DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection FY2014 Sched Insp

N574727108

FACILITY: PIONEER METAL FINISHING INDUSTRIAL HWY	**SRN / ID:** N5747
LOCATION: 24600 INDUSTRIAL HWY, WARREN	**DISTRICT:** Southeast Michigan
CITY: WARREN	**COUNTY:** MACOMB
CONTACT: Eric Rosenberg , Plant Manager	**ACTIVITY DATE:** 09/17/2014
STAFF: Iranna Konanahalli **COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: FY 2014 level-2 scheduled annual inspection of Pioneer Metal Finishing Industrial Hwy.	
RESOLVED COMPLAINTS:	

E-file: N5747_SAR_2014 09 17

Pioneer Metal Finishing Industrial Hwy. (N5747)
fka Hi-Tech Coatings, Inc. (N5747)
24600 Industrial Highway
Warren, Michigan 48089-4346

Permit-to-Install No. 2-03L dated February 25, 2014 (HAP and VOC synthetic minor)

Subject to: Rule 702 BACT for VOC (RTO control)

ROP: MI-ROP-N5747-2011a (MI-ROP-N5747-2011b under US EPA review)

Consent Order No. 19-2010 executed by Vinson Hellwig, AQD Chief, on August 17, 2010.

Criminal Case No.: 06-030 Hi-Tech Coating with referral date of January 5, 2006 (Ms. Joyce Zhu). Criminal Investigator: D/Sgt. Verne Koester Badge No. 919. Suspects prosecuted and the case closed: January 11, 2010. Co-defendants: Robert Michael Barach and Bliplab Roy each paid $10,000.00 criminal fines.

Not subject to (due to insufficiently documented agreements during criminal case closure): NESHAP / MACT 4M, 40 CFR, Part 63, Subpart MMMM, Misc. Metal Parts Coating Operations.

Not subject to NSPS based upon the PTI review

On May 13, May 06, June 24 (stack test), August 20 and September 17, 2014, I conducted a level-2 **scheduled** annual inspection of Pioneer Metal Finishing Industrial Hwy. ("Pioneer" or "the company"), located 24600 Industrial Highway Warren, Michigan 48089-4346. The inspection was conducted to determine compliance with the Federal Clean Air Act (CAA); Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 (PA 451); Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules; and permits (PTI No. 2-03L and MI-ROP-N5747-2011a; MI-ROP-N5747-2011b to incorporate PTI No. 2-03L is under US EPA review).

During the inspection, Mr. Mark Bennett (Phone: 586-480-1703; Fax: 586-759-4429; Cell: 734-770-6537), Mr. Jay Cronin (Phone: 586-480-1718; Fax: 586-759-4429; Cell: 586-634-1384), Mr. Eric Rosenberg (Phone: 586-480-1720; Fax: 586-755-6929; Cell: 313-236-4251), Mr. Dave Corey, Maintenance Manager, assisted me.

Pioneer applies adhesives and coatings to metal parts using dip-spin and spray coating

lines. The coating lines are equipped with capture systems to capture volatile organic compounds (VOC) and Hazardous Air Pollutants (HAP) emissions. Captured VOC laden exaust gases are delivered to a Regenerative Thermal Oxidizer (RTO) for destruction via combustion with heat recovery.

EMISSION UNIT SUMMARY

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-LINE1-MODEL24	One Dip Spin Machine Model #24 with an in-line Natural Gas Fired Curing Oven all connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line. Only adhesive applications. One mesh basket and one tank. Once loaded with parts, the basket is submerged into the coating vat. The basket is raised and excess coating is spun out.	09-23-1997 / 01-31-2014	FGLINES, FGFACILITY
EU-LINE3-COE1	Two Chain on Edge Spray Booths each equipped with a permanent total enclosure and One Natural Gas Fired Curing Oven connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line. Two booths and one oven. COE1 and COE2 are identical. COE1 is used to apply adhesive coatings. The booths are equipped with filters. In one booth primer is applied and the parts are cured in the oven. In second booth, topcoat coating is applied and the parts cured again in in the same oven. The filters are changed once per 8-hour shift and disposed of in dumpster.	09-23-1997	FGLINES, FGFACILITY

