

A8831

MAW124

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

A883150311

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| FACILITY: DCI AEROTECH INC | | SRN / ID: A8831 |
| LOCATION: 7514 LYNDON, DETROIT | | DISTRICT: Detroit |
| CITY: DETROIT | | COUNTY: WAYNE |
| CONTACT: Brandon Chase , EH&S Manager | | ACTIVITY DATE: 07/17/2019 |
| STAFF: Terseer Hemben | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MINOR |
| SUBJECT: Chrome and Electroless Electroplating | | |
| RESOLVED COMPLAINTS: | | |

INSPECTED BY : Terseer Hemben, EGLE-AQD
PERSONNEL PRESENT : Brandon Chase, EH& S Manager
FACILITY PHONE NUMBER : (313)-341-9478
FACILITY FAX : (313)-341-0315
DATES OF INSPECTION : 7/17/2019
DCI AEROTECH
7515 Lyndon Avenue, Detroit, MI 48238
SRN: A8831, Permit No. 183-02

FACILITY BACKGROUND:

The DCI Aerotech, Inc. (DCI) is an open surface chrome plating operation. The operation is a source for hazardous air pollutants (HAP). DCI is subject to 40 CFR 63, Subpart N of the National Emission Standards for chromium emissions from hard and decorative chromium electroplating and chromium anodizing tanks. Records on file indicate the company had problems with compliance in past years and was inspected by the EPA. The facility was issued a violation notice. The past violations included failure to keep and maintain compliance records at the site. The violations were resolved. The company has no records of recent violations. DCI utilizes 18,250,200 amp-hours per year to operate the open surface ventilation process. Bulk emissions are discharged inside the process area and gaseous emissions are discharged to the ambient air through precleaning devices and vented via the stacks. The facility conducted a stack test in 1999 and set the controls on pressure drop across the combined packed scrubber and Kimre mesh pads (aka CMP) at 3.5-4.5 inches of water for the old 40 CFR Subpart N. However, the work practice standard use 1.9 to 3.9 with (-/+) 1-inch tolerance as conservative values for stack emissions reduction as strategy to keep within compliance limits. DCI provided justification for this standard adoption concluding the management is inadequately informed about how values for pressure drop were adopted as standard. Deatil of the explanation is located in Attachment X.

DCI operation had fire disaster that destroyed the entire Electroless Nickel unit on May 12, 2018. At the time of this inspection, the facility was in the planning of replacing the tanks with equivalent sizes permitted in original designs. The facility erected two interim small sized electroless nickel tanks to support the decorative chrome plating process. These electroless tanks operate without mist eliminators, and emissions are discharged inside the in-plant environment. The process met exemption under Rule 285(2)(r)(i) ... for equipment used in surface treatment whose emissions are discharged inside the in-plant environment. DCI operates 2 interim vapor degreasers, one in building 4 and the other in building 6. Emissions from the degreasers are discharged inside the in-plant area. The degreasers installation and operation met exemption under Rule 285(2)(r)(iv) ... for equipment used in electropolishing. Records of operations pertaining to monitoring of the listed equipment are attached for references [Attachment DCI, pgs. 1-40].

Other Equipment

DCI installed and operates 15 small ceiling space heaters, 5 natural gas ovens and 3 natural gas boilers rated as follows:

- 1 Oven rated at 750,000 Btu/hr.
- 2 Ovens rated 250,000 Btu/hr.
- 2 Ovens rated <750,000 Btu/hr.
- 1 boiler rated 2.520 MMBtu/hr. (located in Building 2)
- 1 boiler rated 4.184 MMBtu/hr. (located in building 6)
- 1 boiler rated 3.350 MMBtu/hr. (located in Building 6).
- 15 small space heaters -there was no information detailing their heat input ratings at the time of inspection.

The ovens and boilers met the exemption under Rule 282(2)(b)(i) ... for equipment which burns sweet natural gas, synthetic natural gas, ...or a combination thereof and equipment has a rated heat input capacity of not more than 50,000,000 Btu/hr.

