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manila  
Livingston

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

A293151035

FACILITY: DIAMOND CHROME PLATING INC		SRN / ID: A2931
LOCATION: 604 S MICHIGAN, HOWELL		DISTRICT: Lansing
CITY: HOWELL		COUNTY: LIVINGSTON
CONTACT: Scott Wright , Environmental Manager		ACTIVITY DATE: 10/17/2019
STAFF: Daniel McGeen	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced, self-initiated inspection of BACT-72A vapor degreaser.		
RESOLVED COMPLAINTS:		

On 10/17/2019, the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD) conducted an unannounced, self-initiated inspection of the BACT-72A vapor degreaser at Diamond Chrome Plating, Inc. (DCP). This does not replace the comprehensive, scheduled inspection of the entire plant which will be done later this fiscal year, unannounced.

Note: the phrase *scheduled inspection* means that an inspection has been committed to, during a new fiscal year, by AQD, as part of the Compliance Monitoring Strategy (CMS) which AQD follows. It does not mean that the inspection is pre-arranged with the facility.

Environmental contact:

Scott Wright, Environmental Manager; 517-546-0150; [env@diamondchromeplating.com](mailto:env@diamondchromeplating.com)

Facility description:

DCP is a *large hard chromium electroplater*, as defined in 40 CFR Part 63 Subpart N, and they also conduct cadmium and nickel plating. They are a job shop, and plate aircraft landing gear, commercial hydraulics, industrial dies, and miscellaneous parts.

Emission unit and regulations relevant to today's partial, self-initiated inspection:

Emission unit description	Regulatory requirements	Control devices and/or operating practices	Compliance status
BACT-72A open top batch vapor degreaser	40 CFR Part 63, Subpart T; Michigan Air Pollution Control Rules 201 and 285(r)(2)(iv)	Dwell time, freeboard refrigeration device, reduced room draft, working mode and idle mode covers	Noncompliance, for gap between degreaser and working mode cover (parts basket roof)

\*An *emission unit* is any part of a stationary source which emits or has the potential to emit an air contaminant. The above listed emission unit is one of many emission units onsite.

Regulatory overview:

The original 2006 multi-media Joint Consent Decree (JCD) for DCP was replaced, as of 7/28/2015, by a First Amended Consent Decree (FACD), Case No. 03-1862-CE. The purpose of the JCD was to address not only air issues, but also contamination of soil, stormwater, and groundwater. The FACD is an updated document, reflecting changes in circumstances and regulations, since the JCD was written. AQD is just one of the EGLE divisions which use the FACD as a regulatory tool. Vapor degreasing is not referenced in the FACD, as violations of air requirements for vapor degreasing with Subpart T-subject halogenated hazardous air pollutant solvents were not known to exist at that time.

DCP is considered to be a true minor source, rather than a major source, of air emissions. A *major source* has the potential to emit (PTE) of 100 tons per year (TPY) or more, of one of the criteria pollutants. *Criteria pollutants* are those for which a National Ambient Air Quality Standard exists, and include carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds (VOCs), lead, particulate matter smaller than 10 microns, and particulate matter smaller than 2.5 microns. DCP is also considered a minor, or *area source*, for Hazardous Air Pollutants (HAPs), because it is not known to

have a PTE of 10 TPY or more for a single HAP, nor to have a PTE of 25 TPY or more for combined HAPs.

In addition, DCP has six active air use permits, and various state and federal air regulations apply to a number of emission units. The regulations checked during the degreaser inspection today are only a fraction of the air pollution regulatory requirements which apply to DCP, because the batch vapor degreaser is the sole focus of this activity report. For the state and federal air pollution regulations applicable to the entire plant, please see AQD's 4/30/2019 inspection report.

The current vapor degreaser is a Vapor Engineering model BACT-72A unit, considered by DCP to be exempt from permitting when it was installed on 11/20/2018, under EGLE's Michigan Air Pollution Control (MAPC) Rule 285(2)(r)(iv). This rule exempts metal cleaning processes which exhaust only into the general, in-plant environment from the requirement of EGLE's MAPC Rule 201 to obtain a permit to install, as follows:

(r) Equipment used for any of the following metal treatment processes if the process emissions are only released into the general in-plant environment:

(iv) Cleaning.

Because the BACT-72A unit does not exhaust directly to the outdoor environment, it has been considered, in the past, to meet the exemption criteria, and a permit to install has not previously been required. However, recent sampling data, prior to today's date (10/17/2019), indicated TCE was leaving the plant, and traveling through the ambient air. This has negated the ability of the degreaser to qualify for the MAPC Rule 285(2)(r)(iv) exemption for releasing emissions only into the in-plant environment, and it is in violation of MAPC Rule 201, which requires a permit to install.

MAPC Rule 278 would preclude a major HAP source from using permit exemptions. Because the vapor degreaser is not classified as a major source of HAPs, it has been considered eligible to use an exemption, as long as it has met the relevant exemption criteria.

MAPC Rule 708 applies to new, open top batch vapor degreasers, and contains requirements for operational practices. A "new source" is defined in the AQD Part 7 Rules as any process or process equipment which is placed into operation on or after 7/1/1979, or for which PTI application is made on or after 7/1/1979, except for any process or process equipment defined as an "existing source." However, the BACT-72A was not previously considered to be subject to Rule 708, because Rule 708(6) states:

(6) The provisions of this rule do not apply to a new open top vapor degreaser that is subject to the provisions of the halogenated solvent cleaner national emission standards for hazardous air pollutants (1995), which are adopted by reference in R 336.1651.

The BACT-72A, as of 10/17/2019, was subject to 40 CFR Part 63, Subpart T, *National Emissions Standards for Halogenated Solvent Cleaning*, also known as the halogenated solvent cleaning NESHAP. It was therefore specifically excluded from Rule 708. This inspection report reviews compliance with Section 63.463 of Subpart T.

