



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL  
ASHTABULA COUNTY**

**CERTIFIED MAIL**

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center  
P.O. Box 1049

**Application No: 02-19895**

**Fac ID: 0204020428**

**DATE: 12/21/2004**

General Aluminum Manufacturing Co  
James Muchiarone  
1043 Chamberlain Blvd  
Conneaut, OH 44030

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
309 South Fourth Street, Room 222  
Columbus, Ohio 43215

Sincerely,

Michael W. Ahern, Manager  
Permit Issuance and Data Management Section  
Division of Air Pollution Control

cc: USEPA

NEDO



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**Permit To Install  
Terms and Conditions**

**Issue Date: 12/21/2004  
Effective Date: 12/21/2004**

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**FINAL PERMIT TO INSTALL 02-19895**

Application Number: 02-19895  
Facility ID: 0204020428  
Permit Fee: **\$2000**  
Name of Facility: General Aluminum Manufacturing Co  
Person to Contact: James Muchiarone  
Address: 1043 Chamberlain Blvd  
Conneaut, OH 44030

Location of proposed air contaminant source(s) [emissions unit(s)]:  
**1043 Chamberlain Blvd  
Conneaut, Ohio**

Description of proposed emissions unit(s):  
**10.5 mmBtu/hr natural gas fired aluminum reverberatory melting furnace.**

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

## Part I - GENERAL TERMS AND CONDITIONS

### A. Permit to Install General Terms and Conditions

#### 1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

#### 2. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

#### 3. Records Retention Requirements

Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

#### 4. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. The permittee shall furnish to the Director of the Ohio EPA, or an authorized

representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

**5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emissions unit(s) that is (are) served by such control system(s).

**6. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

**7. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

**8. Termination of Permit to Install**

This Permit to Install shall terminate within eighteen months of the effective date of the Permit to Install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

**9. Construction of New Sources(s)**

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions

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**PTI Application: 02-19895**  
**Issued: 12/21/2004**

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and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

**10. Public Disclosure**

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

**11. Applicability**

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

**12. Best Available Technology**

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

**13. Source Operation and Operating Permit Requirements After Completion of Construction**

This facility is permitted to operate each source described by this Permit to Install for a period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the emissions unit(s) covered by this permit.

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**14. Construction Compliance Certification**

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

**15. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit to Install fees within 30 days after the issuance of this Permit to Install.

**B. Permit to Install Summary of Allowable Emissions**

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)  
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
NOx	19.2
CO	10.3
PE	10.4
PM10	9.9

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-17-07 (A)(1)
P002 - Furnace No. 314, 7.0 MMBtu/hr natural gas-fired, aluminum reverberatory melting furnace, with a maximum capacity of 3,000 lbs/hr  The requirements of this Permit to Install supercedes the requirements of PTI #02-11757 issued on April 1, 1998, which was administratively modified on November 12, 1998.	OAC rule 3745-31-05(A)(3)	
		OAC rule 3745-17-11

Applicable Emissions  
Limitations/Control Measures

Particulate emissions shall not exceed 1.65 pound per hour and 7.2 tons per year (PM10 = 1.57 pounds per hour and 6.9 tons per year).

Nitrogen Oxide emissions: 1.05 pounds per hour and 4.6 tons per year.

Carbon Monoxide emissions: 0.56 pound per hour and 2.5 tons per year.

The total particulate emissions of PM10 for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 9.9 tons per year for all four furnaces combined. See Sections B.1.a-c and B.2.

Visible particulate emissions from any stack shall not exceed 5% opacity as a six-minute average, except as provided by rule.

See Section A.2.a.

See Section A.2.a.

## 2. Additional Terms and Conditions

- 2.a The emission limitation specified by this rule is less stringent to the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

## B. Operational Restrictions

1. The permittee shall follow the following operational restrictions for this emissions unit:
  - a. the following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces;
  - b. use of natural gas for furnace fuel; and
  - c. no demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
2. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 38,000,000 pounds per year for all four furnaces combined.

## C. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
  - a. the amount of melted aluminum produced from this emissions unit; and
  - b. the total number of hours the emissions unit was in operation.
3. The permittee shall collect and record the following information for each month for this emissions unit:

- a. the total production for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507), in tons for all four furnaces combined.

**D. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in Section B.1.a, were charged in the furnaces;
  - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers; and
  - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006, and P007, as well as the corrective actions that were taken to achieve compliance.
3. The permittee shall submit annual reports which identify the following:
  - a. the amount of melted aluminum produced from this emissions unit for the previous year;
  - b. the hours of operation from this emissions unit for the previous year; and
  - c. the total particulate emissions of PM10, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) for the previous year.

