

Malfunction Abatement Plan

I. Purpose

The purpose of this plan is to:

1. Ensure compliance with the Malfunction Abatement Plan (MAP) requirements in the following:
 - a) ROP Number MI-ROP-A5764-2015c
 - b) Michigan Air Pollution Control Rules R 336.1201 and R 336.1911
 - c) 40 CFR Part 52.21(j)
2. Ensure compliance with the NESHAP Subpart P PPP Startup, Shutdown, Malfunction Plan requirements
3. Prevent, detect, and correct malfunctions or equipment failures resulting in emissions that could exceed any applicable emission limitation.

II. Scope

This procedure applies to the Fascia Line Air Pollution Control Equipment at the Ventra Evert, L.L.C. (Ventra Evert) manufacturing facility, located in Evert, Michigan.

III. Responsibility

The **EHS Manager or Designate** is responsible for establishing and maintaining this procedure and troubleshooting with the **Maintenance Manager** and **Paint Manager**.

The **Paint Setup, Onsite Paint Supplier Employees** and **Contractor Cleanup Crew Employees** are responsible for minimizing fugitive air emissions generated from their routine, daily tasks.

Paint Manager, Maintenance Manager, and the **EHS Manager** are responsible for approving this procedure.

IV. Regulatory / Permit References

A. Air Pollution Control Rules, Part 9, Emission Limitations and Prohibitions - Miscellaneous

Rule R336.1911 Malfunction Abatement Plans - the MAP is required to be in writing and shall, at a minimum, specify all of the following:

1. A complete preventative maintenance program, including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
2. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
3. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

B. ROP Number: MI-ROP-A5764-2015c, Operational Parameters are as follows:

Process / Operational Limits

1. The Permittee shall maintain a minimum overall VOC control efficiency (combined capture and destruction efficiency) of 86% across EUFASCIA-LINE. Temperature and static pressure requirements are listed in Section VI. (R 336.1205, R 336.1225, R 336.1702(a), R 336.2802, R 336.2810, and 40 CFR Part 52.21, R 336.1910)
2. The Permittee shall not operate the fascia line unless all automatic booth water wash equipment is installed and operating properly. (R 336.1301(c) and R 336.1201)
3. Permittee shall not operate the fascia line unless all manual booth dry filters are installed and operating properly. (R 336.1301 (c) and R 336.1201)
4. Permittee shall not operate the fascia line unless the thermal oxidizer is installed and operating properly in accordance with the Malfunction Abatement Plan (MAP) for the thermal oxidizer. (40 CFR Part 52.21(j), R 336.1702(a), R 336.1201, and R 336.1911)

V. Preventative Maintenance Program

The Operations and Maintenance Manual for the RTO is maintained in the Fascia Paint Maintenance Work area and is available for review upon request. Ventra Evert maintains routine maintenance parts and supplies like access door gasketing, grease and other lubricants, spark igniters and combustion chamber thermocouples.

The following RTO Preventative Maintenance activities are conducted with the following frequencies:

A. Daily

1. Check blower motors and fan impeller for excessive vibration due to worn bearings or an out of balance wheel.
2. Lubricate / grease fittings and bearings per manufacturers instructions
3. Visually inspect ventilation system ductwork to identify leaks

B. Weekly

1. Replace the RTO Temperature Circular Chart (TO BE REPLACED WITH DIGITAL RECORDKEEPING WITH NEW "TREND IQ3 CONTROLLER FOR OPERATION AND RECORDING DATA)
2. Visually inspect the burner for flame pattern and color. The burner should show a continuous flame and an even pattern over the entire area of the burner(s).
3. Hydraulic power unit and hydraulic system should be visually inspected for the following:
 - i. reservoir level
 - ii. fluid leaks
 - iii. erratic operations
 - iv. pressure
 - v. filter visual indicators

C. Monthly and Quarterly

1. Accuracy Audit / Validation Check / Calibration on the RTO airflow/static pressure and temperature monitoring equipment. Necessary to demonstrate compliance to the NESHAP requirements for Continuous Parameter Monitoring System (CPMS) installation, operation, and maintenance. Reference 40 CFR Part 63.4568. Accuracy Audit methods can include comparisons of sensor output to redundant temperature sensors, to calibrated temperature measurement devices, or to temperature simulation devices.
2. Periodic cleaning and inspection of the burner is a necessity and should be performed at least quarterly or sooner if needed.
3. Check Inlet duct, outlet duct, lower canisters and valves of oxidizer for build up of material. Clean as required.
4. Inspect all gauges, flow and pressure switches, controls, etc... for proper functioning
5. Check pressure drop through entire gas piping system to verify acceptable working conditions.