EU-LINE4-COE2	Two Chain on Edge Spray Booths each equipped with a permanent total enclosure, One Natural Gas Fired Curing Oven connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line. Two booths and one oven. COE1 and COE2 are identical.	07-01-1999	FGLINES, FGFACILITY
EU-LINE5-COE3 aka Sprimag	One Enclosed Sprimag Chain on Edge Spray Booth with an electric oven equipped with a common permanent total enclosure connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line. This line is also known as Sprimag. The booth is used to apply adhesive coatings. The booth is equipped with filters. The filters are changed once per 8-hour shift and disposed of in dumpster.	06-14-2004	FGLINES, FGFACILITY
EU-LINE6-MODEL10	One Dip Spin Machine Model #10 equipped with a permanent total enclosure with parts routed to EU-BATCHOVEN, both connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line. Model 10 is small machine used for touch up and testing. The machine is manually loaded and operated. The Model did not meet minimum ΔP of -0.007 inches of water during the June 2014 test (ΔP = -0.0018 inch H2O).	10-15-2008	FGLINES, FGFACILITY
	One Dip Spin Machine Model #25 with an in-line Natural Gas Fired		

	Curing Oven all connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line.		
EU-LINE7-MODEL25	Two mesh baskets and one tank are present. One basket is loaded while other basket is active in coating parts as is dipped in coating liquid. Mostly Teflon coating is used. The two coating baskets allow this line to operate up to twice as fast. Primer and specialty coatings are applied.	09-23-1997 / 01-31-2014	FGLINES, FGFACILITY
EU-LINE8-TUMBLE1	One Tumble Spray Unit connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line.	05-01-2009	FGLINES, FGFACILITY
EU-LINE9-TUMBLE2	One Tumble Spray Unit connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line.	05-01-2009	FGLINES, FGFACILITY
EU-LINE10-TUMBLE3	One Tumble Spray Unit connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line.	05-01-2009	FGLINES, FGFACILITY
EU-LINE12-TUMBLE4	One Tumble Spray Unit connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge and cleanup solvents usage associated with the line.	11-03-2011	FGLINES, FGFACILITY
EU-LINE13-	One Dip Spin Machine Model #26 with two dip spin booths and an in-line Natural Gas Fired Curing Oven, all connected to and exhausted through a regenerative thermal oxidizer. Note: Including purge	07-20-2012 /	

MODEL26	and cleanup solvents usage associated with the line. Two booths (dip tanks) side-by-side. Line 13 is similar (except two tanks) in configuration and operation to Line 7.	01-31-2014	FG-LINES, FG-FACILITY
EU-BATCH-OVEN	One Natural Gas Fired Batch Oven connected to and exhausted through a regenerative thermal oxidizer.	10-27-2005	FGLINES, FGFACILITY
EUPARTS-WASHLINE1	A multi-stage surface preparation line consisting of cleaning, rinsing, pickling and phosphate treatment. Emissions are controlled by a packed bed wet scrubber. Pre-treatment phosphate line with a scrubber	10-22-1997	FGPARTS-WASHLINES,FGFACILITY
EUPARTS-WASHLINE2	A multi-stage surface preparation line consisting of cleaning, rinsing, pickling and phosphate treatment. Emissions are controlled by a packed bed wet scrubber. Zinc phosphate Pre-treatment phosphate line with a scrubber	10-22-1997	FGPARTS-WASHLINES,FGFACILITY

Line Nos. 2 and 11 (Round Table which operated few years ago) do not exist. All coating process / lines including the batch oven exhaust via RTO, where VOC and HAP are destroyed by thermal oxidation. The emissions from parts washer (phosphate pretreatment) lines are controlled by a packed bed wet scrubber. All tumblers are equipped with two HVLP spray nozzles (primer and topcoat), vacuum systems, interlock systems to ensure operation under vacuum only. Exhaust from vacuum systems is ducted to RTO. All spray booths use HVLP guns / applicators. All spray lines, except Line 5, use BINKS Air Nozzles Model 97P. EU-LINE5-COE3 (Sprimag) is equipped with Turbo Spray. HVLP spray caps are kept on site.

FLEXIBLE GROUP SUMMARY TABLE

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGLINES	Facility coating operations including	EU-LINE1-MODEL24,

	purge and cleanup solvent usage with regenerative thermal oxidizer control system. All lines use the same RTO for VOC control	EU-LINE3-COE1, EU-LINE4-COE2, EU-LINE5-COE3, EU-LINE6-MODEL10, EU-LINE7-MODEL25, EU-LINE8-TUMBLE1, EU-LINE9-TUMBLE2, EU-LINE10-TUMBLE3, EU-LINE12-TUMBLE4, EU-LINE13-MODEL26, EU-BATCHOVEN
FGPARTSWASHLINES	Each parts washer line is a multi-stage surface preparation line consisting of cleaning, rinsing, pickling and phosphate treatment. Emissions are controlled by a packed bed wet scrubber. Two wash lines with a pack bed scrubber.	EU-PARTS-WASHLINE1 EU-PARTS-WASHLINE2
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	EU-LINE1-MODEL24, EU-LINE3-COE1, EU-LINE4-COE2, EU-LINE5-COE3, EU-LINE6-MODEL10, EU-LINE7-MODEL25, EU-LINE8-TUMBLE1, EU-LINE9-TUMBLE2, EU-LINE10-TUMBLE3, EU-LINE12-TUMBLE4, EU-LINE13-MODEL26, EUBATCHOVEN, EUPARTSWASHLINE1, EUPARTSWASHLINE2

