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

B192534437

FACILITY: Diversified Machine Montague, LLC		**SRN / ID:** B1925
LOCATION: 5353 Wilcox St., MONTAGUE		**DISTRICT:** Grand Rapids
CITY: MONTAGUE		**COUNTY:** MUSKEGON
CONTACT: Mary Twa , HSE/Training Specialist		**ACTIVITY DATE:** 05/03/2016
STAFF: Eric Grinstern	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Compliance Inspection		
RESOLVED COMPLAINTS:		

Inspection of Diversified Machine, Inc.
Prior to entering the facility, a survey of the perimeter was made. No VE or odors were noted.

FACILITY DESCRIPTION

The facility is a permanent/semi-permanent mold casting foundry with machining and heat treating operations. The facility's products are primarily aluminum suspension and steering components for the automotive industry. The facility currently employees approximately 700 workers.

REGULATORY ANALYSIS

The facility holds two air use permits, PTI No. 41-00C and PTI No. 225-10A. PTI No. 41-00C covers an aluminum chip dryer, two reverb furnaces, 16 electric holding furnaces, 16 electric crucible furnaces and one laundering system. PTI No. 225-10A, covers a sand silo, a phenolic urethane cold box core making system and the facility's semi-permanent mold casting operations.

The chip dryer is subject to Subpart RRR, Secondary Aluminum NESHAP.

USEPA Region V issued a NOV to the facility on December 2013, addressing violations associated with the pressure drop and flow rate on the packed-bed scrubber controlling emissions from the phenolic urethane cold box system. The NOV also addressed the facility's compliance with the minimum 3-hour temperature requirement under Subpart RRR. The facility and USEPA signed an Administrative Consent Order EPA-5-15-113(a)-MI-04 on April 17, 2015, addressing the violations.

COMPLIANCE EVALUATION

At the facility EG met with Mary Twa, HSE, Training Specialist. The facility was in the process of conducting compliance testing under Subpart RRR, for the aluminum chip dryer/furnace. Brad Saunders, ARCADIS, was onsite, as was Dicen Consulting and Associates LLC conducting the compliance testing. Rob Dickman, TPU/AQD was onsite observing the compliance testing.

PTI No. 41-00C

EU Dryer

Aluminum chip dryer that utilizes waste heat from one of the reverb furnaces and exhausts emissions back to the furnace.

The chip dryer is subject to the requirements of Subpart RRR.

Emission/Material Limits

The dryer is subject to the dioxin/furan limit in Subpart RRR. The facility tested and demonstrated compliance on July 21-22, 2015, with the dryer being associated with Furnace No. 2. During this inspection, testing was being conducted to demonstrate compliance with the dryer being associated with Furnace No. 1.

The dryer is restricted to charging no more than 2,172 pounds per hour based on monthly usage records. For the records reviewed, the charge rate never exceeded 2,000 pounds per hour.

Process/Operational Restrictions

The facility is required to maintain and operate in accordance with an OM&M Plan and a SSM Plan required by Subpart RRR. The facility has submitted the required plans.

Design/Equipment Parameters

The chip dryer is restricted to using waste heat from the furnace and ducting the exhaust gases back to the arch of the operating furnace. The system is designed and operated in compliance with these requirements. The dryer is required to be equipped with a device to measure and record the weight of feed/charge. The dryer is equipped with and is operating a system that weighs and records chip weight.

Testing/Sampling

The facility was required to test within 180 days of trial operation to demonstrate compliance with the dioxin/furan limits, as well as the PM, PM10, PM2.5, and NOx emission rates associated with the reverb furnace. Testing was conducted in July 21-22, 2015, at which time compliance was demonstrated. At the time of this inspection the facility was conducting the one time dioxin/furan test required by the permit and ACO to occur within 180 days of switching to Furnace No. 1.

Update: On May 31, 2016, results of the D/F testing were provided to AQD. The test results showed a D/F emission rate of 7.9E-07 gr/ton Al, which is below the limit of 3.5E-05 gr/ton Al.