The 5/14/2019 PTE demonstration sent by BB&E indicates that, because the Solvent Air Interface (SAI) area is the same (1.67 meters squared) as with the now-removed Autosonics unit, the PTE should theoretically be the same. This also appears to be because the BACT-72A uses the same kinds of control equipment and the same kinds of operating practices as the Autosonics unit did. Potential TCE emissions were calculated based on 3 different theoretical control efficiencies: minimum, mid-range, and maximum:

1. Minimum range control efficiency results in TCE potential emissions of 18.9 TPY.
2. Mid-range control efficiency results in TCE potential emissions of 12.6 TPY.
3. Maximum control efficiency results in TCE potential emissions of 7.9 TPY.

Because DCP was using all of the control options in the PTE calculation example (from the AQD's

*PTE Workbook*), BB&E's Mr. Tanner Weekley had advised me that they believed the 7.9 TPY TCE was the appropriate value to use.

Fee status:

Because it is subject to area source Maximum Achievable Control Technology (MACT) standards (40 CFR Part 63, Subparts N and T), DCP has been classified as a Category III fee source, and has paid an annual fee to the AQD. This is not a fee to use their vapor degreaser or to conduct chrome plating, but a fee for being subject to one or more area source MACT regulations which AQD has been delegated authority to implement. The AQD fee program has recently been restructured, however, and the Category III designation has now been replaced by a "Category F" designation. The facility is required to report each year to the Michigan Air Emission Reporting System (MAERS).

Location:

DCP is located south of downtown Howell. Immediately north of the plant are a small DCP parking lot, and a residential neighborhood. To the immediate east is another residential neighborhood. To the west is a community park, and a residential neighborhood. To the south is the CSX Transportation railroad line, with industrial and commercial facilities to the south and southeast.

Site history, regarding past and current use of vapor degreasers:

DCP was established on 11/23/1953, according to the company's website. The earliest documentation AQD has on solvent cleaning at DCP is from a 4/17/1980 inspection report, which referenced a "degreaser." It is not clear if that was an actual vapor degreaser, which heats solvent to the boiling point, or simply a cold cleaner, which does not heat solvent to the boiling point. A 4/23/1980 letter from AQD to the company referenced dichloroethane being used in the degreaser. On 3/11/1981, AQD first documented use of TCE in a degreaser at DCP. On 7/1/1981, an AQD inspection first specifically noted a "vapor degreaser" onsite. Since that time, vapor degreasers at DCP have used TCE, and sometimes 1,1,1-trichloroethane, also known as methyl chloroform. There is a history of TCE contamination in the soil and groundwater at the site.

The new Vapor Engineering BACT-72A batch vapor degreaser was reported to be installed on 11/20/2018, replacing a used Autosonic batch vapor degreaser which DCP had operated since 1998. The BACT-72A was said to have been brand new when it arrived onsite, in July, 2018. The unit was said to have arrived with a damaged chiller, but this was reportedly replaced, before the unit was installed and operated. This is at least the fifth vapor degreaser which has operated at this site.

In March of 2019, sampling by DCP's consultant, BB&E, indicated the presence of TCE in three adjacent residential basements. RRD has overseen DCP's subsequent investigation, and air purifying units were placed in the three residences by DCP. Data from sampling activities has been shared with AQD, as well as with the Michigan Department of Health and Human Services (DHHS) and the Livingston County Health Department (LCHD).

Note: because this inspection activity report focuses on the 10/17/2019 inspection by AQD, post-10/17/2019 sample results and actions taken by EGLE, DHHS, and LCHD are not discussed in this report.

On 7/31/2019, AQD received from DCP's environmental consulting firm, BB&E, a *Quarter 2 - 2019 Exceedance Report*, for the time period 4/1/2019 through 6/30/2019. It was stated that they had experienced 7 temperature exceedances of the Subpart T freeboard refrigeration device (FRD) temperature limit. This requirement limits the chilled air blanket temperature to no more than 30% of the temperature of the solvent's boiling point. The solvent was TCE, with a boiling point of 188.06 degrees F, and so 30% of the boiling point was 56.4 degrees F. AQD sent a Violation Notice (VN) for this, on 9/3/2019, and DCP's consultant, BB&E, sent a response on their behalf, dated 9/25/2019. This response outlined activities which had been conducted to reduce the temperature to an appropriate level, but indicated that this effort was still ongoing.

**Notes on safety regarding the degreaser and TCE:**

**As stated by the Agency for Toxic Substances and Disease Registry: *The recognition odor threshold for TCE is 110 ppm which is slightly higher than the OSHA PEL (100 ppm); thus odor generally provides an inadequate indication of hazardous concentrations.* This means that if a person is able to smell TCE, they are being exposed to the solvent at a level over the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL).**

**A catwalk or elevated platform runs along the forward edge of the degreaser. The far left end of the catwalk has a drop of about one foot, to a lower level. AQD staff examining the degreaser should be aware of the potential for a falling or tripping hazard, at this drop-off.**

**Safety apparel required:**

**It is my understanding that safety glasses with side-shields, are required in the plant. AQD staff should bring hearing protection to the plant, since processes in the west plant may be loud, at times.**

**Odor evaluation:**

**Before arriving, I drove around DCP on the closest public streets; Michigan Avenue, Mason Road, Walnut Street, Livingston Street, and back to Michigan Avenue. I drove this route twice. At 9:15 AM, I was barely able to detect an odor, but it was so faint, I could not identify the character of the odor. I was immediately east of the plant, at the railroad crossing on S. Michigan Avenue. On my second time circling the plant, I was not able to detect any odor. Weather conditions were 43 degrees F and cloudy, with winds 10 miles per hour out of the west or northwest, by my estimate.**