D. Annual

1. Annual "burn out" of the RTO to ensure adequate airflow through the five canisters by burning any accumulated deposits.
2. Annual RTO PM - shutdown and inspection service by an Outside Contractor with documented and photograph report generated.

The following is a summary of the areas inspected and serviced as part of the annual RTO preventative maintenance:

Internal / External Inspection

- a) Insulation and overall interior condition
- b) Media Condition – looking for breakage and dusting
- c) Media Supports – looking for coating
- d) Burner Block and Associated Insulation Condition
- e) Access Door to the Burner Chamber
- f) Hot Spots around burners

Canister Valves, Dampers, and Ductwork

- a) Flange seals – look for evidence of leaks
- b) Ductwork Condition and external insulation condition
- c) Expansion Joints
- d) Condition of Flanges with bolts
- e) Canister Valve conditions
- f) Inlet and Outlet Damper Seals
- g) Canister Valve Actuators and Linkages
- h) Proximity Switches
- i) Damper Travel Speeds within acceptable tolerance
- j) Vacuum Relief Damper – ensure free movement
- k) Damper Bird Screen Condition

Hydraulic System

- a) Hydraulic pump operating at a satisfactory pressure (i.e. ~750 PSI)
- b) Hydraulic low pressure switch operation confirmed at 425 PSI out at 400 PSI
- c) Hydraulic Accumulator is working properly
- d) Hydraulic Fluid Heater set point (~82F)
- e) Hydraulic Oil Level
- f) Hydraulic pressure and return filters change out

Temperature Control / Safety Systems

- a) Thermocouples condition check and change if necessary
- b) Oxidizer Minimum Airflow Switch proper operation confirmed and set at 0.5" WC and tested for burner shutdown
- c) Combustion Minimum Airflow Switch proper operation confirmed and set at 10" WC and tested for burner shutdown
- d) Inlet Static Pressure transmitter range confirmed at -8.0" to +2.0" = 4 to 20 milliamps
- e) High Temperature Limit set point at 1775 F and tested for burner shutdown
- f) Trend IQ3 Digital Temperature Recording
- g) Purge Timer confirmation at 12 minutes; trial for ignition is 10 seconds
- h) Low Gas Pressure Switch setting confirmed at 3" WC and tested for burner shutdown
- i) High Gas Pressure Switch setting confirmed at 60" WC and tested for burner shutdown
- j) PLC Battery changed if necessary
- k) Each Burner UV Scanner tested for burner shutdown
- l) Low and High fire switches on the burner actuators are properly adjusted

Burner Gas Train

- a) Confirm main gas supply is at 10 PSI
- b) Confirm Oxidizer gas regulator pressure is set at 18" WC at low fire
- c) Condition of all burner profiles
- d) Condition of Gas train
- e) Condition of Combustion Fan Filter – replace if necessary

Electrical System

- a) Proper operation of the Burner Actuators throughout their range
- b) Proper operation of VFD of the FD Fan
- c) Proper operation of all alarms and displaying on the Xycom
- d) Condition of all electrical terminals, panel switches, relays, and lights
- e) Copies of the PLC Program are readily available onsite

Fans

- a) Condition of all fans (RTO Inlet, Purge Fan, Combustion Fan) and associated fan housings and belts

E. Recommended Spare Parts List

1. Hydraulic Power Unit
 - i. Filter
 - ii. Valve
 - iii. Pump
 - iv. 10 HP Motor
 - v. Cylinder Kits
2. Xycom Module
 - i. 120 V Replacement
 - ii. 10 – 60 VDC Replacement
3. Gas Train Assembly
 - i. Spark plug
 - ii. Jordan valve
 - iii. Mini peeper
 - iv. Thermocouple
4. Proximity sensors
5. Hydraulic hose components
6. Hydraulic cylinders
 - i. 3.25" x 8" stroke
 - ii. 1.5" x 6" stroke
7. Purge fan
 - i. 75 HP Motor
 - ii. Belts
 - iii. Bearings
8. Combustion fan
 - i. 40 HP Motor
 - ii. 2312 Aluminum fan
 - iii. Filter
9. FD Fan
 - i. 500 HP Motor
 - ii. Bearings
 - iii. 544 AF fan
 - iv. Complete housing

VI. RTO Performance Monitoring Variables

There are several performance monitoring variables for the RTO with respect to efficiency of operation, gas usage rates, airflow rates, and numerous temperature readings. For purposes of demonstrating compliance to relevant air pollution control rules, RTO Pollution Control Efficiency is determined as a combination of both destruction efficiency and capture efficiency for temperature and airflow respectively. Air flow is monitored by static pressure. As a result temperature and static pressure(are deemed the relevant performance monitoring variables to ensure Control Efficiency requirements are being met. There are three (3) temperatures routinely monitored: inlet, outlet and combustion chamber versus time. Static pressure is monitored at RTO inlet fan. The normal operating range of these variables is as follows:

- A. Inlet Temperature Normal range is 100 – 140 F
- B. Outlet Temperature Normal range is 150 – 250 F
- C. Combustion Chamber Temperature Normal range is 1400 – 1600 F.

