

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

May 31, 2013

**PERMIT TO INSTALL**  
242-06C

**ISSUED TO**  
HD Industries, Inc.

**LOCATED AT**  
19455 Glendale Street  
Detroit, MI 48223

**IN THE COUNTY OF**  
Wayne

**STATE REGISTRATION NUMBER**  
N0246

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

**April 25, 2013**

DATE PERMIT TO INSTALL APPROVED:

**May 31, 2013**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

## PERMIT TO INSTALL

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant / Measurement Abbreviations</b>	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO <sub>2</sub> e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H <sub>2</sub> S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfuction Abatement Plan	NO <sub>x</sub>	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO <sub>2</sub>	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	yr	Year

\* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

### GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
  
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
  
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

**SPECIAL CONDITIONS**

**EMISSION UNIT SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUDROSSFURNACE	A natural gas-fired rotary furnace with a burner of 5 MMBtu/hr heat input. The furnace is used to recover aluminum from dross. Estimated weekly throughput is up to 40 tons dross. Emission control is a lime-injected fabric filter dust collector. This emission unit includes raw material dross delivery and processing, and waste material storage and disposal.	Control equipment added 5/25/2012  Lime feeder installed 2/20/2013	N/A
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

**The following conditions apply to: EUDROSSFURNACE**

**DESCRIPTION:** A natural gas-fired rotary furnace with a burner of 5 MMBtu/hr heat input. The furnace is used to recover aluminum from dross. The nominal throughput for this dross-only furnace is 0.75 ton per hour. Estimated weekly throughput is up to 40 tons dross. This emission unit includes raw material dross delivery and processing, and waste material storage and disposal.

**Flexible Group ID:** N/A

**POLLUTION CONTROL EQUIPMENT:** Lime-injected fabric filter dust collector

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.30 lb/ton of feed/charge	Test Protocol*	EUDROSSFURNACE	SC V.1. & V.3	40 CFR 63.1505(g)(1) R 336.1331
2. PM10	0.35 pph	Test Protocol*	EUDROSSFURNACE	SC V.1. & V.3	R 336.1201 40 CFR 52.21(c)and (d) R 336.2803 R 336.2804
3. PM2.5	0.35 pph	Test Protocol*	EUDROSSFURNACE	SC V.1. & V.3	R 336.1201 40 CFR 52.21(c)and (d) R 336.2803 R 336.2804
4. HCl	0.50 pph	Test Protocol*	EUDROSSFURNACE	SC V.1., V.2., and V.3	R 336.1225 R 336.1901 R 336.1910

\* Test Protocol shall specify averaging time

**II. MATERIAL LIMITS**

- The permittee shall not charge as feedstock in EUDROSSFURNACE material other than dross and salt flux. (R 336.1201(3), R 336.1224, R 336.1225, R 336.1702, R 336.1901 40CFR63.1506(i)(3))

**III. PROCESS/OPERATIONAL RESTRICTIONS**

- The permittee shall not operate EUDROSSFURNACE unless the following Fugitive Dust Control procedures are implemented and maintained.
  - There shall be no visible emissions from dross raw material unloading or processing activities. The permittee shall unload and/or process raw material dross within an enclosure or in an equivalent manner to prevent all visible emissions.
  - The permittee shall store raw material dross inside of the facility immediately after unloading the raw material dross from the delivery vehicle.
  - The permittee shall deposit all waste material generated during the smelting process into the waste material holding bins immediately upon removal of the waste material from the facility for disposal.
  - The permittee shall completely cover the waste material holding bins at all times that waste is stored in the bins except during loading of waste material into the bins.  
(R 336.1301, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), R 336.1371, R 336.1372)

2. The permittee shall not operate EUDROSSFURNACE unless the AQD approved Preventative Maintenance Program for the Fabric Filter Dust Collector for EUDROSSFURNACE attached as Appendix B has been implemented and is maintained. **(R 336.1910, R 336.1911)**
3. The permittee shall not operate EUDROSSFURNACE unless the AQD approved Startup, Shutdown, and Malfunction Abatement Plan for EUDROSSFURNACE and its associated emissions control equipment attached as Appendix A has been implemented and is maintained. **(R 336.1910, R 336.1911)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain EUDROSSFURNACE with a lime injected fabric filter dust collector. **(R 336.1201, R 336.1224, R 336.1225, R 336.1803, R 336.1804)**
2. The permittee shall not operate EUDROSSFURNACE unless the lime injected fabric filter dust collector is properly installed, maintained, and operated in accordance with the manufacturer' specifications. Proper installation includes that all emissions from EUDROSSFURNACE shall be exhausted through the baghouse.

Satisfactory operation of the fabric filter dust collector for EUDROSSFURNACE requires a pressure drop range between 1 and 5 inches of water column. The minimum pressure drop shall not be less than 1 inch, water gauge, except when a large number of filter bags have been replaced or other reason acceptable to the AQD.

