



EMISSION VERIFICATION TEST PROTOCOL

Prepared For

PCC Structural, Inc.

At The

PCC Structural, Inc.

Large Parts Campus (LPC Steel)

Portland, Oregon

LPCS Donaldson Day Baghouse #5549 HEPA Exhaust (EU5549)

LPCS Grinding Cell Baghouse #6417 HEPA Exhaust (EU6417)

LPCS Torch Burnoff Booth & Cheetah Saw Baghouse #9203 HEPA Exhaust – East (EU9203-East)

LPCS Torch Burnoff Booth & Cheetah Saw Baghouse #9203 HEPA Exhaust – West (EU9203-West)

ASC Baghouse #6532 HEPA Exhaust (EU6532)

ASC Baghouse #8901 HEPA Exhaust (EU8901)

ASC Baghouse #8901 Inlet (EU8901-Inlet)

TRC ENVIRONMENTAL CORPORATION Protocol 258103P-16-022

May 20, 2016

Submitted By

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TRC Compliance Protocol revised 03/14/16*



1.0 INTRODUCTION

TRC Environmental Corporation (TRC) will perform an emissions verification test program on six (6) baghouses exhaust stacks and one baghouse inlet located at the PCC Structural, Inc., (PCC) facility located in Portland, Oregon. Testing will be performed at the baghouse exhaust stacks to determine emission factors for total selected metals (TSM) and front-half filterable particulate matter (PM). To determine baghouse/HEPA removal efficiency on ASC Baghouse 8901, PM emissions will also be collected at the inlet to the control device. This program will be completed in accordance with the methods and at the source sampling locations listed below. All required analyses, including any quality assurance samples supplied by the agency in question, will be completed.

1.1 Project Contact Information

Location	Address	Contact
Test Facility	PCC Structural, Inc. Large Parts Campus (LPC) 4600 SE Harney Drive Portland, Oregon 97206	Sherry Uchtyl Division Environmental Affairs 503-777-7683 suchtyl@pccstructurals.com
Regulatory Agency	Department of Environmental Quality Northwest Region 700 NE Multnomah Street, Suite 600 Portland, Oregon 97232	Greg Grunow Air Permits and Compliance 503-229-5690 grunow.greg@deq.state.or.us
Testing Company	TRC Environmental Corporation 19874 141 st Place NE Woodinville, Washington 98072	Richard Walston, QSTI Sr. Group Project Manager 425-489-1938, ext. 18178 rwalston@trcsolutions.com

1.2 Test Schedule

Testing is tentatively scheduled to be conducted during the week of June 20, 2016, pending approval by ODEQ. Testing should commence approximately at 0800 hours. The test crew will arrive at the facility approximately one hour prior to the start of the testing time for pre-test leak checks and preliminary measurements.



2.0 FACILITY AND PROCESS DESCRIPTION

PCC Structurals specializes in steel and titanium investment castings for aerospace, land-based turbine, medical, military armament, and many other applications.

The Large Parts Campus LPC is composed of two business units; the steel casting plant (LPC-S) and the titanium casting plant (LPC-T). The process includes the manufacture of wax replica of the finished product. Wax gates are attached to the wax replica to create wax assembly. In the Investing department, the wax assembly is repeatedly dipped into slurry and coated with sand. Upon drying, a hard ceramic shell is formed. The wax is then melted out of the ceramic shell and the shell is cured to create a mold for casting. In the Casting department, molten metal is then poured into the shell and upon cooling, the shell is removed from the metal casting by physical and chemical processes. After the shell and metal gating is removed, the metal product then goes through finishing processes including heat treating, grinding, abrasive blasting, and welding. Included below is a list of the sources to be tested:

- LPCS Donaldson Day Baghouse #5549 HEPA Exhaust (EU5549)
- LPCS Grinding Cell Baghouse #6417 HEPA Exhaust (EU6417)
- LPCS Torch Burnoff Booth & Cheetah Saw Baghouse #9203 HEPA Exhaust – East (EU9203-East)
- LPCS Torch Burnoff Booth & Cheetah Saw Baghouse #9203 HEPA Exhaust – West (EU9203-West)
- ASC Baghouse #6532 HEPA Exhaust (EU6532)
- ASC Baghouse #8901 HEPA Exhaust (EU8901)
- ASC Baghouse #8901 Inlet (EU8901-Inlet)

2.1 Process Data

All attempts will be made to operate the process unit at or near maximum production. However, in consideration of the potential for variations in production requirements and operational conditions at the time of the test, these requirements will be deemed to be satisfied if the emission units being tested are operating at or near their maximum capacity. Operational parameters will be monitored continuously by PCC personnel and the data will be provided for inclusion in the final test report.



3.0 TEST REQUIREMENTS

The table below presents the test methods, as well as the number and duration of each for each test location:

Parameter Measured	USEPA Test Method	No. of Runs	Run Duration (minutes)
HEPA Exhaust Stacks Emission Units 5549, 6417, 9203-East, 9203-West, 6532, 8901			
Sample Site / Traverse Points	1	1	480
Volumetric Flow Rates	2		
Molecular Weight ¹	2		
Stack Gas Moisture	4		
Front-half Filterable Particulate Matter (PM)	5		
Total Select Metals (Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Hg, Ni, P, Se, Ag, Tl, Zn)	29		
Baghouse Inlet Stack Emission Unit 8901-Inlet			
Sample Site / Traverse Points	1	1	480
Volumetric Flow Rates	2		
Molecular Weight ¹			
Stack Gas Moisture	4		
PM	5		
¹ TRC proposes to use a dry molecular weight of 29.0 since the process emits essentially air, as allowed in EPA Method 2, Section 8.6.			



4.0 SPECIFIC TEST PROCEDURES

Detailed test procedures are described in Section 8 of this protocol. One complete test run will be performed for each constituent in accordance with the following USEPA and CARB methods.

1. Volumetric flow will be determined utilizing USEPA Methods 1 and 2, 40CFR60 in conjunction with each emission test run. The location of the ports in relation to upstream and downstream disturbances will be measured and recorded. Clear diagrams and documentation will be included in the final test report.
2. A check for the presence or absence of cyclonic flow will be performed for each source in accordance with Section 11.4 of Method 1 and recorded on the field data sheets.
3. Molecular weight of the stack gas will be determined by USEPA 40CFR60 Method 2, *Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)*, Section 8.6, which allows the use of a dry molecular weight of 29.0 g/g-mole for processes that emit ambient air.
4. Particulate emissions will be determined in accordance with USEPA Method 5, 40CFR60. Each test run will be a minimum of 480 minutes in length. A glass-lined probe and glass nozzle will be utilized for the tests. Documentation of the pre- and post-test leak checks of the entire sampling train will be included in the final test report.
5. Total select metals (TSM) emissions will be determined in accordance with USEPA Method 29, 40CFR60. Each test run will be a minimum of 480 minutes in length. A glass-lined probe and glass nozzle will be utilized for the tests. Tests will be completed at one load only. Documentation of the pre- and post-test leak checks of the entire sampling train will be included in the final test report.
6. PM and TSM will be combined into a single isokinetic Method 29 sample train with a front half Method 5 recovery.
7. If requested, a test method performance audit sample for EPA Method 29 may be obtained by the facility from an accredited provider in accordance with the USEPA Stationary Source Audit Program and delivered to the test crew on-site. These samples will be delivered to the pre-designated laboratory where the audit sample will be analyzed by the same analyst



using the same analytical reagents and analytical system and at the same time as the compliance samples.

