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

B577750132

FACILITY: HarbisonWalker International, Inc.		**SRN / ID:** B5777
LOCATION: 1301 E 8TH ST, WHITE CLOUD		**DISTRICT:** Grand Rapids
CITY: WHITE CLOUD		**COUNTY:** NEWAYGO
CONTACT: James Maile , Plant Manager		**ACTIVITY DATE:** 08/29/2019
STAFF: Adam Shaffer	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Scheduled unannounced inspection.		
RESOLVED COMPLAINTS:		

Air Quality Division AQD) staff Adam Shaffer (AS) arrived at the HarbisonWalker International (HWI) facility located in White Cloud, MI at 10:18am on August 29, 2019 to complete a scheduled unannounced inspection. The site in the past has been identified as North American Refractories Company (which is listed on one active permit) but has since then changed its name.

Facility Description

Prior to entering the facility, offsite odor and visible emission observations were completed. The weather conditions at the time were high 60°s F, sunny skies and winds from the southwest at 5-10mph. Along the western exterior of the property several odors were noted; however, these appeared to be attributed to parcels surrounding HWI. No emissions were noted.

Upon arrival, AQD staff AS met with Mr. James Maile, Plant Manager, and Mr. Jerry Buffenbarger, Plant Engineer, who provided a tour of the facility and answered site specific questions. Records following the inspection were provided by Mr. Maile. Also prior to completing a tour of the facility, a safety discussion was completed.

HWI is a refractories products and services manufacturing facility, with the White Cloud, MI facility specifically producing bricks. During operations magnesite is brought on site where it undergoes various operations including grinding and mixing with other materials before it is pressed into bricks. Following this, the bricks are heat treated before being shipped off to customers.

The site is in operation with permit to install (PTI) No. 184-07A, which is for a silo and associated equipment for bulk magnesite storage, and various other equipment including conveyors, hoppers, and diverters, all of which is controlled by two dust collectors. The second permit the site is in operation under is PTI No. 24-10A, which is for the storage bins associated with storage of powdered pitch containing benzo(a)pyrene, three brick component mechanical mixers, and three natural gas fired ovens used to cure refractory bricks with emissions controlled by a single catalytic oxidizer.

PTI No. 184-07A

EU-G43B

This emission unit is for the silo and associated equipment for bulk magnesite storage. Particulate emissions are controlled by a dust collector (ID G43B).

At the time of the inspection, dust collector G43B was not in operation. While speaking with Mr. Maile during the inspection, he explained that the dust collectors for EU-G43B and EU-G40 each control their own separate units/processes. The dust collectors cannot physically switch over and handle the other dust collectors' units/processes. During the previous inspection on August 30, 2018, it had appeared that the emissions from EU-G43B were being diverted to dust collector G40 and was included in the October 4, 2018 Violation Notice. This appears to have been incorrect. During the inspection, HWI staff and AQD staff AS discussed, the frequency of bag changes and for this emission unit it is being done once every two weeks.

EU-G43B is subject to a particulate matter (PM) limit of 0.018 lb / 1,000 lbs of exhaust gases, calculated on a dry gas basis and a PM10 limit of 0.28 pounds per hour (pph). Both are based on testing of the dust collector, which was concluded to not be necessary at this time. Visible emissions from EU-G43B are subject to a 5% opacity limit over a six-minute average time frame. The unit was not in operation.

To verify compliance for EU-G43B, HWI keeps track of pressure drop readings by recording values in 15-minute intervals and takes daily emission observations of the stack. Records were requested and reviewed from July 2018 through July 2019. While reviewing the records, it was noted that various times the magnehelic reading was over the setpoint of 8" of water column (w.c.). This was noted especially around the time of the last inspection of the facility on August 30, 2019 and associated Violation Notice dated October 4, 2018, where magnehelic readings were significantly over the setpoint of 8" of w.c. While speaking with HWI staff it was determined that up to mid-December 2018, emission observations were taken at the start up by the operator for this unit. Based on the records reviewed it appeared that there were no emissions. In mid-December 2018, HWI staff developed a spreadsheet and emission observations are completed daily throughout the process for all stacks. This appears to also have been started in response to the Violation Notice dated October 4, 2018. Reviewing the records since December 2018, no fugitive emissions were noted from EU-G43B. It was determined that based on the records reviewed it appears EU-G43B is now operating in a satisfactory manner.