**While driving, I observed an attached steam plume from the DCP nickel scrubber's conical exhaust outlet. I did not see any discoloration from the plume. Steam is uncombined water vapor, which is not a regulated air pollutant. A steam plume is sometimes visible from the nickel scrubber, during cool weather.**

**I parked in the parking lot north of the plant at 9:19 AM. I could not detect any odors. There were no visible emissions from the scrubber #3 or 4 stacks, the cooling tower, or the roofline of the plant.**

**Arrival:**

**I went to the plant office, and signed in. I brought my identification/credentials, per AQD procedure. I met with Mr. Scott Wright, Environmental Manager, and with BB&E's Ms. Kacie Van Buskirk, Environmental Scientist. I explained the reason for my visit, to attempt to see the BACT-72A degreaser cleaning parts. Since its installation on 11/20/2018, I have seen the unit on 4/30/2019 and 10/14/2019, but only when it was idling.**

**Inspection:**

**As of today's date, the BACT-72A vapor degreaser used TCE, and was subject to 40 CFR Part 63, Subpart T, the NESHAP for halogenated solvent cleaning. A halogenated solvent is one which contains chlorine, bromine, or fluorine. Although many different halogenated compounds exist, Subpart T applies only to solvent cleaning machines using 6 specific halogenated compounds. Section 63.460(a) of Subpart T states:**

63.460 Applicability and designation of source.

(a) The provisions of this subpart apply to each individual batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machine that uses any solvent containing methylene chloride (CAS No. 75-09-2), perchloroethylene (CAS No. 127-18-4), trichloroethylene (CAS No. 79-01-6), 1,1,1-trichloroethane (CAS No. 71-55-6), carbon tetrachloride (CAS No. 56-23-5) or chloroform (CAS No. 67-66-3), or any combination of these halogenated HAP solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent. The concentration of these solvents may be determined using EPA test method 18, material safety data

sheets, or engineering calculations. Wipe cleaning activities, such as using a rag containing halogenated solvent or a spray cleaner containing halogenated solvent are not covered under the provisions of this subpart.

**The term "halogenated hazardous air pollutant solvent" is defined in 40 CFR Part 63, Subpart T, as follows:**

*Halogenated hazardous air pollutant solvent or halogenated HAP solvent* means methylene chloride (CAS No. 75-09-2), perchloroethylene (CAS No. 127-18-4), trichloroethylene (CAS No. 79-01-6), 1,1,1-trichloroethane (CAS No. 71-55-6), carbon tetrachloride (CAS No. 56-23-5), and chloroform (CAS No. 67-66-3).

**40 CFR Part 63, Subpart T classifies batch vapor cleaning machines according to Solvent Air Interface (SAI) size. Under Subpart T, this BACT-72A unit is classified as a *large machine*, because at 1.67 square meters, it is over the *large* threshold of 1.21 square meters or 13 square feet. Under Subpart T, it is classified as a *new unit*, because it was manufactured after 11/29/1993.**

**Background on chilled air blanket exceedances, and the appropriate location to monitor temperature, under Subpart T:**

The BACT-72A vapor degreaser uses a Freeboard Refrigeration Device (FRD), to create a chilled air blanket within the degreaser, to reduce the level of vapors which may be emitted. This is a compliance option allowed under 40 CFR Part 63, Subpart T. The NESHAP's Section 63.463(e)(2) requires that the chilled air blanket temperature, where a FRD is used to comply with Subpart T, is no greater than 30% of the solvent's boiling point. For TCE, with a boiling point of 188.06 degrees F, 30% corresponds to 56.4 degrees F.

**Note: "Air blanket" is defined in 40 CFR, Part 63, Subpart T, as follows:**

*Air blanket* means the layer of air inside the solvent cleaning machine freeboard located above the solvent/air interface. The centerline of the air blanket is equidistant between the sides of the machine.

**As previously mentioned in this activity report, on 7/31/2019, DCP submitted a *Quarter 2 - 2019 Exceedance Report* to AQD. It identified seven exceedances of the chilled air blanket temperature limit. On 9/3/2019, AQD sent a Violation Notice (VN) to DCP, for these exceedances.**

**On 9/20/2019, BB&E's Ms. Holtz called AQD to explain that DCP has been taking temperature measurements of the chilled air blanket at a point equidistant between the sides of the machine, to try to take the temperature at the center, per Section 63.463(e)(2)(i). They have also been trying to take the temperature at the center point vertically of the chilled air blanket, as I understand it. Most of the time their unit is below 30% of the solvent (TCE) boiling point, as required, but there have been occasional exceedances, which they are trying to correct.**

**A 9/25/2019 VN response was submitted by BB&E, on behalf of DCP. It reported the corrective actions which DCP had undertaken since they noted the temperature exceedances, and since the receipt of the 9/3/2019 VN. These included inspection by DCP staff of the degreaser, lowering of the water jacket temperature to their desired temperature range, and verification that the temperature probe they were using was certified and was operating properly. These also included actions pursuant to recommendations by Vapor Engineering, who manufactured the BACT-72A, such as lowering the placement of the "thermos bulb" so that the vapor line would not be too high in the unit, and disabling several idling mode heaters. These idling mode heaters were said to be unnecessary, and so disabling them was reportedly done to try to reduce freeboard temperature.**

**In the 9/25 letter, and by phone on 9/20, Ms. Holtz explained that when DCP contacted Vapor Engineering, they were told that they were taking the temperature of the chilled air blanket in the wrong location. From reading the NESHAP, and from reading guidance from the U.S. Environmental Protection Agency (EPA), it is my determination that DCP and BB&E were, in fact, measuring the temperature of the chilled air blanket in the correct location, and should continue to do so.**

**Examination of the BACT 72-A vapor degreaser; 40 CFR Part 63, Subpart T; Rule 201; Rule 285(2)(r)(iv):**

The serial number of the BACT-72A is 062718. It is characterized as a *large machine*, under the NESHAP. The freeboard for all the BACT models on the manufacturer's specification sheet states "125% FREEBOARD." Freeboard ratio therefore appears to be 1.25. This complies with 40 CFR Part 63, Subpart T, the Halogenated Solvent Cleaning NESHAP, which requires a freeboard ratio of at least 0.75.