5.0 TEST PROGRAM SCHEDULE

Refer to plant submittals for specific dates.

Day	Task	On-Site Hours
1 June 20, 2016	Safety Training & Test Equipment Setup	8
2 June 21, 2016	Complete one (1) single 8-hour test per EPA Method 5/29 at each of two baghouse exhaust stacks. Complete a single 8-hour EPA Method 5 test at the inlet of a single baghouse.	12
3 June 22, 2016	Complete one (1) single 8-hour test per EPA Method 5/29 at each of two baghouse exhaust stacks.	12
4 June 23, 2016	Complete one (1) single 8-hour test per EPA Method 5/29 at each of two baghouse exhaust stacks.	12
5 June 24, 2016	Demobilize Test Equipment	4



6.0 PROJECT PERSONNEL AND RESPONSIBILITIES

- **Group Manager: Richard Walston**
Will be responsible for the successful completion of the project including schedule, budget, reporting, and overall project quality.
- **Project Director: Judith Aasland**
Will be responsible to help define scope of work and coordinate testing activities with TRC's Group and Project Managers and PCC.
- **Project Manager: Richard Walston**
Will be the primary contact between PCC personnel and TRC. The Project Manager will be in charge of testing activities for the entire project, will be responsible for daily QA/QC checks, and will reduce data for inclusion in the final report.
- **Field Team Leaders: Ryan Radonski and Ken Allmendinger**
Will provide assistance with field testing and will serve as a second point of contact.
- **Technical Support: Steven VanDaal, Jordan Aragon**
Will be responsible for operating the metering console and sampling trains. Ensures all field calculations are completed. Records data. Assists in sample recovery as required.
- **Documentation Specialist: Tsunami VanWinkle**
Assists with test protocol and report writing.
- **Laboratory Technician: Jordan Aragon**
Will be responsible for coordinating the preparation of glassware and sampling reagents. Mr. Aragon will also responsible for ensuring that QA/QC procedures are followed with the lab samples designated for analysis upon completion of testing.
- **Peer Review: Ed Peterson**
Will be responsible for final peer review of test report.

7.0 PLANT REQUIREMENTS

TRC must be supplied with the following items in order to complete this test program:

1. Safe access to test positions.
2. Electrical power 110 V, 30 A, 60 cycle service at the test locations.
3. Three-inch test ports cleaned and loose prior to arrival of test crew.
4. For this test program, TRC will be providing manlift support to the testing locations.
5. Sufficient lighting at the test site.



6. Plant or pollution control equipment operating data, in the format required by the applicable regulatory agency, for inclusion in the report.
7. Washroom facilities for use by members of the test crew.
8. Stable operations and the required load or production rate during the test period.
9. Communication between the test location and the control room.
10. Parking location to place TRC mobile trailer within 200 feet of sampling locations with access to multiple 110 V, 20 A, 60 cycle or 480 V, 50 A, 60 cycle circuits.
11. Proper disposal of any hazardous waste resulting from test methods being performed on-site.

8.0 TEST PROCEDURES

All testing, sampling, analytical, and calibration procedures used for this test program will be performed in accordance with the methods presented in the following sections. Where applicable, the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III, Stationary Source Specific Methods, USEPA 600/R-94/038c, September 1994 is used to supplement procedures.

8.1 Determination of Sample Point Locations by USEPA Method 1

This method is applicable to gas streams flowing in ducts, stacks, and flues. It is designed to aid in the representative measurement of pollutant emissions and/or total volumetric flow rates from stationary sources. In order to qualify as an acceptable sample location, it must be located at a position at least two stack or duct equivalent diameters downstream and a half equivalent diameter upstream from any flow disturbance. The location of the ports in relation to upstream and downstream disturbances will be measured and recorded

The cross-section of the measurement site is divided into a number of equal areas, and the traverse points are then located in the center of these areas. The minimum number of points are determined from Figure 1-2 (non-particulate) of USEPA Method 1.

Prior to performing volumetric flow traverses, a check for the presence or absence of cyclonic flow will be performed in accordance with Section 11.4 of Method 1 and recorded on the data sheet enclosed.



8.2 Volumetric Flow Rate Determination by USEPA Method 2

This method is applicable for the determination of the average velocity and the volumetric flow rate of a gas stream.

The gas velocity head (ΔP) and temperature is measured at traverse points defined by USEPA Method 1. The velocity head is measured with a Type S (Stausscheibe or reverse type) Pitot tube and oil-filled manometer; the gas temperature is measured with a Type K thermocouple. The average gas velocity in the flue is calculated based on: the gas density (as determined by USEPA Methods 2 and 4), the flue gas pressure, the average of the square roots of the velocity heads at each traverse point, and the average flue gas temperature.

8.3 Molecular Weight Determination by USEPA Method 2

Section 8.6 of this method is applicable for the determination of dry molecular weight of a sample from an effluent gas stream emitting essentially air.

For processes emitting essentially air, an analysis need not be conducted and the use of a dry molecular weight of 29.0 is acceptable.

8.4 Moisture Determination by USEPA Method 4

This method is applicable for the determination of the moisture content of stack gas.

A gas sample is extracted at a constant rate from the source. Moisture is removed from the sample stream by a series of pre-weighed impingers immersed in an ice bath. A minimum of 21 dry standard cubic feet of flue gas is collected during each sample run.

8.5 Filterable PM Determination by USEPA Method 5

This method is applicable for the determination of particulate matter (PM) emissions from stationary sources. USEPA Methods 2-4 are performed concurrently with, and as an integral part, of these determinations.

Flue gas is withdrawn isokinetically from the source at traverse points determined per USEPA Method 1, and PM is collected in the nozzle, probe liner, and on a glass fiber filter. The probe liner and filter are maintained at a temperature of $120 \pm 14^\circ\text{C}$ ($248 \pm 25^\circ\text{F}$) or such other temperature as specified by an applicable subpart of the standards, or as approved by the Administrator for a particular application. The PM mass, which includes any material that condenses at or above the filtration temperature, is determined gravimetrically after the removal of uncombined water.



8.6 Trace Metals Determination by USEPA Method 29

This method is applicable to the determination of metals emissions from stationary sources. In addition to the metals emissions, this method may be used to determine particulate emissions if the prescribed procedures and precautions are followed. USEPA Methods 2-4 are performed concurrently with, and as an integral part of, these determinations.

Flue gas is withdrawn isokinetically from the source at traverse points determined per USEPA Method 1 through a nozzle, probe liner, glass fiber filter and a series of impingers. The probe liner and filter are maintained at a temperature of $120 \pm 14^{\circ}\text{C}$ ($248 \pm 25^{\circ}\text{F}$) or such other temperature as specified by an applicable subpart of the standards, or approved by the Administrator for a particular application. Particle-bound metals are collected in the nozzle, in the probe, and on the filter. Gaseous metals are collected in a solution of nitric acid and hydrogen peroxide (analyzed for all metals including Hg) and a solution of acidified potassium permanganate (analyzed only for Hg).