- D. Static pressure is monitored at RTO inlet fan. Current indicator range that was determined through performance testing is between 0.47 inches of water column to 0.72 inches of water column.

The current burner set point is 1500 F, 100 degrees F above the minimum compliance limit of 1400 F as specified in the MI-ROP-A5764-2015c.

The Permit condition is stated as follows: Permittee shall not operate the thermal oxidizer unless a minimum temperature of 1400 degrees Fahrenheit and a minimum retention time of 0.5 seconds in the combustion chamber of the thermal oxidizer is maintained. (40 CFR Part 52.21(j), Rule R 336.2810, R 336.1702(a), R 336.1201)

VII. Corrective Actions in the event of equipment failure

In the event the RTO equipment fails to operate within the specified monitoring variables (i.e. combustion chamber temperature monitoring or airflow monitoring), the VOC air emission generating equipment from EU-FASCIALINE will stop production until the RTO and airflow equipment has been repaired and brought back online. This is to ensure compliance with the Air Permit Special Conditions and NESHAP CPMS requirements as specified in 40 CFR Part 63.4568.

CPMS Requirements for demonstrating NESHAP Compliance:

- A. The CPMS must complete a minimum of one cycle of operation for each successive 15 minute period, resulting in a minimum of 4 equally spaced successive cycles in 1 hour.
- B. The average of all recorded readings for each successive 3 hour period must be determined for both airflow and temperature.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, Ventra Evert shall address the event and amend the MAP within 45 days after such an event occurs.

VIII. Fugitive Air Emission Minimization Procedures

- a. Hazardous Waste Materials and Associated Hazardous Waste Containers Management

Paint Setup Staff and Contractor Cleanup Crew Employees are required to minimize, to the extent practical, the amount of solvent vapors emitted from the generation of hazardous wastes such as spent purge solvent and Solvent Laden Debris Solid hazardous waste.

- i. Solvent Laden Debris Hazardous Waste Containers – drum lids shall be closed and O-rings tight on full drums except when being filled. Bungs shall be closed. When not using the Manual Jack Press to compact waste Solvent Laden Debris in the containers, the ram of the Manual Jack Press shall be returned to the “up” position and the lid of the drum shall be placed on the top of the drum to minimize fugitive air emissions.
- ii. Spent Purge Solvent Hazardous Waste Containers – drum bungs and manually operated valves shall be closed except when being filled. The only exception to this is when it becomes necessary to prevent a hazardous condition such as excessive positive or negative air pressure buildup in the containers.
- iii. Solvent Mopping / Mop Bucket – Respirators with organic vapor cartridges shall be required to be worn when mopping areas with solvent, especially when using purge solvent containing Toluene. Toluene has a very low short term exposure limit (STEL). The solvent soaked mophead shall be stored in a manner to minimize fugitive air emissions when not in use. The solvent in the mop bucket shall be either covered with a lid or removed from the bucket and safely stored in a closed, appropriate container for future reuse.

b. Spent Blanket Filters Management

Contractor Cleanup Crew Employees are required to minimize, to the extent practical, the amount of fugitive air emissions generated from exchanging primary blanket filters from the manual spray booths.

Spent blanket filters shall be bagged upon removal from the Paint spray booths to minimize paint residue housekeeping and minimize trace paint solvent fumes that could still potentially be present.

c. Paint / Solvent Containers Vapor Management

Paint Setup Staff and **Onsite Paint Supplier Employees** are required to minimize, to the extent practical, the amount of solvent vapors generated from the mixing and storing of paints, tints, and associated cutting solvents. Where practical, lids are to be used on open containers that minimize the exposed surface area of the solvents and paints in the container to the atmosphere.

IX. Associated Documents

Environmental Policy
Contractor Environmental, Health, and Safety Policy
ROP: MI-ROP-A5764-2015c
40 CFR Part 63.4568 - NESHAP
40 CFR Part 52.21(j)
Part 9 Air Pollution Control Rules
Fascia RTO Spare Parts List