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

B720531514

FACILITY: Knauf Insulation, LLC		SRN / ID: B7205
LOCATION: 1000 E NORTH ST, ALBION		DISTRICT: Kalamazoo
CITY: ALBION		COUNTY: CALHOUN
CONTACT: Rachael Underwood , EHS Specialist		ACTIVITY DATE: 09/09/2015
STAFF: Rex Lane	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Self-initiated inspection		
RESOLVED COMPLAINTS:		

On September 9, 2015, Air Quality Division (AQD) staff, Rex Lane and Monica Brothers (hereafter "staff") arrived at Knauf Insulation (hereafter "facility") located at 1000 East North Street, Albion, Michigan at 9:30 a.m. to conduct an unannounced air quality inspection. Upon arrival, staff observed that there was some opacity (white) being emitted beyond the steam plume from the forming/collection stack for Resinated line # 1. Staff walked over to the corner of East North Street and North Clark Street and observed the stack for a few minutes. Opacity was noted intermittently between 5 – 10% which is below the opacity level allowed by Rule 301 and the facility's ROP. Staff then made contact with Ms. Rachael Underwood, HSE Specialist and stated that they would like to conduct an unannounced air quality inspection of the facility. Staff presented Ms. Underwood with their inspector credentials and provided her with a business card and a copy of MDEQ's Environmental Inspections brochure. Staff was asked to review a safety pamphlet and a confidentiality form. Staff asked several questions related to the confidentiality form because as a public agency any facility file information at the district office is subject to disclosure under FOIA request except for information that has specifically been classified as confidential information. Ms. Underwood stated that their main concern is with taking photographs, etc. of the Knauf technology that is currently being installed at the facility under Permit to Install (PTI) No. 26-15. The facility forms were signed and given back to the receptionist.

The facility manufactures batt and blow-in-wool fiberglass insulation for residential, commercial and industrial applications. The last AQD inspection was conducted on 8/21/13 and the facility was determined to be in compliance at that time. The facility currently operates under ROP MI-ROP-B7205-2015 that was re-issued on 6/3/15. Under the ROP, the facility is considered to be a major PSD source and is also major for HAPs, VOCs, PM-10 and CO. The facility is also subject to 40 CFR Part 60, Subpart PPP and 40 CFR Part 63, Subpart NNN. On 7/1/15, the facility was issued PTI No. 26-15 for conversion of the glass fiberization technology on existing lines 2, 3 and 4 to Knauf fiberization technology, changing Guardian Fiberglass emission unit nomenclature to Knauf Insulation nomenclature and to switch both resinated fiberglass lines to Knauf ECOSE binder technology which is phenol and formaldehyde free. USEPA Region V made a written determination on 4/17/15 that once the Albion facility had switched over to the ECOSE binder technology, it would no longer be subject to 40 CFR Part 63, Subpart NNN. Per an April 23, 2015 email from Mr. Grover Thomas, Knauf, the Albion, MI manufacturing facility was fully converted to the ECOSE technology by April 10, 2015. Therefore, the facility is no longer subject to 40 CFR Part 63, Subpart NNN as of 4/10/15. A ROP minor modification to incorporate PTI No. 26-15 was posted with EPA on 8/24/15 and is under 45-day USEPA review at this time. Knauf emission unit ID nomenclature from PTI No. 26-15 will be put in parentheses after the EU/FG ID in the current ROP for this report.

During the pre-inspection meeting that was also attended by the following Knauf personnel, Mr. Kevin Keen, Plant Manager; Mr. Grover Thomas, Special Projects; and Mr. Adam Stemaly, Process Engineer,

staff asked about the status of the laser shop room and Mr. Keen confirmed that the laser shop equipment was removed as of July 2015. Staff asked if any boilers had been installed, or any additional cold cleaners or emergency generators installed since the last AQD inspection and plant personnel indicated that there were no boilers installed and no changes in the inventory of cold cleaners or emergency generators since the last inspection. Staff asked if Knauf continues to maintain the 24-hour telephone reporting system and personnel provided evidence in the 2014-15 local Jackson-Albion phone directory. For purposes of this inspection, staff will reference emission unit and flexible group IDs from the existing ROP rather than to the nomenclature used in the forthcoming ROP modification. Staff asked about the status of the permitted equipment based on PTI No. 26-15 and Mr. Keen indicated that melter # 6 was down, EU-NRFORMCOL was operating at about one-half capacity, melter # 8 was down and FG-RES2 was down for modification to Knauf technology. FG-RES1 was operating at normal capacity during the inspection.