Monitoring/Recordkeeping

Monitoring and recordkeeping of the feed/charge, types of material charged and temperature of the operating furnace are required.

The facility has systems in place to monitor and record each of the parameters.

The 3-hour block temperature is required to remain above 1274 degrees F, established during compliance testing conducted in July 2015.(Prior to July 2015: 1296 degrees F)

Records were reviewed for the time period covering October 2015 through March 2016.

During this period of time the facility documented the following deviations (taken partially from ACO required quarterly reports).

October 2015 Furnace Temperature Monitoring Data and Deviations

For the month of October, 17 deviations were reported where the 3-hour block

average temperature was measured less than 1274 deg F and when chip feed was measured to be occurring. The following deviations were reported:

- October 7 (18:00-21:00: 1179 deg F): 1 Temperature deviation.
- October 12 (9:00-12:00: 1230 deg F: 1 Temperature deviation.
- October 13 (9:00-12:00: 1084 deg F, 15:00-18:00: 943 deg F): 2 Temperature Deviations.
- October 15 (6:00-9:00: 1268 deg F): 1 Temperature Deviation.
- October 19 (3:00-6:00: 1126 deg F, 9:00-12:00: 1144 deg F, 12:00-15:00: 1257 deg F): 3 Temperature Deviations.
- October 20 (12:00-15:00: 865 deg F, 15:00-18:00: 672 deg F): 2 Temperature Deviations.
- October 25 (15:00-18:00: 987 deg F, 21:00-24:00: 1260 deg F): 2 Temperature Deviations.
- October 26 (6:00-9:00: 1258 deg F): 1 Temperature Deviation.
- October 27 (9:00-12:00: 1270 deg F, 15:00-18:00: 1225 deg F): 2 Temperature Deviations.
- October 28 (18:00-21:00: 1243 deg F, 21:00-24:00: 1261 deg F): 2 Temperature Deviations.

Of the reported deviations, 10 deviations were low temperature deviations, while the other 7 deviations were monitoring equipment or testing related. The majority of the 10 low temperature deviations involved charging chips during only a portion of the three-hour period when temperature was being maintained. However, when chip charging ceased, lower temperatures were realized resulting in three-hour averages below the minimum three-hour block average temperature.

November 2015 Furnace Temperature Monitoring Data and Deviations

For the month of November, 20 deviations were reported where the 3-hour block average temperature was measured less than 1274 deg F. The following deviations were reported:

- November 1 (6:00-9:00: 1270 deg F, 21:00-24:00: 1263 deg F): 2 Temperature deviations.
- November 3 (6:00-9:00: 1273 deg F): 1 Temperature deviation.
- November 4 (3:00-6:00: 1256 deg F: 1 Temperature deviation.
- November 5 (21:00-24:00: 1261 deg F: 1 Temperature deviation.
- November 6 (21:00-24:00: 1266 deg F: 1 Temperature deviation.
- November 7 (3:00-6:00: 1213 deg F, 6:00-9:00: 1244 deg F, 9:00-12:00: 1272 deg F, 12:00-15:00: 1273 deg F): 4 Temperature Deviations.
- November 9 (0:00-3:00: 1262 deg F, 9:00-12:00: 933 deg F, 12:00-15:00: 1230 deg F): 3 Temperature Deviations.
- November 10 (0:00-3:00: 1260 deg F, 3:00-6:00: 962 deg F, 6:00-9:00: 1182 deg F): 3 Temperature Deviations.
- November 11 (3:00-6:00: 1265 deg F, 18:00-21:00: 1103 deg F, 21:00-24:00: 1096 deg F): 3 Temperature Deviations.
- November 12 (9:00-12:00: 1183 deg F): 1 Temperature Deviation.