I was taken to see the degreaser. It was in idling mode, at the time of my arrival. That is, the TCE in the machine's solvent sump was heated to the boiling point, and the chiller or condensing coils were on, while the bi-parting sliding doors atop the unit were closed. These doors would be called the *idling mode cover* or *downtime mode cover*, under 40 CFR Part 63, Subpart T. There was an intermittent, faint TCE odor adjacent to the degreaser.

The parts basket DCP uses to convey parts into the degreaser is the same one as was used for the now-removed Autosonics degreaser. This parts basket has a built-in metal roof. When the parts basket is lowered into the degreaser, the parts basket roof becomes the *working mode cover* to the degreaser, under Subpart T.

When checked today, the boiling chamber temperature had a set point (SP) of 190 degrees F, while the actual temperature process value (PV) was 186 degrees F. The boiling point of TCE is 188.06 degrees F, according to *Hawley's Condensed Chemical Dictionary Twelfth Edition*. The temperature of 190 degrees F is less than 10 degrees F above the boiling point of TCE, so the BACT-72A does not have superheated vapor as a control feature.

A chiller unit sits a short distance to the left of the degreaser, and one horizontal pipe sends chilled water and glycol to the degreaser, while another horizontal pipe sends the water and glycol back from the degreaser to the chiller unit, to be re-cooled.

**Chiller system data collected at 10:32 AM:**

- Chiller inlet line leading to the degreaser: 22 degrees F
- Exit point of upper level condensing coils: 27 degrees F
- Exit point of lower level condensing coils: 31-32 degrees F

The chiller inlet and outlet lines were cold enough that a thick layer of ice crystals had formed on them, where they were not surrounded by an insulating layer of foam. The addition of glycol to the water in the chiller lines, as explained to me during my previous visit on 10/14/2019, is what allowed DCP to drop the chiller temperature this low without the lines freezing on the inside. The 10/14 site visit is documented in a separate activity report.

There were no leaks of liquid visible from the BACT-72A.

The BACT-72A degreaser had been idling initially, as DCP did not have a basket of parts ready to be treated. However, as a courtesy to allow me see the process operate today, one of their operators found two parts which were placed in the parts basket, to be cleaned while I observed. Because these parts were for the military, I was asked to not take photographs during the cleaning cycle, due to International Traffic on Arms Regulations (ITAR) restrictions. I was assured that on a future occasion, I would be welcome to photograph the cleaning cycle, when parts for civilian customers are being cleaned.

When the degreaser's bi-parting sliding doors were open, to show me the condensing coils which comprise the FRD system, Mr. Wright and I stood on the adjacent catwalk, to look down into the unit. There were 6 horizontal cooling or condensing coils on the front and back inside walls of the degreaser, though not on the left and right inside walls. The condensing coils all had a visible layer of ice crystals on them. Mr. Wright felt that illustrates the lengths they have gone to, to improve the degreaser's performance. He explained that this was done in order to lower the temperature of the chilled air blanket, to comply with Subpart T. A layer of vapors was visible further down within the degreaser, in what may be called the vapor zone, but no visible emissions could be seen exiting the degreaser. Although I had detected an intermittent, faint TCE odor near the degreaser earlier, I did not detect a TCE

odor at this time, when the sliding doors were open.

Under Subpart T, the parts basket roof would be identified as the *working mode cover*, because it is used when parts are being cleaned. The parts basket was slowly lowered into the vapor degreaser by the automated hoist. As the parts in the part basket dropped below the plane of the 6 chiller coils, I noticed a distinct and definite odor of TCE. The odor then dropped to barely detectable, as the parts basket was fully lowered into the degreaser.

With the parts basket in the degreaser, it could be seen, along the front side of the unit, that there was a gap of what I initially estimated as over one inch between the upper edge of the degreaser, and the built-in roof of the parts basket. The actual width of the gap is said by DCP to be approximately one inch, however. Mr. Wright advised me that they are looking for ways to seal this gap, with a compatible material that will not be attacked by the TCE vapors.

The gap between the degreaser and parts basket roof appeared to be in noncompliance with Subpart T, which requires that a cover completely cover the openings in a degreaser, and be free of cracks, holes and other defects. For more details, please refer to AQD comments #18 and 19, later in this report, in the section devoted to checking compliance with specific requirements of Subpart T. Additionally, the gap appeared to violate Michigan Air Pollution Control Rule 910, which requires:

An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with these rules and existing law.

While standing on the catwalk, I checked for odors along the gap between the degreaser and parts basket roof. As the part cleaning cycle began, TCE odors were initially hard to detect, and were intermittent. Over the next few minutes, however, TCE odors became steadier, and grew distinct and definite, and eventually became stronger.

After the parts were removed from the vapor zone of the degreaser, they underwent a period of dwell time, which is required by Subpart T. When the parts were completely removed from the vapor degreaser by the automated hoist, I saw no solvent dripping from them.

As part of the degreaser inspection, I requested all recordkeeping related to the degreaser for Subpart T, for the past 6 months, to cover the time span since the 4/30/2019 inspection. Mr. Wright reminded me that they have had troubles trying to meet the chilled air blanket temperature requirement under Subpart T, and that I would see these instances reflected in their recordkeeping,. He pointed out that 7 exceedances had previously been reported to AQD in a *Quarter 2 - 2019 Exceedance Report*, dated 7/31/2019. AQD had cited these temperature exceedances, in the 9/3/2019 VN. I was informed that they have made a number of improvements to the degreaser, which have reduced the frequency and extent of the exceedances. I was told they have occasionally had some relatively minor temperature issues, which they are continuing to work on.

