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

N179434521

FACILITY: Atlas EPS, a Division of Atlas Roofing Corp.		**SRN / ID:** N1794
LOCATION: 8240 Byron Center Rd., BYRON CENTER		**DISTRICT:** Grand Rapids
CITY: BYRON CENTER		**COUNTY:** KENT
CONTACT: Paul Espinoza , Safety Coordinator		**ACTIVITY DATE:** 05/03/2016
STAFF: Kaitlyn DeVries	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: The purpose of this inspection was to determine compliance with Renewable Operating Permit MI-ROP-N1794-2012 and all other applicable Air Quality Rules and Regulations.		
RESOLVED COMPLAINTS:		

On Tuesday May 3, 2016 AQD Staff Kaitlyn DeVries (KD) conducted an unannounced, scheduled inspection of Atlas EPS, a Division of Atlas Roofing, located at 8420 Byron Center Avenue, Byron Center, Michigan. The purpose of this inspection was to determine compliance with Renewable Operating Permit MI-ROP-N1794-2012 and all other applicable Air Quality Rules and Regulations.

KD arrived on site at approximately 10:00 am and observed the facility for any excess odors, opacity, or fall out. None were noted. KD was met by Mr. Paul Espinoza, Safety Coordinator, who accompanied her on the tour and provided her with appropriate records on a later date. KD presented Mr. Espinoza with the Environmental Rights and Responsibilities pamphlet, which was briefly discussed prior to a tour of the facility.

Facility Description

Atlas EPS, a Division of Atlas Roofing, (Atlas) is a manufacturer of structural foam used primarily for construction related activities, including garage doors and other insulation projects. They operate three (3) shifts per day, five (5) occasionally six (6) days per week, and employ approximately 120 employees. The structural foam is made from an expanded polystyrene (EPS) bead. The beads go through a steam expansion process and then are held in holding bags to allow for pentane off-gassing. The beads can be held anywhere from four (4) hours to three (3) days before moving on to the production phase.

The facility is separated into two (2) plants, which are connected via a corridor in the buildings. Plant 1, houses the recycling department, a small molding department, a fabrication department, the boiler area, and has four (4) hot rooms. Plant 2, houses a larger molding department, a production and warehouse area, and five (5) heat rooms.

A further description of the areas of each plant will follow in the compliance evaluation portion of this report.

Regulatory Analysis

Atlas is a Title V major source of Volatile Organic Compounds (VOC's) and currently has ROP MI-ROP-N1794-2012. Atlas has recently submitted a ROP renewal application for which AQD is actively reviewing. The Regenerative Thermal Oxidizer (RTO) is also subject to the Compliance Assurance Monitoring (CAM) requirements in 40 CFR Part 64. The CAM requirements are detailed in the ROP and will be evaluated in the Compliance Evaluation portion of the ROP. Besides the requirements of CAM, Atlas is not subject to any other Federal Regulations at this time.

Compliance Evaluation

FGEPS

This flexible group is consists of the process equipment used for all expansion and molding of the polystyrene beads in both plants and the RTO for control of the expansion emissions. Atlas has four (4) molding machines, and three (3) expanders, but typically only operates two of the three expanders.

The expansion process utilizes pentane as the blowing agent for bead expansion, and the throughput of EPS beads in FGEPS is at expansion is limited by the equation below, which corresponds to the allowed VOC emissions of 749,000 pounds or 374.5 tons per year (tpy).