Ms. Underwood and Messrs. Thomas and Stemaly then gave staff a tour of the facility. Required PPE is a hard hat, safety vest and glasses, hearing protection (double protection required in the Hot Area) and steel toed boots. Information provided below is based on observations and discussions during the inspection and records requested and provided during and following the inspection:

EU-MATHHAND:

Equipment used for raw material receiving, conveying, weighing, mixing, storing and feeding to the four glass melters that utilize internally and externally vented baghouse controls. The bulk of the raw materials are received via rail cars that discharge through a grated pit inside an uncontrolled three sided building and roof structure located adjacent to North Clark Street. Syenite sand and lime are delivered by truck. Purchased cullet was being off-loaded from a truck during the inspection and no visible emissions were noted during the observation period. Housekeeping looked pretty good outside the open side of the railcar building and truck receiving area as little material residue was noted on the ground. Internal recycled cullet product is stored in bins inside the main building. Staff asked for a copy of a weekly batch house opacity check and one is attached to this report for the week of 8/24/15. If visible emissions are observed leaving the unloading area or storage silo bin vents, the check form has a section to identify corrective actions or preventative measures that were taken.

EU-EM6 (EU-Furnace# 3):

Electric melter # 6 discharges molten glass to conditioning channels that flow into a natural gas fired forehearth that serves fiberizers on line # 2 of EU-NRFORMCOL. EU-EM6 was down at the time of the inspection. EU-EM6 emissions are routed to the Ray Jet baghouses which are equipped with a bag leak detection (BLD) system. The backup Mactiflo baghouse is utilized when maintenance is required on the Ray Jet baghouses. The forehearth and line conditioners for line # 2 vent in-plant. The permittee is required to monitor the glass pull rate from EU-EM6 at least once per calendar day. The four fiberizers on line # 2 are equipped with cameras that monitor the flow rate on a continuous basis and the facility performs manual glass pull rate checks every two hours. During the inspection, the Ray Jet north baghouse had a pressure drop of 8.5" and a BLD reading of 22.1 pA. Ray Jet south baghouse had a pressure drop of 3.0" and a BLD reading of 4.3 pA. The pressure drop gauges were last calibrated August 2015.

EU-EM8 (EU-Furnace# 2):

Electric melter # 8 discharges molten glass to conditioning channels that flow into a natural gas fired forehearth that serves fiberizers on FG-RES2. EU-EM8 was down while resinated line # 2 is being

modified under PTI No. 26-15. EU-EM8 is controlled by one of two MACTIFLO baghouses, however, no readings were taken since the control device was down as well.

EU-RESFORMCOL (EU-ML1ALBFORMING):

The forming and collection process portion of the resinated fiberglass production line # 1. During the inspection, resinated Line # 1 was operating at an average glass pull rate of 7,800 pounds/hour and was running R-15 product. Compliance with PM-10, PM and ammonia emission rates was verified per a September 2014 performance test. EU-RESFORMCOL is controlled by three Fisher-Klostermann wet scrubbers that were observed to be operating within a pressure differential range of 5.5 – 7.5" and a flow rate of 158 – 198 gallons per minute which was in the allowed operating range established during the 2014 performance test under 40 CFR Part 60, Subpart PPP. The pressure differential and flow rate gauges were calibrated in August 2015 and a copy of the third quarter calibration sheet is attached to this report. The scrubber differential pressure and flow rate is monitored continuously and recorded electronically every 15 minutes. The scrubbers are equipped with visual and audible alarms. Attached are a couple of corrective action forms that are completed either when parameters are out of specification, system alarms or other malfunctions.

EU-RESCURE (EU-ML1ALBCURING):

The curing and cooling process portion of the resinated fiberglass process line # 1. Compliance with PM-10, PM and ammonia emission rates was verified per a September 2014 performance test. EU-RESCURE is controlled by two high efficiency air filtration (HEAF) units [curing portion of Line # 1] and one Fisher-Klostermann wet scrubber [cooling table portion of Line # 1]. The east and west HEAF units were operating with a pressure differential range of 16 – 19", a temperature range of 129 – 136 degrees F and an amperage range of 241 – 262 amps which was in the allowed operating range established during the 2014 performance test under 40 CFR Part 60, Subpart PPP. The cooling table scrubber was also within the allowed operating range with a differential pressure of 7.1" and a flow rate of 151 gpm. The monitoring gauges for the HEAF and cooling table scrubber were last calibrated August 2015. Staff reviewed the cure oven fire event log for Line # 1 and a detailed printout for an event on 6/12/15 is attached to this report. Ms. Underwood indicated that the Knauf environmental log system has an oven log database for all of their facilities.