#### Review of Vapor Engineering BACT-72A degreaser's compliance with 40 CFR Part 63, Subpart T:

Under the NESHAP, Subpart T, owners/operators of batch vapor machines, such as the BACT-72A, may choose between two compliance options; either equipment compliance options under Section 63.463 of Subpart T, or with an overall emission limit, which is an alternative standard, in Section 63.464. DCP, at some point in the past, chose to comply with the equipment compliance options for previous vapor degreasers, and they have continued with this compliance option, since that time.

Please see requirements copied and pasted below, from the Halogenated Solvent Cleaner NESHAP, Subpart T, Sections 63.463, 63.468, and 63.471, and the AQD comments following each relevant requirement.

*Section 63.463(a):*  
*§63.463 Batch vapor and in-line cleaning machine standards.*

(a) Except as provided in §63.464 for all cleaning machines, each owner or operator of a solvent cleaning machine subject to the provisions of this subpart shall ensure that each existing or new batch vapor or in-line solvent cleaning machine subject to the provisions of this subpart conforms to the design requirements specified in paragraphs (a)(1) through (7) of this section. The owner or operator of a continuous web cleaning machine shall comply with the requirements of paragraph (g) or (h) of this section, as appropriate, in lieu of complying with this paragraph.

**AQD comment #1: Please see Section 63.463(a)(1) through (7), below, which are equipment standards for batch vapor solvent cleaning machines (such as the BACT-72A).**

Section 63.463(a)(1)(i):

(1) Each cleaning machine shall be designed or operated to meet the control equipment or technique requirements in paragraph (a)(1)(i) or (a)(1)(ii) of this section.

(i) An idling and downtime mode cover, as described in §63.463(d)(1)(i), that may be readily opened or closed, that completely covers the cleaning machine openings when in place, and is free of cracks, holes, and other defects.

**AQD comment #2: This unit has a sliding cover consisting of two doors which slide to the left or right, and which meet in the middle when they are closed. This is described in the operator's manual as a bi-parting sliding cover. It functions as the idling mode cover and downtime mode cover. The bi-parting sliding doors were closed when the unit was idling, and appeared free of holes, cracks, and other defects.**

**Note: DCP's EWI-008-B form is now labeled as the Working Cover (or Basket Cover) Recordkeeping Form. On 4/30/2019, when I had inspected the entire plant, this form had been labeled simply as the Cover Recordkeeping Form. I had mistaken this form as documentation for the idling mode cover, and this is reflected in my 4/30/2019 inspection activity report.**

Section 63.463(a)(1)(ii):

(ii) A reduced room draft as described in §63.463(e)(2)(ii).\*

\* This sets an indoor wind speed limit of 15.2 meters per minute or 50 feet per minute.

**AQD comment #3: The attached 2019 DCP recordkeeping form EWI-008-A Reduced Room Draft Windspeed Measurements recordkeeping Form shows weekly indoor wind speed measurements for the BACT-72A, for the time period 1/7/2019 to 10/18/2019, ranging from 10 to 35 feet per minute, thus in compliance.**

Section 63.463(a)(2):

(2) Each cleaning machine shall have a freeboard ratio of 0.75 or greater.

**AQD comment #4: The freeboard ratio of the Vapor Engineering BACT-72A batch vapor degreaser is rated at 125%, or 1.25, therefore complying with the equipment standard in Section 63.463(a)(2), above.**

Section 63.463(a)(3):

(3) Each cleaning machine shall have an automated parts handling system capable of moving parts or parts baskets at a speed of 3.4 meters per minute (11 feet per minute) or less from the initial loading of parts through removal of cleaned parts.

**AQD comment #5: The attached 2019 DCP recordkeeping form EWI-008D Automated Parts Handling-Hoist Speed Recordkeeping Form for the BACT-72A, for the time period 1/7/2019 to 10/18/2019 indicates**

that hoist speed ranged from 2.1 to 3.4 feet per minute, well below maximum allowable speed under the NESHAP of 11 feet per minute. This complies with the 63.463(a)(3) equipment standard under the NESHAP.

Section 63.463(a)(4):

*(4) Each vapor cleaning machine shall be equipped with a device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils. This requirement does not apply to a vapor cleaning machine that uses steam to heat the solvent.*

**AQD comment #6:** The BACT-72A operator's manual indicates that there is a "low solvent cut out" feature. It states that: *Degreaser has a float switch connected to the boiling chamber to shut off all[] heaters if the solvent level is too low for safe operation. A red indicator light will go on. It explains that when solvent is added to the appropriate operating level, the heaters will turn on again and the red warning light will go off. It appears DCP is meeting this requirement, as documented in a previous inspection report.*

Section 63.463(a)(5):

*(5) Each vapor cleaning machine shall be equipped with a vapor level control device that shuts off sump heat if the vapor level in the vapor cleaning machine rises above the height of the primary condenser.*

**AQD comment #7:** It appears that DCP is meeting this requirement, as documented in a previous inspection report.

Section 63.463(a)(6):

*(6) Each vapor cleaning machine shall have a primary condenser.*

**AQD comment #8:** The Vapor Engineering brochure for their BACT line of degreasers indicates that the BACT models have a primary vapor condenser, also known as a water jacket. DCP's BACT-72A therefore complies with the 63.463(a)(6) equipment standard, above.

