N6013

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection FY2015 Sched. Insp.

N601330479

FACILITY: CONTINENTAL ALUMINUM		SRN / ID: N6013
LOCATION: 29201 MILFORD RD, NEW HUDSON		DISTRICT: Southeast Michigan
CITY: NEW HUDSON		COUNTY: OAKLAND
CONTACT: Mark Buchner , President		ACTIVITY DATE: 07/31/2015
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 2015 scheduled annual inspection of Continental Aluminum ("Continental")		
RESOLVED COMPLAINTS:		

N6013_SAR_20150731

Continental Aluminum (N6013)
29201 Milford Road
New Hudson, Michigan 48165-9741

Consent Order AQD No. 52-1 (AQD Division Chief terminated CO on February 27, 2007)

VNs: AQD issued Violation Notices dated February 5, 2013 (for failure to comply with NESHAP / MACT RRR / MACT 3R, 40 CFR, Part 63, Subpart RRR [Secondary Aluminum Production NESHAP]), September 10, 2014 (for failure to operate RO lime feeder), July 27, 2015 (for routinely exceeding flux usage limit of 209.68 pounds of flux per ton of scrap charge (i.e. 10.5%)).

Permit-to-Install (PTI) No. 504-96F dated September 27, 2013.

Permit-to-Install Application voids: PTI Nos. 504-96E and 504-96G

PTI voids: PTI Nos. 504-96 (10/08/1997), 504-96A (12/20/2001), 504-96C (10/27/2006).

PTI to be voided: 504-96D

PTI Revision: PTI No. 504-96D dated October 27, 2006 → PTI No. 504-96F dated September 27, 2013, as result of the February 05, 2013, NESHAP / MACT 3R violation notice (VN) and Continental's desire to change production limits. Further PTI revision may be required to revise flux rate (x-hour block average & pounds of flux per ton of feed) for RV1 based upon additional stack testing for PTI and MACT 3R parameters because Continental is unable to comply with RV1 flux rate limits. AQD denied PTI modification (PTI No. 504-96F → PTI No. 504-96G) to change flux rate averaging method (time and / or units) (3-hour maximum flux: pounds per ton of feed → pounds per hour without considering feed) and consequently Continental withdrew the PTI application. Besides, as stated above, AQD issued July 27, 2015, VN.

Subject to (Existing < Feb 11, 1999): Area Source NESHAP / MACT RRR, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production; Final Rule (Page 15690, Federal Register / Vol. 65, No. 57 / Thursday, March 23, 2000 / Rules and Regulations / Final rule).

NESHAP / MACT RRR Amendments: National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production, Page 57513 Federal Register /Vol. 70, No. 190 /Monday, October 3, 2005 /Rules and Regulations /Direct final rule; amendments

Not subject to ROP: Exemption of Certain Area Sources (MACT RRR) From Title V Operating Permit Programs; Final Rule, Page 75320 Federal Register / Vol. 70, No. 242 / Monday, December 19, 2005 / Rules and Regulations.

Fee: Subject to Area Source NESHAP / MACT 3R Cat III fee

Recent stack tests: September 24-26, 2013 (RO [Baghouse under two conditions: Condiltion1 - max. flux and Conditon2 - max. temperature & minimum required lime] and RV1 (sidewell Baghouse)), and June 12-13, 2014 (natural gas fired RV1 combustion / hearth stack – uncontrolled, i.e., no baghouse) stack tests. Performance tests are required by PTI No. 504-96F (PM, HCl, HF, D/F) and NESHAP / MACT 3R (dioxin / furan or D/F). Aug 2003 D/F test is inadequate (as cited in Feb 05, 2013 VN) to satisfy MACT 3R. RO and RV1 were tested; RV2 on long-term idle requiring substantial repairs and hence not tested).

On July 15, 23 and 31, 2015, I conducted a level-2 **scheduled** annual inspection of Continental Aluminum ("Continental"), an aluminum scrap recycling and remelting facility, located at 29201 Milford Road, New Hudson, Michigan 48165-9741. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994, PA 451; Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules; and Area Source NESHAP / MACT RRR and the permit (PTI No. 504-96F).

Messrs. Mr. Fred Lindsay (Phone: 248-437-1001-ext. 107; Cell: 248-939-2491; Fax: 248-437-8885; E-mail: flindsay@contalum.com), President (joined February 27, 2013 and Separated about May 2015), Mark Buchner (Phone: 248-437-1001-ext. 102; Cell: 248-379-7290; Fax: 248-437-8885; E-mail: mbuchner@contalum.com), Director of Operations (joined Continental in October 2012 and replaced Fred Lindsay as President about May 2015), Tyler Cunningham (Phone: 248-437-1001-ext. 118; Cell: 248-921-7433; Fax: 248-437-8885; E-mail: tcunningham@contalum.com), EHS Manager, assisted me during the investigation.

Mr. Bruce Bergeson (Phone: 248-437-1001; Fax: 248-437-8885; bbergeson@contalum.com), Continental Aluminum Environmental Support, also assisted.

In addition, Messrs. Bruce Bergeson (Phone: 248-912-7165; Fax:248-347-1890; E-mail: bruce.bergeson@gmail.com), Bergeson Technology Services, LLC, of Novi, and David Kirby (Phone: 864-334-5085; Cell: 864-497-6802; Fax: 864-334-5143; E-mail: dlk@pintegration.com), Project Integration, Inc. of South Greer, SC, are involved in helping Continental to comply with the permit and the NESHAP / MACT 3R. Both are consultants.

Messrs. J. David Rinehart (Phone: 248-437-1001-ext. 107; Cell: 248-939-2491; Fax: 248-437-8885; E-mail: drinehart@contalum.com), President (about January 2013), Jim O'Neil (Phone: 248-437-1001-ext. 102; Cell: 248-379-7290; E-mail: joneil@contalum.com), Director of Operations (about August 2012), Craig Goodis (Phone: 248-437-1001-ext. 111; Cell: 248-921-3831; Fax: 248-437-8885; E-mail: cgoodis@contalum.com) (about April , 2013), Mr. Fred Lindsay (Phone: 248-437-1001-ext. 107; Cell: 248-939-2491; Fax: 248-437-8885; E-mail: flindsay@contalum.com), President (about May 2015) all separated from Continental.

Continental's New Hudson facility operates two reverberatory sidewell furnaces (RV1 & RV2;

RV2 – long-term idled) and one rotary furnace (RO). A sidwell reverberatory furnace chamber (typically known as hearth) is an open sidewell. The configuration of the furnace is such that an arched passage connects the open sidewell and enclosed hearth. During normal operation molten aluminum fills hearth and sidewell at a level that prevents any air or gas migration from the sidewell into the hearth. Hearth is heated using two natural fired burners. The hearth is principal source of heat for melting aluminum scrap. As metal cast from the furnace, scrap is charged in sidewell to maintain the molten aluminum level in the furnace and sidewell. Sidewell contains molten aluminum at temperature 1300 °F and the scrap aluminum melts as it sinks into the molten metal producing visible emissions, which are captured by capture device and delivered to lime injected baghouse. Reactive fluxing of aluminum is performed in the sidewell. It is considered reactive fluxing because molten metal is pumped (and hence agitated) to transfer heat to sidewell. An interlock is present to prevent operation of the pump when liquid level is not adequate. Unlike earlier years, gaseous (elemental or Cl2) chlorine is not used as flux. Instead, sodium aluminum tetra fluoride flux is used. The scrap charge may be covered with a salt flux to reduce potential for oxidation.

Aluminum Scrap Management

The facility operation consists of Aluminum Scrap Management (inspection, screening for radio active materials), Raw Material Shredding, Rotary Furnace (RO) and Reverberatory Furnaces (RV1, which always runs and RV2, which is a backup furnace and is idled). Scrap inspection is to qualify, quantify, monitor, etc. level of non-aluminum contaminants in the scrap. Contaminants are also cause of odor. Lab samples are taken for inspection and analysis. Ferrous metals are removed using magnets. Non-metallic fluffy material is removed using eddy currents. Various blends of Types 1, 2, etc. are used to limit volatiles.

Rotary furnace (RO) – Lime and carbon injected baghouse (BH2)

Rotary furnace (RO) consists of a refractory lined steel cylinder. Heat energy is supplied to the furnace by firing natural gas in a packaged burner. The rotary furnace operates as batch process (about 3 hours) unlike RV1 / RV2. Once a desired temperature is reached, sodium aluminum tetra fluoride flux is used. Flux is to remove impurities in aluminum. RO processes both Continental (RV1) dross and toll (other aluminum scrap facilities) dross to recover aluminum. Dross is waste material that still contains economically recoverable aluminum. RO dross, which hardly contains aluminum (not economical to recover), is known as salt cake or oxide slag. Salt cake is disposed of in a landfill. RO is also used to process more dirty (higher volatiles) scrap.

Rotary Furnace (RO): RO is 14 MMBTU / hour natural gas fired furnace heater with maximum materials (scrap, dross, flux, etc.) capacity as determined by stack test (RO limit = 26,139 pounds of charge per cycle / batch based upon September 24-26, 2013 (RO [Baghouse under two conditions: Condiltion1 - max. flux and Conditon2 - max. temperature & minimum required lime] stack tests). RO visible emissions are captured by a capture device and delivered to a lime injected baghouse. When RO door is closed all visible emissions are efficiently ducted to the RO baghouse. RO emissions are controlled by 45,000 SCFM high temperature bagahouse (BH-2:Nomex bags, air-to cloth ratio = 3:1). RO bags are shaken at the end of 3-hour batch; prior to next batch. Lime and activated carbon are injected into the bags to control acid gases and odor, respectively. The injection starts before the batch begins. Thorough cleaning of bags ended in December 2010. I explained to the company that 50% clean-up via shaking bags may be sufficient. Carbon and lime retained on the bags would help control odor and acid gases during the beginning of next batch. Continental

installed electronic systems to prevent excessive shaking. RO produces molten aluminum for RV1 if the material is owned by Continental or sow product for toll processing.

Based upon F 2015 inspection, all visible emissions are captured using a capture device and ducted RO baghouse. During scrap aluminum charging period, natural gas firing is not done. Towards the end of RO batch, molten aluminum upon skimming is transferred to preheated crucibles, whose tear weight is known. From the crucibles, molten aluminum is poured into reverberatory furnace (RV1). RO enhances throughput of RV1 as it adds molten aluminum to it. In addition, RO enables the plant to process high volatile (combustibles) aluminum scrap.

