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MHWL

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

A883142565

FACILITY: DCI AEROTECH INC		SRN / ID: A8831
LOCATION: 7514 LYNDON, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Bill Knapp , Sales Director		ACTIVITY DATE: 11/06/2017
STAFF: Terseer Hemben	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Hard Chrome and Decorative Chrome Anodizing		
RESOLVED COMPLAINTS:		

INSPECTED BY : Terseer Hemben, MDEQ
 PERSONNEL PRESENT : Bill Knapp, (Sales Director)
 FACILITY PHONE NUMBER : (313)-341-9478
 FACILITY FAX : (313)-341-9478
 DATES OF INSPECTION : 11/06/2017

DCI AEROTECH
 7515 Lyndon Avenue, Detroit, MI 48238
 SRN: A8831, Permit No. 183-02

FACILITY BACKGROUND:

The DCI Aerotech, Inc. (DCI) is a 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 the stacks. The facility conducted a stack test in 1999 and set the controls on pressure drop across the mesh 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 as conservative values for stack emissions reduction. Further inquiries would be made to understand the justification for the difference.

INSPECTION NARRATIVE

I arrived at the premises of the DCI on November 6, 2017 at 1140 hours. The purpose of visit was to conduct a scheduled regulatory inspection of the plating facility. Temperature at the hour was 45 F. Wind speed was 10 mph coming from the North, and humidity was 58%. I met with Mr. Bill Knapp, the Sales Director. Mr. Knapp joined me for a pre-inspection conference in the company of 2 other DCI personnel and went over the inspection agenda. Mr. Knapp further showed me around the facility for the inspection. We walked outside the plating zone and inspected the stacks and general outlook of the premises. We concluded the walk 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.

The pollutants identified in this process is Cr+6. The material data sheet for chemicals used at the facility is attached. The process uses alkaline wash for parts cleaning. 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 dp on the scrubber was specified not to exceed in the range between 3.5-4.5 iwg with periodic water make up [Attachment X]. The facility opted to perform emission testing in 1999 and combined the scrubber and component mesh pad. Observations are discussed under the applicable rule heading. 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 performance test was conducted under representative operating conditions with no changes made to the equipment. Results submitted to the AQD in 1999 are on file. 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.

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 did not make any change or modification of process or equipment listed in Permit# 183-02 at this facility since 1999 [Response Sheet item#1].

EUCHROME

2. SC. 1.1a: The total chromium emissions from the EUCHROME did not exceed 0.015 milligram per dry standard cubic meter, corrected to 70°F and 29.92 inches Hg 3.5-4.5 iwg composite 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. 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 (DPD) Pgs. 1-7]. The dp gauge performed as follows: Whenever operations shut down, the dp of water flow decreased to 0.30-0.40 iwg as the baseline, indicating no load impinging the flow rate. When the load was turned on the dp reading increased to 2.0 and peaked at 4.20 iwg. This gauge output complied with the limit 3.5-4.5 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 [Response item #3, DPD pgs. 1-7; Attachment N and P].
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 dp readings did not exceed 4.20 inches of iwg at peak load. [Response item# 4]. Records covering the last 12 months are attached [DPD pgs. 1-7].
5. SC. 1.3: DCI equipped and maintained the packed-bed scrubber/composite mesh pad system with a differential pressure monitoring device. 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 [Response item# 5, DPG pgs. 1-7].
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. The 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, Attachment A; Attachment X1].

b) SC. 1.4b: 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 is attached [Attachment A].

c) SC. 1.4c: Procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur. Procedures to be followed are attached [Attachment A].

d) SC. 1.4d: 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 Attachment A].

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 [Response item# 8, Attachment D under column: Volume].

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 dp across CMP was recorded as in Attachment DPD. The highest value was 4.20 iwg. Records covering the last 12 months are attached.

b) SC. 1.6b: The CMP system was visually inspected, 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.

c) SC. 1.6c: 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 M].

d) SC. 1.6d: The ductwork from tanks to the CMP system was visually inspected, on a quarterly basis, to ensure there were no leaks. Records covering the last 12 months confirmed regular inspection practice which indicated compliance [Attachment M].

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

9. SC. 1.7: The DCI monitored pollutant emissions, operating, and maintenance information in accordance with the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and N. The O&M information obtained consistent with NESHAP specifications regarding CMP, continuous fume suppressants application, scrubber operation, and previous one - time testing since 1999 were monitored in compliance with Subpart N. However, surface tension monitoring was not the chosen compliance option. Records covering the last 12 months are attached [Attachment D].

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.

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. Records of O & M indicating compliance covering the last 12 months are in attachments A.

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

a) SC. 1.10a: A notification of the date when construction was commenced, submitted no later than 30 calendar days after such date. Notification was submitted in response to resolve the violations cited by the State and EPA on July 21, 1995 [Attachment X1].

b) SC. 1.10b: A notification of the actual date of startup of the source, was submitted within 30 calendar days after the required date, the in-action that resulted into violation notice.

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

EUELECTROLESS

14. SC. 2.1: The maximum emissions of Nickel from EUELECTROLESS did not exceed 0.0020 pph. An emission calculation submitted within the permit application showed the maximum emission of Nickel was 0.0019 pph. Attachment NIEL, Pg. 2 presents the emission rate check calculations. The calculation is based upon the a control efficiency of 50% from the CMP scrubber.

15. SC. 2.2: The DCI did not operate more than one electroless nickel plating tank at any time. DCI stated that two electroless tanks were operational, but only one nickel tank was operated at a time [Response item# 16].

