

N5948
MASON
Fugham

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

N594836496

FACILITY: Cleanlites Recycling	SRN / ID: N5948
LOCATION: 665 HULL RD, MASON	DISTRICT: Lansing
CITY: MASON	COUNTY: INGHAM
CONTACT: Michael Kimmel , Sr. Vice President, Safety and Compliance Officer	ACTIVITY DATE: 09/12/2016
STAFF: Daniel McGeeen	COMPLIANCE STATUS: Compliance
SUBJECT: Unannounced, scheduled inspection of facility, with AQD's Lumex mercury detector utilized by Air Monitoring Unit and Toxics Unit staff.	SOURCE CLASS: MINOR
RESOLVED COMPLAINTS:	

On 9/12/2016, the Department of Environmental Quality (DEQ), Air Quality Division (AQD) conducted a scheduled inspection of Cleanlites Recycling. They operate a recycling facility which processes fluorescent light bulbs, and also handles computer and electronic equipment, and batteries.

Environmental contact:

Michael Kimmel, Senior Vice President; Safety and Compliance Officer; 517-676-0044;
mikek@cleanlites.com

Emission units:

Emission unit ID	Emission unit description (Process Equipment & Control Device)	Permit to Install No.	Compliance status
EULAMPSYSTEM	TK 100 Lamp Processing System consisting of a crushing unit and a separation unit for recycling fluorescent mercury containing lamps. Lamps enter a negative pressure crushing chamber where the lamp is crushed and separated into three components: aluminum end caps, crushed glass, and calcium phosphate containing mercury. Emissions are controlled by a baghouse and activated carbon.	329-26A	Compliance

Regulatory overview:

Cleanlites Recycling is considered a minor source of emissions for all criteria pollutants and hazardous air pollutants. The company has a Permit to Install (PTI), No. 329-96A, for a fluorescent light bulb crusher. Because there is a potential to emit mercury, a toxic air contaminant, the permit has been reviewed for T-BACT under Michigan Air Pollution Control Rules 224 and 225.

Fee status:

This facility is not a Category I fee subject source, because it is not a major source for criteria pollutants. It is not a Category II fee-subject source because it is not a major source for Hazardous Air Pollutants (HAPs), nor is it subject to federal New Source Performance Standards. Additionally, it is not Category III fee-subject, because it is not subject to federal Maximum Achievable Control Technology standards. The facility is not required to submit an annual air emissions report via the Michigan Air Emissions Reporting System (MAERS).

Location:

Cleanlites Recycling is located within an industrial park, on the south side of the City of Mason. Although the street address is Hull Road, it is physically located on Trillium Drive, a road which branches off the east side of Hull Road. To the north and east are large industrial facilities. About 1,500 feet to the northwest is the Mason Meijers store. Jewett Airport is about 2,400 feet to the east, and Mason High School athletic field is about 2,300 feet to the northeast. The nearest residence is about 2,100 feet to the northwest, based on ArcGIS Explorer.

Recent history:

This facility was most recently inspected by AQD on 6/7/2013, and found to be in compliance. It was also inspected by AQD in 2005 and 2006, and found to be in compliance. It is my understanding that this facility has always been owned by USA Lamp & Ballast Recycling, but has done business as Green Lites Recycling in the past, and is now doing business as Cleanlites Recycling.

Arrival:

This was an unannounced inspection. The purpose was not only to check compliance with the Special Conditions of their PTI No. 329-96A, but to take actual air monitoring readings of mercury, inside and outside the plant, with a Lumex mercury detector. AQD was represented by Ms. Joy Taylor Morgan of the Toxics Unit, who is AQD's Mercury Coordinator, Mr. Eric Hansen of the Air Monitoring Unit, and by myself.

We arrived at 2:56 PM. No visible emissions could be seen coming from the exhaust stack at the northwest corner of the Cleanlites recycling building, and I could not detect any odors. Weather conditions were sunny, clear, and 76 degrees F, with winds out of the southeast at 1 to 5 miles per hour.

E. Hansen activated the Lumex mercury detector, and checked for background readings in the far southeast corner of the parking lot, to the southeast of the factory building itself. We were upwind of the plant, because winds were out of the southeast. J. Taylor Morgan documented the readings. The background levels of mercury were very low, and are documented in her Lumex Record of Use report for this facility.

We entered the office of Cleanlites Recycling, and met with Mr. Michael Kimmel, Senior Vice President, and Safety and Compliance Officer. We explained the purpose of our visit. I provided a copy of the DEQ brochure *Environmental Inspections: Rights and Responsibilities*, per AQD procedures. I also provided a copy of the DEQ boiler NESHAP brochure on federal boiler regulations for area and major sources, and the Summary of Regulations EPA brochure on 40 CFR Part 63, Subpart JJJJJ, *Area Sources, Industrial, Commercial, and Institutional Boilers*.