These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Compliance with the emissions limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitations, from melting of aluminum:  
1.65 pounds per hour of particulate emissions (PE) and 1.57 pounds per hour of particulate emissions (PM10)

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL}) \times (0.95)$$

Where the following applies:

E1 = particulate emission rate, in pounds per hour.

E2 = particulate emission rate of PM10, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max\_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 1-5 and the procedures specified in OAC rule 3745-17-03 (B)(1).

- b. Emission Limitation:  
7.2 tons per year of particulate emissions (PE) and 6.9 tons per year of particulate emissions (PM10)

Applicable Compliance Method:

To determine the annual emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max\_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max\_AL}) \times (0.95)] / 2000$$

Where the following applies:

E1 = particulate emission rate, in tons per year.

E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max\_AL = annual amount of aluminum charged, in tons per year.

- c. Emission Limitations:  
1.05 pounds per hour of NO<sub>x</sub>  
0.56 pounds per hour CO

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max\_Cap}$$

Where the following applies:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NO}_x \text{ lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max\_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factors for NO<sub>x</sub> is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/ MMCF.

- d. Emission Limitations:  
4.6 tons per year of NO<sub>x</sub>  
2.5 tons per year CO

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_{\text{Hr}}) \times (\text{Hr}_{\text{Op}}) / 2000$$

Where the following applies:

E = emission rate, in tons per year.

**General Aluminum Manufacturing Co**

**PTI Application: 02-10805**

**Issued**

**Facility ID: 0204020428**

**Emissions Unit ID: P002**

$E_{Hr}$  = hourly emission rate, in pounds per hour, as calculated in Section E. 1.c.

$Hr_{Op}$  = hours of operation on an annual basis, hours per year.

- e. Emission Limitation:  
5% opacity for visible particulate matter emissions

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in U.S. EPA reference method 9.

**F. Miscellaneous Requirements**

None

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-17-07 (A)(1)
<p>P005 - Furnace No. 500, 10.5 MMBtu/hr natural gas-fired, aluminum reverberatory melting furnace, with a maximum capacity of 3,500 lbs/hr</p>	<p>OAC rule 3745-31-05(A)(3)</p>	
<p>The requirements of this Permit to Install supercedes the requirements of PTI #02-11757 issued on April 1, 1998, which was administrative-ly modified on November 12, 1998, and of PTI #02-15119 issued on June 28, 2001.</p>		
	<p>OAC rule 3745-17-11</p>	

Applicable Emissions  
Limitations/Control Measures

Particulate emissions shall not exceed 1.93 pound per hour and 8.4 tons per year (PM10 = 1.83 pounds per hour and 8.0 tons per year).

Nitrogen Oxide emissions: 1.58 pounds per hour and 6.9 tons per year.

Carbon Monoxide emissions: 0.84 pound per hour and 3.7 tons per year.

The total particulate emissions of PM10 for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 9.9 tons per year for all four furnaces combined. See Sections B.1.a-c and B.2.

Visible particulate emissions from any stack shall not exceed 5% opacity as a six-minute average, except as provided by rule.

See Section A.2.a.

See Section A.2.a.

**2. Additional Terms and Conditions**

- 2.a** The emission limitation specified by this rule is less stringent to the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

**B. Operational Restrictions**

1. The permittee shall follow the following operational restrictions for this emissions unit:
  - a. the following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces;
  - b. use of natural gas for furnace fuel; and
  - c. no demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
2. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 38,000,000 pounds per year for all four furnaces combined.

**C. Monitoring and/or Recordkeeping Requirements**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
  - a. the amount of melted aluminum produced from this emissions unit; and
  - b. the total number of hours the emissions unit was in operation.
3. The permittee shall collect and record the following information for each month for this emissions unit:

**General Aluminum Manufacturing Co**

**PTI Application: 02-10905**

**Issued**

**Facility ID: 0204020428**

Emissions Unit ID: **P005**

- a. the total production for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507), in tons for all four furnaces combined.

#### **D. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in Section B.1.a, were charged in the furnaces;
  - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers; and
  - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006, and P007, as well as the corrective actions that were taken to achieve compliance.
3. The permittee shall submit annual reports which identify the following:
  - a. the amount of melted aluminum produced from this emissions unit for the previous year;
  - b. the hours of operation from this emissions unit for the previous year; and
  - c. the total particulate emissions of PM10, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) for the previous year.

These reports shall be submitted by January 31 of each year.