Based upon observed visible emissions (VE) near the RO capture device and high volatile content (RO up to 10% Vs RV1 up to 2%), RO is predominant source of odor.

Reverberatory Furnace 1 (RV1- De-ox) - Lime and carbon injected baghouse (BH3)

RV1 is a continuous process unlike RO. RV1 consists of two natural gas fired burners of capacity 10 MMBTU / hour, each burner; total heat input of 20 MMBTU / hour. All natural gas combustion takes place at hearth. RV1 melts aluminum scrap, dross, etc. at a charge rate (pounds per hour, all materials including flux, scrap, dross, etc.) determined by the stack test (47,148 lbs. / 3-hr = 15,716 lbs. / hr. based upon September 24-26, 2013 (RO [Baghouse under two conditions: Condiltion1 - max. flux and Conditon2 - max. temperature & minimum required lime] and RV1 (sidewell Baghouse)), and June 12-13, 2014 (natural gas fired RV1 combustion / hearth stack – uncontrolled, i.e., no baghouse) Stack Tests) . RV1 is controlled by 45,000 SCFM high temperature baghouse (BH-3: woven polyester bags, air-to cloth ratio = 3:1). Lime and carbon are injected into the bags to control acid gases and odor. The bags are shaken to maintain pressure drop (ΔP) across the bags. Thorough cleaning of bags ended in December 2010. I explained to the company that 50% clean-up via shaking bags may be sufficient. Carbon and lime retained on the bags would help control odor and acid gases. Continental installed electronic systems to prevent excessive bags shaking. Natural gas combustion emissions from hearth are uncontrolled; i.e. no baghouse.

Based upon F 2015 inspection, all visible emissions are captured using a capture device and ducted to RV1 baghouse.

Reverberatory Furnace 2 (RV2- Alloy – long-term idle) – BH1

Reverberatory Furnace 2 (RV2- Alloy) is long-term idled and in disrepair. Neither lime nor carbon injection is taking place at this time. The injection may be necessary upon start up. RV2 consists of two natural gas fired burners of capacity 10 MMBTU / hr, each burner. Total capacity is 20 MM BTUR per hour. RV2 is controlled by 45,000 SCFM high temperature baghouse (BH-1: woven polyester bags, air-to cloth ratio = 3:1). Alloy (RV2) baghouse is equipped with Continuous Opacity Monitoring System (COMS / CEMS). COMS: Environmental Monitoring Service Model 1304 S/N 246. COMS meets Performance Spec 1, 40 CFR, Part 60, Appendix B. Continental must submit EER per PTI No. 504-96B, SC 36(g) / PTI No. 504-96D, SC 2.15; RV2 is now idled. Alloy baghouse (BH-1) is not operating at this time as the Alloy process (RV-2) is idled.

Upon restarting RV2, Continental is required to conduct PTI and MACT 3R stack testing and performance audit of COMS according to PS1.

Shredder – In series cyclone and baghouse

Shredder pulverizes large metal (Al) scrap into smaller pieces. Shredder is capable of processing 20,000 pounds of Al scrap per hour. Magnetic separator is present to take out ferrous metals. Garbage materials such as paper, plastic are taken out using eddy current separator. Shredder baghouse is only baghouse that uses pulse-jet mechanism for cleaning. These operations are a part of odor management and product quality. Large particles are captured by a cyclone which operates in series with the shredder baghouse. The cyclone protects the bags from impact by large particles which have high momentum. Fine particles are, of course, captured by the baghouse. The shredder baghouse emissions are released to in-plant environment.

Bails are broken and containers / vessels are removed to prevent potential explosion. Non-conforming bails are separated by visual inspection. Bails are broken and placed on a conveyor to carry the materials to the shredder, which is equipped with cutters. After shredding, the material is conveyed to a magnetic drum (magnetic separator) to pull out ferrous materials. Ferrous and non-aluminum materials are returned to a vendor and refund is sought. The materials are transferred to a shaker table and large aluminum pieces are pulled out. The material is sent to a ring mill where more shredding takes place. Materials fall through grates resulting in separation of large pieces. Material is carried to a magnetic separator. Eddy separator is present to take out non-aluminum materials such as paper, plastics, etc. A vibrating table is used to separate fluff (loose dirt). In the end scrap aluminum raw material that can be fed to the furnaces is obtained.

According to March 28, 2000, letter from Mr. William A. Wickers II to Ms. Lisa Scarpelli, Continental installed ring mill, eddy currents separator to remove non-metallic materials such as paper, plastics. In addition magnetic separator was installed.

In-plant emissions

Farr baghouse (cartridge filters), which was located near southeast corner of the building, controlled in-plant fugitive emissions until it was removed. The Farr baghouse was inadequate and did not have properly designed capture and ventilation system. It is removed. Occasionally, visible emissions are observed from the building from salt cake handling; these visible emissions are confused with smoke.

Concerning the MACT RRR, Group 1 furnaces include RO, RV1 and RV2 (idle and in serious disrepair).

In summary, four process baghouses are present: one for Rotary (RO) Furnace, two for Reverberatory (RV1 Deox / RV2 Alloy) Furnaces, one for Shredder. RV2 Alloy baghouse is equipped with Continuous Opacity Monitoring System (COMS / CEMS). COMS is required to be certified w.r.t. PS1 upon restarting RV2 Alloy process. While activated carbon is injected into Rotary and RV1 Deox baghouses to control odor, lime is injected into these baghouses to control acid gases. All baghouses are cleaned using shaker mechanism except Shredder baghouse, which uses pulse-jet mechanism. In addition, one Farr cartridge filter system for in-plant fugitive emissions is removed.

Lime and carbon injection

Into the baghouses (RO-BH2, RV1-BH3, RV2-BH1-idle) lime injection is continuous. According to Rinehart's letter dated July 27, 2009, during the fourth quarter of 2009 (4Q2009), Continental engaged Mr. Bruce Begeson of Begeson Technologies to develop a practice of

activated carbon injection into RO (BH-2) and RV1 (BH-3) baghouse systems.

Two lime injection (one each for RO & RV1) and one common carbon injection systems are present. Based upon FY 2015 inspection, carbon injection system uses a mixture consisting of 50% carbon and 50% lime. The carbon injection system serves both RO and RV1 baghouses. RV2 (idle) lime injection system is converted to one common (RO & RV1) carbon injection system. Per FY 2015 inspection, 30-40 pounds per hour lime & carbon mixture (1:1 by mass) is injected; one half mixture into RO and rest into RV1.

Rotory Furnace Barrel is heated to about 1300 °F using natural gas. Molten aluminum metal from RO is held in heated crucibles before being transferred to Deox furnace. Reverberatory furnace may act as Deox or Alloy furnace depending upon the product. Deox product is used in steel mills. RV1 is not used as an Alloy furnace.

Shredded aluminum is fed to either RO or RV1. While materials with less than 2% volatiles are fed to RV1, RO can handle up to 10% volatiles. Volatiles means combustibles in the scrap. As stated before, RO is a batch process running 6-7 batches per day (24 hours). Due higher volatile (non-metallic) content RO is more likely to be a source of odor of higher intensity. Because RO is batch process (about 3 hours per batch), odors tend to be transient if properly operated.

On January 21, 2011, I discussed lowering exhaust gas temperature to baghouses to improve effectiveness of carbon adsorption as lower temperature assists carbon adsorption because it is an exothermic process with release of kinetic energy of the molecules being adsorbed as heat. As a result of these discussions, Continental was staying below 250 °F (PTI No. 504-96D, SC 3.9 limit: 400 °F) at the inlet of bags. This 400 °F temperature limit was incorrect per MACT 3R. The baghouse temperature limit must be based upon MACT 3R stack testing. September 24-26, 2013, stack tests established the maximum baghouse temperature limits for both RO (RO T < 216 °F) and RV1 (RV1 T < 182 °F) per MACT 3R. These lower temperature are now (after Sep 2013 stack tests) maintained and monitored. The lower exhaust gas temperature is helping adsorption (adsorption isotherm) of odors onto activated carbon cake on bag surfaces. Unlike absorption, which gas-liquid contact mass transfer operation, adsorption is gas-solid contact mass transfer operation. In adsorption, solute (contaminant) is transferred from gas phase to solid resulting in release of heat (exothermic). Hence, lower temperature favors higher adsorption. Removing heat of adsorption favors adsorption.

Carbon and lime injection is started before a RO batch is started. Unlike RO, both RV1 and RV2 (idled) are continuous processes. RV2-alloy is equipped with neither lime nor carbon injection system because it is on long-term idle and in serious disrepair. Each process (RO & RV1) has its own dedicated lime injection system; two systems in all. However, one common carbon injection system serves both RO and RV1.

On September 15, 2011, I discussed operating baghouses at higher ΔP but still within permit limits. RO bags (BH-2) are shaken at the end of the batch. I asked Messrs. Rinehart and O'Neil to minimize bag-shaking at the end of RO batch by trial-and-error such that ΔP (BH-2) is on higher side of the permit limit (PTI No. 504-96D, SC 3.7 limit: $3.0 \leq \Delta P \leq 10$ inches WG). Since RV1 is a continuous (not batch) process, one press for shake may be sufficient to clean bags so that RV1 (BH-3) is always operated at higher ΔP; but still within the permit limit (PTI No. 504-96D, SC 1.8 limit: $2.25 \leq \Delta P \leq 15.35$ inches WG). About 2015, Continental installed a system for each baghouse (RO & RV1) that prevents excessive bag shaking.

Public Health Assessment Petition

Via Dec 26, 2001 letter, Charter Township of Lyon and State Environmental Advocacy Organization petitioned Dr. Henry Falk, Asst. Administrator, US EPA Agency for Toxic Substances and Disease Registry (ATSDR) for public health assessment. At New Hudson, Continental started operation in 1998; moved from Detroit.

Michigan Dept. of Community Health Report

Exposure Investigations Report (Contact T. J. Bucholz 517-241-2112) states that MDCH concludes that Continental Aluminum poses no apparent public health hazard. MDCH conducted exposure investigation concerning toxic pollutants emitting from Continental from March 1 through May 31, 2004.