Satisfactory operation of the fabric filter dust collector for EUDROSSFURNACE requires a bag leak detection system. The permittee shall

- a) Initiate corrective action within 1-hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan.
- b) Operate the fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

Satisfactory operation of the fabric filter dust collector requires a minimum lime injection rate as determined using the procedures required in SC V.2. The lime injection rate shall be enforced in units of pounds of lime per hour for each hour when EUDROSSFURNACE is operating. **(R 336.1201, R 336.1224, R 336.1225, R 336.1910, 40CFR63.1506(i)(1))**

3. The permittee shall equip and maintain EUDROSSFURNACE with a device to measure feed/charge weight. **(R 336.1201, R 336.1224, R 336.1225, 40CFR63.1506(d)(1))**
4. The permittee shall not operate EUDROSSFURNACE unless the device to measure feed/charge weight is installed, maintained, and operated in a satisfactory manner. Satisfactory operation measures and records or otherwise determines the weight of feed/charge (or throughput) for each operating cycle or time period used in the performance test; and operation of the weight measurement system or other weight determination procedure in accordance with the OM&M plan. **(R 336.1201, R 336.1224, R 336.1225, 40CFR63.1506(d)(1) and (2))**



#### **V. TESTING/SAMPLING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. By June 19, 2013, which is 180 days after the issuance of PTI #242-06B, the permittee shall verify PM, PM10, PM2.5, and HCl emission rates from EUDROSSFURNACE, by testing at owner's expense, while the unit processes only dross and salt flux as the sole feedstock, in accordance with 40 CFR Part 63 Subparts A and RRR. The permittee shall notify the AQD District Supervisor in writing of the intention to conduct a performance test, at least 60 calendar days before the test is scheduled to begin, in accordance with 40 CFR 63.1515(a)(6). Stack testing procedures and the location of stack testing ports shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 63. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 90 days following the last date of the test. **(R 336.1201(3), R 336.1225, R 336.1901, 40 CFR Part 63 Subpart RRR, 40CFR63.1512(g))**
2. During the test to verify HCl emission rates from EUDROSSFURNACE, the permittee shall establish the fabric filter lime injection rate. The permittee shall use these procedures during the HCl tests to establish an operating parameter value for the feeder setting for each operating cycle or time period used in the performance test.
  - a) For continuous lime injection systems, ensure that lime in the feed hopper or silo is free-flowing at all times **(R 336.1901, R 336.1910, R 336.1201(3))**; and
  - b) Record the feeder setting for the 3 test runs. If the feed rate setting varies during the runs, determine and record the average feed rate from the 3 runs. **(R 336.1901, R 336.1910, R 336.1201(3))**
  - c) To intermittently add lime to a lime coated fabric filter the permittee shall obtain approval from the AQD district supervisor for a lime addition monitoring procedure. The AQD district supervisor will not approve a monitoring procedure unless data and information are submitted establishing that the procedure is adequate to ensure that relevant emission standards will be met on a continuous basis. **(R 336.1901, R 336.1910, R 336.1201(3))**
3. During the test to verify PM, PM10, PM2.5, and HCl emission rates from EUDROSSFURNACE, the permittee shall record the total weight of feed/charge. **(40CFR63.1512(k))**

#### **VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep, in a satisfactory manner, monthly dross throughput and monthly salt flux usage rate for EUDROSSFURNACE. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1201, R 336.1224, R 336.1225)**
2. The permittee shall determine compliance with the PM limit in SC I.1 for EUDROSSFURNACE using the following equation:

$$E = \frac{C \times Q \times K_1}{P} \quad (\text{Eq. 7})$$

Where:

E = Emission rate of PM or HCl, kg/Mg (lb/ton) of feed;  
C = Concentration of PM or HCl, g/dscm (gr/dscf);  
Q = Volumetric flow rate of exhaust gases, dscm/hr (dscf/hr);  
K<sub>1</sub> = Conversion factor, 1 kg/1,000 g (1 lb/7,000 gr); and  
P = Production rate, Mg/hr (ton/hr).

**(R 336.1201(3), 40CFR63.1513(b))**

3. The permittee shall prepare and implement for EUDROSSFURNACE a written operation, maintenance, and monitoring (OM&M) plan. The permittee shall submit the OM&M plan to the AQD district supervisor within 90 days after a successful initial performance test under 40CFR§ 63.1511(b), or within 90 days after the compliance date established by 40CFR§ 63.1501(b) if no initial performance test is required. The plan must be accompanied by a written certification by the permittee that the OM&M plan satisfies all requirements of 40CFR63.1510(b) and is otherwise consistent with the requirements of 40CFRPart 63SubpartRRR. The permittee shall comply with all of the provisions of the OM&M plan as submitted to the AQD district supervisor, unless and until the plan is revised in accordance with the following procedures. If the AQD district supervisor determines at any time after receipt of the OM&M plan that any revisions of the plan are necessary to satisfy the requirements of this section or this subpart, the permittee shall promptly make all necessary revisions and resubmit the revised plan. If the permittee determines that any other revisions of the OM&M plan are necessary, such revisions will not become effective until the permittee submits a description of the changes and a revised plan incorporating them to the AQD district supervisor. Each plan must contain the following information:
- a) Process and control device parameters to be monitored to determine compliance, along with established operating levels or ranges, as applicable, for each process and control device.
  - b) A monitoring schedule for each affected source and emission unit.
  - c) Procedures for the proper operation and maintenance of each process unit and add-on control device used to meet the applicable emission limits or standards in SC I.1 through I.4.
  - d) Procedures for the proper operation and maintenance of monitoring devices or systems used to determine compliance, including:
    - i. Calibration and certification of accuracy of each monitoring device, at least once every 6 months, according to the manufacturer's instructions; and
    - ii. Procedures for the quality control and quality assurance of continuous emission or opacity monitoring systems as required by the general provisions in subpart A of 40CFR Part 63.
  - e) Procedures for monitoring process and control device parameters, including procedures for annual inspections of afterburners, and if applicable, the procedure to be used for determining charge/feed (or throughput) weight if a measurement device is not used.
  - f) Corrective actions to be taken when process or operating parameters or add-on control device parameters deviate from the value or range established in SC VI.3 (1) above, including:
    - i. Procedures to determine and record the cause of any deviation or excursion, and the time the deviation or excursion began and ended; and
    - ii. Procedures for recording the corrective action taken, the time corrective action was initiated, and the time/date corrective action was completed.
  - g) A maintenance schedule for each process and control device that is consistent with the manufacturer's instructions and recommendations for routine and long-term maintenance.
  - h) Documentation of the work practice and pollution prevention measures used to achieve compliance with the applicable emission limits.