16. SC. 2.3: Following the permit approval, the DCI submitted to the AQD District Supervisor, an approvable operation and maintenance plan in 2003. The plan included the following:

a) SC. 2.3a: Operation and maintenance criteria for EUELECTROLESS, 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. The plan is listed in attachment A.

b) SC. 2.3b: DCI submitted the work practice standards for the CMP. The information is listed in the attachment A.

c) SC. 2.3c: Procedures to be followed to ensure the equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur were observed. The information on procedures is listed in attachment A [SC. 19c]; and

d) SC. 2.3d: 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 was developed. The information is listed in Attachment A and Attachment X apply.

17. SC. 2.4: The DCI operated EUELECTROLESS when composite mesh pad system was installed and maintained in a satisfactory manner. The dp readings indicated the pressure drops across the scrubber were in the range 3.1- 5.1 iwg. The highest dp was 4.20 iwg. Maintenance O & M records for the composite mesh pads indicating compliance are listed in attachments A, & M.

18. SC. 2.5: DCI equipped and maintained the composite mesh pad system with a differential pressure monitoring device. Staff inspected the monitoring gauges and noted they were working in a satisfactory manner. Records of performance monitoring gauges covering the last 12 months are in attachment DPD-N.

19. SC. 2.6: DCI monitored, in a satisfactory manner, dp for the CMP system portion of

EUELECTROLESS once per calendar day. The dp readings across the scrubber did not exceed the range 3.1-5.1 iwg. Records of CMP monitoring per calendar day indicating compliance covering the last 12 months are listed in attachment DPD-N.

20. SC. 2.7: DCI kept monthly usage records of all nickel containing materials. All records were kept on file for a period of at least five years and made available to the Department upon request. Procedure for estimating Nickel usage is listed in attachment N, and attachment *Nickel Material Usage.

21. SC. 2.8: DCI kept daily records of hours of operation for only nickel-plating Tank #1 that was operated for the year 2017. All records were kept on file for a period of at least five years and made available to the Department upon request. Records of operating hours covering the last 12 months are listed in attachment *Nickel Operating Hours.

22. SC. 2.9: DCI kept calculations of nickel emission rates on a pound per hour basis from the current representative bath make-up based on theoretical estimation. This calculation was not revised because representative bath makeup was not modified. DCI assumed the proper maintenance of bath would maintain compliance level. All theoretical calculation records were kept on file for a period of at least five years and made available to the Department upon request. Records of theoretical calculation are listed in attachment *NIEL.

23. SC. 2.10: DCI recorded, in a satisfactory manner, at least once per calendar day the pressure drops for the composite mesh pad system portion of EUELECTROLESS did not exceed the range 3.1-5.1 iwg. The highest iwg reading on few occasions was 4.20 iwg. All records were kept on file for a period of at least five years and made available to the Department upon request. Records of pressure drop in iwg units covering the last 12 months are listed in attachment DPD-N.

24. SC. 2.11: The stack SVNICKEL dimensioned 12" diameter by 24 discharged exhaust gases unobstructed vertically upwards to the ambient air. Staff inspected the stack and visually observed no technical and operational changes had been made to flow patterns.

EUDEGREASER

25. SC. 3.1: The maximum emissions of N-propyl bromide from the EUDEGREASER did not exceed 4.1 tpy based on a 12-month rolling time period as determined at the end of each calendar month. Records covering the last 12 months indicate the emission level was 0.96 tpy based on a 12-month rolling time period [Attachment *Degreaser]

26. SC. 3.2: DCI did not use more than 750 gallons of n-propyl bromide, hereinafter "solvent", per year based on a 12-month rolling period as determined at the end of each calendar month. The amount of solvent used should be determined on a "net usage" basis. "Net usage" is defined as the amount of solvent added to EUDEGREASER to bring the solvent levels up to starting levels less any amount of solvent removed as waste. Records covering the last 12 months indicated the maximum Degreaser usage was 180 gallons per year based on a 12-month rolling time period relating to a net usage of 15 gallons per rolling 12 months period [Attachment *Degreaser].

27. SC. 3.3: DCI kept, in a satisfactory manner, monthly and 12-month rolling time period records of the amount of solvent used each month and 12-month rolling time period. All records were kept on file for a period of at least five years and made available to the Department upon request. Records of solvent usage reviewed indicated compliance [Attachment* Degreaser].

28. SC. 3.4: DCI kept, in a satisfactory manner, monthly and 12-month rolling time period records of calculations of the n-propyl bromide emissions for EUDEGREASER. All records were kept on file for a period of at least five years and made available to the Department upon request. Records of calculations and format covering the last 12 months indicate compliance are attached [Attachment *DEGREASER].

29. SC. 3.5: The Stack/Vent SVGENERAL3, diameter 36" and height 23' discharged exhaust gases unobstructed vertically upwards to the ambient air. Staff made visual inspection and confirmed compliance.

Rule 301: DCI routed all gases generated from the process to the ambient air through a dust collector located on top of the building. Contaminants removed by the baghouse are disposed off-site by a contractor. Gases discharged from the dust collector indicated zero opacity.

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 which is 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 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 instead of (+/-) inches of water gauge.

Finally, at 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 appears that Fumetrol 21LF2 might contain a PFAS or another similar compound but does not appear to contain PFOS.

APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS:

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

FINAL COMPLIANCE DETERMINATION:

The DCI facility was inspected for compliance determination. The facility kept and maintained operation records in a satisfactory manner. The inspection determined the facility operated in compliance with federal regulatory requirements and AQD Permit No. 183-02 and MACT, Subparts A & N conditions. DCI operates a chrome plating process that might have PFAS content in the wetting agent.

NAME th

DATE 12/10/2018 SUPERVISOR JK