The recovered samples are analyzed using the methods specified in Method 29 or such other techniques as specified by an applicable subpart of the standards, or as approved by the Administrator for a particular application.

9.0 QUALITY ASSURANCE PROCEDURES

TRC integrates our Quality Management System (QMS) into every aspect of our testing service. We follow the procedures specified in current published versions of the test Method(s) referenced in this protocol. Any modifications or deviations are specifically identified in the body of this protocol. We routinely participate in independent, third party audits of our activities and maintain:

- Accreditation from the Louisiana Environmental Laboratory Accreditation Program (LELAP);
- Accreditation from the Stack Testing Accreditation Council (STAC) and the American Association for Laboratory Accreditation (A2LA) that our operations conform with the requirements of ASTM D 7036 as an Air Emission Testing Body (AETB).

These accreditations demonstrate that our systems for training, equipment maintenance and calibration, document control and project management will fully ensure that project objectives are achieved in a timely and efficient manner with a strict commitment to quality.



All calibrations are performed in accordance with the test Method(s) identified in this protocol. If a method allows for more than one calibration approach, or if approved alternatives are available, the calibration documentation in the appendices of the report will specify which approach is used. All measurement devices are calibrated or verified at set intervals against standards traceable to the National Institute of Standards and Technology (NIST). NIST traceability information is available upon request.

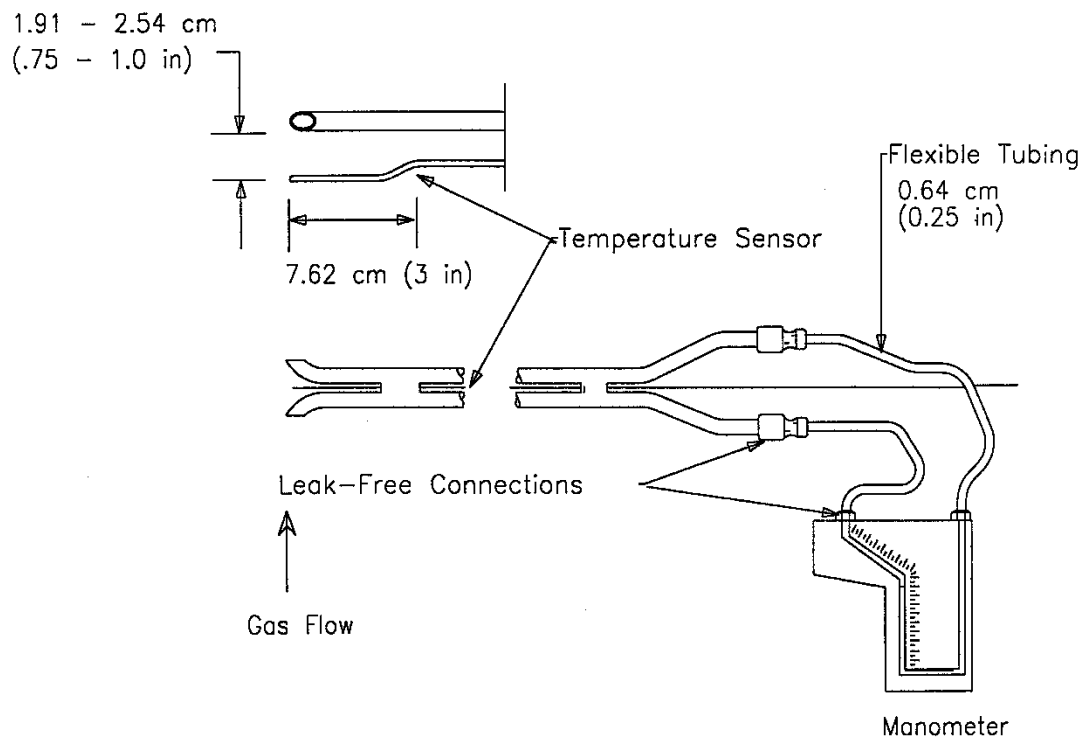
Raw data is kept on file at the TRC office performing the sampling. All samples from the test program are retained for 60 days after the submittal of the report, after which they are discarded unless TRC is advised otherwise.

Calculations are performed on the computer. An explanation of the nomenclature and calculations along with the complete test results will be appended to the report. Also to be appended to the report are calibration data and copies of the raw field data sheets.

Appendix A
Figures

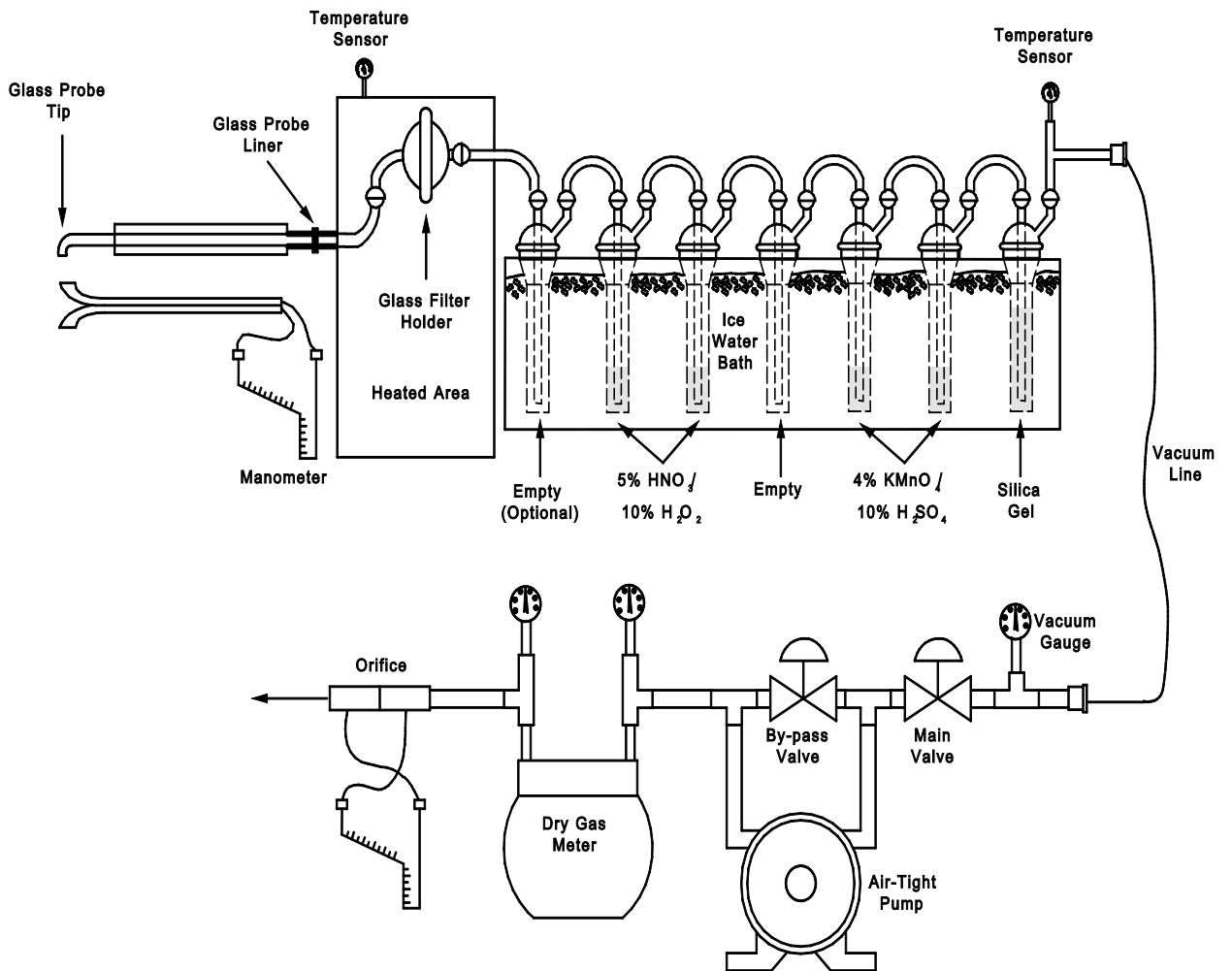
Determination of Stack Gas Velocity and Volumetric Flow Rate

