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

P010153496

FACILITY: Bodycote Thermal Processing		**SRN / ID:** P0101
LOCATION: 2127 Willow St, LANSING		**DISTRICT:** Lansing
CITY: LANSING		**COUNTY:** INGHAM
CONTACT: Dave Warner , Project Manager		**ACTIVITY DATE:** 12/20/2019
STAFF: Michelle Luplow	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Scheduled announced inspection to determine compliance with Bodycote Thermal Processing's PTI 20-18		
RESOLVED COMPLAINTS:		

AQD Inspector: Michelle Luplow

Bodycote Remediation contacts: Dave Warner, ASI Environmental Project Manager (davewarner@asienvironmental.com)
Thomas Anderson, Bodycote Director of Safety (tom.anderson@bodycote.com)

Purpose
Conducted an announced, scheduled compliance inspection of Bodycote Thermal Processing Remediation activities to determine compliance under PTI 28-10 for a soil vapor extraction system. There are no AQD files which indicate that this source has been inspected in the past.

Facility Background/Regulatory Discussion
Prior to this inspection, on December 19, 2019, I had been conducting an inspection at Shingle Cycle and found that there were remediation trailers still onsite at this address. I verified with Shingle Cycle staff at that time that neither the remediation trailers, nor PTI 28-10, were part of Shingle Cycle's business operations, and therefore should be inspected as a separate source, under a separate SRN.

Bodycote Thermal Processing (Bodycote) originally had the same SRN as Shingle Cycle (P0101) in MACES. I worked with Dennis McGeen, who found that historically B7609 was assigned to Shingle Cycle. We then separated Bodycote and Shingle Cycle with two separate SRN's because although they share the same physical address, they are not the same facility, nor do the operations between these two facilities overlap. Shingle Cycle is now covered under B7609, and Bodycote Thermal Processing remediation activities are covered under P0101.

Bodycote is conducting insitu remediation of the onsite soil that, according to their PTI application, is contaminated with halogenated VOC's and other petroleum-based VOC's. Activities are to remediate the soil under the former Bodycote Thermal Processing building located at 2127 W. Willow St, Lansing. All vapors are passed through a dual-stage granular activated carbon system prior to discharge to ambient air.

Remediation is still ongoing at this site.

Inspection:
I arrived at the remediation trailer at approximately 9:45 a.m. on December 20, 2019 and met with Dave Warner, ASI consultant. This inspection was announced to ensure that D. Warner would be able to meet me onsite.

While onsite I found that an additional remediation trailer was onsite for vapor intrusion at the former Bodycote site, as well as being informed by D. Warner that remediation for vapor intrusion was also occurring under the building located at 2207 W. Willow, next door. We briefly took a look at these two additional sites. D. Warner said that the additional remediation at the former Bodycote site was installed and operated starting in May 2019 and the remediation being conducted at 2207 W. Willow began in February 2017. He stated that these two remediation activities were being conducted using Rule 290. Self-initiated inspection reports for these two additional remediation activities will be written once I receive the proper Rule 290 demonstrations for each from D. Warner.

Table 1 contains a list of all equipment which I identified during the inspection.

Table 1. Equipment located onsite

Emission Unit	Description	PTI/Exemption	Federal Regulation, if applicable
Soil vapor extraction (SVE) system	**SVE to remediate contaminated soil.** **16 wells beneath building floor** **127 scfm blower for vacuum** **Air stream filtered for PM** **Scrubber: Dual-stage granular activated carbon**	**28-10**	**NA**

PTI 28-10 (SVE System with GAC control)
PTI 28-10 covers processes associated with EUSOIL, a soil vapor extraction system consisting of extraction wells, vacuum blowers, and an air flow distribution system equipped with a dual-stage activated carbon system. The system was installed March 17, 2010. D. Warner said that remediation in this area is slow because of the types of soils the contaminants are held in.

There are currently no Material Limits or Process/Operational Restrictions for EUSOIL.

Emission Limits, Testing/Sampling, Monitoring/Recordkeeping, & Reporting Requirements
The flow rate, total VOC and vinyl chloride concentrations, and calculations of emission rates are required to be reported to AQD on a monthly basis, 30 days following the end of the month in which the data were collected.