**(40CFR63.1501(b), 40CFR63.1510(b), R 336.1201, 40 CFR 52.21(c) and (d), R 336.2803, R 336.2804)**

4. The permittee shall implement the following procedures for the operation of the lime-injected fabric filter for EUDROSSFURNACE.
  - a) The permittee shall verify that lime is always free-flowing by either:
    - i. Inspecting each feed hopper or silo at least once each 8-hour period and recording the results of each inspection. If lime is found not to be free-flowing during any of the 8-hour periods, the permittee shall increase the frequency of inspections to at least once every 4-hour period for the next 3 days. The permittee may return to inspections at least once every 8 hour period if corrective action results in no further blockages of lime during the 3-day period; or
    - ii. Subject to the approval of the AQD district supervisor, installing, operating and maintaining a load cell, carrier gas/lime flow indicator, carrier gas pressure drop measurement system or other system to confirm that lime is free-flowing. If lime is found not to be free-flowing, the permittee shall promptly initiate and complete corrective action, or
    - iii. Subject to the approval of the AQD district supervisor, installing, operating and maintaining a device to monitor the concentration of HCl at the outlet of the fabric filter. If an increase in the concentration of HCl indicates that the lime is not free-flowing, the permittee shall promptly initiate and complete corrective action.
  - b) The permittee shall record the lime feeder setting once each day of operation.
  - c) To intermittently add lime to a lime coated fabric filter the permittee shall obtain approval from the AQD district supervisor for a lime addition monitoring procedure. The AQD district supervisor will not approve a monitoring procedure unless data and information are submitted establishing that the procedure is adequate to ensure that relevant emission standards will be met on a continuous basis.
  - d) Design and install a system for the capture and collection of emissions to meet the engineering standards for minimum exhaust rates as published by the American Conference of Governmental Industrial Hygienists in chapters 3 and 5 of "Industrial Ventilation: A Manual of Recommended Practice" (incorporated by reference in § 63.1502 of 40CFRPart63 Subpart RRR);
  - e) Vent captured emissions through a closed system, except that dilution air may be added to emission streams for the purpose of controlling temperature at the inlet to a fabric filter; and
  - f) Operate each capture/collection system according to the procedures and requirements in the OM&M plan. Perform annual inspections of the capture system.
  - g) The permittee shall install and operate a bag leak detection system for the exhaust stack of the fabric filter.
  - h) The triboelectric bag leak detection system shall be installed, calibrated, operated, and maintained according to the "Fabric Filter Bag Leak Detection Guidance," (September 1997). This document is available from the U.S. Environmental Protection Agency; Office of Air Quality Planning and Standards; Emissions, Monitoring and Analysis Division; Emission Measurement Center (MD-19), Research Triangle Park, NC 27711. This document also is available on the Technology Transfer Network (TTN) under Emission Measurement Technical Information (EMTIC), Continuous Emission Monitoring. Other bag leak detection systems must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.
  - i) The bag leak detection system shall be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.
  - j) The bag leak detection system sensor shall provide output of relative or absolute PM loadings.

- k) The bag leak detection system shall be equipped with a device to continuously record the output signal from the sensor.
- l) The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel.
- m) The baseline output shall be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.
- n) Following initial adjustment of the system, the permittee shall not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time except as detailed in the OM&M plan. In no case may the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless such adjustment follows a complete fabric filter inspection which demonstrates that the fabric filter is in good operating condition.

**(R 336.1901, R 336.1910, R 336.1201(3), 40CFR63.1506(c), 40CFR63.1510(d) and (f))**

Example recordkeeping worksheets for the lime-injected fabric filter are contained in Appendix C of this Permit to Install No. 242-06C.

5. The permittee shall keep the following records for EUDROSSFURNACE. Records shall be maintained on file for a period of five years.:
- a) For the fabric filter bag leak detection system, the number of total operating hours for EUDROSSFURNACE during each 6-month reporting period, records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action(s) taken.
  - b) For the lime-injected fabric filter:
    - i. Records of inspections at least once every 8-hour period verifying that lime is present in the feeder hopper or silo and flowing, including any inspection where blockage is found, with a brief explanation of the cause of the blockage and the corrective action taken, and records of inspections at least once every 4-hour period for the subsequent 3 days. If flow monitors, pressure drop sensors or load cells are used to verify that lime is present in the hopper and flowing, records of all monitor or sensor output including any event where blockage was found, with a brief explanation of the cause of the blockage and the corrective action taken;
    - ii. If lime feeder setting is monitored, records of daily inspections of feeder setting, including records of any deviation of the feeder setting from the setting used in the performance test, with a brief explanation of the cause of the deviation and the corrective action taken.
    - iii. If lime addition rate for a non-continuous lime injection system is monitored pursuant to the approved alternative monitoring requirements in § 63.1510(v), records of the time and mass of each lime addition during each operating cycle or time period used in the performance test and calculations of the average lime addition rate (lb/ton of feed/charge).