MDCH conducted an investigation under cooperative agreement with US Dept. of Health and Human Services, Agency for Toxic Substances and Disease Registry. MDCH (US EPA ID: MI 0001941699) conducted exposure investigation using Air Monitoring. MDCH investigated presence of acid aerosols, concentrations of air-borne metal particles, elevated mercury (Hg), volatile organic compounds (VOC). MDCH concluded, based upon exposure investigation of 2004 that the concentrations of chemicals in the ambient air were below health based comparison values. Hence, there was no apparent current (2004) public health hazard. Meteorological parameters were considered.

The November 15, 2005, letter from Ms. Christina Bush, Toxicologist, MDCH, to Mr. G. Vinson Hellwig, AQD Chief, stated that Continental Aluminum was not a significant source of mercury (Hg).

Consent Order 52-2001

AQD issued a Violation Notice dated March 20, 2000, for failure to install and operate lime injection system for RV-2 baghouse as indicated by HCl and Cl2 emissions and for submitting inaccurate information (RV1 & RV2 Rule 303) in permit application #504-96, which was subsequently revised to 504-96A.

On April 11, 2000, AQD-SEMI DO referred the odor violations (Rule 336.1901, PTI No. 504-96A, SC 13 & 14) for an escalated enforcement action.

Consent Order No. 52-2001 was finalized on December 20, 2001. PTI No. 504-96B was issued and made part of the consent order. PTI modification PTI No. 504-96B → PTI No. 504-96C removed the required use of chlorine. The NESHAP / MACT RRR requirements were incorporated (March 23, 2000). During the permit review, the MACT 3R requirements were not correctly incorporated.

AQD Chief G. Vinson Hellwig terminated on February 1, 2007, Consent Order No. 52-2001 based upon Mr. J. David Rinehart's (President of Continental) letter dated February 2, 2007. The letter stated that Continental paid $33,000.00 (settlement) on January 24, 2002, $15,000.00 (stipulated penalty) on August 11, 2005, and that Continental complied with Paragraphs 11 thru 17.

Stipulated penalty

October 17, 2002, letter from AQD's Ron Pollom to Bill Altgibers, President of Continental, stated that Continental failed HCl limit (PTI No. 504-96B) per June 2002 sampling. HCl limit

failure subjects the company to $3,000.00 per day stipulated penalty (CO No. 52-2001)

PTI Modifications

As a result of inaccurate information (RV1 & RV2 Rule 303) in permit application #504-96, PTI No. 504-96 was revised to PTI No. 504-96A.

Consent Order No. 52-2001 was finalized on December 20, 2001. PTI No. 504-96B was issued and made part of the consent order. PTI modification PTI No. 504-96B → PTI No. 504-96C removed the required use of chlorine as flux as a result of failure to meet Cl emission limit of PTI No. 504-96B during June 12, 2002 stack test. The NESHAP / MACT RRR requirements were incorporated into PTI No. 504-96C; but not correctly.

The modification PTI No. 504-96C → PTI No. 504-96D modified pressure drop (ΔP) for RV1 and RV2 from 3-10 inches WG to 2.25-15.35 inches WG based upon May 23-24, 2006, stack test (PM, HCl, HF). The PTI modification retained 3-10 inches pressure drop (ΔP) for Rotary Furnace (RO). All other conditions were retained during the PTI modification; i.e. only RV ΔP range was changed.

The PTI modification PTI No. 504-96D dated October 27, 2006 → PTI No. 504-96F dated September 27, 2013, was done as result of the February 05, 2013, NESHAP / MACT 3R violation notice (VN) and Continental's desire to change production limits. Further PTI revision may be required to revise flux rate (x-hour block average and pounds of flux per ton of feed) for RV1 based upon additional stack testing for PTI and MACT 3R parameters. PTI modification (PTI No. 504-96F → PTI No. 504-96G) to change flux rate averaging (pounds per ton of feed → pounds per hour) was denied as such averaging time must be based upon stack test and NESHAP / MACT 3R and the PTI application was withdrawn.

RV2 Baghouse COMS

Mr. Bill Algilbers, President of Continental, stated in his letter dated December 2, 2002, to Mr. Tom Maza of AQD that Continuous Opacity Monitoring System (COMS) installed on the exhaust stack of Reverberatory Furnace No. 2 or RV2 baghouse complies with Performance Specification 1 (40 CFR, Part 60, Appendix B). The annual COMS audit is required by PTI No. 504-96B, SC 36(g). Mr. Tom Maza'a letter dated December 4, 2002, states that AQD determined that Environmental Monitoring Services Model 1304 S/N 246 meets Performance Spec 1, 40 CFR, Part 60, Appendix B. Continental must submit Excess Emissions Report (EER) according to SC 36 (g), PTI No. 504-96B (PTI No. 504-96D, SC 2.15).

Concerning COMS, Performance Spec 1 recertification and ongoing annual audits is required upon startup of RV2.

Stack Tests

February 2000, stack test

On Feb 23, 2000, Continental Aluminum conducted stack test for RV2 for PM, HCl, Cl, HF, F2. Each pollutant emissions was less than limits in PTI No. 504-96A: 0.16 pound of PM per hour (limit: 2 lbs/hr), 0.28 pounds of HCl per hour (limit: 1.95 lbs/hr), 0.02 pounds of HF per hour (limit: 0.5 lbs/hr) and 0.02 pounds of Cl2 per hour (limit: 0.10 lbs/hr).

June 2002, stack test

AQD received the test plan dated May 10, 2002, from Air Compliance Testing, Inc. for PM, HCl, HF, Cl2 from RO, RV1 and RV2. On June 6, 2002, AQD (Maza) approved the stack test plan. Tom Maza observed stack tests during June 11-12, 2002, for PM, HCl, HF, Cl (RV1, RV2, RO). The average HCl from RV2 exceeded the permit limit (PTI No. 504-96B). AQD issued a Violation Notice dated September 11, 2002, for exceeding the permit limit for HCl. The stack test emissions of 3.58 pounds of total HCl per hour exceeded the permit limit of 1.95 pounds of total HCl per hour (RV2, PTI No. 504-96B, SC 23). RV1 and RO were in compliance for all pollutants. Air Compliance Testing, Inc. conducted June 11-12, 2002, sampling.

August 2003, stack test

AQD received the test plan dated January 3, 2003, for Dioxins and Furans from Deox Furnace (RV1), Alloy Furnance (RV2) and Rotary Furnace (RO). On January 31, 2003, AQD (Maza) approved Dioxin / Furan (D/F) test method for RO and RV (to operate as alloy furnace) according to PTI No. 504-96B. Air Compliance Testing, Inc. of Cleveland, Ohio, conducted sampling on August 12 and 13, 2003. The purpose of the test was show compliance with Area Source NESHAP / MACT RRR (3R) for Secondary Aluminum Production. The sampling was performed for RV1, RV2 and RO. August 2003 stack test emissions of D/F TEQ in grains per ton of feed were 1.44E-04 for RV1, 9.8E-05 for RV2 and 1.95E-05 versus NESHAP / MACT RRR limit of 2.1E-04. The laboratory successfully analyzed dioxin-furan audit sample.

May 2006, stack test

On April 28, 2006, AQD approved the test plan for PM, HCl, HF to change baghouse pressure drop for RV1 (Deox) and RO (Rotary) from 3-10 inches to 1-15 inches of water. On May 23 and 24, 2006, sampling was performed to show compliance with PTI No. 504-96B permit limits. Jason Wolf of AQD observed the sampling. Per Mr. Wolf, US EPA Reference Methods 1, 2, 3, 4, 5 and 26A were properly followed and calculations were done correctly. HCl limit was not met for RO for both baghouse conditions (PTI No. 504-96B). PTI No. 504-96B → PTI No. 504-96C modification prohibited use of chlorine flux.

September 2013 and June 2014, stack test

September 24-26, 2013 (RO [Baghouse under two conditions: Condiltion1 - max. flux and Conditon2 - max. temperature & minimum required lime] and RV1 (sidewell Baghouse)), and June 12-13, 2014 (natural gas fired RV1 combustion / hearth stack – uncontrolled, i.e., no baghouse) stack tests

Tests were conducted per Permit-to-Install (PTI) No. 504-96F dated September 27, 2013, and Area Source NESHAP / MACT 3R.

Performance test required by: PTI No. 504-96F (PM, HCl, HF, D/F) and NESHAP / MACT 3R (dioxin / furan or D/F). Aug 2003 D/F test is inadequate (as cited in Feb 05, 2013 VN) to satisfy MACT 3R. RO and RV1 were tested (RV2 idle requiring substantial repairs, not tested).

NESHAP / MACT 3R: On December 18, 2013, AQD received Notice of Compliance Status (NOCS) Report dated December 11, 2013 (signed by Mr. Fred Lindsay, President) for RO and RV1 (RV2 idle, not tested). Mr. Lindsay certified two furnaces (RO and RV1; RV2 not tested) were in compliance with NESHAP / MACT 3R. As an area source of NEAHSP /

MACT 3R, the Continental is only subject to the dioxin/furan (D/F) emission limits but required meet all monitoring / recordkeeping requirements.

AQD issued Violation Notice dated February 05, 2013 for failing to comply with NESHAP / MACT RRR / MACT 3R, 40 CFR, Part 63, Subpart RRR (Secondary Aluminum Production NESHAP). Continental needed to perform stack test to comply with the MACT 3R; Continental did not include all necessary parameters, for example, flux rate, in the previous MACT 3R test for D/F (Aug 2003). In addition, AQD wrote two letters dated October 17, 2013 (need to test natural gas fired process heater or hearth, EU-RV1PROCHTR), and February 10, 2014 (allowed RV1 hearth stack tests under practically identical conditions by July 1, 2014 due to winter-related safety concerns), to Mr. Fred Lindsay, President, concerning shortcomings of September 2013 stack tests. The baghouse controls emissions from EU-RV1MELT. The emissions from the natural gas fired process heater or hearth (EU-RV1PROCHTR), which keeps aluminum in a molten state and provides heat for melting scrap feed in the sidewell, exhaust through a separate uncontrolled stack. Natural gas flame is directed to fire bricks and heat transferred, via predominantly radiation and convection mechanisms, to molten metal. A molten metal liquid level seal is present and maintained to prevent sidewell (Baghouse) emissions to migrate to hearth (uncontrolled). Continuous molten metal recirculation using a pump transfers necessary heat for melting scrap feed in the sidewell. 30-100 percent opacity emissions at the sidewell due to scrap melting and combustibles burning are captured and ducted to the lime-injected baghouse. During the September 25, 2013 testing, only the emissions from the baghouse stack EU-RV1MELT were sampled. However, the permit requires sampling both process heater / hearth and baghouse stacks simultaneously. Based upon Mr. Bruce Bergeson's letter dated November 15, 2013, Continental Aluminum agreed to sample the Hearth stack. Besides, the January 24 e-mail from Mr. Bruce Beregson described safety issues (due to icy conditions in winter) pertaining to constructing and using the structures necessary for sampling. Hence, the RV1 (RV2 is idle and needs stack test upon start-up) hearth stack test was postponed to June 2014 so that safe weather-related conditions for building necessary structures exist.