USEPA Promulgated Test Method 2



Determination of Particulate Emissions and Metals from Stationary Sources

USEPA Promulgated Methods 5 and 29



Appendix B
Facility Air Permit

STANDARD
AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, #400
Portland, Oregon 97201
(503) 229-5554

This permit is being issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

PCC Structural, Inc
4600 SE Harney Drive
Portland, OR 97206-0898

INFORMATION RELIED UPON:

Application No.: 022246
Date Received: 06/04/2007

PLANT SITE LOCATION:

4600 SE Harney Drive
Portland, OR

LAND USE COMPATIBILITY FINDING:

Approving Authority: City of Portland
Approval Date: 05/12/1995

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Ed Druback, Northwest Region Air Quality Manager

Dated

Source(s) Permitted to Discharge Air Contaminants (OAR 340-216-0020):

Table 1 Code	Source Description	SIC
Part B, 50.	Non-ferrous metal foundries 100 or more tons/yr of metal charged	3369

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1.0 GENERAL EMISSION STANDARDS AND LIMITS

- 1.1. Visible Emissions** The permittee must comply with the following visible emission limits, as applicable:
- a. Emissions from any fuel burning equipment air contaminant source must not equal or exceed 20% opacity for a period aggregating more than 3 minutes in any one hour.
 - b. Emissions from any air contaminant source installed, constructed, or modified after June 1, 1970 must not equal or exceed 20% opacity for a period aggregating more than 3 minutes in any one hour.
 - c. Emissions from any air contaminant source other than fuel burning equipment must not equal or exceed 20% opacity for a period aggregating more than 30 seconds in any one hour.
- 1.2. Particulate Matter Emissions** The permittee must comply with the following particulate matter emission limits, as applicable:
- a. Particulate matter emissions from any burning equipment must not exceed 0.1 grains per standard cubic foot, corrected to 12% CO₂ or 50% excess air.
 - b. Particulate matter emissions from any air contaminant source, other than fuel burning equipment, must not exceed 0.1 grains per standard cubic foot.
- 1.3. Fugitive Emissions** The permittee must take reasonable precautions to prevent fugitive dust emissions by:
- a. Treating vehicular traffic areas of the plant site under the control of the permittee.
 - b. Operating all air contaminant-generating processes so that fugitive type dust associated with the operation will be adequately controlled at all times.
 - c. Storing collected materials from air pollution control equipment in a covered container or other method equally effective in preventing the material from becoming airborne during storage and transfer.
- 1.4. Particulate Matter Fallout** The permittee must not cause or permit the emission of any particulate matter larger than 250 microns in size at sufficient duration or quantity, as to create an observable deposition upon the real property of another person. The Department will verify that the deposition exists and will notify the permittee that the

deposition must be controlled.

1.5. Nuisance and Odors

The permittee must not cause or allow air contaminants from any source to cause a nuisance. Nuisance conditions will be verified by Department personnel.

1.6. Fuels and Fuel Sulfur Content

The permittee must not use any fuel other than natural gas, propane, butane, ASTM grade fuel oils, or on-specification used oil.

a. Fuel oils must not contain more than:

i. 0.3% sulfur by weight for ASTM Grade 1 distillate oil;

ii. 0.5% sulfur by weight for ASTM Grade 2 distillate oil;

b. The permittee is allowed to use on-specification used oil as fuel which contains no more than 0.5% sulfur by weight. The permittee must obtain analyses from the marketer or, if generated on site, have the used oil analyzed, so that it can be demonstrated that each shipment of oil does not exceed the used oil specifications contained in 40 CFR Part 279.11, Table 1.

2.0 SPECIFIC PERFORMANCE AND EMISSION STANDARDS

2.1. Emission Action Level – Visible Emissions

The permittee must immediately investigate and commence corrective action measures for any instance of observed visible emissions to ambient air (excluding uncombined water vapor), from any baghouse, the maintenance shop cyclone, the LPC-T cleaning cyclone, or their associated exhaust ductwork.

2.2. Baghouse Operation and Maintenance

The permittee must observe the following baghouse operation and maintenance requirements.

a. Each baghouse must achieve a minimum particulate matter removal efficiency of 99%.

b. The permittee must post the operating differential pressure design specification on each respective fabric filter baghouse at the facility.

c. The permittee must investigate and commence corrective action measures within 24 hours of an observed excursion of the designed differential pressure range of any fabric filter baghouse.

d. When replacing fabric filter bags in any baghouse, the permittee may not substitute a bag with lower control

efficiency specifications than 99%.

- 2.3. Thermal Oxidizer Operating Temperature – General** All process thermal oxidizers must be maintained at a minimum operating temperature of 1400 degrees F for at least a 0.5 second retention time unless an alternate operating temperature and/or time parameter has been demonstrated and approved by the Department as being equal or more effective.
- 2.4. Thermal Oxidizer Operating Temperature – Emission Action Level** The operating temperatures of the LPC-T catalytic oxidizer and LPC-S thermal oxidizer must be maintained at no more than 50 degrees F below the average operating temperature recorded during the most recent valid source test based on a one hour average. If, based upon a one hour average, the operating temperature of either unit drops to more than 50 degrees F below the average operating temperature established during the most recent valid source test, the permittee must take expeditious action to return the temperature to the established operating range. The temperature falling below this emission action level is not a violation of this permit condition, however, it is a violation of this permit condition if the permittee fails to expeditiously take action to correct the operating temperature after it has fallen below the range.
- 2.5. Source Specific Reasonably Available Control Technology (RACT) Requirements** The permittee must comply with the following source specific RACT requirements:
- a. The permittee must operate and maintain controls to reduce the VOC emissions from the Large Parts Campus Steel and Titanium (LPC-S and LPC-T) investment casting operations by a minimum of 90 percent.
- Note: This condition is included in the Oregon State Implementation Plan (SIP). Any changes to this condition must be submitted as a SIP revision.
- b. In order to calculate compliance with Condition 2.5a, the permittee may average the destruction and removal efficiency of all of its investing rooms using VOC containing slurries. Any investing room for which the VOC content of the slurries used is less than 2% (not including water) VOC on a weighted average basis shall be exempt from RACT and this condition's compliance calculation.