- c) Records of feed/charge (or throughput) weights for EUDROSSFURNACE for each operating cycle or time period used in the performance test.
- d) Records of all charge materials for EUDROSSFURNACE
- e) Records of annual inspections of emission capture/collection and closed vent systems.
- f) Records for any approved alternative monitoring or test procedure.
- g) Current copy of all required plans, including any revisions, with records documenting conformance with the applicable plan, including:
  - i. Startup, shutdown, and malfunction plan;
  - ii. OM&M plan.

**(40CFR63.1517(a), 40CFR63.1517(b)(7), 40CFR63.1517(b)(9), 40CFR63.1517(b)(14), 40CFR63.1517(b)(15), 40CFR63.1517(b)(16), R 336.1901, R 336.1910, R 336.1201(3))**

## **VII. REPORTING**

1. As required by 40CFR§ 63.9(e) and (f), the permittee shall provide notification of the anticipated date for conducting performance tests and visible emission observations. The permittee shall notify the AQD district supervisor of the intent to conduct a performance test at least 60 days before the performance test is scheduled; notification of opacity or visible emission observations for a performance test must be provided at least 30 days before the observations are scheduled to take place. As required by 40CFR§ 63.9(g), the permittee shall provide additional notifications for sources with continuous emission monitoring systems or continuous opacity monitoring systems. **(40CFR63.1515(a)(6))**
2. The permittee shall develop a written plan as described in 40CFR§ 63.6(e)(3) that contains specific procedures to be followed for operating and maintaining the source during periods of startup, shutdown, and malfunction, and a program of corrective action for malfunctioning process and air pollution control equipment used to comply with the standard. The permittee shall also keep records of each event as required by 40CFR§ 63.10(b) and record and report if an action taken during a startup, shutdown, or malfunction is not consistent with the procedures in the plan as described in 40CFR§ 63.6(e)(3). In addition to the information required in 40CFR§ 63.6(e)(3), the plan must include:
  - a) Procedures to determine and record the cause of the malfunction and the time the malfunction began and ended; and
  - b) Corrective actions to be taken in the event of a malfunction of a process or control device, including procedures for recording the actions taken to correct the malfunction or minimize emissions.

**(40CFR63.1516(a))**

3. The permittee shall submit semiannual reports according to the requirements in 40CFR§ 63.10(e)(3). Except, the permittee shall submit the semiannual reports within 60 days after the end of each 6-month period instead of within 30 days after the calendar half as specified in 40CFR§ 63.10(e)(3)(v). When no deviations of parameters have occurred, the permittee shall submit a report stating that no excess emissions occurred during the reporting period. Each report must include this certification:
- a) For EUDROSSFURNACE: "Only dross and salt flux were used as the charge materials in any dross-only furnace during this reporting period."
  - b) Excess emissions/summary report. The permittee shall submit semiannual reports according to the requirements in 40CFR§ 63.10(e)(3). Except, the owner or operator must submit the semiannual reports within 60 days after the end of each 6-month period instead of within 30 days after the calendar half as specified in § 63.10(e)(3)(v). When no deviations of parameters have occurred, the owner or operator must submit a report stating that no excess emissions occurred during the reporting period.
    - i. A report shall be submitted if this condition occurs during a 6-month reporting period: The corrective action specified in the OM&M plan for a bag leak detection system alarm was not initiated within 1 hour.
  - c) An excursion of a compliant process or operating parameter value or range (e.g., lime injection rate or screw feeder setting, fabric filter inlet temperature, definition of acceptable feed material, or other approved operating parameter).
  - d) An action taken during a startup, shutdown, or malfunction was not consistent with the procedures in the plan as described in 40CFR§ 63.6(e)(3).
  - e) An affected source (including an emission unit in a secondary aluminum processing unit) was not operated according to the requirements of 40CFR Part 63 Subpart RRR.
  - f) *Annual compliance certifications.* For the purpose of annual certifications of compliance required by 40 CFR part 70 or 71, the permittee shall certify continuing compliance based upon, but not limited to, the following conditions:
    - i. Any period of excess emissions, as defined in paragraph (b)(1) of this section, that occurred during the year were reported as required by this subpart; and
    - ii. All monitoring, recordkeeping, and reporting requirements were met during the year.
- (40CFR63.1516 (b)(1)(i), (iv), (v), and (vi), 40CFR63.1516 (b)(2)(ii), 40CFR63.1516 (c)(1) and (2))**

4. For the bag leak detection system the permittee shall submit the analysis and supporting documentation demonstrating conformance with EPA guidance and specifications for bag leak detection systems described in 40CFR§ 63.1515(b)(6) as part of the notification of compliance status report to document conformance with the specifications and requirements in 40CFR§ 63.1510(f). For the capture/collection system the permittee shall submit the information described in 40CFR§ 63.1515(b)(2), specifically the approved site-specific test plan and performance evaluation test results for each continuous monitoring system. Also as part of the notification of compliance status report to document conformance with the operational standard in 40CFR§ 63.1506(c) for capture/collection systems. For each affected source or emission unit equipped with an add-on air pollution control device, the permittee shall:
- a) Design and install a system for the capture and collection of emissions to meet the engineering standards for minimum exhaust rates as published by the American Conference of Governmental Industrial Hygienists in chapters 3 and 5 of "Industrial Ventilation: A Manual of Recommended Practice" (incorporated by reference in § 63.1502 of this subpart);
  - b) Vent captured emissions through a closed system, except that dilution air may be added to emission streams for the purpose of controlling temperature at the inlet to a fabric filter; and
  - c) Operate each capture/collection system according to the procedures and requirements in the OM&M plan.

