DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Self Initiated Inspection

N563735677

FACILITY: Surface Activation Technologies, Inc.		**SRN / ID:** N5637
LOCATION: 1837 THUNDERBIRD., TROY		**DISTRICT:** Southeast Michigan
CITY: TROY		**COUNTY:** OAKLAND
CONTACT: Brad Radke , Process Engineer		**ACTIVITY DATE:** 07/20/2016
STAFF: Tyler Salamasick	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Inspection of new permit conditions.		
RESOLVED COMPLAINTS:		

Background

Surface Activation Technologies, Inc. (SAT or the facility) SRN: N5637 is a plating facility located at 1837 Thunderbird Street, Troy, Michigan. The manufacturing facility was inspected on Wednesday 7/20/16 by Sam Liveson and me, Tyler Salamasick of the Michigan Department of Environmental Quality, Air Quality Division. The intent of the inspecting was to determine compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, and Michigan's Air Pollution Control Rules. SAT currently holds permit(s) No. 65-14A. SAT recently updated permit No. 65-14. SAT has been located at the current location since 2006. Between 2006 and 2014 SAT operated as a research and development facility, and now operates as a manufacturing facility for special application plated plastics as well as decorative chrome plastics.

The site contact is the Plant Manager, Brad Radke (586) 630-8974 bradr@satplating.com. Anastasia Plonkey (248) 273-0037 anastasia@satplating.com joined Brad, Sam and I on our record review portion of the inspection.

Inspection

Site arrival was at 9:20 am Wednesday morning. The weather conditions were 75F with a SSE wind at 2 mph and clear. SAT is located in a primarily industrial area with the nearest residential structure approximately 650ft east of the facility. I was greeted by Anastasia. Upon meeting we reviewed the permits as well as the required records and the facilities malfunction abatement plan. Brad Radke joined us after he finished his meeting. Anastasia informed me that Surface Activation Technologies, Inc. has 16 employees and operates between the hours of 7am and 5pm, Monday through Friday depending on production demands. After discussing the permit and reviewing records Brad showed Sam and I the facility and their operations.

Records and visual conformation for FGPBS- Two lines controlled by a pack bed scrubber system with a mist eliminator

Process and operational restrictions requires the permitee to operate the equipment with a malfunction abatement plan in place and properly implemented. The malfunction abatement plan primarily focuses on inspecting and proper operation of the manufacturing equipment as well as the control equipment. The pollution control equipment for the two lines is a pack bed scrubber system which is equipped with a differential pressure gauge and a mist eliminator as required by SC III.1. **(R 336.1224, R 336.1225, R 336.1910)**. The facility takes daily records of the water flow as well as the pressure drop as required by permit condition Vi Monitoring and Recordkeeping **(R 336.1224, R 336.1225, R 336.1910)**. During the inspection of the equipment Brad showed me the pressure drop as well as the water flow and both readings were consistent with the facilities records. In addition to reading the gauges the viewing window on the pack bed scrubber clearly showed water flowing in the device.

Monitoring and record keeping also requires quarterly inspections of the equipment. The malfunction abatement plan includes quarterly inspections of the packed bag scrubber as well as what components must be inspected. Anastasia provided me with a copy of the quarterly inspections of the equipment, which appear to be compliant with the SAT's malfunction abatement plan. These inspections include but are not limited to inspecting the back section of the chevron-blade mist eliminator, inspection of the duct work, and visual inspection of the pack beds. The records from 2015 through this year's first quarter do not show any major damages or issues.

Records and visual conformation for FGCPM- Two decorative chrome plating tanks and one chrome etch tank.