One stack is listed in association with EU-G43B and was observed during the site inspection. The stack had been observed venting horizontally during the last inspection on August 30, 2019 and was included in the Violation Notice dated October 4, 2018. HWI has since the last inspection corrected this and was now observed venting vertically. Though the stack was not measured, the dimensions appeared to be consistent with what is listed in PTI No. 184-07A.

EU-G40

This emission unit is for various equipment on site including but not limited to various feeders, hopers, belts and conveyors.

EU-G40 is subject to a PM limit of 0.03 lb / 1,000 lbs of exhaust gases, calculated on a dry gas basis and a PM10 limit of 3.2 pph. Both limits are based on testing of the dust collector, which was concluded to not be necessary at this time. Visible emissions from EU-G40 are subject to a 5% opacity limit over a six-minute average time frame. Though dust collector G40 was not in operation, emissions were observed periodically coming from the stack associated with this emission unit and the magnehelic gauge at the time read 1" of water column. This was brought to the attention and discussed with HWI staff. Upon further review, it was determined that two weeks prior HWI had replaced bags for G-40 and emissions noted were the residual dust from the replacement. Additionally, the dust collector reading was determined to be the magnehelic gauge being out of calibration. The gauge was recalibrated on 09/03/2019.

To verify compliance for EU-G40, HWI keeps track of pressure drop readings by recording values in 15-minute intervals and takes daily emission observations of the stack. Records were requested and reviewed from July 2018 through July 2019. EU-G40 was determined to not be operating satisfactory during the previous inspection on August 30, 2018 and was included in the Violation Notice dated October 4, 2018. The company had replaced all the bags for EU-G40 by September 22, 2018. Various times were observed where the pressure drop reading exceeded the setpoint w.c. of 7". While speaking with HWI staff it was determined that up to mid-December 2018, emission observations were taken at the start up by the operator for this unit. Based on the records reviewed it appeared that there were no emissions. In mid-December 2018, HWI staff developed a spreadsheet and emission observations are completed daily throughout the process for all stacks. This appears to also have been started in response to the Violation Notice dated October 4, 2018. Reviewing records since December 2018, two times it was noted in July 2019, where visible emissions were observed, and the dust collector was subsequently shut down to complete maintenance. Additional times where the dust collector G-40 was shut down for other maintenance was noted. It was determined that based on the records reviewed it appears EU-G40 is now operating in a satisfactory manner.

One stack is listed in association with EU-G40 and was observed during the site inspection. Though the stack was not measured, the dimensions appeared to be consistent with what is listed in PTI No. 184-07A.

<u>PTI No. 24-10A</u>

Per PTI No. 24-10A, a Malfunction Abatement Plan (MAP) must be submitted, implemented and maintained in order to operate EUSTORAGEBINS, EUMIXERS, and EUOVENS. A revised MAP was submitted and received on November 16, 2018. Specific information for each associated emission unit in the MAP is discussed further in this report.

EUSTORAGEBINS

This emission unit is for the storage bins associated with the storage of powdered pitch containing benzo(a)pyrene.

Powdered pitch containing benzo(a)pyrene is received on site in pure form in bulk bags. Once received, the bags are loaded into an enclosed station and opened inside the enclosure. The enclosure and transfer equipment used to transfer the benzo(a)pyrene were observed during the site inspection. HWI staff stated that the benzo(a)pyrene is then transferred as needed to the mixers. Filters were observed for this area of the process in use and appeared to be acceptable. Additionally, HWI staff stated that no portion of this area is vented externally. Per the MAP, daily and quarterly inspections of applicable items are completed. Records were requested and reviewed for select months. Reviewing daily inspection reports, emissions were noted from this area in September 2018 and maintenance notes showed the issue appeared to be addressed. Based on the records reviewed, it appears that HWI is adequately following the MAP.

EUMIXERS

This emission unit is for the three-brick component mechanical mixers. Here components that are used to create bricks are sent to be mixed. PM emissions from EUMIXERS are controlled by dust collector M71.