Note: This condition is included in the Oregon State

Implementation Plan (SIP). Any changes to this condition must be submitted as a SIP revision.

2.6. Investing Room Emission Capture Efficiency

a. The permittee must notify the Department prior to making any change to any Investing Room, its air inflow, or its emission exhaust system which may affect its emission capture efficiency. If capture efficiency is required to be verified by the Department, the permittee will do so by performing a test for total enclosure using the test method previously approved and on file at the Department.

3.0 PLANT SITE EMISSION LIMITS

3.1. Plant Site Emission Limits (PSEL)

Plant site emissions must not exceed the following:

Pollutant	Limit	Units
PM	83	tons per year
PM ₁₀	54	tons per year
SO ₂	39	tons per year
NO _x	58	tons per year
CO	99	tons per year
VOC	99	tons per year
Single HAP	9	tons per year
Combined HAPs	24	tons per year

3.2. Annual Period

The annual plant site emissions limits apply to any 12-consecutive calendar month period.

4.0 COMPLIANCE DEMONSTRATION

4.1. PSEL Compliance Monitoring

Compliance with the PSEL is determined for each 12-consecutive calendar months period based on the following calculations, performed for each pollutant:

$$E_{n-12Mo} = \sum[(P_{n-12Mo} \times E_{f_n}) + MB_n] \times K$$

Where,

- E_{n-12Mo} = pollutant emission in tons/yr for the respective 12-month period
- n = the criteria or hazardous air pollutant of concern
- P_{n-12Mo} = monitoring parameter identified for each process in Condition 10.0 for the respective 12-month period.
- Ef_n = emission factor identified for each respective process/monitoring parameter and pollutant in Condition 10.0
- K = conversion constant (1 ton/2000 lbs)
- MB_n = emission rate mass balance (criteria pollutant or HAP, as applicable), determined as follows:

$$MB_n = \sum[(U_n \times D_n \times C_n) - W] \times [1 - (CE \times DE^*)]$$

Where:

- MB = 12-month pollutant emission in pounds by mass balance calculation
- U = Material usage for the period in gallons
- D = Material density in pounds per gallon
- C = pollutant concentration expressed as a decimal
- n = represents the criteria or hazardous air pollutant of concern
- CE = pollutant capture efficiency expressed as a decimal (CE presumed to be 1.00, see review report)
- DE = Destruction efficiency (per most recent source test)
- W = Weight of pollutant shipped offsite
- * - DE equals 0 at times of control device bypass or shutdown

4.2. Emission Factors

The permittee must use the default emission factors provided in Condition 10.0 for calculating pollutant emissions, unless alternative emission factors are approved by the Department. The permittee may request or the Department may require using alternative emission factors provided they are based on actual test data or other documentation (e.g., AP-42 compilation of emission factors) that has been reviewed and approved by the Department.

4.3. Testing Requirements

Within 36 months from the issue date of this permit, the permittee must perform a source test of each of the following emission units.

- LPC-T Cleaning Burn-off (Farr Tenkay) Baghouse
-

- LPC-S Investing Thermal Oxidizer Baghouse
- LPC-S Cleaning (Dustex) Baghouse
- LPC-S Cleaning (Fabri Jet) Baghouse
- LPC-T Investing Room catalytic oxidizer
- LPC-S Investing Room thermal oxidizer

Note: Source testing is not required for a referenced emission unit if a valid source test was performed within 6 months prior to the issuance date of this permit.

- a. Baghouse testing - demonstrate that each baghouse identified above and its associated process, is capable of operating at its maximum normal operating capacity in compliance with Condition 1.2 by conducting a source test of the stack exhaust gas for particulate emissions using Oregon Method 5 (or 8 as approved by the Department). During each source test the following parameters must be monitored unless otherwise approved in the pretest plan:
 - i. Identification of bag manufacturer, bag model number and bag performance design parameters for the bags used in the baghouse. If bags are from more than one manufacturer, supply the information for the bags most recently used as replacements;
 - ii. exhaust gas flow rates;
 - iii. pressure drop across baghouse;
 - iv. production or level of operation for each respective baghouse.
 - v. each test report should include grain loading results as well as particulate emission rates expressed in pounds per hour.
- b. LPC-T Investing Room thermal oxidizer - demonstrate the thermal oxidizer is capable of operating at its maximum normal operating capacity in compliance with Condition 2.5.a by conducting a source test demonstrating VOC emission rate (lbs/hr) and destruction efficiency (%DE) using EPA Method 25A.
 - i. Within 30 days of conducting the source test, perform a test to determine capture efficiency of the LPC-T Investing Room by performing a test for

total enclosure using the test method previously approved and on file at the Department. If testing demonstrates the room to meet the requirements for a total enclosure as stated in 40 CFR 60.711(a)(17), capture efficiency will be presumed to be 100%. If testing does not demonstrate the room to meet the requirements for a total enclosure, the permittee must either: retest and demonstrate total enclosure following the performance of appropriate corrective action; or perform an engineering analysis to quantify the room's capture efficiency.

- ii. During the source test the following parameters must be monitored unless otherwise approved in the pretest plan:
 - 4.3.b.(ii)(a) Operating temperature of the thermal oxidizer;
 - 4.3.b.(ii)(b) hydrocarbon composition of VOC liquids used in the LPC-T Investing Room;
 - 4.3.b.(ii)(c) LPC-T Investing Room production (molds in process/produced);
 - 4.3.b.(ii)(d) exhaust gas flow rates at inlet and outlet;
 - 4.3.b.(ii)(e) VOC concentration at the inlet and outlet of the thermal oxidizer measured as propane
- c. LPC-S thermal oxidizer - demonstrate the thermal oxidizer is capable of operating at its maximum normal operating capacity in compliance with Condition 2.5.a by conducting a source test demonstrating VOC emission rate (lbs/hr) and %DE using EPA Method 25A.
 - i. Within 30 days of conducting the source test, perform a test to determine capture efficiency of the LPC-S Investing Room by performing a test for total enclosure using the test method previously approved and on file at the Department. If testing demonstrates the room to meet the requirements for a total enclosure as stated in 40 CFR 60.711(a)(17), capture efficiency will be presumed to be 100%. If testing does not demonstrate the room to meet the

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- requirements for a total enclosure, the permittee must either: retest and demonstrate total enclosure following the performance of appropriate corrective action; or perform an engineering analysis to quantify the room's capture efficiency.
- ii. During the source test the following parameters must be monitored unless otherwise approved in the pretest plan:
 - 4.3.c.(ii)(a) Operating temperature of the thermal oxidizer;
 - 4.3.c.(ii)(b) hydrocarbon composition of VOC liquids used in the LPC-S Investing Room;
 - 4.3.c.(ii)(c) LPC-S Investing Room production (molds in process/produced);
 - 4.3.c.(ii)(d) exhaust gas flow rates at inlet and outlet;
 - 4.3.c.(ii)(e) VOC concentration at the inlet and outlet of the thermal oxidizer measured as propane
 - d. The following parameters must be monitored and recorded during each required source test:
 - i. Visible emissions as measured by EPA Method 9 for a period of at least six minutes during or within 30 minutes before or after each test run;
 - ii. other process/pollution control device operating parameters not identified above that are determined to be necessary by the Department and/or the permittee.
 - e. Only regular operating staff may adjust the combustion system or production processes and emission control parameters during the source test and within two hours prior to the source test. Any operating adjustments made during the source test, which are a result of consultation with source testing personnel, equipment vendors or consultants, may render the source test invalid.
 - f. All tests must be conducted in accordance with the Department's Source Sampling Manual and the approved pretest plan. The pretest plan must be submitted at least

15 days in advance and approved by the Regional Source Test Coordinator. Test data and results must be submitted for review to the Regional Source Test Coordinator within 45 days unless otherwise approved in the pretest plan.