AQD issued Permit-to-Install Modification (PTI No. 504-96D → PTI No. 504-96F; PTI No. 504-96E application was voided) as result of the February 05, 2013, NESHAP / MACT 3R violation notice (VN) and Continental's desire to change production limits. All baghouses (RO, RV1; RV2-idle and not tested) are required to be injected lime (minimum amount determined by the Sept 2013 stack test) to control acid gases and dioxins / furans. A mixture of lime and carbon is also injected into the baghouses to control neighborhood odor although required neither by PTI No. 504-96F nor NESHAP / MACT 3R. The baghouses must be operated properly such that a sufficient cake thickness of lime and carbon exist on the walls of the bags that contaminants in exhaust gases can come contact with. While lime injection into the baghouses is required both by PTI No. 504-96F (PM, HCl, HF, D/F) and NESHAP / MACT 3R (D/F), carbon (mixture of lime and carbon) injection is implemented as an odor control measure.

On December 18, 2013, AQD received September 24-26, 2013, test results. AQD also received along with the September 2013 test report, Notice of Compliance Status (NOCS) Report dated December 11, 2013 (signed by Fred Lindsay, President) per NESHAP / MACT 3R.

On May 19, 2013, AQD received Performance Test Plan for both RO and RV1 (NESHAP / MACT 3R and PTI No. 504-96F) via e-mail. During September 24-26, 2013, Alliance Source Testing, LLC, of Decatur, AL 35603 (Phone: 256- 351-0121 Fax: 256-351- 0151) conducted

sampling. On August 20, 2013, Mr. Tom Gasloli of TPU-AQD approved the NESHAP / MACT 3R and PTI No. 504-96F test plan. In addition, on May 13, 2014, AQD received Performance Test Plan for RV1 uncontrolled combustion stack (RV1 hearth) since this was overlooked during September 2013 stack test. On May 28, 2014, Mr. Tom Maza of TPU-AQD approved the test plan for RV1 combustion stack (uncontrolled natural gas fired hearth). During June 12-13, 2014, Alliance Source Testing, LLC, conducted sampling of RV1 combustion stack (hearth). RV2 is idle on a long-term basis and, hence, sampling was not conducted; stack test to be conducted upon start-up.

Mr. Tom Gasloli of TPU-AQD observed September 2013 stack tests (including D/F). Rotory furnace (RO) was tested under tow scenarios: 100% dross & worst case flux (standard flux 48% NaCl, 4% KCl and Cryolite) and worst case scrap (highest temperatures). Mr. Gasloli wrote Sept. 2013 stack test observation report. Dross containing recoverable aluminum from RV1 is processed in RO; it may be mixed with scrap in the same batch. Toll dross is processed as 100% dross in RO for a client for a processing fee. On Sept 25, 2013, Run No. 1 was aborted because Mr. Bruce Bergeson wanted to feed dirtiest scrap possible.

Mr. Tom Gasloli of TPU-AQD reviewed September 24-26, 2013, stack test report. According to Mr. Gasloli all methods and procedures are acceptable. US EPA Reference Methods 5+202 (PM), 23 (dioxins / furans or D/F) and 26A (modified non-isokinetic HCl & HF). Rotary furnace (RO) was tested under two conditions:

1. **Condition 1:** 100% dross with maximum flux.

2. **Condition 2:** worst case scrap (dirtiest and hence maximum temperature), maximum scrap feed rate, maximum baghouse temperature, minimum lime injection rate.

Independent AQD calculations are in agreement with Alliance Source Testing's calculations with an acceptable margin of error.

On July 22, 2014, AQD received June 12-13, 2014, test results (RV1 Hearth – natural gas fired combustion stack that is uncontrolled).

Mr. Tom Maza of TPU-AQD observed the June 2014 combustion stack (uncontrolled natural gas fired hearth to keep aluminum in molten state and to provide heat for melting scrap in sidewell via molten metal recirculation). On June 11, 2014, RV1 test could not be performed due to burner problems. Parts required for repairs could not be obtained in few hours. June 2014 RV1 combustion stack test was performed to satisfy permit conditions (NESHAP / MACT 3R requires only D/F testing that was performed in Sept 2013) using US EPA Reference Methods 5+202 (PM) and 26 (non-isokinetic HCl & HF). Mr. Maza wrote test observation and review (08/27/14) reports. AQD will use Alliance Source Testing's results since they are acceptable with a margin of error in order to avoid confusion.

The September 2013 and June 2014 stack test results are summarized below:

FG-RV1 (EU-RV1PROCHTR, EU-RV1MELT, EU-RV1POUR): Reverberatory Furnace #1 produces De-Ox products. FG-RV1 consists of two natural gas-fired burners each with a heat input of 10 MMBtu (total 20 MMBtu capacity) per hour, raw material charging and melting, and a pouring operation. Combustion products from the burners and hearth chamber emissions are exhausted to the atmosphere uncontrolled through SVHTRRVRB#1. The pouring (in-plant

molten metal from RO) operation has two uncontrolled tapping line stacks (SVTL1 and SVTL2).

Raw material charging and melting is hooded and emissions are vented to a 45,000 SCFM high temp lime-injected baghouse (RV1-BH-3) and exit through SVBHRVRB#1.

Pollutant	Limit	Sept 24-26,2013, RV1-BH3 baghouse stack test	June 12-13, 2014, RV1 NG fired furnace hearth stack No baghouse	Total RV1 = RV1-BH3 + Hearth
1. PM	0.40 lb/ton[1] of feed to sidewell	0.024 lbs./ton (0.18 lb./hr.; 6% limit)	0.15 lbs./ton (1.14 lbs./hr.)	0.174 lbs./ton (43.5% limit)
2. PM	4.8 tpy [1]			To be calculated based upon 0.174/ton emission factor
3. PM 10	2.0 lb/hr	0.29 (14% limit)		
4. PM 2.5	1.4 lb/hr	0.29 (21% limit)		
5. PM 2.5	4.8 tpy [1]			
6. HCl	0.40 lb/ton[1] of feed to sidewell	0.10 lbs./ton (25% limit)	0.012 lbs./ton	0.112 lbs./ton (28% limit)
7. HCl	1.95 lb/hr	0.81 lbs./hr. (41% limit)	0.092 lbs./hr.	0.902 lbs./hr. (46% limit)
8. HCl	4.68 tpy [1]			To be calculated based upon 0.112 lbs./ton emission factor
9. VOC	0.30 lb/ton[1] of feed to sidewell	Not tested		
10. VOC	1.5 lb/hr	Not tested		
11. VOC	3.6 tpy [1]	Not tested		
12. HF	1.0 tpy [1]	0.010 lbs. / hr. 0.0014 lbs./ton	4.9 E-03 or 0.0049 lbs./ton 0.036 lbs./hr.	0.0063 lbs./ton (0.046 lbs./hr.) Annual emissions to be calculated based upon 0.0063/ton emission factor

FG-RV2: IDLE – Requires lot of parts. RV2 is cannibalized. Stack test required upon start-up

FG- ROTARY (EU-ROTMELT, EU-ROTARYPOUR): Rotary Furnace (RO) produces aluminum sow and molten metal for transfer to other in-plant furnaces. FG-ROTARY consists of a 14 MMBtu/hr natural gas-fired burner, raw material charging and hot dross processing, sow pouring and molten metal transfer operations. Both melting and combustion emissions are vented to a lime-injected baghouse (BH-2) and exit through SV-BH-ROTARY.

Unlike RV1, both melting and combustion emissions are vented to a 45,000 SCFM high temp

lime-injected baghouse (BH-2) and exit through SV-BH-ROTARY.

Pollutant	Limit	Sept. 2013 test RO condition 1: dross & worst case flux Sets flux limit	Equipment	Sept. 2013 test RO condition 2: high BH temperature & worst case scrap Sets temperature limit	
1. PM	0.40 lb/ton of feed/charge[1]	0.088 (0.26 lbs/ hr, 22% limit)	EUROTMELT	0.12 (0.43 lbs/hr 29% limit)	
2. PM	5.7 tpy		EUROTMELT	Annual emissions to be calculated based upon worst case scrap emission factor 0.12 lbs PM per ton of feed.	
3. PM 10	1.7 lb/hr	0.41(24% limit)	EUROTMELT	1.6 ((94% limit)	
4. PM 2.5	1.7 lb/hr		EUROTMELT		
5. PM 2.5	5.7 tpy		EUROTMELT		
6. HCl	1.5 lb/hr	0.047 (0.016 lbs/ton, 3% limit)	EUROTMELT	0.97 (0.26 lbs/ton, 65% limit)	
7. HCl	5.0 tpy		EUROTMELT	Annual emissions to be calculated based upon worst case scrap emission factor 0.26 lbs. of HCl per ton of feed.	
8. VOC	0.30 lb/ton of feed/charge[1]	Not tested	EUROTMELT	Not tested	
9. VOC	1.5 lb/hr	Not tested	EUROTMELT	Not tested	
10. VOC	2.7 tpy	Not tested	EUROTMELT	Not tested	
11. HF	1.0 lb/hr	0.0088 (0.0029 lbs/ ton, 1% limit)	EUROTMELT	0.023 (0.0063 lbs/ ton, 2% limit)	
12. HF	1.5 tpy		EUROTMELT	Annual emissions to be calculated based upon worst case scrap emission factor 0.0063 lbs. of HF per ton of feed.	