- DCI installed and operates an emergency natural gas-fired electric generator with a rated capacity of 16 KW with heat maximum input equivalent 54,594 Btu/hr. The emergency generator meets the exempt status under Rule 285(2)(g), ...for internal combustion engines that have less than 10,000,000 Btu/hr. maximum heat input.

INSPECTION NARRATIVE

I arrived at the premises of the DCI on July 17, 2019 at 1342 hours. The purpose of visit was to conduct a scheduled regulatory inspection of the plating facility. Temperature at the hour was 85 F. Wind speed was 7 mph, and humidity was 65%. I met with Mr. Chase, and we settled for a pre-inspection conference in the office. We went over the inspection agenda. We toured around the facility for the inspection, walked outside the plating zone, and inspected the stacks and general outlook of the premises. The tour concluded with post-inspection conference.

COMPLAINT/COMPLIANCE HISTORY:

DCI has not been a source of air quality complaints in recent years.

OUTSTANDING CONSENT ORDERS:

None

OUTSTANDING VNs:

None

OPERATING SCHEDULE/PRODUCTION RATE:

The facility operates a regular 8-hour shift from 8:00 AM to 4:00 PM.

PROCESS DESCRIPTION PROCESS EQUIPMENT:

DCI operates a hard chrome plating of various parts, especially the aviation/aero machines such

as engine, hydraulic and high-performance fixtures and accessories. The parts include hydraulic cylinders and machine tool parts. The facility operates seven chromium electroplating tanks and a packed scrubber. The gaseous emissions from the chromium tanks contact with composite mesh pad packed in the scrubber system. There are six grandfathered certificates of operation active at this facility. The certificates have no special conditions. The facility equipment operates under permit No. 183-02 covering scrubber with mist eliminator/compact mesh pad (CMP), electroplating tanks and stack systems. DCI installed 3 natural gas-fired boilers, 5 natural gas ovens, 15 natural gas fired space heaters and 1 emergency electric generator.

The regulated pollutant identified in this process is Cr+6. The material data sheet for chemicals used at the facility is attached. The plating tanks are equipped with mesh pads, and a packed bed scrubber to meet the permitted chromium emission limits of 0.015 milligram per dry standard cubic meter, corrected to 70 F and 29.92 inches Hg and 0.002 pph. The allowable pressure drop on the scrubber was specified not to exceed in the range between 3.5-4.5 inches of water gauge (iwg) with periodic water make up as derived in calculations used in initial performance testing protocol. The facility performed emission testing in 1999 and combined the scrubber and component Kimre mesh pad pressure drop range into a set point range that is different than the calculated values [Test results are in AQD files]. DCI provided an inadequate explanation for the difference to a limited conclusion on how the pressure drop values were incorporated into operating standards [Attachment X]. DCI demonstrated compliance with the changes to Subpart based on the test methods and procedures identified in paragraph (c) of 40 CFR 63.344 as performed in 1999. The facility also utilizes the fume suppressant named Fumetrol 21LF2, but the permit and Subpart N compliance is determined based on the performance of the mesh pads and scrubber. DCI stated the company used a wetting agent that contained PFAS in the past, however the wetting agent had been discontinued years later. There are possibilities of traces of PFAS containing substances in the pipes and tanks lining. DCI recently installed a carbon wastewater filtration system for pre-treatment of water before discharge [Certificate of GLWA attached [pg. 30].

GLWA currently monitors the treatment performance [Attachment DCI, pgs. 30-32].

APPLICABLE RULES AND CONDITIONS:

The applicable rules consist of the requirements of 40 CFR Part 63, Subpart N supported by SIP regulatory conditions listed in the permit. Records submitted by the DCI are attached.

1. Rule 201(1): DCI was compelled to a process change and modification of process or equipment listed in Permit# 183-02 at this facility since 1999 due to fire event that destroyed the electroless unit [Response Sheet item#1].