5.0 MONITORING/RECORDKEEPING REQUIREMENTS

5.1. Continuous Monitoring The permittee must continuously monitor and maintain records of the operating temperatures of the LPC-T catalytic oxidizer and LPC-S thermal oxidizer during all hours of operation.

5.2. Baghouse Design Specification Records The permittee must keep readily accessible records documenting the engineering design specifications for all baghouses at the facility. These records must be kept for the life of each control device.

5.3. Baghouse Replacement Bag Records The permittee must keep readily accessible records documenting the design/performance specifications for all replacement fabric filter bags for use in baghouse control devices at the facility. This condition is applicable to replacement bags that are installed after issuance of this permit.

5.4. Weekly Monitoring The permittee must monitor and record the differential pressure across each fabric filter baghouse control device at least once each calendar week the plant is operating. The permittee must investigate and commence corrective action measures within 24 hours of an observed excursion of the designed differential pressure range of any fabric filter baghouse.

An excursion of the design differential pressure range is not a violation of this permit condition, however, it is a violation of this permit if the permittee fails to commence the required corrective action measures within 24 hours of an observed excursion.

5.5. Monthly Monitoring The permittee must monitor and maintain the following records related to the operation and maintenance of the plant and associated air contaminant control devices monthly:

- a. The permittee must monitor each baghouse, the maintenance shop cyclone, the LPC-T cleaning cyclone, and their associated exhaust ductwork for visible emissions at least monthly. If visible emissions are observed, the permittee must document the location, cause, and corrective action taken pursuant to the emissions

action level of Condition 2.1.

- b. Quantity of natural gas combusted as reported monthly by gas company invoice (ft³/month)
- c. Quantity of natural gas combusted in the steam generating boiler. Fuel monitoring records for any boiler subject to 49 CFR Part 60, Subpart Dc – Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units must be maintained on site for a period of not less than five (5) years from the generation of such record
- d. Quantity of steel vacuum cast (tons)
- e. Quantity of steel air cast (tons)
- f. Quantity of titanium vacuum cast (tons)
- g. Tons of metal (all types) cast into parts.
- h. Quantity of individual-HAP metal vacuum cast (tons) for the individual HAP metal of highest usage.
- i. Quantity of individual-HAP metal air cast (tons) for the individual HAP metal of highest usage
- j. Quantity of combined-HAP metal vacuum cast (tons)
- k. Quantity of combined-HAP metal air cast (tons)
- l. Quality of baghouse dust (plant) collected (tons)
- m. Quantity of baghouse dust (maintenance shop) collected (tons)
- n. Quantity of VOC used/emitted to the LPC-S thermal oxidizer (tons)
- o. Quantity of VOC used/emitted to the LPC-T catalytic oxidizer (tons)
- p. Quantity of plastic used at LPC-S (tons)
- q. Quantity of plastic used at LPC-T (tons)
- r. Quantity of miscellaneous VOC and VOC-HAP used (tons)
- s. Quantity of latex flash-fired (tons)
- t. Quantity of latex used and not flash-fired (tons)
- u. Quantity of HCl used (tons)
- v. Number of hours of operation for the Alpha-case removal process.

- w. Quantity of non-emitted VOC waste collected. The quantity may be monitored by: % of initial VOCs in product; using information on the waste profile; analysis for VOC content; or an equivalent method of determination approved by the Department. If analyzed for VOC content, analysis must be based upon a test method approved by the Department.

Note: This monitoring is only required when parameter “W” is used to calculate VOC or organic HAP emissions for purpose of determining compliance with permitted emissions limit(s).

- x. Revisions of the pollutant capture efficiency function used for compliance emissions calculations in Condition 4.2.
- y. Calculate the PM, PM₁₀, SO₂, CO, NO_x, VOC, combined HAPs and highest individual HAP 12 month rolling emission rates for the previous 12 consecutive months. Emissions must be calculated using the formulae in Condition 4.2 and emission factors in Condition 10.0.

- 5.6. Pollutant Capture Efficiency** The permittee must re-evaluate pollutant capture efficiency on any occurrence of an equipment modification or addition to the LPC-T and/or LPC-S Investing Rooms, their exhaust systems or catalytic/thermal oxidizers, that could potentially affect the demonstrated capture efficiency used for compliance emission calculations in Condition 4.2.
- 5.7. Used Oil Monitoring** If used oil is combusted, the permittee must obtain analysis from the marketer or, if generated on site, have the used oil analyzed, so it can demonstrate that each shipment of oil received does not exceed the used oil specifications contained in 40 CFR Part 279.11, Table 1.
- 5.8. Excess Emissions** The permittee must maintain records of excess emissions as defined in OAR 340-214-0300 through 340-214-0340 (recorded on occurrence). Typically, excess emissions are caused by process upsets, startups, shutdowns, or scheduled maintenance. In many cases, excess emissions are evident when visible emissions are greater than 20% opacity for 3 minutes or more in any 60-minute period.
- 5.9. Complaint Log** The permittee must maintain a log of all written complaints and complaints received via telephone that specifically refer to air pollution concerns associated to the permitted facility. The log must include a record of the permittee’s actions to investigate the validity of each complaint and record of actions taken for

complaint resolution.

5.10. Retention of Records

Unless otherwise specified, all records must be maintained on site for a period of two (2) years and made available to the Department upon request.

6.0 REPORTING REQUIREMENTS

6.1. Excess Emissions

The permittee must notify the Department of excess emissions events if the excess emission is of a nature that could endanger public health.

- a. Such notice must be provided as soon as possible, but never more than one hour after becoming aware of the problem. Notice must be made to the regional office identified in Condition 7.4 by e-mail, telephone, facsimile, or in person.
- b. If the excess emissions occur during non-business hours, the permittee must notify the Department by calling the Oregon Emergency Response System (OERS). The current number is 1-800-452-0311.
- c. The permittee must also submit follow-up reports when required by the Department.

6.2. NSPS

The permittee must report to the EPA Administrator at EPA Region 10, the use of any fuel other than pipeline quality natural gas in any boiler subject to 40 CFR Part 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units within 60 days of such use.