FG-MACT-RRR (EU-RV1MELT, EU-RV2MELT, EU-ROTMELT)

An existing secondary aluminum processing facility that is (or is part of) an area source of HAPs.

Three 45,000 SCFM high temperature lime-injected baghouses (RV2-BH-1 (idle), RO-BH-2, and RV1-BH-3)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Dioxins and Furans	2.1×10^{-4} gr of D/F TEQ per ton of feed/charge[1, 2]	Test protocol *	EURV1MELT EURV2MELT EUROTMELT	SC V.1	40 CFR 63.1505 (i)(3)

(D/F)					

[1] *feed/charge* refers to the total weight of material, including molten aluminum, clean charge, scrap, dross, flux, and alloying agents that enter the furnace, as defined by 40 CFR 63.1503.
[2] The D/F emission limit (SC I.1) applies to each affected emission unit (EURV1MELT, EURV2MELT, and EUROTMELT) separately.
*Test protocol shall specify averaging time.

1 pound = 7,000 grains. 1 grain = 64.799 milligrams = 0.06479891 grams.

2.1 E-04 grains per ton = (2.1 E-04 grains per ton) * (1 pound / 7000 grains) = 3×10^{-8} pounds of D/F TEQ per ton of feed/charge

Feed: molten Al, scrap, clean charge, dross, flux, alloying agents, etc. (MACT feed all materials including molten aluminum)

D/F emissions based upon Sept 24-26, 2013 stack test

RV1 → 4.9 E-06 grains per ton (2% limit)

RO → 9.4 E-06 grain per ton (4% limit) worst case flux with dross

RO → 1.5 E-04 grain per ton (70% limit) worst case scrap with high baghouse temperature

RV1 (De-ox) operating parameters

RV1 -Sep 2013 stack test material charge (excluding molten Al from RO): 47,148 lbs. / 3-hr = 15,716 lbs. / hr.
Limit: maximum 47,148 lbs. / 3-hr = 15,716 lbs. / hr.

Min. lime injection: **34** lbs. / hr.

Max RV1 BH3 MACT temperature = 157 + 25 = **182** °F. This is also permit limit.

RO (Alloy) operating parameters

Maximum charge: 26,139 pounds of charge materials per 3-hr. worst case scrap with high BH temperature
Max charge = 22,977 lbs of charge per 3-hr cycle worst case flux with dross
RO limit = 26,139 pounds of charge per cycle / batch

Flux limit: 4,350 lbs. / batch worst case flux with dross, 3,040 lbs. / batch worst case scrap, high BH temp

Limit: (4,350 lbs / batch worst case flux) / (22,977 lbs. / batch charge worst case flux) = 379 lbs. of flux per ton of feed **18.9** %

Min. lime injection: 37 lbs./hr. worst case scrap with high BH temperature, 39 lbs. / hr. worst case flux with dross
Limit = **39** lbs. lime / hour.

Max RO BH2 MACT temperature = 191 + 25 = **216** °F. This is also permit limit.

2011 Fee Invoice

On February 25, 2011, Continental paid $4,756.50 (Invoice No. 674489) as Category I source. $4,506.50 was refunded keeping $250.00 as fee for Category II source. Per Ms. Lynn Fiedler's (Asst. AQD Chief) letter dated June 16, 2011, of $4,756.50 (Cat I: $4,485 facility fee plus $135.75 [3 * 45.25] NOx fee plus $135.75 [3 * 45.25] VOC fee) full payment, $4,506.50 is to be refunded. i.e., Continental is dropped from Category I ($4,756.50) to Category III ($250.00).

RO-BH2, RV1-BH3 Bags

All bags in all baghouses (RO & RV1; not RV2-idle) are replaced about once per year. About November 2011, both RO and RV1 bags were replaced. In 2015 all bags were replaced: RV1 bags about April 28 and RO bags about June 5, 2015.

RO bags and RV1 bags are shaken enough to reduce pressure drop and maintain sufficient lime and carbon cake for acid and odor gases control..

PTI No. 504-96F Compliance (both RO & RV1 operating and RV2 on long-term idle)

EMISSION UNIT SUMMARY

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUHOLDING	30,000 lb capacity Group 2 holding furnace. Holds only clean charge and performs fluxing using only nonreactive, non-HAP-containing/non-HAP-generating gases or agents. 4 natural gas-fired burners; 8 MMBtu/hr total heat input capacity	FGFACILITY
EURV1PROCHTR	Reverberatory Furnace #1 (De-Ox) Hearth Chamber and Process Heater; 2 natural gas-fired burners each at 10 MMBtu/hr (20 MMBtu/hr total); 23,500 ACFM	FGRV1 FGFACILITY
EURV1MELT	Reverberatory Furnace #1 (De-Ox) Raw Material Charging and Melting. 45,000 SCFM High Temp lime-injected Baghouse (BH-3)	FGRV1 FGMACTRRR FGFACILITY
EURV1POUR	Reverberatory Furnace #1 Pouring. 2 uncontrolled tapping line stacks	FGRV1 FGFACILITY
EURV2PROCHTR	Reverberatory Furnace #2 (Alloy) Hearth Chamber and Process Heater. 2 natural gas-fired burners each at 10 MMBtu/hr (20 MMBtu/hr total). 23,500 ACFM	FGRV2 FGFACILITY
EURV2MELT	Reverberatory Furnace #2 (Alloy) Raw Material Charging and Melting. 45,000 SCFM High Temp lime-injected Baghouse (BH-1)	FGRV2 FGMACTRRR FGFACILITY
EURV2POUR	Reverberatory Furnace #2 Pouring. One uncontrolled tapping line stack	FGRV2 FGFACILITY
EUROTMELT	Rotary Furnace Process Heater, raw material	FGROTARY

	charging and melting, hot dross processing. 14 MMBtu/hr natural gas-fired burner. 45,000 SCFM High Temp lime-injected Baghouse BH-2	FGMACTRRR FGFACILITY
EUROTARYPOUR	Rotary Furnace sow pouring or molten metal transfer. Some emissions from launder chutes to hood for BH-2. Also, in-plant emissions	FGROTARY FGFACILITY
EUSCRAPSHREDDER	Scrap shredder loading, shredding and preparation by sizing, and scrap transfer by conveyor to storage bins. 20,000 pounds per hour capacity. Emissions controlled by cyclone and baghouse in series, and vent inside the building.	FGFACILITY

FLEXIBLE GROUP SUMMARY

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGRV1	Reverberatory Furnace #1 produces De-Ox products. FGRV1 consists of two natural gas-fired burners, raw material charging and melting, and a pouring operation. Combustion products from the burners and hearth chamber emissions are exhausted to the atmosphere through SVHTRRVRB#1. Raw material charging and melting is hooded and emissions are vented to a lime-injected baghouse (BH-3) and exit through SVBHRVRB#1. The pouring operation has two uncontrolled tapping line stacks (SVTL1 and SVTL2).	EURV1PROCHTR EURV1MELT EURV1POUR
FGRV2	Reverberatory Furnace #2 produces Alloy products. FGRV2 consists of two natural gas-fired burners, raw material charging and melting, and a pouring operation. Combustion products from the burners and hearth chamber emissions are exhausted to the atmosphere through SVHTRRVRB#2. Raw material charging and melting is hooded and emissions are vented to a lime-injected baghouse (BH-1) and exit through SVBHRVRB#2. The pouring operation has one uncontrolled tapping line stack (SVTL3).	EURV2PROCHTR EURV2MELT EURV2POUR
FGROTARY	Rotary Furnace produces aluminum sow, and molten metal for transfer to other in-plant furnaces. FGROTARY consists of a natural gas-fired burner, raw material charging and hot dross processing, sow pouring and molten metal transfer operations. Both melting and combustion emissions are vented to a lime-injected baghouse (BH-2) and exit through SVBHROTARY.	EUROTMELT EUROTARYPOUR

FGMACTRRR	An existing secondary aluminum processing facility that is (or is part of) an area source of HAPs	EURV1MELT EURV2MELT EUROTMELT
FGFACILITY	All equipment at the facility including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

FG-RV1, Deox, BH-3

DESCRIPTION: Reverberatory Furnace #1 produces De-Ox products. FGRV1 consists of two natural gas-fired burners each with a heat input of 10 MMBtu (total 20 MMBtu capacity), raw material charging and melting, and a pouring operation. Combustion products from the burners and hearth chamber emissions are exhausted to the atmosphere through SVHTRRVRB#1. The pouring operation has two uncontrolled tapping line stacks (SVTL1 and SVTL2).

Emission Units: EURV1PROCHTR, EURV1MELT, EURV1POUR

POLLUTION CONTROL EQUIPMENT: Raw material charging and melting is hooded and emissions are vented to a 45,000 SCFM high temp lime-injected baghouse (BH-3) and exit through SVBHRVRB#1.

PTI No. 504-96F, FG-RV1, I. Emission Limits (RV1, Deox, BH-3)

Pollutant	Limit	Sept 24-26,2013, RV1 BH3 baghouse stack test		June 12-13, 2014, RV1 NG fired furnace hearth stack No baghouse	Total RV1 = BH3 + Hearth
1. PM	0.40 lb/ton[1] of feed to sidewell	0.024 lbs./ton (0.18 lb./hr.; 6% limit)		0.15 lbs./ton (1.14 lbs./hr.)	0.174 lbs./ton (43.5% limit)
2. PM	4.8 tpy [1]	Based upon June 2015, data, 0.455 tons / 12-mo emitted (9% limit)			To be calculated based upon 0.174/ton emission factor
3. PM 10	2.0 lb/hr	0.29 (14% limit)			
4. PM 2.5	1.4 lb/hr	0.29 (21% limit)			
5. PM 2.5	4.8 tpy [1]				
6. HCl	0.40 lb/ton[1] of feed to sidewell	0.10 lbs./ton (25% limit)		0.012 lbs./ton	0.112 lbs./ton (28% limit)
7. HCl	1.95 lb/hr	0.81 lbs./hr. (41% limit)		0.092 lbs./hr.	0.902 lbs./hr. (46% limit)
8. HCl	4.68 tpy [1]	Based upon June 2015, data, 1.85 tons / 12-mo emitted (40% limit)			To be calculated based upon 0.112 lbs./ton emission factor
9. VOC	0.30 lb/ton[1] of feed to sidewell	Not tested			

10. VOC	1.5 lb/hr	Not tested		
11. VOC	3.6 tpy [1]	Not tested		
12. HF	1.0 tpy [1]	0.010 lbs. / hr. 0.0014 lbs./ton Based upon June 2015, data, 0.026 tons / 12-mo emitted (3% limit)	4.9 E-03 or 0.0049 lbs./ton 0.036 lbs./hr.	0.0063 lbs./ton (0.046 lbs./hr.) Annual emissions to be calculated based upon 0.0063/ton emission factor
Bold faced emissions calculations for 12-month period ending in June 2015				

PTI No. 504-96F, FG-RV1, II. Material Limits (RV1, Deox, BH-3)

FG-RV1,II.1:

RV1 BH3-Sep 2013 stack test material charge (excluding molten Al): 47,148 lbs. / 3-hr = 15,716 lbs. / hr.
Limit: maximum 47,148 lbs. / 3-hr = 15,716 lbs. / hr.
Note: molten aluminum need not be counted as charge. Normally, molten aluminum metal is charged directly to hearth but there may be cases (e.g., equipment problem) molten metal could be charged to the sidewell

Operator gets system warnings if charged more than 47,148 lbs. / 3-hr: "This will cause furnace limit to exceed...". One of highest charging occurred on January 07, 2015 (42,436 lbs. /3-hr.).