EUCHROME

2. SC. 1.1a: The total chromium emissions from the EUCHROME indicated compliance with the limit 0.015 milligram per dry standard cubic meter, corrected to 70°F and 29.92 inches Hg; 3.5-4.5 iwg pressure drop range across composite Kimre mesh pads, based on emissions testing results and maintenance of emission controls. The facility submitted emissions testing results conducted since 1999 and supported the periodic packed bed compliance with recent maintenance and pressure drop readings data as stated in attachment DCI, pg 2, item# 2. The measure of maximum chrome emission was 0.0020 mg/dscm, which indicated compliance The DCI had the gauge set point at 3.1-5.1 iwg. Records of maintenance covering the last 12 months are attached [Daily Pressure Drop, Pgs. 21-27]. The highest pressure drop reading from the Stage 1 Scrubber was 1.8 iwg that occurred once (12/21/2018 -2/13/2019)., and the highest overall pressure drop across the mesh pad and scrubber was 3.7 iwg (12/21/1018 -2/13/2019). These pressure drop values

across the Kimre pads compare less than the initial values range used in performance testing. The 1.8 iwg value for pressure drop compares lower than the minimum value of 1.9 iwg.

3. **SC. 1.1b:** The total chromium emissions from EUCHROME did not exceed 0.0020 pph, based on the Test Method. DCI previously submitted emissions testing data to support compliance in 1999. Records submitted by the DCI listed the exhaust associated with the chromium electroplating emission rate averaged 0.000196 pph which indicated compliance as indicated in response Attachment DCI, pg. 2, item# 3. Responses from previous inspections are in AQD file.
4. **SC. 1.2:** DCI operated EUCHROME the packed-bed scrubber/composite mesh pad system when it was installed, maintained in a satisfactory manner. DCI demonstrated compliance through recordkeeping. Overall maximum pressure drop reading value was 3.7 inches of iwg at peak load compared with the range 1.9-3.9 iwg. [Response Attachment DCI, pg. 2, and Response item # 4]. Records covering the last 12 months are attached [DCI, pgs. 21-27].
5. **SC. 1.3:** DCI equipped and maintained the packed-bed scrubber/composite mesh pad system with a differential pressure monitoring device as in attachment DCI, pg. 20. Staff inspected the pressure drop devices and noted the devices were working in a satisfactory manner. Records of monitoring device performance showing compliance covering the last 12 months are attached [Attachment DCI, Response item# 5, pg. 2].
6. **SC. 1.4:** Within 30 calendar days of the date of permit approval, the DCI submitted to the AQD District Supervisor, an approvable operation and maintenance plan. The plan contained all information required by 40 CFR 63.342(f)(3)(i), which includes the following:
 - a) **SC. 1.4a:** Operation and maintenance (O&M) criteria for EUCHROME, add-on control device(s), and for the process and control device(s) monitoring equipment as well as a standardized checklist to document the operation and maintenance of the equipment and first notification was received on July 21, 1995, and the maintenance plan was provided to DEQ in July of 2003. The facility maintained the same plan which is still in use [Response item# 6; Plan is in AQD file].
 - b) **SC. 1.4b:** DCI maintained the work practice standards for the add-on control device(s) and monitoring equipment. The practice standards for the Add-on control device(s) consisting of scrubber and fume suppressant was monitored by a contracted third party and associated records are attached [Attachment DCI, pgs. 1-40].
 - c) **SC. 1.4c:** DCI maintained procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions did not occur. Procedures to be followed were submitted and copies are attached [Attachment DCI, pgs. 8-40].
 - d) **SC. 1.4d:** DCI developed a systematic procedure for identifying process equipment, add-on control device(s) and monitoring equipment malfunctions and for implementing corrective actions to address such malfunctions. A systematic procedure and corrective action forms for identifying process equipment and malfunctions are in place. The information is listed in attached [Attachment DCI, pgs. 8-40].
7. **SC. 1.5:** The DCI used fresh water for any make-up water and supplied this water to the unit

at the top of the packed bed scrubber. Response from DCI stated only fresh water was used for make-up supply to the unit [Attachment DCI, Response item# 8, pg. 3].