Of the reported deviations, 16 deviations were low temperature deviations, while the other 4 deviations were monitoring equipment or testing related. The majority of the 16 low temperature deviations involved charging chips during only a portion of the three-hour period when temperature was being maintained. However, when chip charging ceased, lower temperatures were realized resulting in three-hour averages below the minimum three-hour block average temperature.

December 2015 Furnace Temperature Monitoring Data and Deviations

For the month of December, 1 deviation was reported where the 3-hour block average temperature was measured less than 1274 deg F and when chip feed was

measured to be occurring. The following deviation was reported:

- December 9 (21:00-24:00: 1223 deg F: 1 Temperature deviation.

The December deviation involved charging chips during only a portion of the three hour period when temperature was being maintained. However, when chip charging ceased, lower temperatures were realized resulting in the three-hour average below the minimum three-hour block average temperature. The corrected action is summarized in Item 3 of this report.

For October, November and December 2015, the facility records and reports show that they experienced 55 occurrences when the 3-hour block average temperature fell below the required temperature. The facility reported that 29 of the occurrences were associated with operation when chips where actually being charge. The remaining occurrences were associated with monitoring equipment malfunctions (19), and monitor testing was the cause for seven of the reported deviations.

Review of the 29 occasions associated with chips being charged showed that during all but approximately 10 occasions, chip charging had stopped or was stopped prior to the temperature drop that resulted in the 3-hour averaging dropping below the minimum temperature.

Review of facility records for the period of January, February and March 2016 showed that the 3-hour averaging dropped below the minimum temperature on two occasions. On January 17, 2016 from 0:00 – 3:00 the average temperature was 1,037 and on March 7, 2016 from 0:00 – 3:00 the average temperature was 1,215. Similar to the occurrences during previous months, it appears that chip charging had stopped and the door was opened, which resulted in the 3-hour average falling below the minimum temperature.

Review of facility records for April 2016 showed no deviations of the 3-hour block average minimum temperature. The facility reported no deviations associated with the scrubber pH. The facility reported two 5-minute deviations of the flow rate and one 5-minute deviation of both the flow rate and pressure drop.

Observations

The chips being processed were nearly dry and clean prior to entering the chip processing system the washes and drains the chips prior to entering the dryer.

FG G1Furn1&2

Two natural gas-fired aluminum reverberatory melting furnaces.
The furnaces are not subject to Subpart RRR since the chips from the dryers are considered clean charge upon entering the furnace.

Emission/Material Limits/Recordkeeping

The permit limits the emission of PM, PM10, PM2.5 and NOx. The facility demonstrated compliance with the emission limits through testing conducted in August 2012, while Furnace No.2 was operating.

The use of flux (all purpose, scrap cleaning, and wall) is limited as is the amount of charge to the furnace. Flux limits are restricted on a pound per day basis and charge to the furnace is restricted on a pound per hour basis.

Review of the facility records showed compliance with the flux usage as well as charge limits.

Only clean charge per Subpart RRR is allowed to be charged to the furnace. All available information shows compliance with this restriction.

Design/Equipment Parameters

Labels are required in accordance with Subpart RRR. During the inspection labels were observed.

Testing/Sampling

The facility was required to test within 180 days of trial operation to demonstrate compliance with the dioxin/furan limits, as well as the PM, PM10, PM2.5, and NOx emission rates associated with the reverb furnace. Testing was conducted in July 21-22, 2015, at which time compliance was demonstrated. At the time of this inspection the facility was conducting the one time dioxin/furan test required by the permit and ACO to occur within 180 days of switching to Furnace No. 1.

Update: On May 31, 2016, results of the D/F testing were provided to AQD. The test results showed a D/F emission rate of 7.9E-07 gr/ton Al, which is below the limit of 3.5E-05 gr/ton Al.

Stack/Vent Restrictions

Visual observation of the stacks (SV_Furance1, SV_Furnace2) showed that they appeared to meet the required dimensions.