FG-RV1,II.2:

Sep 2013 stack test flux charge: 4,943 lbs. / 3-hr.
(4,943/47,148) * 2000 lbs./ ton = 209.68 lbs. flux per ton of scrap charge = 10.6% of charge is flux
Limit: maximum 209.68 pounds of flux per ton of scrap charge = max 10.48% ≈ 10.5%
Feed = all materials except molten metal.

Maximum limit of 10.48% flux rate (210 lbs. of flux limit per ton of scrap charge) routinely exceeded. Often up to 20% flux was used based upon 3-hour block averaging.

AQD issued July 25, 2015, Notice of Violation (VN) for routinely exceeding the flux limit.

FG-RV1,II.3:

Continental does not use gaseous chlorine in FG-RV1.

PTI No. 504-96F, FG-RV1, III. Process / Operational Restrictions (RV1, Deox, BH-3)

FG-RV1,III.1:

Work practice/pollution prevention measures documented in the System Startup, Shutdown, and Malfunction Plan. AQD received an updated plan on December 18, 2013, along with Notification of Compliance Status (NCS). Continental operates the plant according to SSMP and OM&M plan submitted with NCS; except flux rate limit of 10.5% exceeded.

FG-RV1,III.2:

Damper closes automatically when hearth door is opened. This closure happens with mechanical assistance.

FG-RV1,III.3:

RV1 BH3 lime limit: minimum 34 lbs. of lime / hr.

Weekly logs of lime addition are present. 40-50 lbs. per hour lime is injected into RV1-BH3. Additional 15-20 lbs. / hour mixture of 50% carbon and 50% lime is injected (one half of carbon injection system feed rate 30-40 lbs. / hour). 8 bags (8 bags * 50 pounds / bag = 400 pounds) of lime is added to RV1 lime feeder. i.e., additional 7-10 pounds per hour lime is injected via carbon feeder.

FG-RV1,III.4:

Limit: max. RV1 BH3 inlet temperature = 157 °F Sep 2013 stack test → 157 + 25 = **182** °F MACT 3R limit.

Usual baghouse inlet temperature is 100-150 °F. About October 2014, the temperature reached 196 °F (limit: 182 °F). The temperature can be monitored on NESHAP system.

FG-RV1,III.5:

Scrap Inspection: A lab sample is taken and scrap is rejected if scrap is unacceptable. Visual inspection is also conducted. Also, scrap is inspected for radioactive materials.

FG-RV1,III.6:

Molten metal level is maintained above 18 inches using a laser level gauge. Usual level is 20-30 inches. Flux is added only in sidewell. Molten metal is pumped (reactive flux and not cover flux) to maintain uniform temperature and transfer heat. Molten metal liquid level seal prevents sidewell emissions mixing into the hearth, which is uncontrolled (i.e. no baghouse). Laser gauge is present to detect molten liquid level. Molten metal liquid seal prevents pollutants laden gas from migrating to hearth.

FG-RV1,III.7:

Molten aluminum from RO (not toll product sow) is charged only to hearth of RV1. Hence, RO augments RV1 production capacity.

FG-RV1,III.8:

Continental inspects capture and ventilation system once per month. In addition Viper Environmental System Designs inspects the entire system (baghouse leak detection [Triboguard II model 4002 Bag Leak Detectors], lime & carbon feeders, alarm systems, ducts, hoods, ventilation, emission capture, fans and blowers, belts, structural integrity of components, corrosion, dye check on bags, thermocouples [replace if necessary], baghouse shaker mechanisms, fans, electrical systems, magnehelic pressure gauges [calibrated using a monometer], lime and carbon injection, vibration to detect equipment problems / maintenance issues, etc.) once per year.

PTI No. 504-96F, FG-RV1, IV. Design / Equipment Parameters (RV1, Deox, BH-3)

FG-RV1,IV.1: Baghouse is operated properly.

RV1 BH3: Sep 2013 stk tst ΔP = 2 – 4 inches of water. RV1 BH3 lime limit: minimum 34 lbs. lime / hr.

Normally bags are operated at 2-4 inches of water pressure drop (ΔP). 40-50 pounds per hour lime injected using RV1 lime feeder. Additional lime comes from carbon feeder (7-10 pounds per hour). Bag-shaking is limited to about 30 seconds and an operator cannot exceed this limit as it is automated.

FG-RV1,IV.2: A temperature monitoring system is installed and operated properly.

Limit: max. RV1 BH3 inlet temperature = 157 °F Sep 2013 stk test ? 157 + 25 = **182** °F MACT 3R limit.

RV1 BH3 Temperature is monitored continuously using NESHAP system. Thermocouples are calibrated monthly and replaced if necessary.

FG-RV1,IV.3:

RV1 BH3 high temperature alarm (MACT limit 182 °F). Alarm system is present. Monthly PM performed on thermocouple.

FG-RV1,IV.4:

RV1 BH3: Sep 2013 stack test ΔP = 2 – 4 inches of water. Magnehelic pressure gauge is present. Monthly PM performed on Magnehelic.

FG-RV1,IV.5:

Lime and carbon feeders are inspected at least once per 2-hour for flow as a result of September 10, 2014, Violation Notice. MACT 3R requires inspection once per 8-hour when operating without problem(s).

FG-RV1,IV.6: RV1 BH3 baghouse leak detection system is installed and operating properly. Monthly PM performed.

RV1 BH3: Triboguard II Model 4002, Auburn Systems, LLC of Danvers, MA 1-800-255-5008. triboflow@auburnsys.com

FG-RV1,IV.7:

Loader drives on to the scale to determine weight of the materials. Scale is calibrated once per month by Grand Rapids Metrology (616-538-7080). Outside truck scale is also calibrated. The scale calibrations may be regulated by State of Michigan, Dept. of Agriculture when used for commerce.

PTI No. 504-96F, FG-RV1, V. Testing / Sampling (RV1, Deox, BH-3)

FG-RV1,V.1: Continental completed PTI and MACT 3R required testing.

Sep 24-26, 2013 (sidewell RV1 BH3, MACT) and June 12-13, 2014 (hearth NG combustion,

no BH, non-MACT) stack tests.

PTI No. 504-96F, FG-RV1, VI. Monitoring / Recordkeeping (RV1, Deox, BH-3)

FG-RV1,VI.1:

Using MS Excel and other tools, the required monthly calculations are performed.

FG-RV1,VI.2:

Using Sep 2013 and June 2014 stack test emission factors, materials usage and process information, the required emission rates are calculated.

FG-RV1,VI.3:

Materials description (scrap, flux, etc.) and usage records are kept.

FG-RV1,VI.4:

Minimum RV1 BH3 lime: 34 lbs. / hr. Lime usage records are kept. Lime flow rate is calibrated using a bucket and a stop watch.

FG-RV1,VI.5:

RV1 BH3 MACT max temperature = 157 + 25 = **187** °F. Alarm records are kept.

FG-RV1,VI.6:

Flux: max 209.68 lbs flux / ton scrap = max 10.48% ≈ 10.5% 3-hr block average. Reactive flux usage rate records are kept. Continental exceeded 10.5% limit and AQD issued July 2015 VN.

FG-RV1,VI.7 & 8: Leak detection system is installed and alarm incidents are recorded. Most dust alarms are false alarms.

RV1 BH3: Triboguard II Model 4002, Auburn Systems, LLC of Danvers, MA 1-800-255-5008. triboflow@auburnsys.com

FG-RV1,VI.9:

All baghouses are maintained properly. All RV1 (April 27-29, 2015) and RO (June 1-2, 2015) bags were replaced in 2015. Dye tests were performed on June 5, 2015. Mr. Tyler Cunningham is one and only one US EPA Reference Method 9 certified Visible Emissions (VE) observer on site (PTI No. 504-96F, Appendix B, 5).

FG-RV1,VI.10:

Molten liquid level is monitored using a laser gauge. Normal level is 20-30 inches. Molten metal seal (above the minimum level) prevents pollutants migration to hearth, which is uncontrolled (i.e., no baghouse).

FG-RV1,VI.11:

Hearth cleaning records are kept. Once in 4 hours hearth is skimmed to reduce odor. Furnace

skim logs are maintained.

FG-ROTARY, BH-2

DESCRIPTION: Rotary Furnace produces aluminum sow and molten metal for transfer to other in-plant furnaces. FGROTARY consists of a 14 MMBtu/hr natural gas-fired burner, raw material charging and hot dross processing, sow pouring and molten metal transfer operations. Both melting and combustion emissions are vented to a lime-injected baghouse (BH-2) and exit through SVBHROTARY.

Emission Units: EUROTMELT, EUROTARYPOUR

POLLUTION CONTROL EQUIPMENT: Both melting and combustion emissions are vented to a 45,000 SCFM high temp lime-injected baghouse (BH-2) and exit through SVBHROTARY.