8. SC. 1.6: The DCI performed inspections of the composite mesh pad (CMP) system as follows:

a) **SC. 1.6a:** The pressure drop across the CMP system was determined on a daily basis. If the pressure drop across the control varies by more than ± 1 inch of water gauge, from the pressure drop range 3.5-4.5 iwg determined during compliance testing, the variation was documented, and the operation and maintenance procedures was reviewed. Any corrective action (if any) was documented. The pressure drop across CMP was recorded as in Attachment DCI. The highest value was 3.7 iwg. Records covering the last 12 months are attached [pgs. 21-26]. DCI is yet to provide adequate explanation regarding which value standard they are using to assess compliance [Attachment X].

b) **SC. 1.6b:** DCI inspected the CMP system, on a quarterly basis, to ensure there was proper drainage, no chromic acid build up on the pads, and there was no evidence of chemical attack on the structural integrity of the control device. Records covering the last 12 months indicated compliance [Attachment M]. The report indicated the physical condition of the mesh CMP [Attachment DCI, pgs. 8-19].

c) **SC. 1.6c:** DCI the back portion of the mesh pad closest to the fan was visually inspected, on a quarterly basis, to ensure there was no breakthrough of chromic acid mist. There was no breakthrough observed at the time of inspection. Records covering the last 12 months indicated compliance with required maintenance [Attachment DCI, pgs. 8-19].

d) **SC. 1.6d:** DCI visually inspected the ductwork from tanks to the CMP system, on a quarterly basis, to ensure there were no leaks. Records covering the last 12 months confirmed regular inspection practice showed the inlet static pressure of 1.2 iwg was maintained indicating compliance [Attachment DCI, Pgs. 8-19].

e) **SC. 1.6e:** DCI performed wash-down of composite mesh pads automatically in accordance with manufacturer's recommendations. Records covering the last 12 months confirmed scheduled washdown which indicated compliance [Attachment DCI, pgs. 8-19].

9. SC. 1.7: The DCI monitored pollutant emissions, operating, and maintenance information through the third-party contractor-VanAire - in accordance with the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and N as an extra effort to maintain compliance. The main option for compliance was stack testing, which was performed in 1999. DCI combined both options to meet NESHAP specifications regarding CMP through continuous fume suppressants application, scrubber operation, and time testing since 1999 were monitored consistent with Subpart N. Records covering the last 12 months are attached [Attachment DCI, pgs. 8-19].

10. SC. 1.8: The DCI maintained records of inspections required to comply with applicable work practice standards of 40 CFR 63.342(f). Each inspection record identified the device inspected, the date, approximate time of inspection, and a brief description of the working condition of the device during the inspection. The permittee also recorded any actions taken to correct the deficiencies found during the inspection. All records were kept on file for a period of at least five years and made available to the Department upon request. Records indicating compliance covering the last 12 months located in attachments A and M confirm compliance with the requirements of NESHAP work standards as reported by the third-party contractor-VanAire

[Attachment DCI, pgs. 8-19].

11. SC. 1.9: DCI kept records of emissions, operating and maintenance information to comply with the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and N. All source emissions, operating and maintenance information were kept on file for a period of at least five years and made available to the Department upon request, except for the times the EH & S resigned and there were no assigned personnel to assume the responsibility. The new E&H office did not get hold of the emission records from the data base. Records kept during the tenure of the official at the company were made available and indicated compliance. Records of O & M indicating compliance covering the last 12 months are in attachments DCI, pgs. 21-26.

12. SC. 1.10: DCI submitted the following notifications to the Department in accordance with 40 CFR Part 63.347:

a) SC. 1.10a: Notification was submitted in response to resolve the violations cited by the State and EPA on July 21, 1995 [Attachment DCI, Pg. 2, Response item # 13a-bolded].

b) SC. 1.10b: A notification of the actual date of startup of the source was not submitted within 30 calendar days after the required date, the delay in-action resulted into violation notice. The information is in AQD file.

13. SC. 1.11: Staff visually inspected the Stack SVCHROME with dimensions of 40" by 28' discharged exhaust gases unobstructed vertically upwards to the ambient air as maintained by the DCI. The facility observed operations that met the requirements set in this special condition.