Pioneer metal operates several spray and dip coating process:

- Three large dip-spin coating lines (Lines 1, 7, 13)
- Small dip-spin coating line (line6 – Model 10)
- Two chain-on-edge coating lines (Lines 3, 4: COE1 & COE2)
- One Sprimag COE coating line (Line 5: COE3)

- One stand-alone natural gas fired batch oven (EU-BATCH-OVEN). The oven is sealed while parts are baked and cured.

- Four tumbler spray coating lines are present (Lines 8, 9, 10 & 12; Line11 [HVLP round table] is removed). The parts are tumbled in a sealed tumbler. The process cycle is automatic: seal under vacuum, spray coatings (primer and topcoat) and bake. The tumblers are primarily used for adhesive coatings; occasionally specialty coatings are applied. The parts are loaded into the tumbler. Coatings are applied using HVLP spray nozzles (one primer and one topcoat). The sealed tumbler under vacuum is run 15-minute cycle. An interlock system ensures that tumblers are operated at least 25 Pascal (Pa) pressure differential with surroundings (ΔP), which is monitored. RTO destroys VOCs from the application of vacuum on the tumblers.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOCs	35.31 tpy	12-month rolling time period as determined at the end of each calendar month	FGLINES	SC VI.4	R 336.1205(3), R 336.1702(a)
2. Xylene (CAS #1330-20-7)	384 lb/day[1]	Calendar Day	FGLINES	SC VI.5	R 336.1225
3. Xylene (CAS #1330-20-7)	Less than 18,000 lb/yr[1]	12-month rolling time period as determined at the end of each calendar month	FGLINES	SC VI.6	R 336.1205(3), R 336.1225
4. Ethylbenzene (CAS # 100-41-4)	Less than 18,000 lb/yr[1]	12-month rolling time period as determined at the end of each calendar month	FGLINES	SC VI.6	R 336.1205(3), R 336.1225
5. Formaldehyde (CAS # 50-00-0)	560 lbs/yr[1]	12-month rolling time period as determined at the end of each calendar month	FGLINES	SC VI.6	R 336.1205(3), R 336.1225
6. VOC	1.8 lb/gal of coating (minus water) [a], after control	Daily volume-weighted average (calendar day)	FGLINES	SC VI.4	R 336.1702(a), R 336.1602(4)

[a] The phrase "minus water" shall also include compounds which are used as organic solvents and which are excluded from the definition of volatile organic compound. (R 336.1602(4))

[1] This condition is state only enforceable and was established pursuant Rule 201(1)(b)

Pioneer is likely to be in compliance with the emissions limits due to destruction of VOC & HAP by RTO. Compliance with the limits will be determined when Pioneer completes the calculations. See August 27, 2014, Violation Notice.

Regenerative Thermal Oxidizer (RTO)

Regenerative Thermal Oxidizer (RTO) consists of three (3) ceramic packed columns for heat exchange and recovery. Ceramic packing materials act as heat exchange media and facilitate heat recovery. Natural gas fired burners are present to augment (provide additional fuel if necessary) VOC in exhaust gases from coating lines. Due to heat recovery, most heat to sustain the required minimum temperature is from combustion of VOC laded exhaust gases.

According to October 16, 2012, stack test, the minimum RTO temperature required for destruction efficiency of 95 percent is 1,371 °F (PTI No. 2-03L, SC FG-LINES, IV.3) (October 16, 2012, DE = 98.5 at 1,371 °F).

FG-LINES

PTI No. 2-03L, SC FG-LINES, III Process / Operational Restrictions

The materials are stored in closed containers (PTI No. 2-03L, SC FG-LINES, III.1 & 3). Spent filters are disposed of properly (PTI No. 2-03L, SC FG-LINES, III.2). June 24, 2014, AQD observations of smoke and ΔP indicate 100% capture of VOC and HAP emissions and EU-LINE6-Model-10 did not meet the minimum pressure differential of -0.007 inches of water (PTI No. 2-03L, SC FG-LINES, III. 4 & 5). Malfunction Abatement Plan (MAP) is present (PTI No. 2-03L, SC FG-LINES, III. 6).