PTI No. 504-96F, FG-ROTORY, I. Emission Limits (RO, BH-2)

Pollutant	Limit	Sept. 2013 test RO condition 1: dross & worst case flux Sets flux limit	Equipment	Sept. 2013 test RO condition 2: high BH temperature & worst case scrap Sets temperature limit	
1. PM	0.40 lb/ton of feed/charge[1]	0.088 (0.26 lbs/ hr, 22% limit)	EUROTMELT	0.12 (0.43 lbs/hr 29% limit)	
2. PM	5.7 tpy	Based upon June 2015 records, 1.006 tons per 12-mo (18% limit)	EUROTMELT	Annual emissions to be calculated based upon worst case scrap emission factor 0.12 lbs PM per ton of feed.	
3. PM 10	1.7 lb/hr	0.41(24% limit)	EUROTMELT	1.6 ((94% limit)	
4. PM 2.5	1.7 lb/hr		EUROTMELT		
5. PM 2.5	5.7 tpy		EUROTMELT		
6. HCl	1.5 lb/hr	0.047 (0.016 lbs/ton, 3% limit)	EUROTMELT	0.97 (0.26 lbs/ton, 65% limit)	
7. HCl	5.0 tpy	Based upon June 2015 records, 2.348 tons per 12-mo (47% limit)	EUROTMELT	Annual emissions to be calculated based upon worst case scrap emission factor 0.26 lbs. of HCl per ton of feed.	
8. VOC	0.30 lb/ton of feed/charge[1]	Not tested	EUROTMELT	Not tested	
9. VOC	1.5 lb/hr	Not tested	EUROTMELT	Not tested	
10. VOC	2.7 tpy	Not tested	EUROTMELT	Not tested	
11. HF	1.0 lb/hr	0.0088 (0.0029 lbs/ ton, 1% limit)	EUROTMELT	0.023 (0.0063 lbs/ ton, 2% limit)	
12. HF	1.5 tpy	Based upon June 2015 records, 0.072 tons per 12-mo (5% limit)	EUROTMELT	Annual emissions to be calculated based upon worst case scrap emission factor 0.0063 lbs. of HF per ton of feed.	

PTI No. 504-96F, FG-ROTORY, II. Material Limits (RO, BH-2)

FG-ROTARY,II.1:

RO charging limit (maximum): 26,139 lbs. / batch. Charge: 22,977 lbs. / batch worst case flux with dross.

Charge limit: **26,139 lbs. / batch** worst case scrap with high RO BH2 Temp **(limit)**

3-4 hours per batch. Normal batch size is about 24,000 pounds of scrap per batch not including other materials such as flux.

FG-ROTARY,II.2:

21,000 tons of scrap per 12-mo per June 2015 records. This material does not include flux. Feed (includes all materials) limit is 42,000 tons per year.

FG-ROTARY,II.3:

Flux limit: 4,350 lbs. / batch worst case flux with dross, 3,040 lbs. / batch worst case scrap, high BH temp.

Limit: (4,350 lbs. flux / batch worst case flux) / (22,977 lbs. feed / batch worst case flux) = **max. 378.64 (≈379) lbs. of flux / ton of feed (18.9 %)**

Flux usage limit is met; except 19.39% on Jan 6, 2015.

FG-ROTARY,II.4:

Gaseous chlorine is not used.

PTI No. 504-96F, FG-ROTORY, III. Process / Operational Restrictions (RO, BH-2)

FG-ROTORY, III.1: SSMP & OM&M plans and stack test parameters.

Continental operates RO according work practice/pollution prevention measures documented in the System Startup, Shutdown, and Malfunction Plan (SSMP),facility OM&M plan and parameter values or ranges established by September 2013 and June 2014 stack tests (exception: flux rate in RV1).

FG-ROTORY, III.2:

RO BH2 lime injection rate (lbs. / batch) limit: minimum 37 lbs. / hr. worst case scrap and 39 lbs. /hr. worst case flux. RO BH2 limit: **minimum 39 lbs. lime / hr.**

40-50 pounds per hour lime is injected using the RO lime feeder. Additional amount of lime is injected using carbon feeder. Carbon feeder injects 30-40 pounds per hour mixture of lime (50%) and carbon (50%) into RV1 and RO baghouses (equal amounts). Hence, 15-20 pounds / hour of mixture is injected into RO baghouse; i.e. 7-10 lbs. / hour lime and 7-10 lbs. / hour carbon into RO baghouse. Carbon injection is required neither by PTI nor MACT 3R.

FG-ROTORY, III.3:

RO BH2 MACT 3R temperature limit: **216 °F.**
155+25 = 180 °F worst case flux.
191+25 = 216 °F worst case scrap

Normally, RO is operated below 210 °F. No temperature alarm since October 04, 2014.

FG-ROTORY, III.4:The facility Scrap Inspection Plan to meet applicable VOC requirements.

Continental operates both RO and RV1 according to the Scrap Inspection Plan. A lab sample of the batch is obtained for analysis.

FG-ROTORY, III.5:

RO furnace is equipped with a door that contains emissions during heating. At other times when door is open, a capture system captures pollutants emissions based upon visible emissions observations.

Continental inspects capture and ventilation system once per month. In addition Viper Environmental System Designs inspects the entire system (baghouse leak detection [Triboguard II model 4002 Bag Leak Detectors], lime & carbon feeders, alarm systems, ducts, hoods, ventilation, emission capture, fans and blowers, belts, structural integrity of components, corrosion, dye check on bags, thermocouples [replace if necessary], baghouse shaker mechanisms, fans, electrical systems, magnehelic pressure gauges [calibrated using a monometer], lime and carbon injection, vibration to detect equipment problems / maintenance issues, etc.) once per year.

PTI No. 504-96F, FG-ROTORY, IV. Design / Equipment Parameters (RO, BH-2)

FG-ROTORY, IV.1:

RO BH2 minimum lime: 39 lbs. lime/ hr. Maximum MACT 3R Temperature **216 °F**

RO Baghouse (BH2) is operated properly with required minimum lime injection and below 210 °F.

Carbon: Although not required, carbon is injected for odor control (one half of 30-40 pounds / hour of mixture of carbon (50%) and lime (50%).

FG-ROTORY, IV.2:

RO BH2 - Maximum MACT Temperature **216 °F**. Temperature records

Temperature is continuously monitored. Thermocouples are calibrated or replaced if necessary. Monthly PM performed.

FG-ROTORY, IV.3:

RO BH2 - Maximum MACT Temperature 216 °F. Alarm incidents.

High temperature alarm system is present (limit: **216 °F**). One most recent alarm is on October 04, 2014.

FG-ROTORY, IV.4:RO BH2 ΔP

Continental has equipped RO-BH2 with a Magneheilic pressure gauge (calibrated once per year using a manometer by a contractor) to measure pressure drop across the bags. Monthly PM performed.

FG-ROTORY, IV.5:

If no ongoing problem (s), MACT 3R requires inspection of each feed hopper or silo at least once each 8-hour period and recording the results of each inspection.

Lime feeder is inspected at least once per 2-hour as a result of September 10, 2014, Violation Notice. MACT 3R requires inspection once per 8-hour.

FG-ROTORY, IV.6: RO BH2 - leak detection.

RO BH2 baghouse leak detection system is installed and operating properly.

RO BH2: Triboguard II Model 4002, Auburn Systems, LLC of Danvers, MA 1-800-255-5008. triboflow@auburnsys.com

FG-ROTORY, IV.7: Scale calibration

Loader drives on to the scale to determine weight of the materials. Scale is calibrated once per month by Grand Rapids Metrology (Dave Warner: 616-538-7080). If used for commerce, scale calibration may be regulated by State of Michigan, Dept. of Agri.

PTI No. 504-96F, FG-ROTORY, V. Testing / Sampling (RO, BH-2)

FG-ROTORY, V.1: Continental completed PTI and MACT 3R required testing.

Sep 24-26, 2013 (sidewell RV1 BH3, MACT) and June 12-13, 2014 (hearth NG combustion, no BH, non-MACT) stack tests.

PTI No. 504-96F, FG-ROTORY, VI. Monitoring / Recordkeeping (RO, BH-2)

FG-ROTORY, VI.1: Monthly calculations.

Using MS Excel and other tools, the required monthly calculations are performed.

FG-ROTORY, VI.2: Monthly calculations and emissions records (PM, PM2.5, HCl & HF).

Using Sep 2013 and June 2014 stack test emission factors, materials usage and process information, the emission rates are calculated.

FG-ROTORY, VI.3:

Charge: 22,977 lbs. / batch worst case flux with dross
Charge: 26,139 lbs. / batch worst case scrap with high BH2 Temp (limit)
Charge limit: **26,139 lbs. / batch**

RO BH2 minimum lime: 39 lbs. / hr. Max 378.64 (≈379) lbs. of flux / ton of feed (18.9 %)

For each batch, materials description (scrap, flux, dross etc.) and usage records are kept. All materials limits are met.

FG-ROTORY, VI.4: Lime

RO BH2 minimum lime: 39 lbs. / hr. Max 378.64 (≈379) lbs. of flux / ton of feed (18.9 %)

Lime usage records are kept. Lime flow rate is calibrated using a bucket and a stop watch.

40-50 pounds per hour lime is injected using the RO lime feeder. Additional amount of lime is injected using carbon feeder. Carbon feeder injects 30-40 pounds per hour mixture of lime (50%) and carbon (50%) into RV1 and RO baghouses (equal amounts). Hence, 15-20 pounds / hour of mixture is injected into RO baghouse; i.e. 7-10 lbs. / hour lime and 7-10 lbs. / hour carbon into RO baghouse. Carbon injection is required neither by PTI nor MACT 3R.

FG-ROTORY, VI.5: Baghouse temperature alarms.

RO BH2 MACT temp limit: 216 °F maximum. Alarm incidents.

Alarm records are kept.

FG-ROTORY, VI.6: Reactive flux feed rate.

Limit: max. 378.64 (≈379) lbs. of flux / ton of feed (18.9 %) for each batch.

On a per batch basis reactive flux usage rate records are kept. One exceedance occurred on January 06, 2015 (19.39%).

FG-ROTORY, VI.7 & 8: RO BH2 –leak detection system. Alarm system.

Leak detection system is installed and alarm incidents are recorded. Most alarms are false alarms.