EUELECTROLESS

The EUELECTROLESS process and records were destroyed in the fire that occurred in DCI building 3 on May 12, 2018. However, two interim electroless plating tanks were set up in building 2 and operated without mist eliminator to support decorative nichrome process while the unit is under replacement. Emissions from the two tanks are discharged inside the in-plant environment. The two tanks qualify for a PTI exemption under Rule 285(2)(r)(i), which states that equipment is exempt consistent with the section: (r)-Equipment used for any of the following metal treatment processes if the process emissions are only released into the general in-plant environment as listed in option:

- (i) "Surface treatment".

REGULATORY SUMMARY

Rule 201(1): The Chrome plating operation was covered this rule under Permit# 183-02 in 1999.

NESHAP, Subpart N: The chromium electroplating tanks are subject to 40 CFR 63, Subpart N. The facility chose to comply with emissions limitations established at 40 CFR 63.342(c)(1)(i), which is 0.015 mg chromium per dscm of ventilation at the outlet of the add-on control device. The add-on control device is a packed-bed scrubber/composite mesh pad system specified to meet the monitoring standards within 40 CFR 63.343(c)(1) by monitoring a pressure drop across the control device within +/- 1-inch water column of the average value established during the performance test. These provisions were incorporated into the permit to install No. 183-02 when it was issued in 2003. However, in 2012, EPA reissued Subpart N with changes to emissions standards and monitoring. The emission standards decreased from 0.015 mg/dscm to 0.011 mg/dscm for large hard chromium facilities, and from 0.03 mg/dscm to 0.015 mg/dscm for small

hard chromium facilities. Based on the chromium emission rate measurement in 1999 test result reading 0.002 mg/dscm, DCI is determined to meet the new emission limits for both large and small facilities. On March 27, 2014, the AQD sent a letter to DCI confirming approval to use the 1999 test for compliance with the new emission limits. In addition, the monitoring for packed bed scrubber/composite mesh pad systems was altered by increasing the allowable pressure drop range to be (+/-) 2 inches of water gauge from the measured stack test value as updated in the new 40 CFR 63.343 (c)(3) and redirected to (c)(1) instead of (+/-) 1 inches of water gauge.

Requirements of 40 CFR 63.342(c)(1)(v) and 40 CFR 63.342(c)(2)(viii) and elsewhere, owners and operators of equipment subject to Subpart N are prohibited from adding PFOS – based fume suppressants to the electroplating tanks. DCI does not rely upon fume suppressants to demonstrate compliance with Subpart N. DCI relies upon the CMP scrubber. Nevertheless, DCI does add the fume suppressant Fumetrol 21LF2 from Atotech, USA to the electroplating tanks. According to the SDS, Fumetrol 21LF2 contains a chemical component named Polyfluorosulfonic acid with CAS# 27619-97-2. Subpart N prohibits use of any fume suppressant that contains 1% or more of perfluooctanesulfonic acid (PFOS) by weight. PFOS has a CAS# 1763-23-1. Therefore, it was suspected that Fumetrol 21LF2 might contain a PFAS or another similar compound but does not appear to contain PFOS.

Rule 301: There was no visible emissions attributed to the facility operations at the time of the inspection.

Rule 901: There was no nuisance or odor attributed to the facility at the time of inspection.

APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:

This facility does not have, nor needs a fugitive dust plan.

FINAL COMPLIANCE DETERMINATION:

The AQD staff inspected DCI facility for emissions compliance determination. The facility kept and maintained operation records in a satisfactory manner. However, the compliance status of the facility with federal regulatory requirements and AQD Permit No. 183-02 conditions and MACT, Subparts A & N requirements needs refinement following inadequately explained assumptions used in performance assessment of pressure drop parameters across the Kimre Mesh Pads and scrubber. Staff is still investigating how DCI established pressure drop parameters for reaching compliance with emission standards. DCI operated a chrome plating process that might have PFAS content in the wetting agent, but appears not to have contained PFOS. The facility installed a carbon filtration system to minimize the traces of PFAS in wastewater streams. Compliance is assessed in this inspection, and awaiting refinement at another visit to the facility.

NAME *Shenker*

DATE 4/22/2019

SUPERVISOR *JK*