6.3. Annual Report

For each year this permit is in effect, the permittee must submit to the Department by **February 15** two (2) copies of the following information for the previous calendar year:

- a. A letter stating the facility's compliance status with permit conditions for the calendar year. Any violations or exceedances must be explained in detail including corrective actions taken.
- b. Operating parameters:
 - i. Quantity of natural gas combusted (ft³)
 - ii. Quantity of steel vacuum cast (tons)
 - iii. Quantity of steel air cast (tons)
 - iv. Quantity of titanium vacuum cast (tons)

- v. Quantity of metal cast into parts (tons)
- vi. Quantity of individual-HAP metal vacuum cast (tons) for the individual HAP metal of highest usage
- vii. Quantity of individual-HAP metal air cast (tons) for each individual HAP metal of highest usage.
- viii. Quantity of combined-HAP metal vacuum cast (tons)
- ix. Quantity of combined-HAP air cast (tons)
- x. Quantity of factory baghouse dust collected (tons)
- xi. Quantity of maintenance shop baghouse dust collected (tons)
- xii. Quantity of VOC used/emitted to the LPC-S thermal oxidizer (tons)
- xiii. Quantity of VOC used/emitted to the LPC-T catalytic oxidizer (tons)
- xiv. Quantity of plastic used at LPC-S (tons)
- xv. Quantity of plastic used at LPC-T (tons)
- xvi. Quantity of miscellaneous VOC and VOC-HAP used (tons)
- xvii. Quantity of latex flash-fired (tons)
- xviii. Quantity of latex used and not flash-fired (tons)
- xix. Quantity of HCl used (tons)
- xx. The number of hours of operation for the Alpha-case removal process.
- xxi. Quantity of non-emitted VOC waste collected. The quantity may be monitored by: % of initial VOCs in product; using information on the waste profile; analysis for VOC content; or an equivalent method of determination approved by the Department. If analyzed for VOC content, analysis must be based upon a test method approved by the Department.

Note: This monitoring is only required when parameter "W" is used to calculate VOC or organic HAP emissions for purpose of determining compliance with permitted emissions limit(s).

- xxii. Revisions of the pollutant capture efficiency function used for compliance emissions calculations in Condition 4.2.
- xxiii. Calculate the PM, PM₁₀, SO₂, CO, NO_x, VOC, combined HAPs and highest individual HAP 12 month rolling emission rates for the previous 12 consecutive months. Emissions must be calculated using the formulae in Condition 4.2 and emission factors in Condition 10.0.
- c. Records of all planned and unplanned excess emissions events.
- d. Summary of complaints relating to air quality received by permittee during the year.
- e. List permanent changes made in plant process, production levels, and pollution control equipment which affected air contaminant emissions.
- f. List major maintenance performed on pollution control equipment.

6.4. Notice of Change of Ownership or Company Name

The permittee must notify the Department in writing using a Departmental "Permit Application Form" within 60 days after the following:

- a. Legal change of the name of the company as registered with the Corporations Division of the State of Oregon; or
- b. Sale or exchange of the activity or facility.

6.5. Construction or Modification Notices

The permittee must notify the Department in writing using a Departmental "Notice of Construction Form," or "Permit Application Form," and obtain approval in accordance with OAR 340-210-0205 through 340-210-0250 before:

- a. Constructing, installing, or establishing a new stationary source that will cause an increase in any regulated pollutant emissions;
- b. Making any physical change or change in operation of an existing stationary source that will cause an increase, on an hourly basis at full production, in any regulated pollutant emissions; or

- c. Constructing or modifying any air pollution control equipment.

- 6.6. Where to Send Reports and Notices** The reports, with the permit number prominently displayed, must be sent to the Permit Coordinator for the region where the source is located as identified in Condition 7.3.

7.0 ADMINISTRATIVE REQUIREMENTS

- 7.1. Permit Renewal Application** The completed application package for renewal of this permit is due on 07/01/2012. Two (2) copies of the application must be submitted to the DEQ Permit Coordinator listed in condition 7.3
- 7.2. Permit Modifications** Application for a modification of this permit must be submitted not less than **60** days prior to the source modification. A special activity fee must be submitted with an application for the permit modification. The fees and two (2) copies of the application must be submitted to the Business Office of the Department.
- 7.3. Permit Coordinator Addresses** All reports, notices, and applications should be directed to the Permit Coordinator for the area where the source is located. The Permit Coordinator addresses are as follows:
Department of Environmental Quality
Northwest Region
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
Telephone: (503) 229-5582
- 7.4. Department Contacts** Information about air quality permits and the Department's regulations may be obtained from the DEQ web page at www.deq.state.or.us. All inquiries about this permit should be directed to the regional office for the area where the source is located. The Department's regional offices are as follows:
Department of Environmental Quality
Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
Telephone: (503) 229-5554

8.0 FEES

- 8.1. Annual** The Annual Fee specified in OAR 340-216-0020, Table 2, Part 2

- Compliance Fee** for a Standard ACDP is due on **December 1** of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date.
- 8.2. Change of Ownership or Company Name Fee** The non-technical permit modification fee specified in OAR 340-216-0020, Table 2, Part 3(a) is due with an application for changing the ownership or the name of the company.
- 8.3. Special Activity Fees** The special activity fees specified in OAR 340-216-0020, Table 2, Part 3 (b through i) are due with an application to modify the permit.
- 8.4. Where to Submit Fees** Fees must be submitted to:
Department of Environmental Quality
Business Office
811 SW Sixth Avenue
Portland, Oregon 97204-1390

9.0 GENERAL CONDITIONS AND DISCLAIMERS

- 9.1. Permitted Activities** This permit allows the permittee to discharge air contaminants from processes and activities related to the air contaminant source(s) listed on the first page of this permit until this permit expires, is modified, or is revoked.
- 9.2. Other Regulations** In addition to the specific requirements listed in this permit, the permittee must comply with all other legal requirements enforceable by the Department.
- 9.3. Conflicting Conditions** In any instance in which there is an apparent conflict relative to conditions in this permit, the most stringent conditions apply.
- 9.4. Masking of Emissions** The permittee must not cause or permit the installation of any device or use any means designed to mask the emissions of an air contaminant that causes or is likely to cause detriment to health, safety, or welfare of any person or otherwise violate any other regulation or requirement.
- 9.5. Department Access** The permittee must allow the Department's representatives access to the plant site and pertinent records at all reasonable times for the purposes of performing inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emissions discharge records and conducting all necessary functions related to this permit in accordance with ORS 468-095.
- 9.6. Permit** The permittee must have a copy of the permit available at the

- Availability** facility at all times.
- 9.7. Open Burning** The permittee may not conduct any open burning except as allowed by OAR 340 Division 264.
- 9.8. Asbestos** The permittee must comply with the asbestos abatement requirements in OAR 340, Division 248 for all activities involving asbestos-containing materials, including, but not limit to, demolition, renovation, repair, construction, and maintenance.
- 9.9. Property Rights** The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
- 9.10. Termination, Revocation, or Modification** The Department may modify or revoke this permit pursuant to OAR 340-216-0082 and 340-216-0084.