I reviewed the Bodycote AQD files and found that the AQD has not received a report from Bodycote since April 2013. I addressed this with D. Warner onsite and explained that a violation notice would be forthcoming for the missing reports from May 2013 through the current date. **A violation notice will be sent to address the missed reporting from May 2013 – December 2019**. January 2020 and February 2020 emissions monthly reports were submitted via email, although as discussed below, the emissions have not been calculated according to PTI requirements.

Bodycote is limited to 0.5 tpy VOC and 0.075 tpy vinyl chloride, on a 12-month rolling basis. Bodycote is required to monitor and record the flow rate, total VOC concentration, and vinyl chloride concentration of the influent stream to the carbon vessels on a quarterly basis and use this information to calculate VOC and vinyl chloride emissions on a monthly basis using Appendix 1 in the PTI; 12-month rolling records are required to then be calculated from the monthly emission rates.

D. Warner provided me with monthly reports for 2014 – 2019, containing VOC and vinyl chloride emissions. Only 2017 – 2019 records were reviewed, in addition to those reports submitted to AQD 2010 – 2013. D. Warner said that vinyl chloride is a degradation product of tetrachloroethylene (TCE), and all reports submitted to AQD 2010-2013, as well as the 2017 – 2019 records, have all shown that vinyl chloride is not present in the influent stream to the carbon vessels. He said that vinyl chloride is detected in the soil gas, but that by the time it comes to the remediation system there is never a detectable amount to determine emissions, but there are detectable levels of TCE. D. Warner provided me with the lab analytical data for various samples collected 2013 – 2019 on the influent stream; I reviewed these and the data consistently indicates that vinyl chloride is not detected.

D. Warner said that he calculates the VOC and vinyl chloride concentrations retained by the carbon by using the raw lab analysis data from the most recent sampling event and the most recent flow rate, as well as their own calculation (provided in their monthly reports); ASI assumes that all effluent is much less than the Tedlar bag detection limit (<1 mg/m3) and therefore reports a 0 for effluent emissions, which he reported as 0's for monthly and 12-month rolling records as well. The VOCs retained by the carbon is indicated by the "UC" or "uncontrolled" columns in the monthly reports. See attached records. The permit requires that VOC and vinyl chloride emissions be calculated using the equation in Appendix 1, which uses the influent value, flow rate, and a control efficiency of 95%. **The violation notice will include a violation for not calculating the VOC emissions according to the Appendix 1 in the PTI.**

The flow rate, VOC and vinyl chloride concentrations at the inlet are not monitored and recorded on a quarterly basis. Records ("Daily Operations & Maintenance Log" and lab analytical results, see attached) indicate that for calendar years 2015 – 2019 gas sampling was only taken once per year. Gas samples are required to be obtained quarterly, with less frequent sampling if the company requested such. D. Warner stated that they did not submit a request to decrease the sampling frequency, but said they decreased sampling frequency because of the small quantities that were being removed from the soil. There are no records in the AQD files indicating that a request for decreased sampling frequency was made.

The violation notice will include a violation for failure to sample and test the influent on a quarterly basis.

Although emissions were not calculated correctly, D. Warner did provide data that could be a worst-case estimation of what emissions would be, assuming that all emissions in the influent were emitted (keeping in mind that the data was not updated with new concentration values on a quarterly basis). For example, looking at the 12-month rolling from January – December 2019, the total pounds "recovered" (which is a calculation of the total VOC ppb from the lab analysis and a flow rate to get a lb/hr and then a lb/month) was 3.85 lbs (1.9 E-3 tons). The limit per 12-month rolling period is 0.5 tons VOC per year. Assuming all VOCs in the influent are emitted (no carbon control), Bodycote would still be in compliance with their VOC emission limits.

Bodycote is required to check for breakthrough between the first and second carbon canisters once every two weeks, at a minimum, using Tedlar bag sampling and lab analysis, a hand-held instrument capable of detecting concentrations at the levels expected, or an equivalent method. D. Warner said they use a PID to check the mid-fluent, and it has a 0.1 ppm detection limit, which he said falls into the range of the levels expected. The "Daily Operations & Maintenance Log" which D. Warner provided for various months from 2013 – 2019, is where D. Warner also records the PID ppm of the influent, midfluent (between carbon vessels), and effluent. This log sheet is filled out every time an ASI consultant comes out to the station, which on average equates to once per month. The log also has a spot indicating whether a carbon changeout has occurred.