**(40CFR63.1512 (q) and (s))**

**VIII. STACK/VENT RESTRICTIONS**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVDROSSFURNACE	42	70	40 CFR 52.21 (c) & (d)

**IX. OTHER REQUIREMENTS**

- 1. The permittee shall comply with all applicable requirements of 40 CFR Part 63 Subpart RRR.  
**(40CFRPart63 Subpart RRR)**

**Appendix A**  
**EMISSION ABATEMENT PLAN FOR STARTUP, SHUTDOWN AND MALFUNCTIONS**

The following operation, maintenance, and recordkeeping procedures must be implemented at HD Industries to ensure that all process, control, and monitoring devices are functioning within permit and manufacturers specifications. The procedures shall be revised as necessary to improve operation of the devices.

**1. PROCESS DESCRIPTION**

The aluminum recovery process, at HD Industries, consists of one rotary furnace which is utilized to recover secondary aluminum from aluminum dross. This is the only type of material used in this furnace. Aluminum dross is loaded into the furnace; it is then melted at a high temperature to recover the secondary aluminum from the dross. The liquefied aluminum is then poured off into sows. During this process the furnace exhausts gas into the lime-injected baghouse filtration system as documented in this abatement plan. The height of the discharge stack is 70 feet above ground level.

The dust collector is a 25,000 cfm Donaldson Torit Model RF10 which uses a high volume low pressure (8 psi) pulse of reverse air flow for cleaning. The baghouse is equipped with a PCME Leak Alert 73 triboelectric bag leak detector system to monitor and detect bag leaks and to initiate the cleaning sequence.

The baghouse system is monitored by several devices, including visual observation. Differential pressure is monitored in the unit by a Magnahelic gauge mounted on the intake side of the baghouse. This unit is used in part to monitor items such as proper lime coating of filtration bags, broken filtration bags, air flow into the unit. A temperature gauge is mounted on the intake side of the filtration system; this unit is used to monitor the intake side gas temperature. This gauge helps to ensure that the gas temperature does not rise above an operating range that could potentially damage the filtration bags. A Triboelectric device is mounted on the outflow side of the filtration system. This device is designed to monitor for any particulate matter that passes through the filtration bags. This device is used in identifying potential problems between the intake and outflow sides on the filtration system such as the presence of broken, torn, or dislodged filtration bags. This device is used in conjunction with routine observation of the stack by the furnace operator. Visual observations are also used on a routine basis to identify any issue that could occur in the baghouse filtration system.

**2. CORRECTIVE PROCEDURES AND RESPONSIBLE PERSONS**

This startup, shutdown, malfunction plan shall be followed to meet the compliance limits. If the limits are exceeded it is the responsibility of the plant supervisor, or in his absence the plant operator, to stop the plant and correct the problem immediately. Rule 336.1912 shall be followed when abnormal conditions exist.

**3. STARTUP/SHUTDOWN PROCEDURES**

The specific startup and shutdown procedure shall be used. Improper startup or shutdown can damage the equipment and therefore proper procedure must be followed each time. The furnace produces hot moist exhaust gases to be filtered; the baghouse MUST be preheated to raise the interior temperature in the baghouse to above the dew point in order to prevent condensation and potential problems. This is done by starting up the furnace and burning clean fuel (natural gas) while the furnace is empty and before any gases are filtered. The baghouse must be brought online slowly to avoid potential problems with the filtration media (filter bags). The filtration media must also be coated with a protective layer of lime to avoid possible permeability problems that could arise. The presence of the lime coating is indicated by a pressure differential of 1 to 2 inches water column. The gas flow can then be slowly increased to the design rate. The following is the general startup/shutdown guideline:



## Appendix A – Continued

### a) Normal Startup Procedure

- All physical inspection shall be done of the baghouse unit to spot and prevent potential problems.
- Make sure all collector components are working and in proper mode. The baghouse can then be brought online.
- Do not allow higher than design filtration velocities or airflow.
- Avoid passing below the dew point when dirty gases are present. The system shall be preheated for 20 to 30 minutes with clean hot air before the introduction of particulate laden (blue) gas. During normal operation, maintain the temperature above the dew point level.
- Lime will need to be injected into the baghouse system.
- Check all monitoring devices for proper operation, and then document status.

### b) Normal Shutdown Procedure

- Purge the baghouse collector with clean (hot when necessary) dry air before allowing temperature to descend below dew point.
- Cleaning system will be used to eject collected dust and lime that has adhered to filtration system. No lime may be allowed to stay on filtration bags.
- Dust must be removed from baghouse hopper. The presence of any moisture can set it like cement, which could require hours of work to remove.
- Allow bags to clean down after dust settles.
- Check to see that all components of baghouse are in the proper shutdown mode.
- Check system for any potential problems.

## 4. MALFUNCTION STOPS

If a malfunction (computer or mechanical) occurs, a hot stop will be initiated until the problem is corrected. If the problem cannot be corrected the furnace must be emptied before solidification of the metal. This will be done only after all attempts to correct the problem are exhausted.

## 5. IDENTIFICATION OF SUPERVISORY AND MAINTENANCE PERSONNEL

An updated list of current supervisory and maintenance personnel shall be kept at the facility. Descriptions of the responsibilities of these individuals for operation of the plant during startups, shutdowns, or malfunctions, as well as inspections and repairs, shall be stated on the updated list.