EU-FACESIZEPKG:

Emission unit consists of the sizing and packaging area for all resinated and non-resinated production lines combined and includes facing, trimming, dicing and laminating operations. All emissions except for the adhesive equipment associated with the roll packaging operation on Line # 1 (vents through HEAF) are vented internally through a wet impingement scrubber, bag filter or cyclone. For July 2015, the calculated 12-month rolling average VOC emission rate is 10.4 tons/year (~ 33% of allowable rate).

EU-NRFORMCOL (EU-WBWALBFORMING):

The forming and collection process associated with non-resinated fiberglass production lines # 2 and # 4. During the inspection, line # 2 was not in operation. Compliance with PM10 and PM emission limits was verified by performance testing in October 2014. During the inspection, line # 4 scrubber operating parameters were within the allowed range from the 2014 performance test. Material usage records are being maintained for the de-dusting oil, anti-static and silicone chemicals. The highest calculated 12-month rolling average for VOC during the July 2014 to July 2015 reporting period was July 2014 at 44.06 tons which is 88% of allowable. The highest daily glass pull rate during the July 2014 to July 2015 reporting period was 102.16 tons on 9/14/14 which is 86% of allowable 119 tons/day maximum glass pull

rate. The highest 12-month rolling average glass pull rate during the July 2014 to July 2015 reporting period was 33,317.3 tons for July 2014 which is 85% of allowable.

EU-BINDERMIX:

Emission unit consists of the mixing system components including ECOSE ingredient storage tanks, ECOSE binder mix tanks and process water tanks. During the inspection, it was pointed out that a number of pre-mix tanks and component tanks associated with the former phenol-formaldehyde system have been removed. Any remaining tanks were cleaned and repurposed for the ECOSE binder technology per Mr. Thomas. As stated earlier in this report, the Albion facility was fully converted to ECOSE binder technology by 4/10/15. Therefore, the facility is no longer subject to 40 CFR Part 63, Subpart NNN in accordance with USEPA's 4/17/15 applicability determination letter.

FG-RES1 (FG-ML1ALB):

Flexible group consists of EU-RESFORMCOL and EU-RESCURE which is the forming, collection, curing and cooling section of resinated fiberglass production line # 1. Compliance with PM10 and formaldehyde emission rates was verified by a September 2014 performance test. The fiberizers for line # 1 (Melter 9) are equipped with cameras that continuously monitor glass pull rate. Manual pull rate measurement is taken every two hours to check against the automated value. If a fiberizer camera flow value is out of specification when compared with the manual pull rate value, plant personnel increase the manual pull rate checks to every hour until the camera is either replaced or re-calibrated. During the time period July 2014 through July 2015, the highest daily glass pull rate was 92.63 tons/day (12/22/14) or 86% of the allowable limit. Facility tracks binder chemical formulation and usage rates to calculate monthly and 12-month rolling average VOC emission rates. For the time period July 2014 through July 2015, the highest 12-month rolling average VOC rate was 4.6 tons in March 2015 which is 6% of allowable rate.

FG-RES2 (FG-ML2ALB):

Flexible group consists of EU-RFC2 and EU-RC2 which is the forming, collection, curing and cooling section of resinated fiberglass production line # 3. Line # 3 was taken down for re-construction following the issuance of PTI No. 26-15 on 7/1/15 and is not anticipated to be back on-line until early 2016. Staff was shown the replacement scrubbers being constructed on the north side of line # 3 during the inspection. Compliance with PM, PM-10, ammonia, formaldehyde and phenol emission was verified per an October 2014 performance test. The fiberizers for line # 3 (Melter 8) are equipped with cameras that continuously monitor glass pull rate. Manual pull rate measurement is taken every two hours to check against the automated value. If a fiberizer camera flow value is out of specification when compared with the manual pull rate value, plant personnel increase the manual pull rate checks to every hour until the camera is either replaced or re-calibrated. During the time period July 2014 through July 2015, the highest daily glass pull rate was 101.19 tons/day (10/29/14) or 94% of the allowable limit. Facility tracks binder chemical formulation and usage rates to calculate monthly and 12-month rolling average VOC emission rates. For the time period July 2014 through July 2015, the highest 12-month rolling average VOC rate was 2.2 tons in August 2014 which is 3% of allowable rate.

