created to identify the two, diesel-fired engines used for the fire pumps.

On January 25-27, 2011 and February 2, 2011, the facility conducted dioxin/furan and visible emissions testing, respectively. The testing was conducted in accordance with the terms of Air Construction Permit No. 1090447-009-AC, an approved Site Test Plan dated November 23, 2010, and the applicable requirements of 40 CFR 63 Subpart RRR.

The purpose of the dioxin/furan testing was to allow the facility the opportunity to show that the 40 CFR 63 Subpart RRR standards for dioxin/furan could be met at the Remelt Furnace without the use of the wet scrubber.

Operating Conditions during Dioxin/Furan Test:

1. The testing was done such that during each test run 35% of the total charge to the Remelt Furnace consisted of aluminum that contains paint, lubricants, coatings, or other foreign materials.

2. The average quantity of aluminum (clean charge plus aluminum that contains paint, lubricants, coatings, or other foreign materials), charged to the Remelt Furnace was approximately 30 tons per operating cycle.

3. The testing was conducted simultaneously on the furnace and the scrubber stacks. Emissions from the Remelt Furnace are routed through the Remelt Furnace stack and emissions from the

hood over the Remelt Furnace door are routed through the scrubber stack. The wet scrubber was not in operation (the scrubber was drained so that no water was used in the scrubber) during the testing.

Dioxin/Furan Test Results:

The test results were 9.4 µg of D/F TEQ/MG of aluminum charge versus the 15 µg of D/F TEQ/MG of aluminum charge Subpart RRR standard.

Based on this testing, the Title V Permit is revised such that the capture and control requirements of 40 CFR 63 Subpart RRR, specifically §§63.1506(c), 63.1510(d), 63.1512(s), and 63.1517(b)(14), have been removed from the permit. In addition, references to control device, control device equipment, and control technology (§§63.1510(b), 63.1516(a), 63.1506(a), 63.1506(p), 63.1510(a), 63.1510(b), 63.1510(s), 63.511(g), and 63.1516(a)), have also been removed from the permit.

The purpose of the visible emissions testing was to demonstrate compliance with the State visible emissions standard while only clean charge was charged to the Remelt Furnace and without the wet scrubber in operation. The average quantity of aluminum charged to the Remelt Furnace was approximately 30 tons per operating cycle.

EU 001- Surface Coating Operation

Emissions Unit 001 is a regulated source of emissions due to the potential VOC and HAP emissions from the surface coating operation.

The Bake Oven and the Pyrolysis Furnace, previously identified in Title V Permit No. 1090447-005-AV as emission points within this Emissions Unit, have been removed and listed as insignificant activities under Appendix I-1 since their potential emissions are below thresholds specified in Rule 62-213.430 (6), F.A.C.

The facility has stated in the permit application for this Title V Permit Revision, that the facility no longer utilizes Xylene as the solvent for the surface coating operation. The facility therefore requested that the previous Xylene usage limitation be removed from the Title V Permit. The facility also requested that the previously established MEK usage and the hours of operation limitations be removed from the Title V Permit. In accordance with Rule 62-210.200, F.A.C., MEK is no longer considered by EPA to be a HAP.

Because there is not an unit-specific rule applicable to EU 001 that regulates its VOC and HAP emissions for the surface coating operations, the Department has removed the previously established VOC, Xylene, MEK, and hours of operation limitations from the Title V Permit for this activity.

The emissions unit also includes the two Chromium Conversion Pretreatment Operations that are coordinated with the facility's two paint lines.

Horizontal, open tank, pretreatment line: Aluminum parts are placed in racks and then dipped into a heated, caustic solution pretreatment tank, followed by a water rinse dip tank, chromium conversion dip bath, water rinse dip tank, and followed by a drying oven. The aluminum parts are then taken out of the racks, hung on an overhead conveyor that carries the parts through the automatic powder-paint spray operation followed by the bake oven. Heat is supplied by steam generated from the Paint Line Boiler.

Vertical, closed tank, pretreatment line: Aluminum parts are hung on an overhead conveyor that carries the parts through the entire pretreatment and painting process. The parts first enter a tank and treated with a heated, acidic cleaner, parts pass through a spray water rinse before being sent to the chromium conversion pretreatment spray process. The aluminum parts go through two, clean water spray rinses before being sent to a drying oven. After the drying oven, the aluminum parts are painted using a wet spray gun and followed by the bake oven. Heat is supplied by steam generated from the Paint Line Boiler (insignificant emissions unit).

CAM is not applicable to this surface coating operation as the activity is not subject to an emission limitation or standard, and it does not have a control device.

In accordance with 40 CFR 64.2(b)(1), CAM is not applicable to two chromium conversion pretreatment operations as they are subject to 40 CFR 63, Subpart WWWWWW - National Emissions Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations, which was promulgated after November 15, 1990 pursuant to 112 of the Act.