#### **E. Testing Requirements**

1. Compliance with the emissions limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitations, from melting of aluminum:  
1.93 pounds per hour of particulate emissions (PE) and 1.83 pounds per hour of particulate emissions (PM10)

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL}) \times (0.95)$$

Where the following applies:

E1 = particulate emission rate, in pounds per hour.

E2 = particulate emission rate of PM10, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max\_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 1-5 and the procedures specified in OAC rule 3745-17-03 (B)(1).

- b. Emission Limitation:  
 8.4 tons per year of particulate emissions (PE) and 8.0 tons per year of particulate emissions (PM10)

Applicable Compliance Method:

To determine the annual emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max\_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max\_AL}) \times (0.95)] / 2000$$

Where the following applies:

E1 = particulate emission rate, in tons per year.

E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max\_AL = annual amount of aluminum charged, in tons per year.

- c. Emission Limitations:
  - 1.58 pounds per hour of NO<sub>x</sub>
  - 0.84 pounds per hour CO

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max\_Cap}$$

Where the following applies:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NO}_x \text{ lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max\_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factors for NO<sub>x</sub> is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/ MMCF.

- d. Emission Limitations:  
6.9 tons per year of NO<sub>x</sub>  
3.7 tons per year CO

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_{\text{Hr}}) \times (\text{Hr}_{\text{Op}}) / 2000$$

Where the following applies:

E = emission rate, in tons per year.

E<sub>Hr</sub> = hourly emission rate, in pounds per hour, as calculated in Section E. 1.c.

Hr<sub>Op</sub> = hours of operation on a annual basis, hours per year.

- e. Emission Limitation:

**General Aluminum Manufacturing Co**

**PTI Application: 02-10905**

**Issued**

**Facility ID: 0204020428**

**Emissions Unit ID: P005**

5% opacity for visible particulate matter emissions

25

**Gener**

**PTI A**

**Issued: 12/21/2004**

Emissions Unit ID: **P005**

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in U.S. EPA reference method 9.

**F. Miscellaneous Requirements**

None

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-17-07 (A)(1)
<p>P006 - Furnace No. 501, 6.0 MMBtu/hr natural gas-fired, aluminum reverberatory melting furnace, with a maximum capacity of 2,500 lbs/hr</p> <p>The requirements of this Permit to Install supercedes the requirements of PTI #02-11757 issued on April 1, 1998, which was administrative-ly modified on November 12, 1998.</p>	OAC rule 3745-31-05(A)(3)	
	OAC rule 3745-17-11	

Applicable Emissions  
Limitations/Control Measures

Particulate emissions shall not exceed 1.38 pound per hour and 6.0 tons per year (PM10 = 1.31 pounds per hour and 5.7 tons per year).

Nitrogen Oxide emissions: 0.90 pounds per hour and 3.9 tons per year.

Carbon Monoxide emissions: 0.48 pound per hour and 2.1 tons per year.

The total particulate emissions of PM10 for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 9.9 tons per year for all four furnaces combined. See Sections B.1.a-c and B.2.

Visible particulate emissions from any stack shall not exceed 5% opacity as a six-minute average, except as provided by rule.

See Section A.2.a.

See Section A.2.a.

**2. Additional Terms and Conditions**

- 2.a** The emission limitation specified by this rule is less stringent to the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

**B. Operational Restrictions**

1. The permittee shall follow the following operational restrictions for this emissions unit:
  - a. the following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces;
  - b. use of natural gas for furnace fuel; and
  - c. no demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
2. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 38,000,000 pounds per year for all four furnaces combined.

**C. Monitoring and/or Recordkeeping Requirements**

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
  - a. the amount of melted aluminum produced from this emissions unit; and
  - b. the total number of hours the emissions unit was in operation.
3. The permittee shall collect and record the following information for each month for this emissions unit:

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**Emissions Unit ID: P006**

- a. the total production for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507), in tons for all four furnaces combined.

#### D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in Section B.1.a, were charged in the furnaces;
  - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers; and
  - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006, and P007, as well as the corrective actions that were taken to achieve compliance.
3. The permittee shall submit annual reports which identify the following:
  - a. the amount of melted aluminum produced from this emissions unit for the previous year;
  - b. the hours of operation from this emissions unit for the previous year; and
  - c. the total particulate emissions of PM10, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) for the previous year.

These reports shall be submitted by January 31 of each year.