Mr. Kimmel agreed to having mercury readings be taken indoors and outdoors prior to the operation of the bulb crusher, and again, once the unit was operating. He indicated that a Jerome analyzer is periodically used to check the mercury concentration in the exhaust stream from the crusher and its control equipment.

The permit requires that the activated sulfurized carbon bed is replaced every 45 million lamps that are crushed, or every 6 years, whichever comes first. It is my understanding that the carbon in the carbon filter is not due to be replaced until 2019, based on present production rates.

Inspection:**Before crushing operations:**

Indoor mercury levels are documented in J. Taylor Morgan's report. Levels were lower in the lobby and office area, and grew higher as we approached the attached warehouse and the enclosed room where the bulb crusher is housed. The highest readings tended to be next to boxes of fluorescent light bulbs which were shipped to the facility and were awaiting crushing. It is my understanding that this is because bulbs can sometimes get broken during transport to the recycling facility.

The crusher was not running, at this time. The room housing the crusher and its control equipment is under negative pressure, we were informed. The temperature of the room is around 70 degrees F, we were advised, to reduce the volatilization of mercury.

J. Taylor Morgan noted that housekeeping of this area looked good, as there was no broken glass on the floor. The room and the stacked boxes of bulbs awaiting processing were orderly.

We then went outside, to the northwest corner of the facility. No visible emissions could be seen from the large exhaust stack. Background mercury levels were checked.

During crushing operations:

It was explained that ordinarily, Tyvek suits and respirators are worn by operators, when the bulb crusher is running. For a short time period, we were allowed in the room housing the bulb crusher without such protective equipment, as were employees, because of the short duration of the potential exposure.

Bulbs were fed into the crusher, and we could hear them being crushed inside. The TK 100 Lamp processing System operated without any fugitive emissions being visible. The process is controlled by a Torit baghouse, and by a carbon filter. There were no fugitive emissions from the control devices. Pressure drop for the Torit baghouse was 2.1 inches, water column (w.c.). It is my understanding that the pressure drop is maintained between 1 and 5 inches, w.c.

E. Hansen sampled for mercury levels next to the bulb crusher itself, while J. Taylor Morgan recorded data. We then retraced our steps, and E. Hansen took mercury readings in the indoor and outdoor locations which had been sampled prior to crushing bulbs. The readings are documented by J. Taylor Morgan in her report.

At 4:05 PM, I observed that there were no visible emissions from the large exhaust stack at the northwest corner of the building, while bulbs were being crushed. No odors were detected. Winds were out of the southeast at 3 mph, as measured by the AQD anemometer.

The crushed bulbs are sorted into three components: aluminum end caps, glass, and calcium phosphate powder, or phosphor. The phosphor is retorted to recover mercury.

We were informed that about 2,000 chrome-ended bulbs were crushed, in the short time that we were onsite. Other bulb types, like "green caps" have lower mercury emissions, it was mentioned. J. Taylor Morgan indicated that the Lumex readings showed no impacts on the outside air, during bulb crushing operations today.

Recordkeeping:

Mr. Kimmel explained their recordkeeping operations to me. They receive bills of lading, which list, for each customer, the number of bulbs shipped here to be crushed. The data is entered into a spreadsheet. Last week, they crushed 86,287 bulbs,

Mr. Kimmel indicated that their weekly bulb crushing totals were as follows, for recent weeks:

- The week of 9/4-9/10/2016: 86,287 bulbs
- The week of 8/28-9/3/2016: 96,249 bulbs
- The week of 8/21-8/27/2016: 90,456 bulbs
- The week of 8/14-8/20/2016: 49,708 bulbs

The above numbers, when added together, would be far below the maximum 3,960,000 bulbs which their permit allows them to crush per calendar month.

I was given a copy of year to date (YTD) bulbs processed, categorized by type, as well as a 12-month record from the end of August 2015 to the start of September 2016, attached for reference. A monthly lamp count for September through the end of today, 9/12, was e-mailed to me later that day, and is attached for reference.

I was given a copy of representative maintenance recordkeeping, attached for reference. They have never had a pressure drop alarm, I was informed. It was explained that the system is interconnected, so a pressure drop alarm would cause the bulb crushing process to shut itself down. I was told that spare

parts are maintained onsite, as required by the permit.

Conclusion:

We left the site at 4:52 PM. No instances of noncompliance could be found. J. Taylor Morgan summarized her findings with the Lumex data in a summary report, which will be added to the AQD Lansing District Office file on Cleanlites Recycling.

NAME 

DATE 9/29/2016 SUPERVISOR B.M.