EU 003 – Holding Furnace; EU 004 – Remelt Furnace

In Construction Permit No. 1090447-009-AC, the facility requested an increase in the permitted processing rate of both furnaces from the previously established 25 tons/batch to 30 tons/operating cycle. The term "operating cycle" is used instead of "batch" to be more consistent with the terms and the definitions in the applicable NESHAP, 40 CFR 63 Subpart RRR.

The facility also requested an increase the annual processing rate of both furnaces from 62,500 tons/year of aluminum to 80,000 tons/12 consecutive months. The Holding Furnace is dependent upon the Remelt Furnace and does not operate independently. The Department has included this information in the permit and has not required a separate demonstration of compliance with this capacity for the Holding Furnace.

Construction Permit No. 1090447-009-AC authorized the replacement of the current sill on the Remelt Furnace and a replacement of the swivel joint located on the furnace discharge side. The sill replacement increased the free-board to keep aluminum from spilling out of the furnace and the swivel joint replacement was primarily for safety reasons, but improved the aluminum drain time, which potentially increased the aluminum processing rate on both an hourly and annual basis.

The increases in capacities of the furnaces, along with the Remelt Furnace replacements constituted a "modification" as defined by Rule 62-210.200, F.A.C., which were evaluated for PSD review applicability. A summary of the project emissions and details of the review are in the Technical Evaluation and Preliminary Evaluation for Construction Permit No. 1090447-009-AC.

The Title V Permit now specifies that the Holding Furnace is used as a holding furnace for molten aluminum processed in the Remelt Furnace and alloying elements that are added directly to the Holding Furnace.

In accordance with 40 CFR 63.1503, *clean charge* means furnace charge materials, including molten aluminum; T-bar; sow; ingot; billet; pig; alloying elements; aluminum scrap known by the owner or operator to be entirely free of paints, coatings, and lubricants; uncoated/unpainted aluminum chips that have been thermally dried or treated by a centrifugal cleaner; aluminum scrap dried at 343 °C (650 °F) or higher; aluminum scrap delacquered/decoated at 482 °C (900 °F) or higher, and runaround scrap.

In accordance with 40 CFR 63.1503, a *Group 2 Furnace* means a furnace of any design that melts, holds, or processes only *clean charge* and that performs no *fluxing* or performs *fluxing* using only nonreactive, non-HAP-containing/non-HAP-generating gases or agents.

The Holding Furnace performs no fluxing. As such, the Holding Furnace meets the 40 CFR 63.1503 definition of a Group 2 Furnace as it melts, holds, or processes only clean charge and performs no fluxing.

The facility requested, and the Title V Permit does not include the previous PM and HCl emissions standards from 40 CFR 63 Subpart RRR for both the Remelt and Holding Furnaces that were established in Title V Permit No. 1090447-005-AV. The Subpart does not have PM and HCl emissions standards applicable to area sources of HAP.

In accordance with 40 CFR 64.2(b)(1), CAM is not applicable to these emissions units as they are subject to 40 CFR 63, Subpart RRR - National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production, which was promulgated after November 15, 1990 pursuant to 112 of the Act.

EU 005- Nos. 1 and 2 Homogenizing Furnaces

The Nos. 1 and 2 homogenizing furnaces, previously permitted in Title V Permit No. 1090447-005-AV as EU 005, have been reclassified as unregulated emissions units in the Title V Permit. The two furnaces were previously subject to a 20% opacity limit. However, it is unclear as to the rule basis of the limitation. Historical data indicates visible emissions from these furnaces typically at 0% opacity. Given that there is not a unit specific applicable requirement, the Department has reclassified the homogenizing furnaces as an unregulated emissions unit.

EU 006 -OPC Solvent Tank;

EU 009 -GDT Solvent Tank (formerly 140/142 Solvent Tank)

These emissions units are regulated sources of emissions due to the potential VOC emissions. Because there is not a unit-specific rule applicable either emissions unit that regulates its VOC, the Department has removed the VOC limitations previously established in Title V Permit No. 1090447-005-AV from the Title V Permit for these emissions units.

CAM is not applicable to these emissions units as they are not subject to an emission limitation or standard, and do not have a control device.

EU 010 –In-Line Fluxer

The In-line fluxer processes molten aluminum from the Holding Furnace (Emissions Unit 003). The in-line fluxer uses only nonreactive, non-HAP-containing/non-HAP-generating gases or agents.

EU 011 – Cummings, Inc. 300 HP Diesel Engine

The engine is a four-stroke cycle, turbocharged, in-line, 6-cylinder, compression ignition, diesel engine with a total displacement of 14 liters. The date of Manufacture is 04/15/1987.

EU 012 – Cummings, Inc. 240 HP Diesel Engine

The engine is a four-stroke cycle, naturally aspirated, in-line, 6-cylinder, compression ignition, diesel engine with a total displacement of 14 liters. The date of Manufacture is 12/20/1986.

CONCLUSION

This project renews Title V air operation permit No. 1090447-005-AV, which was issued on September 5, 2006. This renewal is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.