FG-MELT7and9:

Flexible group consist of melters # 7 and # 9 that are subject to 40 CFR Part 63, Subpart NNN. Because the facility no longer meets the definition of an affected facility under this MACT standard, compliance was not evaluated since the flexible group is being removed under the ROP modification that will incorporate the conditions of PTI No. 26-15.

FG-MELT6,7 and 9 (FG-FURNACE1,3 AND 4):

Flexible group consists of melters # 6, # 7 and # 9 which are routed to two Ray Jet baghouses for PM control. Each Ray Jet baghouse is equipped with bag leak detection systems. The facility maintains a log of bag leak detection alarms. During the inspection, the Ray Jet north baghouse had a pressure drop of 8.5" and a BLD reading of 22.1 pA. Ray Jet south baghouse had a pressure drop of 3.0" and a BLD reading of 4.3 pA. The pressure drop gauges were last calibrated August 2015. Compliance with PM and PM10 emission limits was verified through emission testing conducted in October 2014. To date, the facility has not been required to implement Quality Improvement Plan under 40 CFR Part 64.

FGRULE290:

Flexible group table is used mostly for small quantity materials used on an experimental basis. These materials are being tracked and recorded in accordance with Rule 290 limitations. Staff did not evaluate emission records for the flexible group during this inspection.

FGCOLDCLEANERS:

Facility continues to operate and maintain two cold cleaners. One unit was observed during the inspection. Staff provided Ms. Underwood with new MDEQ cold cleaner stickers. Cold cleaner table was not evaluated during this inspection.

FG-RULE287(C):

Flexible group was for surface coating equipment used to apply a coating to the inside of the fiberizer discs. In July 2014, the facility laser shop and surface coating equipment was removed because finished fiberizer discs are now received from another Knauf facility. This flexible group table will be removed upon issuance of the ROP modification to incorporate PTI No. 26-15.

FG-RICEMACT:

Flexible group covers four existing diesel fired RICE units at the Albion facility based on manufacture date provided with the facility's ROP application. The RICE units include two 490 HP Detroit Diesels (North- Unit: Hour Meter – 444.9; South Unit: Hour Meter – 420.9), a 250 HP Olympian (Hour Meter – 184.4), and an 823 HP Caterpillar Model 3412 (Hour Meter 445). All units are equipped with analog or electronic non-resettable hour meters. Engine maintenance is performed in-house and oil, oil filter and air filter are replaced annually and replacement date written on the new oil filters (12/10/14). Log of operating hours is kept in the maintenance area.

FG-NSPSIIII:

Flexible group covers two diesel fired emergency RICE units at the Albion facility based on manufacture date provided with the facility's ROP application. The RICE units include two 437 HP diesel Generac Units A and B. These units are equipped with electronic hour meters and the readings were 316.2 hours (Unit A) and 296.2 hours (Unit B). Engine maintenance is performed in-house and oil, oil filter and air filter are replaced annually and replacement date written on the new oil filters (11/14/14). Log of operating hours is kept in the maintenance area.

FG-CAMUNITS:

Scrubber control equipment for both resinated forming and non-resinated forming processes are subject to Compliance Assurance Monitoring under 40 CFR 64.6. The permittee is required to continuously measure scrubber pressure drop and liquid flow rate and record at least once every four hours during process operation as an indicator of proper operation of the scrubbers on resinated forming process. The permittee is required to continuously monitor scrubber pressure drop and liquid flow rate and record at least once every four hours during process operation as an indicator of proper operation of the scrubbers on non-resinated forming process. The indicator range for both forming processes is established during performance testing that was completed in September and October 2014. Scrubber monitoring gauges were last calibrated in August 2015. Facility submits semi-annual reports of monitoring and deviations and downtimes. If there were no excursions, exceedances or no periods of monitor downtime during the reporting period, the facility includes this statement in their semi-annual reports.

Process equipment that has been identified as exempt from permit to install requirements in prior AQD inspections include multiple natural gas fired space heaters with a maximum design capacity < 0.4 MMBtu/hour that are exempt under Rule 282(b)(i). These heaters are located primarily in the packaging and warehousing sections of the facility.

Staff thanked Ms. Underwood for her time and left the facility around 1 pm.

At the time of the inspection and based on a review of material usage, inspection and emission records obtained during or following the inspection, it appears that the facility is in compliance with the requirements of ROP No: MI-ROP-B7205-2015. -RIL

NAME RIL DATE 9/29/15 SUPERVISOR MD 9/30/2015