PTI No. 2-03L, SC FG-LINES, IV Design / Equipment Parameters

On August 20, 2014, exhaust filters were installed properly on COE1 (2 booths and 1 NG over and COE 2 (2 booths and 1 NG oven) but COE3 (Sprimag: 1 booth and electric oven) filter system had gaps and holes (PTI No. 2-03L, SC FG-LINES, IV.1). I asked Mr. Dave Corey to install the filters such that they fit, at all times, snugly without gaps and holes. HVLP guns are used in spray booths (COEs and Tumblers) (PTI No. 2-03L, SC FG-LINES, IV.2). Based upor October 16, 2012 DE tests and June 24, 2014, ΔP & smoke tests, 100 percent capture efficiency is provided by the capture systems and VOC destruction efficiency of 98.5 percent is accomplished by RTO (October 16, 2012, DE = 98.5 at 1,371 °F) (PTI No. 2-03L, SC FG-LINES, IV.3). RTO combustion temperature is monitored using circular charts and data acquisition system has not been installed yet as of September 2014 (PTI No. 2-03L, SC FG-LINES, IV.4). Permanent Total Enclosure (PTE) based upon June 2014 pressure differential (ΔP >= - 0.007 inches water) tests and Natural Draft Openings (NDOs) based upon June 2014 smoke direction observation are operating properly (PTI No. 2-03L, SC FG-LINES, IV. 5 & 6). Pressure gauge is present to monitor pressure differential for PTE (PTI No. 2-03L, SC FG-LINES, IV. 7). Four tumble spray units are equipped an inter-lock system such that the units d not operate without proper seal (minimum ΔP = 25 Pascals) (PTI No. 2-03L, SC FG-LINES, IV 8).

Permanent Total Enclosures (PTE: ΔP = minimum -0.007 inches of water):

1. EU-LINE3-COE1 - booths (2) only (not one NG fired oven)

2. EU-LINE4-COE2 - booths (2) only (not one NG fired oven)
3. EU-LINE5-COE3 (Sprimag) - one booth and one electric oven
4. EU-LINE6-MODEL10 - one booth (does not have its own oven, uses EU-BATCH-OVEN).

Natural draft openings (NDO: smoke test).

1. EU-LINE1-MODEL24 - one booth and one NG fired oven
2. EU-LINE3-COE1 - one NG fired oven
3. EU-LINE4-COE2 - one NG fired oven
4. EU-LINE7-MODEL25 – one booth & one NG fired oven
5. EU-LINE13-MODEL26 – two booths & one NG fired oven
6. EU-BATCH-OVEN - NG fired oven

PTI No. 2-03L, SC FG-LINES, V Testing / Sampling

Vendor data is used and AQD has not approved alternative methods (PTI No. 2-03L, SC FG-LINES, V. 1). On June 24, 2014, pressure differential (ΔP) and smoke tests were done. On October 16, 2012 destruction efficiency (DE) tests (October 16, 2012, DE = 98.5 at 1,371 °F) were done and such DE tests are required once every five years (PTI No. 2-03L, SC FG-LINES, V. 2).

PTI No. 2-03L, SC FG-LINES, VI Monitoring / Recordkeeping

The required calculations are not performed in a timely manner and AQD issued August 27, 2014 Violation Notice (PTI No. 2-03L, SC FG-LINES, VI. 1). RTO temperature is monitored and recorded using circular charts and the chart is replaced once per week (PTI No. 2-03L, SC FG-LINES, VI. 2). The data acquisition system will be installed by January 3, 2015. VOC and HAP records are not up-to-date and AQD issued August 27, 2014 Violation Notice (PTI No. 2-03L, SC FG-LINES, VI. 3, 4, 5 & 6). Pyro Services Company (248-547-2552) of Madison Heights performed calibration – November 26, 2013 (PTI No. 2-03L, SC FG-LINES, VI. 7). Weekly ΔP for PTE (COE 1 & 2 booths (4) only, COE3 (Sprimag booth and oven) and Model10) logs are kept (PTI No. 2-03L, SC FG-LINES, VI. 8). According to October 16, 2012, stack test, the minimum RTO temperature required for destruction efficiency of 95 percent is 1,371 °F (PTI No. 2-03L, SC FG-LINES, VI. 9). ΔP = 25 Pascal (Pa) is maintained via an interlock system for tumblers and ΔP is monitored (PTI No. 2-03L, SC FG-LINES, VI. 10)