## 6. DESCRIPTION OF INSPECTED ITEMS

A daily walk around inspection will be done each morning. The following items shall be inspected/observed:

- Roadways (fugitive dust)
- Baghouse stack (opacity)
- Baghouse screws (shaft and door seals for dust escaping)
- Chutes, screw augers, and housings (for any leaks)
- Lime supply system to verify the free flow of lime to the baghouse

## Appendix A – Continued

### **DESCRIPTION OF INSPECTED ITEMS - Continued**

The baghouse will get a thorough inspection from the front inlet to the rear exhaust fan. This inspection will be done every month. The following items to be inspected are:

- Ductwork (inspected for thickness)
- Blow pipes, diaphragm valves (are they working, good connections)
- Bags and cages (condition of bags, age, number replaced recently)
- Dust screws - shaft seals and screw cover doors

### **7. REPLACEMENT PARTS**

As required by Appendix A, the following shall be kept in stock at all times:

- A minimum of 15 bags.
- A minimum of 5 pounds of black light powder. (Recommended quantity for the number of square feet of baghouse cloth.)
- A minimum of two (2) tubes of silicone caulk for minor leaks around doors and seals.

### **8. DEVICE TO FEED/CHARGE WEIGHT**

For an emission unit subject to the requirements of 40 CFR 63.1506(d)(1), the throughput must be measured and recorded. 40 CFR 63.1506(d)(1) defines the requirements as follows:

- (a) *Feed/charge weight.* The owner or operator of each affected source or emission unit subject to an emission limit in kg/Mg (lb/ton) or µg/Mg (gr/ton) of feed/charge must:
- (1) Except as provided in paragraph (d)(3) of this section, install and operate a device that measures and records or otherwise determine the weight of feed/charge (or throughput) for each operating cycle or time period used in the performance test; and
  - (2) Operate each weight measurement system or other weight determination procedure in accordance with the OM&M plan

The permittee shall test and verify the accuracy of the weighing device on a monthly basis.

**Appendix A – Continued**

**9. MALFUNCTION/CORRECTIVE ACTION PLAN FOR BAGHOUSE**

The following is a summary of potential malfunctions and corresponding corrective actions to be taken at HD Industries.

<b>POTENTIAL MALFUNCTION</b>	<b>POSSIBLE CAUSE</b>	<b>CORRECTIVE PROCEDURE/ OPERATIONAL CHANGE</b>
Visible emissions from baghouse stack	Filtration bag broken, torn, or damaged	Identify, isolate, and replace the broken bag. Upon completion of corrective action, observe stack opacity.
Baghouse pressure above normal operating range	Cleaning system not functioning properly	Verify cleaning system is online. Verify air pressure is online. Verify initiation point is set correctly. Repair as needed.
Baghouse pressure below normal operating range	Filtration bag broken, torn, or damaged	Identify, isolate, and replace the broken bag. Upon completion of corrective action, observe stack opacity.
Note: These are just a few examples of possible problems that may occur with the fabric filter dust collector (baghouse). An expanded troubleshooting guide can be found included in Appendix B of this Permit to Install No. 242-06C.		

All malfunctions and corrective action taken must be documented. Documentation will include a description of the malfunction, cause, and corrective action taken, the date and time of the malfunction, and the date and time period of the corrective action taken. Records shall be maintained for a period of at least 5 years. Example recordkeeping forms are included in Appendix C of this Permit to Install No. 242-06C.

**Appendix B**  
**PREVENTATIVE MAINTENANCE PROGRAM FOR THE FABRIC FILTER DUST COLLECTOR**

The Preventative Maintenance Program for the Fabric Filter Dust Collector is for the purpose of keeping the dust collector in good operating condition, and thereby, maintaining the rated capture efficiency of the dust collector for the control of particulate matter. ALL REFERENCES TO VISIBLE EMISSIONS IN THIS DOCUMENT, PARTICULARLY IN SEC. 2, REFER SPECIFICALLY TO VISIBLE EMISSIONS CAUSED BY A DUST (PARTICULATE) EMISSION.

**1. PROCESS OPERATING REQUIREMENTS FOR THE FABRIC FILTER DUST COLLECTOR**

**a) Normal Operating Ranges**

- The following are normal operating ranges of the process operation variables at HD Industries that shall be monitored to detect an air pollution control equipment malfunction or failure.

<b>Control Device</b>	<b>Pressure Drop Range in Inches, Water Gauge</b>	<b>Fabric Filter Inlet Temperature Range in °F</b>	<b>Pressure For Initiation of Cleaning Cycle in Inches, Water Gauge</b>	<b>Lime Addition Rate</b>
Fabric filter dust collector (baghouse)	1 to 5 inches	[as determined during stack test] 200°F to ???	[as determined during stack test]	[as determined during stack test]
Note: Any variations from these operating conditions are to be reported immediately to the Plant Manager.				

**b) Operating Pressure Drop**

- The pressure drop across the fabric filter dust collector shall be continuously measured and the minimum pressure drop shall not be less than 1 inch, water gauge, except when a large number of filter bags have been replaced or other reason acceptable to the AQD.
- The pressure drop across the fabric filter dust collector shall be recorded at least once per day and kept in a bound notebook. These data shall be recorded in the Daily Operations Log Book.

**c) Handling and Storage of Fabric Filter Dust**

- Accumulated fabric filter dust (particulate) shall be stored and/or be disposed of in a manner which minimizes the introduction of the air contaminants to the outer air.