Per the MAP, daily inspections are completed for EUMIXER. Records were requested and reviewed for select months. Based on the records reviewed, it appears that HWI is adequately following the MAP. At the time of the inspection the pressure drop for dust collector M71 was 4" of w.c. which is within the satisfactory range of operation. No emissions were observed coming from the stack associated with dust collector M71. To verify compliance with dust collector M71 for EUMIXERS, HWI keeps track of pressure drop readings by recording values in 15-minute intervals and takes daily emission observations of the stack. Records were requested and reviewed from July 2018 through July 2019. Various times were observed where the pressure drop reading exceeded the setpoint w.c. of 2" – 5". While speaking with HWI staff it was determined that up to mid-December 2018, emission observations were taken at the start up by the operator for this unit. Based on the records reviewed it appeared that there were no emissions. In mid-December 2018, HWI staff developed a spreadsheet and emission observations are completed daily throughout the process for all stacks. This appears to also have been started in response to the Violation Notice dated October 4, 2018. Reviewing records since December 2018, on February 6, 2019 and March 5, 2019, maintenance was completed for dust collector M-71 due to emissions observed. The records indicated no additional emissions were observed from dust collector M-71. It was determined that based on the records reviewed it appears M-71 is now operating in a satisfactory manner.

One stack is listed in association with this emission unit and was observed during the site inspection. Though the dimensions were not measured they appeared to be consistent with what is listed in PTI No. 24-10A. Additionally, no emissions were observed coming from this stack during observations on site.

EUBRICKOVENS

This emission unit is for three natural gas-fired ovens used to cure refractory bricks. The ovens are referred to as Oven No. 1, Oven No. 2, and the Dryer. The volatile organic compounds (VOCs), formaldehyde, and benzo(a)pyrene emissions from the three ovens are controlled by a single catalytic oxidizer.

This emission unit is subject to the following emission limits.

Pollutant	Limit	Time Period / Operating Scenario
VOCs	0.87pph	Test Protocol*
VOCs	1.0 tpy	12-month rolling time period as determined at the end of each calendar month.
Formaldehyde	0.030 pph	Test Protocol*
Benzo(a)pyrene	0.00011pph	Test Protocol*

*Test Protocol shall specify averaging time.

Testing of the catalytic oxidizer to determine the destruction efficiency and compliance with VOCs and benzo(a)pyrene emission limits was completed on June 1, 2017. Test results indicated a destruction efficiency of at least 90% with VOC and benzo(a)pyrene pph emissions well within permitted limits. At the time formaldehyde was decided to not be included in testing.

This emission unit is subject to a VOC emission limit of 1.0 tpy per a 12-month rolling time period. Records were requested and reviewed from July 2018 through July 2019. For the month of July 2019, 0.003 tons of VOCs were emitted. As of July 2019, 0.029 tpy of VOC emissions were emitted per a 12-month rolling time period which is within the permitted limit. Previous 12-month rolling time periods reviewed also appeared to be within the permitted limit.

This emission unit is subject to a material limit of curing no more than 80,000 tons of refractory bricks per a 12-month rolling time period. Records were requested and reviewed from July 2018 through July 2019. For the month of July 2019, 5,626 tons of bricks were cured. As of July 2019, 64,006 tons of bricks were cured per a 12-month rolling time period which is within the permitted limit. Previous 12-month rolling time periods were reviewed and within the permitted limit.

This emission unit is also subject to a material limit of curing no more than 6,063 tons of refractory bricks that use the benzo(a)pyrene containing pitch per a 12-month rolling time period. Records were requested and reviewed from July 2018 through July 2019. For the month of July 2019, 642.2 tons of benzo(a)pyrene containing pitch bricks were cured. As of July 2019, 4,810 tons of benzo(a)pyrene containing pitch bricks were cured per a 12-month rolling time period which is within the permitted limit. Previous 12-month rolling time periods reviewed also appeared to be within the permitted limit.

The most recent MAP on file is the one requested and received from HWI on November 16, 2018. Per the MAP, daily inspection of various items such as incinerator temperatures and visual observations of the incinerator discharge stack are to be completed. Daily inspection reports were requested and reviewed back to July 2018. Based on the records reviewed, it appears that HWI is following the MAP.