10.0 EMISSION FACTORS

Process	Pollutant	Monitoring Parameter (Pn)	Emission Factor		EF Reference
			(Efn)	EF units	
Natural Gas Fired Equipment	PM	MM ft ³ of natural gas	2.5	lbs/MM ft ³	DEQ
	PM ₁₀	MM ft ³ of natural gas	2.5	lbs/MM ft ³	DEQ
	NO _x	MM ft ³ of natural gas	100	lbs/MM ft ³	AP-42
	CO	MM ft ³ of natural gas	84	lbs/MM ft ³	AP-42
	VOC	MM ft ³ of natural gas	5.5	lbs/MM ft ³	AP-42
LPC-S Air Casting	PM	Tons of metal poured	4.8	lbs/ton	AP-42
	PM ₁₀	Tons of metal poured	2.4	lbs/ton	AP-42- 50% PM
	PM HAP	Tons of metal poured, % HAP	4.8	lbs/ton	AP-42
	Total HAP	Tons of metal poured, % HAP	4.8	lbs/ton	AP-42
LPC-S Vacuum Casting	PM	Tons of metal poured	0.21	lbs/ton	Source EF
	PM ₁₀	Tons of metal poured	0.21	lbs/ton	Source EF
	PM HAP	Tons of metal poured, % HAP	0.21	lbs/ton	Source EF
	Total HAP	Tons of metal poured, % HAP	0.21	lbs/ton	Source EF
LPC-T Vacuum Casting	PM	Tons of metal poured	0.21	lbs/ton	Source EF
	PM ₁₀	Tons of metal poured	0.21	lbs/ton	Source EF
	PM HAP	Tons of metal poured, % HAP	0.21	lbs/ton	Source EF
	Total HAP	Tons of metal poured, % HAP	0.21	lbs/ton	Source EF
Baghouses	PM	Tons baghouse dust collected	20	lbs/ton	Bag mfr. Spec.
	PM ₁₀	Tons baghouse dust collected	20	lbs/ton	Bag mfr. Spec.
	PM HAP	Tons baghouse dust collected, %HAP	20	lbs/ton	Bag mfr. Spec.
	Total HAP	Tons baghouse dust collected, %HAP	20	lbs/ton	Bag mfr. Spec.
LPC-T Cleaning Cyclone Wax Burnout	PM	Tons of metal poured	0.7	lbs/ton	Source Test
	PM ₁₀	Tons of metal poured	0.36	lbs/ton	Source test 50%PM
	PM	Tons of metal poured in parts	0.027	lbs/ton	Source EF
	PM ₁₀	Tons of metal poured in parts	0.027	lbs/ton	Source EF

	VOC	Tons of metal poured in parts	2.7	lbs/ton	Source EF
	VOC HAP	Tons of metal poured in parts	1	lbs/ton	Source EF
	Total HAP	Tons of metal poured in parts	1	lbs/ton	Source EF
Autoclave (shell de-wax)	PM	Tons of metal poured in parts	0.14	lbs/ton	Source Test
	PM ₁₀	Tons of metal poured in parts	0.07	lbs/ton	Source Test 50%PM
	VOC	Tons of metal poured in parts	0.09	lbs/ton	Source EF
	VOC HAP	Tons of metal poured in parts	0.09	lbs/ton	Source EF
	Total HAP	Tons of metal poured in parts	0.09	lbs/ton	Source EF
LPC-T Misc. Metal Processing	PM	Tons of metal poured in parts	1.32	lbs/ton	Source EF
	PM ₁₀	Tons of metal poured in parts	0.7	lbs/ton	Source EF
	PM HAP	Tons of metal poured in parts, %HAP	1.32	lbs/ton	Source EF
	Total HAP	Tons of metal poured in parts, %HAP	1.32	lbs/ton	Source EF
LPC-S Misc. Metal Processing	PM	Tons of metal poured in parts	1.53	lbs/ton	Source EF
	PM ₁₀	Tons of metal poured in parts	0.8	lbs/ton	Source EF
	PM HAP	Tons of metal poured in parts, %HAP	1.53	lbs/ton	Source EF
	Total HAP	Tons of metal poured in parts, %HAP	1.53	lbs/ton	Source EF
Maintenance Shop Cyclone	PM	Tons of dust collected	200	lbs/ton	Source EF
	PM ₁₀	Tons of dust collected	200	lbs/ton	Source EF
LPC-S Plastic	VOC	Tons of plastic used	100	lbs/ton	Source EF
	VOC HAP	Tons of plastic used	100	lbs/ton	Source EF
LPC-T plastic	VOC	Tons of plastic used	2000	lbs/ton	Source EF ⁽¹⁾
	VOC HAP	Tons of plastic used	2000	lbs/ton	Source EF ⁽¹⁾
Misc. VOC Use	VOC	Tons of VOC containing material usage	2000	lbs/ton	Material Balance
	VOC HAP	Tons of VOC containing material usage	2000	lbs/ton	Material Balance
	Total HAP	Tons of VOC containing material usage	2000	lbs/ton	Material Balance
Latex (flash-fired)	VOC	Tons of latex used	40	lbs/ton	Source EF
	VOC HAP	Tons of latex used	40	lbs/ton	Source EF
	Total HAP	Tons of latex used	40	lbs/ton	Source EF
Latex (not flash-fired)	VOC	Tons of latex used	800	lbs/ton	Source EF
	VOC HAP	Tons of latex used	800	lbs/ton	Source EF
	Total HAP	Tons of latex used	800	lbs/ton	Source EF
Misc. HAP	HCl	Tons HCl used	100	lbs/ton	Source EF
	HF	Hours of operation	0.27	lbs/hr	Source EF

(1) Emission factor provided by permittee. Although a thermal oxidizer is used on the LPC-T burnout furnace that accepts molds with plastic in them, no emission control is assumed in the compliance calculation.

11.0 ABBREVIATIONS, ACRONYMS, AND DEFINITIONS

ACDP	Air Contaminant Discharge Permit	NSR	New Source Review
ASTM	American Society for Testing and Materials	O ₂	oxygen
AQMA	Air Quality Maintenance Area	OAR	Oregon Administrative Rules
calendar year	The 12-month period beginning January 1st and ending December 31st	ORS	Oregon Revised Statutes
CFR	Code of Federal Regulations	O&M	operation and maintenance
CO	carbon monoxide	Pb	lead
DEQ	Oregon Department of Environmental Quality	PCD	pollution control device
dscf	dry standard cubic foot	PM	particulate matter
EPA	US Environmental Protection Agency	PM ₁₀	particulate matter less than 10 microns in size
FCAA	Federal Clean Air Act	ppm	part per million
gal	gallon(s)	PSD	Prevention of Significant Deterioration
gr/dscf	grains per dry standard cubic foot	PSEL	Plant Site Emission Limit
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040	PTE	Potential to Emit
I&M	inspection and maintenance	RACT	Reasonably Available Control Technology
lb	pound(s)	scf	standard cubic foot
MMBtu	million British thermal units	SER	Significant Emission Rate
NA	not applicable	SIC	Standard Industrial Code
NESHAP	National Emissions Standards for Hazardous Air Pollutants	SIP	State Implementation Plan
NO _x	nitrogen oxides	SO ₂	sulfur dioxide
NSPS	New Source Performance Standard	Special Control Area	as defined in OAR 340-204-0070
		VE	visible emissions
		VOC	volatile organic compound
		year	A period consisting of any 12-consecutive calendar months

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