**d) Inventory of Spare Parts and Filter Bags**

- An inventory of fabric filter bags shall be maintained by the facility owner or operator so that filter bags will be available to this site within four hours of requesting the filter bags. In addition, a minimum of 15 filter bags shall be kept on-site at all times. An inventory of other replacement parts for the fabric filter dust collector shall be maintained at all times.
- In addition, other spare parts for the lime-injected baghouse that must be kept on site include: gaskets, valves, seals, and gauges

## Appendix B – Continued

### e) Plant Alarm System

- The fabric filter dust collector shall be equipped with a high temperature sensor and alarm system. The alarm system shall be designed to set off an alarm when the high temperature set-point has been violated, and, to begin a sequential shut-down of the plant if the situation is not resolved within a very short period of time after the alarm sounds.
- 
- For an emission unit subject to the requirements of 40CFRPart63 Subpart RRR, specifically a fabric filter dust collector equipped with a bag leak detector, 40CFR63.1506(i)(1) defines proper operation:
    - (i) *Dross-only furnace.* The owner or operator of a dross-only furnace with emissions controlled by a fabric filter must:
      - (1) If a bag leak detection system is used to meet the monitoring requirements in 40CFR§63.1510,
        - (i) Initiate corrective action within 1-hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan.
        - (ii) Operate each fabric filter system such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month block reporting period. In calculating this operating time fraction, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm shall be counted as a minimum of 1 hour. If the owner or operator takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken by the owner or operator to initiate corrective action.

## 2. VISIBLE EMISSIONS AND ACTIONS TO BE TAKEN

In the event visible emissions, which appear to exceed the standard allowed in General Condition No. 11 of this Permit to Install, are observed at the discharge point of the stack, the following actions shall be taken:

If no certified visible emissions reader can be on-site within 60 minutes of observing the visible emissions to verify the emission density, operations shall be ceased immediately and the cause of the visible emissions determined and corrected prior to operating the furnace again.

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**REMINDER: If the visible emissions continue for more than 2 hours, in excess of an emission standard, an excess emissions report must be made to MDEQ.**

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## Appendix B – Continued

### 3. PREVENTATIVE MAINTENANCE AND REPAIR REQUIREMENTS FOR BAGHOUSE

Records of maintenance and repair activities, including date, time, operator performing maintenance and repair, and description of activity, shall be maintained for a period of at least 5 years. Example recordkeeping forms are included in Appendix C of this Permit to Install No. 242-06C.

#### a) **Piping And Seals Maintenance**

Piping and seals shall be replaced as needed.

#### b) **Black Light Inspections**

A black light test shall be conducted at least once per year. Black light inspection equipment and materials shall be available for use at the facility and used as needed

#### c) **Bag Maintenance**

Bag failures occur at varying times depending on the operation of the collector. Typical bag life is from two to five years. Bag failure can be spotted through daily monitoring and inspection, including monitoring Triboelectric alarm. Stack opacity is also a good indication of bag condition. If the plume is dirty, then some problem exists, either in a single compartment or throughout the baghouse. If this case exists, follow-up troubleshooting is needed. In the compartmentalized baghouse, it is possible to monitor the stack opacity while isolating the compartments. Stack emissions will be reduced when the compartment with broken bags is brought offline.

- Four ways to look at broken bags are:

1. Visual inspection for holes, tears, or leaks
2. Look for the accumulation of dust which can be related to nearby holes
3. Dust accumulation on the top tubesheet or in the blowpipe above the failed bag will be readily noticeable
4. Use of fluorescent powder and black light

It is the practice in some plants to change out bags as they fail. However, this may not be a wise decision. A new bag placed in the vicinity of old ones, is forced to take on more than its share of dust due to the tendency of air to flow to the path of least resistance. As a result, the bag is blinded and bag life is reduced and premature failure may occur.

It has become accepted practice to simply block off the affected bag. In a pulse-jet baghouse with top access, a plug is placed over the tubesheet hole of the failed bag. Once this is done the affected compartment can be brought back online with no increase in opacity.

**Appendix B – Continued**

**PREVENTATIVE MAINTENANCE AND REPAIR REQUIREMENTS FOR BAGHOUSE – continued**

**d) Routine Maintenance**

The two indicators of the performance of a baghouse (fabric filter dust collector) are **collection efficiency** and **pressure drop**. If the pressure drop across the baghouse (from dirty gas inlet to cleaned gas outlet) is satisfactory, the proper amount of air is moving through the baghouse. If the stack is clean, the baghouse is doing the job it was intended to do. Pressure drop is monitored by using a magnehelic gauge. Additionally a Triboelectric gauge is used to monitor particulate emissions that would indicate a bag failure. These items can be useful in determining maintenance and charting baghouse performance over time. Opacity, the visual density of stack emissions, can be monitored by observation. Stack opacity can also be continuously monitored by way of a Triboflow device.

Lime shall be injected on a continuous basis to the fabric filter emissions control unit (baghouse) unless an alternative process is approved by the AQD district supervisor as explained in SC VI.4.(3) of this permit and 40CFR63.1510(i) to control emissions of hydrogen chloride from the dross furnace on a continuous basis. The dross furnace is operated continuously during each work shift. Hydrogen chloride is emitted continuously during operation of the dross furnace. Exhaust gases are routed continuously to the baghouse during operation of the dross furnace. **Proper operation of the baghouse requires that lime is injected continuously.**

**Appendix B – Continued**

**PREVENTATIVE MAINTENANCE AND REPAIR REQUIREMENTS FOR BAGHOUSE – continued**

**e) Scheduled Maintenance**

Schedule of preventative maintenance for the lime-injected baghouse that will be conducted on a daily, monthly, quarterly, and yearly basis:

**i) Daily Maintenance, Lime-injected Baghouse:**

- Check pressure drop
- Verify triboelectric device is in green
- Monitor gas flow rate
- Observe stack outlet visible emissions, if any
- Monitor cleaning cycle, lights and meters on control panel
- Check compressed air on cleaning jet indicators
- Monitor discharge system; make sure dust is removed as needed
- Verify the flow of lime to the baghouse and the presence of sufficient lime supply
- Walk through baghouse inspection to check for abnormal visual conditions and potential problems
- Document inspection results and corrective actions