June 24, 2014, ΔP and smoke stack test – MI-ROP- N5747-20111a and PTI No. 2-03L (SC FG-LINES, V.2)

Derenzo and Associates, Inc. (Project No.1404004A; Robert Harvey, Tylor Wilson, Anthony Brogowski; Phone (734) 464-3880) of Livonia, Michigan, conducted the tests using smoke tubes and pressure differential methods. AQD received the May 21, 2014 test protocol. Mr. Mark Dziadosz approved the test plan on June 16, 2014, via the letter to Mark Bennett of Pioneer Metal dated June 16, 2014. Mr. Mark Dziadosz, Sam Liveson and I observed the smoke being drawn into the capture systems and pressure differentials (ΔP). On August 22, 2014, AQD received the test report. These observations of smoke and ΔP indicate 100% capture of VOC and HAP emissions.

Smoke tube testing was done concerning EU-LINE1-MODEL24, EU-LINE7-MODEL25, EU-LINE13-MODEL26, EU-BATCHOVEN and COE ovens corresponding to EU-LINE3-COE1 &

EU-LINE4-COE2. Pressure differential (ΔP) testing to verify capture efficiency of permanent total enclosure (PTE) was done concerning each COE spray booths corresponding to EU-LINE3-COE1 & EU-LINE4-COE2, sprimag booth and oven of EU-LINE5-COE3 and Model 10 dip-spin machine of EU-LINE6-Model-10.

EU-LINE6-Model-10 did not meet the minimum pressure differential of -0.007 inches of water. Model 10 machine isa small machine and is mostly used for testing. Model 10 machine does not have its own oven. Model 10 sometimes is used for touch-up parts. Mark Dziadosz and I observed proper smoke direction into the capture devices. All pressure differentials (ΔP) were acceptable except Model 10 ΔP.

Permanent Total Enclosures (PTE: ΔP = minimum -0.007 inches of water):

1. EU-LINE3-COE1 - booths (2) only (not one NG fired oven)
2. EU-LINE4-COE2 - booths (2) only (not one NG fired oven)
3. EU-LINE5-COE3 (Sprimag) - one booth and one electric oven
4. EU-LINE6-MODEL10 - one booth (does not have its own oven, uses EU-BATCH-OVEN).

Natural draft openings (NDO: smoke test).

1. EU-LINE1-MODEL24 - one booth and one NG fired oven
2. EU-LINE3-COE1 - one NG fired oven
3. EU-LINE4-COE2 - one NG fired oven
4. EU-LINE7-MODEL25 – one booth & one NG fired oven
5. EU-LINE13-MODEL26 – two booths & one NG fired oven
6. EU-BATCH-OVEN - NG fired oven

FG-PARTS-WASH-LINES

Emissions (particulates and acids) from the surface preparation lines are controlled by a packed bed wet scrubber.

Subject to Area Source NESHAP / MACT 6W, 40 CFR Part 63, Subpart WWWWWW (6W) National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations; Final Rule, Page 37728, Federal Register / Vol. 73, No. 127 / Tuesday, July 1, 2008 / Rules and Regulations; nonchromium electroplating; electropolishing; electroforming; electroless plating. AQD has decided not to take delegation of these standards and therefore no attempt has been made evaluate Pioneer's compliance with NESHAP / MACT 6W (PTI No. 2-03L, SC FG-PARTS-WASH-LINES, III. 3).

AQD issued August 27, 2014 Violation Notice for not having properly operating flow meter (PTI No. 2-03L, SC FG-PARTS-WASH-LINES, IV. 2).

FG-FACILITY

AQD issued August 27, 2014 Violation Notice for failure to perform VOC & HAP calculations (PTI No. 2-03L, SC FG-FACILITY).

August 27, 2014 Violation Notice

AQD issued August 27, 2014 Violation Notice for failure to perform VOC & HAP calculations

(PTI No. 2-03L). On September 18, 2014, AQD received the VN response letter dated September 17, 2014, from Mr. Eric Rosenberg, Warren Campus Manager. The letter admitted that the PTI No. 2-03L required calculations were not performed after May 2014 due to personnel changes. Concerning the scrubber, a flow meter has been ordered and expected to be installed by September 19, 2014; the flow meter was NOT installed on September 17, 2014, when I visited the site.

Conclusion

AQD issued August 27, 2014 Violation Notice for failure to perform VOC & HAP calculations (PTI No. 2-03L).

NAME DSkillenhall DATE 09/24/2014 SUPERVISOR CTE