RO BH2 Triboguard II Model 4002, Auburn Systems, LLC of Danvers, MA 1-800-255-5008. triboflow@auburnsys.com

FG-ROTORY, VI.9: Appendix B RO – BH2 maintenance

Baghouses are maintained properly. All RV1 (April 27-29, 2015) and RO (June 1-2, 2015) bags were replaced in 2015. Dye tests were performed on June 5, 2015. Mr. Tyler Cunningham is one and only one US EPA Reference Method 9 certified Visible Emissions (VE) observer on site (PTI No. 504-96F, Appendix B, 5).

PTI No. 504-96F, FG-ROTORY, VIII. Stack / Vent Restrictions (RO, BH-2)

Stack height is 85 feet (limit: min 80 ft.).

FG-MACTRRR, RV1-BH3, RO-BH-2 (RV2 – Idle and in disrepair)

DESCRIPTION: An existing secondary aluminum processing facility that is (or is part of) an area source of HAPs.

Emission Units: EURV1MELT, EURV2MELT, EUROTMELT

POLLUTION CONTROL EQUIPMENT: Three 45,000 SCFM high temp lime-injected baghouses (BH-1, BH-2, and BH-3)

PTI No. 504-96F, FG-MACTRRR, I. Emission Limits (RV1-BH3, RO-BH-2)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Dioxins and Furans (D/F)	2.1×10^{-4} gr of D/F TEQ per ton of feed/charge[1, 2]	Test protocol *	EURV1MELT EURV2MELT EUROTMELT	SC V.1	40 CFR 63.1505 (i)(3)
[1] *feed/charge* refers to the total weight of material, including molten aluminum, clean charge, scrap, dross, flux, and alloying agents that enter the furnace, as defined by 40 CFR 63.1503. [2] The D/F emission limit (SC I.1) applies to each affected emission unit (EURV1MELT, EURV2MELT, and EUROTMELT) separately. *Test protocol shall specify averaging time.					

Feed: molten Al, scrap, clean charge, dross, flux, alloying agents, etc. (MACT feed all materials)

D/F emissions based upon Sept 24-26, 2013 stack test

RV1 ➔ 4.9 E-06 grains per ton (2% limit)

RO ➔ 9.4 E-06 grain per ton (4% limit) worst case flux with dross

RO ➔ 1.5 E-04 grain per ton (70% limit) worst case scrap with high baghouse temperature

RV1 (De-ox) operating parameters

RV1 -Sep 2013 stack test material charge (excluding molten Al): 47,148 lbs. / 3-hr = 15,716 lbs. / hr.
Limit: maximum 47,148 lbs. / 3-hr = 15,716 lbs. / hr.

Min. lime injection: 34 lbs. / hr.

Max RV1 BH3 MACT temperature = 157 + 25 = **182 °F.** This is also permit limit.

RO (Alloy) operating parameters

Maximum charge: 26,139 pounds of charge materials per 3-hr. worst case scrap with high BH temperature
Max charge = 22,977 lbs of charge per 3-hr cycle worst case flux with dross
RO limit = 26,139 pounds of charge per cycle / batch

Flux limit: 4,350 lbs. / batch worst case flux with dross, 3,040 lbs. / batch worst case scrap, high BH temp

Limit: (4,350 lbs / batch worst case flux) / (22,977 lbs. / batch charge worst case flux) = 379 lbs of flux per ton of feed **18.9** %

Min. lime injection: 37 lbs/hr worst case scrap with high BH temperature, 39 lbs / hr worst case flux with dross
Limit = 39 lbs. lime / hour.

Max RO BH2 MACT temperature = 191 + 25 = **216** °F. This is also permit limit.

PTI No. 504-96F, FG-MACTRRR, II. Material Limits (RV1-BH3, RO-BH-2, RV-Idle and in

disrepair)

No material limits.

PTI No. 504-96F, FG-MACTRRR, III. Process Operational Restrictions (RV1-BH3, RO-BH-2, RV-Idle and in disrepair)

FG-MACTRRR, III.1:

Both RO and RV1 are operated according to OM&M plans.

FG-MACTRRR, III.2: Labels.

Labels are installed and inspected once per month. Both RO and RV1 are Group1 MACT 3R furnaces.

FG-MACTRRR, III.3:

Capture systems for RV1 and RO are installed and operated properly.

Continental inspects capture and ventilation systems once per month. In addition Viper Environmental System Designs inspects the entire system (baghouse leak detection [Triboguard II model 4002 Bag Leak Detectors], lime & carbon feeders, alarm systems, ducts, hoods, ventilation, emission capture, fans and blowers, belts, structural integrity of components, corrosion, dye check on bags, thermocouples [replace if necessary], baghouse shaker mechanisms, fans, electrical systems, magnehelic pressure gauges [calibrated using a monometer], lime and carbon injection, vibration to detect equipment problems / maintenance issues, etc.) once per year.

FG-MACTRRR, III.4:

Weight scale is installed and operating properly.

Loader drives on to the scale to determine weight of the materials. Scale is calibrated once per month by Grand Rapids Metrology (Dave Warner: 616-538-7080).

FG-MACTRRR, III.5: Bag leak detection systems are installed and operating properly. About less than 1% of operating time (excluding false alarms) alarm system sounds.

Triboguard II Model 4002, Auburn Systems, LLC of Danvers, MA
1-800-255-5008. triboflow@auburnsys.com

PTI No. 504-96F, FG-MACTRRR, IV. Design / Equipment Parameters (RV1-BH3, RO-BH-2, RV-Idle and in disrepair)

FG-MACTRRR, IV.1: Scale and calibration

Loader drives on to the scale to determine weight of the materials. Scale is calibrated once per month by Grand Rapids Metrology (Dave Warner: 616-538-7080). Outside truck scale is also calibrated. If used for commerce, scale calibrations may be regulated by State of Michigan, Dept. of Agri.

PTI No. 504-96F, FG-MACTRRR, V. Testing / Sampling (RV1-BH3, RO-BH-2, RV-Idle and in disrepair)

FG-MACTRRR, V.1 & 2: dioxin / furan (D/F)

September 24-26, 2013 stack tests for D/F (RV1 & RO; RV2 – idle and not tested)

Sep 2013 stack tests established operating parameters for both RO and RV1: maximum production rates, maximum fluxing rates, maximum baghouse temperatures, baghouse pressure drop ranges, minimum lime injection rates, etc.

PTI No. 504-96F, FG-MACTRRR, VI. Monitoring / Recordkeeping (RV1-BH3, RO-BH-2, RV-Idle and in disrepair)

FG-MACTRRR, VI.1

Continental is monitoring and recording NESHAP / MACT 3R parameters, operating information,

FG-MACTRRR, VI.2

Prompt corrective actions are taken and deviations and attendant corrective actions are recorded.

FG-MACTRRR, VI.3

OM&M plan is present.
Once per year all bags are replaced and once per quarter bags are inspected.

FG-MACTRRR, VI.4

RV1 sidewell is equipped with a capture system. It is operating properly based upon visible emissions observations. RV1 hearth is uncontrolled; i.e. no baghouse.

RO furnace is equipped with a door that contains emissions during heating. At other times when door is open, a capture system captures pollutants. . It is operating properly based upon visible emissions observations.

Continental inspects capture and ventilation system once per month. In addition Viper Environmental System Designs inspects the entire system (baghouse leak detection [Triboguard II model 4002 Bag Leak Detectors], lime & carbon feeders, alarm systems, ducts, hoods, ventilation, emission capture, fans and blowers, belts, structural integrity of components, corrosion, dye check on bags, thermocouples [replace if necessary], baghouse shaker mechanisms, fans, electrical systems, magnehelic pressure gauges [calibrated using a monometer], lime and carbon injection, vibration to detect equipment problems / maintenance issues, etc.) once per year.

FG-MACTRRR, VI.5

Loader drives on to the scale to determine weight of the materials. Scale is calibrated once per month by Grand Rapids Metrology (Dave Warner: 616-538-7080). If used for commerce, scale calibration may be regulated by State of Michigan, Dept. of Agri.

NESHAP / MACT 3R required accuracy is ±1%.

FG-MACTRRR, VI.6

NESHAP / MACT 3R required records are maintained and available for inspection. Also, copies of such records are provided upon request.

FG-FACILITY

DESCRIPTION: All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment

POLLUTION CONTROL EQUIPMENT: N/A

PTI No. 504-96F, FG-FACILITY, I. Emission Limits

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Each Individual HAP	Less than 9.0 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)
2. Aggregate HAPs	Less than 22.5 tpy	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)

HAP emission factors used are:

1. RO HF = 0.0063 pounds per ton of scrap
2. RO HCl = 0.26 pounds per ton of scrap
3. RV1 HF = 0.0014 pounds per ton of scrap
4. RV1 HCl = 0.1 pounds per ton of scrap

PTI No. 504-96F, FG-FACILITY, II. Material Limits

FG-FACILITY,II. 1 & 2:

Sidewells (RV1 & RV2) material limit: 54,000 tons per year

Based upon June 2015 records, RO processed 24,435 and RV1 processed 40,082 tons of materials per year.

PTI No. 504-96F, FG-FACILITY, III. Process / Operational Restrictions

FG-FACILITY,III. 1 & 2:

System Startup, Shutdown, and Malfunction (SSMP), Operation, Maintenance, and Monitoring (OM&M P) and Scrap Inspection (SIP) plans are implemented for all processes: RO, RV1, scrap process.

Redefining operating parameters requires PTI and NESHAP / MACT 3R testing.

PTI No. 504-96F, FG-FACILITY, VI. Monitoring / Recordkeeping

FG-FACILITY, VI. 1, 2 & 3:

The required HAP calculations are performed and records are maintained. Scrap used according to the inspection plan.

PTI No. 504-96F, FG-FACILITY, VII. Reporting

FG-FACILITY, VII. 1:

AQD reserves its right to require emissions calculations and records in a format acceptable to AQD for all process such RO, RV1, etc. AQD may require monthly summary reports using MS Excel.

Conclusion

Not in compliance. AQD issued violation notices: February 5, 2013 (for failure to comply with NESHAP / MACT RRR / MACT 3R, 40 CFR, Part 63, Subpart RRR [Secondary Aluminum Production NESHAP]), September 10, 2014 (for failure to operate RO lime feeder), July 27, 2015 (for routinely exceeding flux usage limit of 209.68 pounds of flux per ton of scrap charge (i.e. 10.5%)). July 27, 2015, VN is unresolved.

NAME JS Mcmahall DATE 08/06/2015 SUPERVISOR CTE