Section 63.463(a)(7):

*(7) Each cleaning machine that uses a lip exhaust shall be designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber that meets the requirements of paragraph (e)(2)(vii) of this section.*

**AQD comment #9:** This is not applicable (NA), as DCP's BACT-72A does not have a lip exhaust.

**AQD comment #10:** The requirements of Section 63.463(b)(1)(i) Table 1 are not discussed here, because they only apply to batch vapor cleaning machines with a Solvent/Air Interface (SAI) of less than 1.21 square meters. The BACT-72A unit has a SAI of 1.67 square meters, and is not subject. It is classified as a *large machine* under the NESHAP.

Section 63.463(b)(1)(ii):

*(ii) Demonstrate that their solvent cleaning machine can achieve and maintain an idling emission limit of 0.22 kilograms per hour per square meter (0.045 pounds per hour per square foot) of solvent/air interface area as*

*determined using the procedures in §63.465(a) and appendix A to this part.*

**AQD comment #11: The requirements of Section 63.463(b)(1)(ii), above, do not apply to DCP's Vapor Engineering BACT-72A vapor degreaser, as the SAI of this batch vapor cleaning unit, at 1.67 square meters, is greater than 1.21 square meters.**

*Section 63.463(b)(2)(i):*

*(2) Each owner or operator of a batch vapor cleaning machine with a solvent/air interface area greater than 1.21 square meters (13 square feet) shall comply with the requirements specified in either paragraph (b)(2)(i) or (b)(2)(ii) of this section.*

*(i) Employ one of the control combinations listed in table 2 of this subpart or other equivalent methods of control as determined using the procedure in §63.469, equivalent methods of control.*

*Table 2—Control Combinations for Batch Vapor Solvent Cleaning Machines With a Solvent/Air Interface Area Greater than 1.21 Square Meters (13 Square Feet)*

*Option*

*Control combinations*

*1 Freeboard refrigeration device, freeboard ratio of 1.0, superheated vapor.*

*2 Dwell, freeboard refrigeration device, reduced room draft.*

*3 Working-mode cover, freeboard refrigeration device, superheated vapor.*

*4 Freeboard ratio of 1.0, reduced room draft, superheated vapor.*

*5 Freeboard refrigeration device, reduced room draft, superheated vapor.*

*6 Freeboard refrigeration device, reduced room draft, freeboard ratio of 1.0.*

*7 Freeboard refrigeration device, superheated vapor, carbon adsorber.*

*Note: Unlike most of the control techniques available for complying with this rule, carbon adsorbers are not considered to be a pollution prevention measure. Use of such units may impose additional cost and burden for a number of reasons. First, carbon adsorption units are generally more expensive than other controls listed in the options. Second, these units may present cross-media impacts such as effluent discharges if not properly operated and maintained, and spent carbon beds have to be disposed of as hazardous waste. When making decisions about what controls to install on halogenated solvent cleaning machines to meet the requirements of this rule, all of these factors should be weighed and pollution prevention measures are encouraged wherever possible.*

**AQD comment #12: Because the BACT-72A has a SAI of 1.67 square meters, the above requirement is applicable. Options 2 or 6 appear to be the most applicable. DCP tracks compliance with dwell time, FRD temperature, and room draft (indoor wind speed). They have reported FRD temperature exceedances, but complied with the requirements for the other controls.**

**AQD comment #13: The requirements of Section 63.463(b)(2)(ii), to achieve and maintain an idling emission limit, do not apply, as DCP chose the option of complying with Section 63.463(b)(2)(i) Table 2, instead.**

**AQD comment #14: Section 63.463(c) requirements are not discussed in this report, as they only apply to in-line cleaning machines. The BACT-72A is not an in-line cleaning machine.**

**AQD comment #15: Section 63.463(d)(1) through (d)(12) are *work practice standards*. Compliance status with these requirements is identified in the table below. These requirements appear to be met, at this time.**

Subpart of 63.463	Work Practice Standards	Compliance Status	Comments
(d)(1)(i)	Idling and downtime mode cover in place	Yes	Observed cover in place
(d)(1)(ii)	Reduced room draft (less than 15.2 meters/min. or 50 ft./min.)	Yes	See DCP's EWI-008A records of 1/7 – 10/18/2019
(d)(2)	Parts being cleaned shall not occupy more than 50% of SAI, unless introduced at speed of 0.9 meters/min. (3 ft./min.) or less	Yes	Observed parts cleaned today occupied less than 50% of SAI area
(d)(3)	Spraying operations done within vapor zone or in section of machine not directly exposed to ambient air	Yes	BB&E email indicated spraying is only done within vapor zone
(d)(4)	Parts oriented so solvent drains from them freely	Yes	Observed parts cleaned today were oriented so solvent drained freely
(d)(5)	Parts basket/parts not removed from cleaning machine until dripping has stopped	Yes	Observed dripping had ceased before parts basket/parts were removed
(d)(6)	Primary condenser turned on before sump heater during startup	Yes	BB&E email indicated that condenser is turned on first, during startup
(d)(7)	During shutdown, sump heater turned off and vapor layer allowed to collapse before primary condenser is turned off	Yes	BB&E email indicated that this requirement is being met
(d)(8)	Solvent additions or deletions done using threaded or other leakproof couplings with end of pipe in solvent sump below liquid surface	Yes	DCP email indicated this requirement is being met
(d)(9)	Maintain cleaning machine and controls as recommended by manufacturer, or using equivalent alternative	Yes	DCP using manufacturer practices and their own maintenance practices
(d)(10)	Each operator of cleaning machine shall pass test	Yes	DCP meeting requirements of operational practices
(d)(11)	Store waste solvent, still bottoms, sump bottoms in closed containers	Yes	DCP email indicated this requirement is being met
(d)(12)	Sponges, fabric, wood, or paper shall not be cleaned	Yes	NA, only metal parts observed