Process and operational restrictions requires the permitee to operate the equipment with a malfunction abatement plan in place and properly implemented. This plan must contain all information required by 40 CFR 63.342(f)(3)(i). The malfunction abatement plan primarily focuses on inspecting and proper operation of the manufacturing equipment as well as the control equipment. The pollution control equipment for the chrome tanks consists of a three stage mesh pad scrubber system with a HEPA filter as required by permit condition 2 process and operation restrictions. SAT's equipment review and checklist was reviewed by AQD staff and appears to comply with parts 1(a), (b),(c) and (d) of the process/operational restrictions requirement in the permit. SAT currently operates the process with the previous MAP in place and has 90 days from the issuance of Permit 65-14A (issued June 14th, 2016). AQD is currently waiting for the new MAP to be submitted (by September 12th 2016). Rule **R 336.1910** and federal regulation **40 CFR Part 63.342 (d)(3)** require the surface tension to not exceed 40 dynes/cm as measured by a stalagmometer or does not exceed 33 dynes/cm (2.3x10-3 pound-forceper foot) as measured by a tensiometer. SAT opted to use a stalagmometer because they believe it is a more accurate test. The surface tension is used as a pollution control measure because by maintaining a lower surface tension the fluid does not create as large of bubbles. In combination with the fume suppressant the bubble when they do burst are less likely to emit chromic acid. Brad Radke showed AQD staff the quality control lab used to measure the surface tension. The stalagmometer is a glass cylinder with a bulb in the center of the stem. The analyst then adds the sample and counts the droplets of the fluid in order to use an equation to determine the surface tension. The records show the highest surface tensions in the 39 dyne range. This is very close to the permit condition of a maximum of 40 dynes/cm considering the surface tension ranges between roughly 39 and 23 dynes/ cm.

Design/equipment parameters section IV part 1 requires the process shall not be operate unless the composite mesh pad system with HEPA filter is installed, maintained, and operated in a satisfactory manner **(R 336.1224, R 336.1225, R 336.1910).** Brad showed AQD both control devices as well as the differential pressure monitoring device. The HEPA filter and the composite mesh pad system appeared to be in good working order at the time of the inspection. The pressure drop reading was consistent with the records that SAT maintained and it did not read in exceedance of +/- 2 inches of water.

Monitoring and record keeping section VI in part requires the facility keeps records for the surface tension. Part 1 of section VI details the testing regiment required to establish a safe regular testing regiment. Section IV part 1 reads-

> The permittee shall monitor the surface tension of each decorative chrome plating tank in FGCMP once every four (4) hours of tank operation for the first 40 hours of tank operation. If there are no exceedances during the first 40 hours of tank operation, then surface tension measurements may be conducted once every eight (8) hours of tank operation for the next 40 hours of tank operation. If there are no exceedances during the 40 hours of tank operation when surface tension measurements are being conducted every eight (8) hours, then surface tension measurements may be conducted once every 40 hours of tank operation on an ongoing basis, until an exceedance occurs. Once an exceedance occurs as indicated through surface tension monitoring, the original monitoring schedule of once every four hours must be resumed and the subsequent decrease in frequency shall follow the schedule as laid out above. The minimum frequency of monitoring allowed is once every 40 hours of tank operation. The surface tension shall be monitored with a stalagmometer or tensiometer as specified in Method 306B of 40 CFR Subpart N. **(R 336.1910, 40 CFR Part 63.343(c)(5))**

SAT has not shown an exceedance of the 40 dyne/cm stalagmometer limit in the permit and NESHAP but did perform the required testing frequency during the startup of the process. In addition to this the facility tests on a daily basis (if the process is used that day) as a means of quality control. This is exceeds the amount of testing required by both the federal regulation as well as the permit condition. Anastasia provided me with documentation of daily pressure drop and wash down rate as required by 2(a) of record requirements **(R 336.1224, R 336.1225, R 336.1910).** Anastasia also provided me with the required documentation for quarterly inspections of the CMP system check to ensure there is proper drainage, no chromic acid build up on the pads, and no evidence of chemical attack on the structural integrity of the control device. The quarterly inspections also included inspecting the back portion of the mesh pad closest to the fan to ensure there is no breakthrough of chromic acid mist, and the ductwork for corrosion from the tanks. This documentation covers the requirements of recordkeeping 2(b), (c) and (d). The quarterly records meet the requirements of part 4 except the time the inspection was done. I informed Brad that this is a violation of the permit requirement but I would use

enforcement discretion if the form was corrected. On July 20th 2016 Anastasia emailed me a copy of the corrected form that now includes the time of the inspection. AQD staff should confirm that the correct form during future inspections. The surface tension records also included the addition of the chemical fume suppressant as required by **40 CFR Part 63 Subparts A and N.**

Conclusion

It appears that they are in compliance with permit(s) No.65-14A. In addition to the permit requirements the facility is subject to federal regulations **40 CFR Part 63 Subparts A, N and WWWWWW**. Per the above text it appears the facility is in compliance with the federal regulations.

NAME _____ DATE 7/26/16 SUPERVISOR CJE