#### E. Testing Requirements

1. Compliance with the emissions limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitations, from melting of aluminum:  
1.38 pounds per hour of particulate emissions (PE) and 1.31 pounds per hour of particulate emissions (PM10)

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL}) \times (0.95)$$

Where the following applies:

E1 = particulate emission rate, in pounds per hour.

E2 = particulate emission rate of PM10, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max\_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 1-5 and the procedures specified in OAC rule 3745-17-03 (B)(1).

- b. Emission Limitation:  
6.0 tons per year of particulate emissions (PE) and 5.7 tons per year of particulate emissions (PM10)

Applicable Compliance Method:

To determine the annual emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max\_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max\_AL}) \times (0.95)] / 2000$$

Where the following applies:

E1 = particulate emission rate, in tons per year.

E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max\_AL = annual amount of aluminum charged, in tons per year.

- c. Emission Limitations:
  - 0.90 pounds per hour of NO<sub>x</sub>
  - 0.48 pounds per hour CO

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max\_Cap}$$

Where the following applies:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NO}_x \text{ lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max\_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factors for NO<sub>x</sub> is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/ MMCF.

- d. Emission Limitations:  
3.9 tons per year of NO<sub>x</sub>  
2.1 tons per year CO

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E\_Hr) \times (Hr\_Op) / 2000$$

Where the following applies:

E = emission rate, in tons per year.

E\_Hr = hourly emission rate, in pounds per hour, as calculated in Section E. 1.c.

Hr\_Op = hours of operation on a annual basis, hours per year.

- e. Emission Limitation:  
5% opacity for visible particulate matter emissions

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**Gener**

**PTI A**

**Issued: 12/21/2004**

Emissions Unit ID: **P006**

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**Gener**

**PTI A**

**Issued: 12/21/2004**

Emissions Unit ID: **P006**

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in U.S. EPA reference method 9.

**F. Miscellaneous Requirements**

None

**PART II - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)**

**A. Applicable Emissions Limitations and/or Control Requirements**

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-17-07 (A)(1)
<p>P007 - Furnace No. 507, 5.8 MMBtu/hr natural gas-fired, aluminum reverberatory melting furnace, with a maximum capacity of 4,500 lbs/hr</p> <p>The requirements of this Permit to Install supercedes the requirements of PTI #02-11757 issued on April 1, 1998, which was administrative-ly modified on November 12, 1998.</p>	OAC rule 3745-31-05(A)(3)	
	OAC rule 3745-17-11	

Applicable Emissions  
Limitations/Control Measures

Particulate emissions shall not exceed 2.48 pound per hour and 10.4 tons per year (PM10 = 2.35 pounds per hour and 9.9 tons per year).

Nitrogen Oxide emissions: 0.87 pounds per hour and 3.8 tons per year.

Carbon Monoxide emissions: 0.46 pound per hour and 2.0 tons per year.

The total particulate emissions of PM10 for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 9.9 tons per year for all four furnaces combined. See Sections B.1.a-c and B.2.

Visible particulate emissions from any stack shall not exceed 5% opacity as a six-minute average, except as provided by rule.

See Section A.2.a.

See Section A.2.a.

## **2. Additional Terms and Conditions**

- 2.a** The emission limitation specified by this rule is less stringent to the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).

## B. Operational Restrictions

1. The permittee shall follow the following operational restrictions for this emissions unit:
  - a. the following materials are approved for charging in the furnaces: clean, pure aluminum ingots; de-gating material; and rejected molded parts. The de-gating materials consist of excess aluminum which is removed from the exterior of the molds and used for remelt. Scrap material (other than from the original aluminum ingots) and dross are not permitted to be charged in the furnaces;
  - b. use of natural gas for furnace fuel; and
  - c. no demagging or degassing operations shall be performed inside the furnace chambers. Degassing operations may be performed outside of the furnaces and inside of a degassing chamber using argon and/or nitrogen gases.
2. The total maximum annual production limit for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) shall not exceed 38,000,000 pounds per year for all four furnaces combined.

## C. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall collect and record the following information for each day for this emissions unit:
  - a. the amount of melted aluminum produced from this emissions unit; and
  - b. the total number of hours the emissions unit was in operation.
3. The permittee shall collect and record the following information for each month for this emissions unit:
  - a. the total production for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507), in tons for all four furnaces combined.