The two ovens, dryer and catalytic oxidizer were observed in operation during the inspection. HWI staff stated that only natural gas is used for EUBRICKOVENS. An LCD control panel was noted with various readings such as incinerator / oven temperatures observed. At the time of the inspection the inlet temperature of the catalytic oxidizer was 761°F which is over the minimum permit limit of 700°F. The pressure drop across the catalyst was at 3.22" w.c. which is below the 6" w.c. limit indicating the unit was operating properly. HWI keeps track of inlet incinerator temperatures, outlet incinerator temperatures and pressure drop across the catalyst by recording readings every 15 minutes. Records were requested and reviewed from July 2018 through July 2019. Several instances of potential issues regarding temperatures were observed and were brought to the attention of HWI staff. Responses to each potential issue were provided and appeared to be acceptable.

Reviewing the records, it was noted where the pressure drop readings exceeded the 6" of w.c. for lengths of time. This was identified particularly from July 2018 through September 2018. Records reviewed since July 2018 did not appear to show emissions from the oven stack. In October 2018 the issue appeared to have been addressed and pressure drop readings following this were below 6" w.c. per the MAP received on November 16, 2018. Several times throughout pressure drop readings were noted to be negative. This was brought to the attention of HWI staff and the response provided appeared to be acceptable. Overall, it was concluded that the catalytic oxidizer appears to be operating satisfactorily.

Based on the records received, HWI appears to be keeping track of natural gas combusted, monthly / 12-month rolling time periods of regular bricks cured and bricks that contain benzo(a)pyrene, and monthly / 12-month rolling time periods of VOC emission rates.

The one stack associated with EUBRICKOVENS was observed during the site inspection. Though the dimensions were not measured they appear to be consistent with those associated in PTI No. 24-10A.

Additional Observations

- The metal fabrication area was observed during the site inspection. Equipment here appeared to be exempt per Rule 285(2)(l)(vi)(B). Additionally, welding was observed that appears to be exempt per Rule 285(2)(i).
- Two parts washers were observed in the maintenance area. The air/vapor interface for both washers was less than 10 square feet. Additionally, one of the parts washers was heated and making sure it was properly closed while not in use was discussed with HWI staff. Both parts washers appear to be exempt per Rule 281(2)(h).
- Several dust collectors were observed for various operations onsite that are not permitted and HWI previously utilized the Rule 290(2)(a)(iii) exemption. Pressure drop readings taken at the time of the inspection for each dust collector as well as associated setpoints are listed below.

Dust Collector	Pressure Drop (mm Hg)	Setpoint (mm/hg)
G45	7"	8"
M50	3.1"	4"
D31	6.9"	8"
L9	0.5"	9"
G28A	7.9"	8"
G61	4"	5"
G66	Not in use	6"
G41	Not in use	8"
D32	Not in use	6"
G43	Not in use	-

While reviewing the pressure drops two noticeable concerns were addressed. Dust Collector ID # G28A was right at the setpoint in which cleaning is to be completed in order to maintain satisfactory operation. HWI staff have a work order placed in order to change bags. The second concern noted was how low the pressure drop was for Dust Collector ID # L9. HWI staff stated that bags had just been changed for this dust collector. HWI staff verified that products used have not changed since the previous inspection on August 30, 2018. HWI believes the processes and associated dust collectors are exempt per Rule 290(2)(a)(iii). The Rule 290(2)(a)(iii) exemption appears to be applicable.

- The rooftop was accessed during the site inspection and the catalytic oxidizer was observed. The oxidizer appeared to be operating in a satisfactory manner.
- Since the previous inspection, a 40,000 square foot warehouse has been added to the eastern portions of the facility. Housed in this area is additional storage of final products. One additional hydraulic press was added as well for brick production. A total of six hydraulic presses for brick production were observed during the inspection. Each press produces 80-100 metric tons of bricks per day.
- In the previous inspection on August 30, 2018, PM emissions were observed venting externally through a window from the main building and was included in the Violation Notice dated October 4, 2018. PM was still observed escaping to exterior portions; however, it did not appear to be as significant as noted during the previous inspection. AQD staff AS and HWI staff discussed at length potential solutions to address this and it was agreed better general housekeeping practices will be implemented.
- One boiler that is 985,000 btu/hr in size and was installed in 1998 was observed. The boiler appeared to only use natural gas and appears to be exempt per Rule 282(2)(b)(i). Based on the size of the boiler, it is not subject to federal new source performance standards.

Conclusion

Based on the facility walkthrough, observations made, and records received, HWI appears to be in compliance with PTI No. 184-07A, PTI No. 24-10A, and applicable air pollution control rules.

NAME adam J. Shaffer DATE 09/30/19 SUPERVISOR