

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

B199539604

FACILITY: U S GRAPHITE INC		SRN / ID: B1995
LOCATION: 1621 HOLLAND AVE, SAGINAW		DISTRICT: Saginaw Bay
CITY: SAGINAW		COUNTY: SAGINAW
CONTACT: John Schmitzer , Engineering Manager		ACTIVITY DATE: 03/15/2017
STAFF: Gina McCann	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Unannounced inspection to determine compliance with PTI #111-12, 223-70, 230-07, 467-73, 503-92, 504-92, 505-92, 506-92, 507-92, 694-92		
RESOLVED COMPLAINTS:		

I visited US Graphite on March 15, for a scheduled site inspection. There are currently ten existing permits (PTI 111-12A, 223-70, 694-92, 467-73, 503-92, 504-92, 505-92 506-92, 507-92 and 230-07) for the facility. I met with Mr. John Schmitzer, Engineering Manager. The facility was not in compliance with their permits at the time of the inspection.

US Graphite (USG) was initially established at this site in 1910 and developed a process to manufacture "brush carbon". This was used primarily for electric motor brushes. The current operations at the site are for the manufacture of "mechanical graphite". Mechanical graphite is used for various parts including seals and bushings for a variety of industries.

The manufacturing process consists of the following main steps. The raw materials are brought on site in various containers and forms. The raw materials are primarily natural graphite, petroleum coke, coal tar pitch, sulfur, and resins. The natural graphite looks like coal and is milled to certain specifications on site. The other solid components are purchase pre-milled. The materials are blended and compressed into billets. These billets are then fired in the kilns to create specific qualities in the part. These parts are then machined to final dimensions or further treated with resins or additional carbon impregnation.

The following table summarizes the inspection findings:

Air PTI Number	Equipment	Compliance status	Comment
PTI # 111-12A	Resin treatment & curing operations	Non-Compliant	No recordkeeping done since technician left in 2014.
PTI # 223-70	2 baghouses for grinding/machining (30,000 & 20, 000 CFM)	Compliant	Maintenance records in place. Should consider establishing malfunction abatement plan.
PTI # 230-07	Graphite Kiln w/afterburner	Non-Compliant	Afterburner temperature records and calibration of thermocouples in primary and secondary not being done.
PTI #467-73	Banbury mixer & 3 ovens	Undetermined	Equipment still on site.
PTI #503-92	12MMBtu Johnson boiler installed 1984	Compliant	Equipment still on site.
PTI #504-92	Ultrasonic cleaner	Compliant	Equipment no longer used but still on site. PTI voided 3/16/2017.
PTI #505-92	49.2 MMBtu natural gas fired boiler	Compliant	Installed in 1968 & decommissioned. PTI voided 3/16/2017.
PTI #506-92	Open top vapor degreaser	Compliant (chiller coil required if using non-aqueous degreaser)	No longer use solvent. May meet exemption in Rule 281(h)
PTI #507-92	Open top vapor degreaser	Compliant ( chiller coil required if using non-aqueous degreaser)	No longer use solvent. May meet exemption in Rule 281(h)
PTI #694-92	Wheelabrator baghouse serving a one barrel carbon mix blender & screening device	Compliance	Blender & screen still on site & in use. No specific exemption listed in Air rules.

### PTI 223-70: Compliance

This was the initial permit for the facility and covered the general manufacturing processes. There are two baghouses that control the emissions from the machining operations.

I was unable to determine if the baghouses themselves are adequately monitored and maintained to provide the required control efficiencies. The waste material from the baghouses is collected and shipped off site for disposal. In a post inspection, record request, maintenance records were obtained. However, it is still unclear how what kind of day to day checks are being done on the equipment to ensure that it is working properly.

#### **PTI 467-73: Undetermined**

This permit is for the Banbury mixer. This mixer is associated with the milling operations. Graphite, sulfur, petroleum coke and coal tar are mixed in batches. The mixture is sent to a blender prior to being pressed/stamped in a mold. I did not verify compliance with this permit, because during the pre-inspection review permit cards did not identify this as an active permit.

#### **PTI 503-92: Compliance**

This PTI is for a 12 MMBTU/hr natural gas fired boiler. This boiler was installed in 1984 and is not subject to the NSPS. There are no special conditions in the PTI for this boiler. Additionally, this boiler appears to meet the exemption in Rule 282(b).

Large portions of the facility are no longer in use and USG is in the process of eliminating steam runs several areas. USG may switch to a newer smaller boiler in the near future.

#### **PTI 504-92: Compliance**

This PTI covered an ultrasonic cleaner. This equipment is no longer operated and the PTI was voided.

#### **PTI 505-92: Compliance**

This PTI was for a 49.2 MMBTU/hr natural gas fired boiler. The boiler had been installed in 1968. This boiler is decommissioned, no longer on site and the PTI can be voided.

#### **PTI 506-92 and 507-92: Compliance**

These PTIs were for two open top vapor degreasers that were permitted to use TCE. In 2005 in response to a LOV the solution in the degreasers was changed to dipropylene glycol methyl ether. These units are both operated as cold cleaners and have an air/vapor interface of less than 10 ft<sup>2</sup>. Therefore, they both meet the exemption for cold cleaners, R281(h) and the permits could be voided.

#### **PTI 694-92: Compliance**

This PTI is for a 30 ft<sup>3</sup> blender and associated baghouse. This equipment is still operational. The blender is used to prepare batches of graphite prior to piece molding, when the batch size is larger than the mixer capacity.

#### **PTI 230-07: Non-Compliant**

This PTI is for a 4.3 MMBTU/hr natural gas fired graphite kiln with secondary afterburner. This kiln was permitted to replace existing grandfathered bottle furnaces. In the bottle furnaces the pressed parts are loaded into the kiln and gradually heated up to >2000 °F. The heating and cooling cycle typically lasts for up to 14 days.

The new kiln was purchased to process stamp, "green graphite" parts in a more controlled manner with a shorter cycle time. The kiln did not provide parts with consistent characteristics and is now being used as a curing oven.

The permit requires that the kiln not be operated unless the secondary afterburner is operating at a minimum temperature of 1,400 °F. The permit requires recordkeeping for the afterburner temperature, malfunctions and chemical composition of material processed in kiln.

Staff that could provide records for afterburner operation temperatures and thermocouple calibrations were not available.

**PTI #111-12A: Non-Compliant**

The facility has remodeled buildings and moved the Kiln covered by PTI #230-07, three curing ovens, several pressure resin vessels, and some stamping and machining operations.

I reviewed on-site records for resin use and VOC emissions were not available at the time of the inspection. Mr. Chris Bauman, quality assurance lab technician, responded to the records request with resin usage and emissions records from 2012 and 2013. The facility has not kept records since they lost the employee who used to have this responsibility.

**Miscellaneous**

USG is in the process of consolidating operations at the site. During the peak of operation at the site, the facility and buildings covered 14 acres and employed 700 people. The site currently employs about 50 people. Some machining operations have been moved to a US Graphite facility in Mexico. Much of the site is vacant and dilapidated. Many of the operations that are currently covered by older PTIs would likely be exempt.

NAME Maria L. White

DATE 5/4/17

SUPERVISOR C. Hance