*Section 63.463(e)(2)(i):*

*(e) Each owner or operator of a solvent cleaning machine complying with paragraph (b), (c), (g), or (h) of this section shall comply with the requirements specified in paragraphs (e)(1) through (4) of this section.*

*(1) Conduct monitoring of each control device used to comply with §63.463 of this subpart as provided in §63.466.*

*(2) Determine during each monitoring period whether each control device used to comply with these standards meets the requirements specified in paragraphs (e)(2)(i) through (xi) of this section.*

*(i) If a freeboard refrigeration device is used to comply with these standards, the owner or operator shall ensure that the chilled air blanket temperature (in °F), measured at the center of the air blanket, is no greater than 30 percent of the solvent's boiling point.*

**AQD comment #16:** The NESHAP requires that the freeboard refrigeration device (FRD) temperature is no greater than 30% of the boiling point of the solvent used. AQD's *Hawley's Condensed Chemical Dictionary Twelfth Edition* indicates the boiling point of TCE is 86.7 deg. C, or 188.06 deg. F. The 30% limit corresponds to 56.4 deg. F. DCP has reported instances of exceedances, as discussed earlier in this inspection report.

*Section 63.463(e)(2)(ii):*

*(ii) If a reduced room draft is used to comply with these standards, the owner or operator shall comply with the requirements specified in paragraphs (e)(2)(ii)(A) and (e)(2)(ii)(B) of this section.*

(A) Ensure that the flow or movement of air across the top of the freeboard area of the solvent cleaning machine or within the solvent cleaning machine enclosure does not exceed 15.2 meters per minute (50 feet per minute) at any time as measured using the procedures in §63.466(d).  
(B) Establish and maintain the operating conditions under which the wind speed was demonstrated to be 15.2 meters per minute (50 feet per minute) or less as described in §63.466(d).

**AQD comment #17: Recordkeeping on reduced room draft is discussed earlier in this report. The attached 2019 DCP recordkeeping form EWI-008A, *Reduced Room Draft Windspeed Measurements Recordkeeping Form* shows that weekly indoor windspeed measurements for the time period 1/7/2019 through 10/18/2019 were below the limit of 15.2 meters per minute or 50 feet per minute.**

*Section 63.463(e)(2)(iii)(A):*

*(iii) If a working-mode cover is used to comply with these standards, the owner or operator shall comply with the requirements specified in paragraphs (e)(2)(iii)(A) and (e)(2)(iii)(B) of this section.  
(A) Ensure that the cover opens only for part entrance and removal and completely covers the cleaning machine openings when closed.*

**AQD comment #18: Although the Autosonics batch vapor degreaser was removed in November 2018, the parts basket which conveyed parts into the degreaser is still being used with the new BACT-72A degreaser. The built-in metal roof of the parts basket essentially becomes the working mode cover, when it is lowered into the degreaser. I observed a roughly 1 inch gap between the working mode cover and the degreaser, as discussed previously in this inspection report. This violated the Section 63.463(e)(2)(iii)(A) requirement to have a working mode cover that completely covers the cleaning machine openings when in place.**

*Section 63.463(e)(2)(iii)(B):*

*(B) Ensure that the working-mode cover is maintained free of cracks, holes, and other defects.*

**AQD comment #19: As described above, I observed a gap of roughly 1 inch between the parts basket roof (working mode cover) and the top of the degreaser. This constituted a defect in the working mode cover, in my opinion. Following the inspection, I reviewed the attached recordkeeping provided by DCP. The 2019 DCP EWI-008-B *Working Cover (or Basket Cover) Recordkeeping Form* indicates that from 1/7/2019 through 10/18/2019, there were no cracks, holes, or other defects in the working mode cover. However, AQD maintains that the gap constituted a defect, and the above requirement was not met.**

*Section 63.463(e)(2)(iv)(A):*

*(iv) If an idling-mode cover is used to comply with these standards, the owner or operator shall comply with the requirements specified in paragraphs (e)(2)(iv)(A) and (e)(2)(iv)(B) of this section.  
(A) Ensure that the cover is in place whenever parts are not in the solvent cleaning machine and completely covers the cleaning machine openings when in place.*

**AQD comment #20: The bi-parting sliding doors atop the BACT-72A would qualify as the idling-mode cover, under the NESHAP. They were closed, as required, when no parts were being treated, and they appeared to completely cover the degreaser's top opening. This is also discussed earlier in this report, under AQD comment #2.**

*Section 63.463(e)(2)(iv)(B):*

*(B) Ensure that the idling-mode cover is maintained free of cracks, holes, and other defects.*

**AQD comment #21: No visible defects were noted on the idling mode cover (the bi-parting sliding doors of the BACT-72A). I checked for TCE odors along the sliding doors, when they were closed, but could not detect any, at that time.**

*Section 63.463(e)(2)(v)(A):*

*(v) If a dwell is used to comply with these standards, the owner or operator shall comply with the requirements specified in paragraphs (e)(2)(v)(A) and (e)(2)(v)(B) of this section.*

*(A) Determine the appropriate dwell time for each type of part or parts basket, or determine the maximum dwell time using the most complex part type or parts basket, as described in §63.465(d).*

**AQD comment #22: There is only one parts basket for the batch vapor degreaser. DCP determined the appropriate dwell time was 85.6 seconds minimum, for the now-removed Autosonics degreaser, in keeping with the requirements of Section 63.463(e)(2)(v)(A), above. The dwell time with the new degreaser is also 85.6 seconds, minimum. This appears to comply with the NESHAP, as the parts basket is the exact same one, and the parts to be cleaned are similar to parts cleaned in the Autosonics unit.**

*Section 63.463(e)(2)(v)(B):*

*(B) Ensure that, after cleaning, each part is held in the solvent cleaning machine freeboard area above the vapor zone for the dwell time determined for that particular part or parts basket, or for the maximum dwell time determined using the most complex part type or parts basket.*