I reviewed the "Daily Operations & Maintenance Log" records from September 2017 – December 2019. It appears that the midfluent was not checked for breakthrough once every two weeks. Reduced frequency in testing can be requested, but the AQD has no records for a sampling frequency decrease request, and D. Warner also stated that they did not request a change in sampling frequency. Based on the records submitted, breakthroughs were only checked March (once), May (once), June (once), July (3 weeks), September (once), November (once), December (4 weeks) 2019; January (once), April (once), May (once), September (once), October 2018 once); and September 2017 (once) for the record review period September 2017 – December 2019. **The violation notice will include a violation for failure to check for breakthrough between the two activated carbon vessels every two weeks.**

In addition to sampling frequency to check for breakthrough, records of carbon changeout and measurements of the influent concentration into the first stage contactor of the carbon vessels to check for breakthrough is required once every 2 weeks. When the midfluent (concentration between the two carbon vessels) is 20% or greater of the influent concentration, it is considered breakthrough and the carbon in the first stage contactor is required to be changed. The "Daily Operations & Maintenance Log" includes a line item to record whether carbon was changed out (Yes/No). Review of the September 2017 – December 2019 records shows that breakthrough occurred multiple times and that the carbon was not changed out for any of those incidents. See Table 2 for breakthrough and carbon changeout data (and attached record examples). **The violation notice will include failure to properly identify breakthrough and to change the carbon when the breakthrough was detected.**

Table 2. Breakthrough and Carbon Changeouts (*indicates breakthrough)

Date	Influent (ppm)	Midfluent (ppm)	20% Influent value (ppm)	Breakthrough?	Carbon Changeout?
*9/26/2017	1.4	1.8	1.68	Yes	No
1/12/2018	0.5	0	0.6	No	NA
4/13/2018	0.1	0	0.12	No	NA
5/31/2018	0.5	0.3	0.6	No	NA
9/18/2018	0.6	0.6	0.72	No	NA
*10/15/2018	0.6	1.5	0.72	Yes	No
3/11/2019	0.4	0.1	0.48	No	NA
*5/29/2019	0.5	0.8	0.6	Yes	No
6/25/2019	0.6	0.4	0.72	No	NA
7/18/2019	1	0.7	1.2	No	NA
*9/24/2019	1.1	1.5	1.32	Yes	No
*11/15/2019	0.4	0.5	0.48	Yes	No
12/3/2019	0.3	0.3	0.36	No	NA
12/12/2019	0.2	0.1	0.24	No	NA
12/20/2019	0.5	0.1	0.6	No	NA
*12/27/2019	1.3	1.8	1.56	Yes	No

Design/Equipment Parameters & Monitoring/Recordkeeping

The remediation system cannot be operated unless the dual-stage activated carbon system is installed, maintained and

operated in a satisfactory manner.

The reviewed records show that the first stage carbon canister was not replaced during events of breakthrough, and therefore, the carbon system was not consistently operated and maintained in a satisfactory manner. **This item will be included in the violation notice.** Despite not maintaining and operating the carbon system from a breakthrough/carbon changeout point of view, the "Daily Operations & Maintenance Log" does show other components of the system that are reviewed and checked to ensure the system on a whole is operating properly. This includes the blower vacuum, air flow, emissions from the stack, qualitative odor checks, and pressure within the carbon system.

Rule 290

D. Warner mentioned after the inspection that Bodycote wants to operate the SVE under the Rule 290 exemption because the emissions are lower than Rule 290 thresholds. He then requested, per Tom Anderson's approval, that PTI 28-10 be voided in order to operate under exemption Rule 290. I explained that while the equipment may be eligible for the Rule 290 exemption, it is currently operating under a permit, and therefore will be regulated under the permit until a Rule 290 demonstration can be made. I explained to D. Warner that I will request that PTI 28-10 be voided once we have resolved violations associated with PTI 28-10 and Bodycote can demonstrate that they will be able to meet Rule 290. At this time there is not enough information to determine that this remediation process is Rule 290 exempt.

Compliance Statement: Bodycote will be sent a violation notice for the bolded items found throughout this inspection report.

NAME Michelle Luplow DATE 4/30/20 SUPERVISOR B.M.