FG_Holding

Emission/Material Limits/Recordkeeping

Limits flux daily usage based on monthly usage records (all-purpose cleaning: 320 pounds, scrap material cleaning: 0 pounds, wall cleaning: 150 pounds). Compliance with the flux usage limits is demonstrated by the facility maintaining monthly records of usage and hours of operation.

Review of the facility records showed compliance with the flux usage as well as charge limits.

FGFACILITY

Source-Wide requirements

Emission/Material Limits/Recordkeeping

Establishes individual and aggregate HAP opt out limits.

Review of the facility records showed compliance with the individual and aggregate HAP limits.

PTI No. 225-10A

EU_Silo

200 ton capacity sand storage silo with baghouse control

Emission/Material Limits/Recordkeeping

The permit restricts the emission of PM and PM10/2.5. The facility is required to calculate emissions for each 12-month rolling time period.

Sand usage is limited to 41,610 tons per year based on a 12-month rolling time period. The facility is required to maintain records to document compliance with the limit.

Review of the facility records showed compliance with the sand usage limit as well as the PM and PM10/2.5 limits.

Observations

During the inspection emissions were observed from the exhaust of sand silo baghouse. Observation of the emissions showed opacity of approximately 10 percent. The facility addressed the issue and provided documentation of corrective action and the implementation of preventative actions to address the issue.

EU_CorePUCB

Phenolic Urethane Cold Box core making systems with two Loramendi core machines controlled by a packed tower scrubber.

Emission/Material Limits/Recordkeeping

The permit restricts the emission of PM, PM10/2.5, VOC and DMIPA. The facility is required to calculate emissions for each 12-month rolling time period.

The permit also restricts the amount of Resin Part A, Resin Part B, and the catalyst DMIPA that can be used on a 12-month rolling time period.

Review of the facility records showed compliance with the material usage limits as well as the emission limits.

Process/Operational Restrictions

The facility is required to maintain and operate in accordance with a MAP. The facility has submitted the required plan.

Requires the pH of the packed scrubber solution to be 5.0 or lower, the scrubber solution flow rate to be 57.5 gallons per minute or more and the pressure drop across the scrubber to be within 0.5 – 6.0 inches of water column.

Review of the facility records (October 2015 through March 2016) showed the following deviations:

pH: 0 reported deviations

Flow rate: October 2015: (4) deviations
December 2015: (1) deviation
January 2016: (2) deviation

February 2016: (1) deviation
March 2016: (2) deviations
April 2016: (3) deviations

Pressure drop: November 2015(2) deviations
January 2016: (1) deviation
April 2016 (1) deviation

The facility provided documentation of cause and corrective actions taken to address the deviations.

EU_Miscellaneous

Use of materials ancillary to the core making process.

Emission/Material Limits/Recordkeeping

The permit restricts the emission VOC. The facility is required to calculate emissions for each 12-month rolling time period.

Review of the facility records showed compliance with the VOC limit. The facility has not used any material in EU Miscellaneous.

EU_SPMC

Emission/Material Limits/Recordkeeping

The permit restricts the emission of PM, PM10/2.5, and VOC. The facility is required to calculate emissions for each 12-month rolling time period.

Aluminum usage is restricted to 6.0 tons per hour.

Review of the facility records showed compliance with the material usage limit as well as the emission limits.

Process/Operational Restrictions

The facility is required to maintain and operate in accordance with a MAP. The facility has submitted the required plan.

FGFACILITY

Source-Wide requirements

Emission/Material Limits/Recordkeeping

Establishes individual and aggregate HAP opt out limits.

Review of the facility records showed compliance with the individual and aggregate HAP limits.

Conclusion

At the time of the inspection the facility appears to be in compliance with all applicable air quality rules and regulations, except for the noted deviations associated with the furnace temperature and scrubber flow and pressure drop. A violation notice will be issued to document the deviations associated with the furnace temperature (EU Dryer) and scrubber flow and pressure drip deviations (EU_CorePUCB).

NAME _____ DATE 6/16/16 SUPERVISOR PMB