**AQD comment #23: It is my understanding that the parts basket is held in the freeboard area above the vapor zone for the dwell time that DCP determined is appropriate for the parts basket. The 2019 DCP EWI-008C Dwell Measurement test Recordkeeping Form shows that during the time period 1/7/2019 through 10/18/2019, the dwell time was above the 85.6 second minimum, ranging from 95 to 152 seconds. This complies with Section 63.463(e)(2)(v)(B), above.**

**AQD comment #24: The following sections of the NESHAP, Subpart T, are non-applicable:**

- Section 463(e)(2)(vi) is NA because the BACT-72 A does not have a superheated vapor system.
- Section 63.463(e)(2)(vii) is NA because the BACT-72A does not have a carbon adsorber.
- Section 463(e)(2)(viii) is NA because the BACT-72A is not a continuous web cleaning unit with a superheated part system.
- Section 463(e)(2)(ix) is NA because the BACT-72A is not a web cleaning unit, nor does it have a squeegee system.
- Section 463(e)(2)(x) is NA because the BACT-72A is not a web cleaning unit, nor does it have an air knife system.
- Section 463(e)(2)(xi) is NA because the BACT-72A is not a web cleaning unit, nor does it have a combination squeegee and air knife system.

*Section 63.463(e)(3):*

*(3) If any of the requirements of paragraph (e)(2) of this section are not met, determine whether an exceedance has occurred using the criteria in paragraphs (e)(3)(i) and (e)(3)(ii) of this section.*

*(i) An exceedance has occurred if the requirements of paragraphs (e)(2)(ii)(B), (e)(2)(iii)(A), (e)(2)(iv)(A), (e)(2)(v), (e)(2)(vi)(B), (e)(2)(vi)(C), (e)(2)(vii)(B), or (e)(2)(vii)(C) of this section have not been met.*

*(ii) An exceedance has occurred if the requirements of paragraphs (e)(2)(i), (e)(2)(ii)(A), (e)(2)(iii)(B), (e)(2)(iv)(B), (e)(2)(vi)(A), or (e)(2)(vii)(A) of this section have not been met and are not corrected within 15 days of detection. Adjustments or repairs shall be made to the solvent cleaning system or control device to reestablish required levels. The parameter must be remeasured immediately upon adjustment or repair and demonstrated to be within required limits.*

**AQD comment #25:** DCP staff determined in 2019 that the (e)(2)(i) requirement of paragraph (e)(2) was not met. This requirement sets a limit for the FRD temperature, i.e., the chilled air blanket temperature, to be no more than 30% of the boiling point of the solvent. DCP therefore complied with the requirement to determine exceedances.

*Section 63.463(e)(4)*

*(4) The owner or operator shall report all exceedances and all corrections and adjustments made to avoid an exceedance as specified in §63.468(h).*

**AQD comment #26:** DCP reported exceedances of the freeboard refrigeration device temperature, i.e. the chilled air blanket temperature, as required.

**AQD comment #27:** Section 63.463(f) is not applicable, because DCP did not select the compliance option of complying with the idling emission standards.

**AQD comment #28:** Section 63.463(g) is not applicable, and has not been included in this report, because it relates to continuous web cleaning machines. DCP's BACT-72A is not a continuous web cleaning machine.

**AQD comment #29:** Section 63.463(h) is not applicable, and has not been included in this report, because it relates to a remote reservoir continuous web cleaning machines. DCP's BACT-72A is not a remote reservoir continuous web cleaning machine.

*(End of Section 63.463.)*

**AQD comment #30:** Section 63.468(h) requires each owner or operator of a batch vapor cleaning machine to submit an exceedance report to the Administrator semiannually, whether or not there has been an actual exceedance. If there has been an actual exceedance, these reports are required to be submitted quarterly, until a request to reduce reporting frequency is made under paragraph 63.468(i) and approved. DCP is now on a quarterly reporting schedule for exceedance reports, because of exceedances in 2018 with the previous Autosonics batch vapor degreaser. They are therefore complying with this reporting requirement.

*Section 63.471(b)(1):*

*Each owner or operator of an affected facility must maintain a log of solvent additions and deletions for each solvent cleaning machine.*

**AQD comment #31:** The above requirement appears to apply to DCP, as they meet the definition of an affected facility. Per an email from DCP's Mr. Wright, they have kept, and are keeping a solvent tracking log, for additions and deletions.

**AQD comment #32:** Section 63.471(2) states, in part that each owner or operator of an affected facility must ensure that the total emissions of perchloroethylene (PCE), trichloroethylene (TCE) and methylene chloride (MC) used at the affected facility are equal to or less than the applicable facility-wide 12-month rolling total emission limit presented in Table 1.

**AQD comment #33:** During the writing of this report, AQD emailed DCP and BB&E on 1/10/2019, to request calculated TCE emissions for the first 12 months of operation for the new BACT-72A vapor degreaser, from 11/20/2018 to 11/20/2019. The purpose was to check against the Subpart T emission limit of 15.54 TPY TCE. AQD was advised that the BACT-72A emitted 8,936 lbs, or 4.47 tons, of TCE, during the first year of operation, below the NESHAP limit of 15.54 TPY.

**Conclusion:**

Although DCP complied with most of the relevant Subpart T requirements for the vapor degreaser, there were some instances of noncompliance identified during today's inspection. The working mode cover to the current vapor degreaser left a gap of roughly 1 inch open, in violation of Subpart T, and of the EGLE MAPC Rule 910. Additionally, because TCE emissions appeared to be leaving the in-plant environment, the EGLE MAPC Rule 285(2)(r)(iv) exemption was not being met. Therefore, the degreaser was in violation of EGLE's MAPC Rule 201.

NAME



DATE

1/31/2020

SUPERVISOR