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**Emissions Unit ID: P007**

**D. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports which include the following information:
  - a. an identification of each day during which materials, other than clean, pure aluminum ingots, de-gating materials, and/or rejected molded parts, as described in Section B.1.a, were charged in the furnaces;
  - b. an identification of each day during which demagging or degassing operations were performed inside the furnace chambers; and
  - c. any exceedances of the total maximum annual production limitation for emissions units P002, P005, P006, and P007, as well as the corrective actions that were taken to achieve compliance.
3. The permittee shall submit annual reports which identify the following:
  - a. the amount of melted aluminum produced from this emissions unit for the previous year;
  - b. the hours of operation from this emissions unit for the previous year; and
  - c. the total particulate emissions of PM10, for emissions units P002 (Furnace #314), P005 (Furnace #500), P006 (Furnace #501), and P007 (Furnace #507) for the previous year.

These reports shall be submitted by January 31 of each year.

**E. Testing Requirements**

1. Compliance with the emissions limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following method(s):
  - a. Emission Limitations, from melting of aluminum:  
2.48 pounds per hour of particulate emissions (PE) and 2.35 pounds per hour of particulate emissions (PM10)

Applicable Compliance Method:

To determine the worst case hourly emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL})$$

$$E2 \text{ (lb/hr)} = (EF) \times (\text{Max\_AL}) \times (0.95)$$

Where the following applies:

E1 = particulate emission rate, in pounds per hour.

E2 = particulate emission rate of PM10, in pounds per hour.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

Max\_AL = maximum amount of aluminum charged, in tons per hour.

If required, emission tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 1-5 and the procedures specified in OAC rule 3745-17-03 (B)(1).

- b. Emission Limitation:  
 10.8 tons per year of particulate emissions (PE) and 10.3 tons per year of particulate emissions (PM10)

Applicable Compliance Method:

To determine the annual emission rate for particulate matter, the following equations shall be used:

$$E1 \text{ (tpy)} = [(EF) \times (\text{Max\_AL})] / 2000$$

$$E2 \text{ (tpy)} = [(EF) \times (\text{Max\_AL}) \times (0.95)] / 2000$$

Where the following applies:

E1 = particulate emission rate, in tons per year.

E2 = particulate emission rate of PM10, in tons per year.

EF = emission factor, which is 1.1 pounds of particulate per ton of material processed. The emission factor is taken from the STAPPA & ALAPCO Handbook, Table 11-2 for melting clean aluminum metal. Pounds of PM10 = (0.95) x (pounds of PE).

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**Facility ID: 0204020428**

**Emissions Unit ID: P007**

Max\_AL = annual amount of aluminum charged, in tons per year.

- c. Emission Limitations:
  - 0.87 pounds per hour of NO<sub>x</sub>
  - 0.46 pounds per hour CO

Applicable Compliance Method:

To determine the worst case hourly emission rates, the following equation shall be used:

$$E \text{ (lb/hr)} = EF \times \text{Max\_Cap}$$

Where the following applies:

E = emission rate, in pounds per hour.

EF = emission factor, in pounds of air contaminant per million Btu (lb/MMBtu):

$$EF = 0.150 \text{ NO}_x \text{ lb/MMBtu}$$

$$EF = 0.080 \text{ CO lb/MMBtu}$$

Max\_Cap = Maximum rated capacity of the furnace, in million Btu per hour

The emission factors for NO<sub>x</sub> is taken from the STAPPA & ALAPCO Handbook, Table 11-1 for aluminum-melting reverberatory furnace combustion products. For CO, the emission factor is taken from the AP-42, Table 1.4-1, Natural Gas Combustion, 7/98, where the EF = 0.080 is obtained by converting lb/MMCF to lb/MMBtu by dividing the AP-42 emission factor of 84 lb CO/MMCF by 1050 MMBtu/ MMCF.

- d. Emission Limitations:  
3.8 tons per year of NO<sub>x</sub>  
2.0 tons per year CO

Applicable Compliance Method:

To determine the annual emission rates, the following equation shall be used:

$$E \text{ (tpy)} = (E_{\text{Hr}}) \times (\text{Hr}_{\text{Op}}) / 2000$$

Where the following applies:

E = emission rate, in tons per year.

E<sub>Hr</sub> = hourly emission rate, in pounds per hour, as calculated in Section E. 1.c.

Hr<sub>Op</sub> = hours of operation on a annual basis, hours per year.

- e. Emission Limitation:

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**Gener**

**PTI A**

**Issued: 12/21/2004**

Emissions Unit ID: **P007**

5% opacity for visible particulate matter emissions

45

**Gener**

**PTI A**

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Emissions Unit ID: **P007**

Applicable Compliance Method:

Compliance shall be determined by visible emission evaluations performed in accordance with OAC rule 3745-17-03(B)(1) using the methods and procedures specified in U.S. EPA reference method 9.

**F. Miscellaneous Requirements**

None