**ii) Weekly Maintenance, Lime-injected Baghouse:**

- Check all moving parts on discharge systems
- Check damper operation
- Spot check bag tensioning
- Check compressed air lines, including filters
- Check operation of magnehelic gauge
- Check accuracy of temperature gauges
- Check cleaning sequence to verify that all valves are seating properly
- Check drive components on fan

**iii) Monthly Maintenance, Lime-injected Baghouse:**

- Spot check all bag connection conditions
- Check all moving parts on baghouse
- Check fan for corrosion and blade wear
- Check all hoses and clamps
- Leak test check for bag leaks and holes
- Inspect baghouse structure for corrosion

**iv) Quarterly Maintenance, Lime-injected Baghouse:**

- Thoroughly inspect bags
- Check ducts for dust buildup
- Observe damper valves for proper seating
- Check gaskets on all doors
- Inspect paint on baghouse
- Inspect baffle plate for wear

**v) Annual Maintenance, Lime-injected Baghouse:**

- Check all welds and blots
- Check hopper for wear
- Replace high wear parts on cleaning system



**Appendix B – Continued**

**4. MALFUNCTION / CORRECTIVE ACTION PLAN FOR BAGHOUSE**

See Appendix A, Part 9 for a summary of potential malfunctions and corresponding corrective actions to be taken at HD Industries. See Appendix C for recordkeeping requirements related to malfunctions, and the example Baghouse Malfunction Worksheet.

**5. MONITORING**

**a) Process Variables**

Monitoring and recordkeeping for each process operation variable will be conducted based upon the schedule in the table below. Monitoring of the baghouse is done by observation, magnehelic, and by the high temperature alarm that is set to go off at a stack temperature of 375/400 degrees Fahrenheit.

VARIABLE MONITORED	MONITORING FREQUENCY	ALARM	ALARM SET POINT	RECORDING FREQUENCY
Baghouse pressure drop	Continuous	Yes	less than 1 inch, water gauge	Once per work shift or if outside operating range
Triboelectric bag leak detector	Continuous	Yes	upon detection	Once per work shift or upon detection
Baghouse gas inlet temperature	Continuous	Yes	200°F	Once per work shift or if outside operating range
Baghouse lime addition rate	Continuous	No	none	Once per work shift or if outside operating range
Baghouse leak detection /opacity monitoring	Every work shift	No	none	Once per work shift or if outside operating range

Records, including the date, time, operator, and process variable reading shall be maintained on the attached recordkeeping forms for a period of at least 5 years. Recordkeeping requirements and forms are included Appendix C of this Permit to Install No. 242-06C.

**b) Magnehelic Gauge Monitoring**

- The baghouse is monitored continuously (as specified in Appendix A) by the use of a magnehelic gauge. The pressure differential between the dirty and clean side of the baghouse shall be maintained above 2 inches water gauge.
  - o If the pressure rises above 10 inches water gauge, signaling an inoperative diaphragm valve, the plant shall be stopped and the defective valve repaired or replaced.
  - o If the differential pressure drops below 2 inches water gauge the company shall inspect for a torn bag or a problem with the tubesheet between the dirty and clean side of the baghouse. This problem will also result in a dirty stack. The only time the baghouse will normally drop below 2 inches water gauge is if a large number of filter bags are replaced.
- If a large number of bags are replaced (over 100) the pressure on the magnehelic will drop slightly. This drop will only last for a day or less depending on the production.

## Appendix C

### RECORDKEEPING FOR FABRIC FILTER DUST COLLECTOR AND EXAMPLE WORKSHEETS

#### 1. PURPOSE OF RECORDKEEPING REQUIREMENTS

The logging of actual inspections, observation, and preventative maintenance will help in determining the overall quality of baghouse operations. Once the visual inspection of the physical components on the baghouse is completed, the operational data, both current and historical that may have a bearing on baghouse performance shall be evaluated. The purpose of this evaluation process is to:

- Monitor the system
- Identify those items that indicate problems prior to shutdown
- Uncover the underlying causes so problems do not occur
- Identify areas that require maintenance and/or repair

Areas that require monitoring and careful documentation include, but are not limited to, alterations in the operation of the baghouse or process changes. Many factors can have a substantial impact on baghouse performance, as such these items must be documented. Items such as pressure drops and cleaning cycle adjustment shall also be documented for further analysis.

#### 2. ITEMS INCLUDED IN RECORDKEEPING

A written record in a bound notebook of the following shall be maintained by the owner or operator of the facility:

- Visual inspections of the interior components of the fabric filter dust collector, including date, time, and findings;
- Black light inspections, including date, time, and findings;
- Number of filter bags installed as a result of each inspection to replace filter bags already in use in the fabric filter dust collector, including date, time, location, and whether the replacement filter bag was brand new or a cleaned, previously used filter bag;
- An explanation (i.e., a description of the damage found) for each filter bag removed from the fabric filter dust collector and confirmation that another filter bag was installed to replace it;
- Each observation of visible emissions at the stack discharge point and description of response to the observed visible emission, including date and time of visible emission occurrence and results of EPA Method 9 observation, if any. Any such visible emission shall be recorded in the Daily Operations Log Book and made available upon request to the AQD.
- All significant maintenance activities performed on the fabric filter dust collector.

#### 3. EXAMPLE RECORDKEEPING FORMS (ATTACHED)