Σ ((((Σ (U_i * V_i)/100) * 1-P_w) – (((Σ_i (U*V_i)/100) * (PE* (DE/100)) +DS ≤ 749,000 pounds

Ui = Pounds of EPS beads from lot i used during the calendar month.
V_i = VOC content of EPS beads from lot i, in pounds of VOC per 100 pounds of beads.
P_w = Production-weighted average fraction of VOC retained in product. "Production-weighted average fraction of VOC retained in product" means the average fraction of VOC contained in the raw beads that is retained in the product shipped from the facility for each month's production. This average is determined by dividing the VOC content of each product by the VOC content of the respective raw beads and weighting this ratio by the fraction, by weight, of the month's production that the product constitutes.
PE = Weight fraction of VOC emissions in the raw beads that are emitted during expansion.
DE = VOC destruction efficiency (percent of VOC in the inlet to the thermal oxidizer that is destroyed in the thermal oxidizer) of the thermal oxidizer. The default value for this shall be 95 percent; the actual tested value may be used with the approval of the AQD District Supervisor.
DS = Densified scrap. This is the production weighted average of VOC emissions between trimming scrap from the EPS product and the shipping of densified scrap as a secondary product. This is calculated as P_w minus the average fraction of VOC retained in the densified product, times the pounds of densified shipped.

Based on the attached records, Atlas operates between 418 and 462 hours each month, and is tracking the actual hours operated each day. Per a review of the attached records and the equation mentioned above, the 12-month rolling throughout of beads keeps the 12-month rolling average below the 749,000 pounds of VOC or 374.5 tpy. As of March 2016 the 12-month rolling VOC emissions were 231.66 tons. They are also restricted to 272.4 lbs VOC/hr. In the last 12 months, the highest recorded pounds per hour emissions were on December 28, 2016 at a rate of 168.22 lbs VOC/hr. Atlas is properly tracking the throughput at expansion for each lot of EPS beads, total bead throughput at expansion, total pounds of densified scrap and VOC content of the regrind, pounds of VOC per 100 pounds of EPS beads as received, weight fraction of the total VOC emission emitted, and pounds of VOC per 100 pounds of EPS beads at expansion.

The 2015 MAERS emission data was reviewed in conjunction with this report, and all emissions data appeared to be consistent.

The emissions from the expansion and molding processes are exhausted through the Regenerative Thermal Oxidizer (RTO). To date, Atlas has been timely submitting all excursion and exceedance reports and monitor downtime reports for the RTO in accordance with 40 CFR Part 64 for compliance assurance monitoring (CAM). The RTO has a required minimum operating temperature of 1340°F, and was operating at a temperature of 1624°F at the time of the inspection. The RTO is outfitted with a digital temperature recording device that is downloaded, recorded, and reviewed for any excursions every seven (7) days. The temperature device was recently calibrated in December 2015. Additionally, at the time of the inspection, the RTO was operating at a negative pressure.

The RTO is also equipped with indicator lights by all of the expanders, and the control room that indicate if the temperature is acceptable for operation. Atlas conducts regular inspections of the RTO to ensure proper operation. The RTO is shut down every weekend, where regular inspections occur. Furthermore, Atlas does a more thorough inspection of the RTO every six (6) months. Inspection reports can be found attached to this report, include inspection data from weekly, monthly, and semi-annual inspections of such things as the control valves, flame controls, damper and fan bearing, and other items as outlined in SC. VI. 11 and 12.

Atlas most recently conducted a stack test for destruction efficiency in 2012, and confirmed a destruction efficiency of 99.4%. While the stack dimensions were not explicitly measured, there were no apparent changes.

FGRULE290

This flexible group encompasses any emission unit that emits air contaminants and is exempt from the requirements of Rule 201. Such emission units include the cutting, embossing, and laminating equipment, the recycling equipment, and the boilers.

The cutting, embossing, and laminating equipment is primarily located in plant 2. Once the foam is molded, it gets cut down to the appropriate thickness, length, and width. Atlas has two (2) embossing machines and three (3) laminating machines. The lamination process uses one of two (2) types of hot melt adhesive (please see below for evaluation of the hot melt adhesive).

Pentane is the primary contaminant of concern from these processes. Pentane has an Initial threshold screening level (ITSL) of 17700 $\mu g/m^3$; thus the allowable emissions are 500 pounds per month, since they are exhausted back into the in-plant environment after passing through one of several baghouses. The attached records from April 2015 through March 2016 indicate that less than 500 pounds of pentane have been emitted per month per piece of equipment.

Additional Exempt Equipment

The recycling department, located in plant 2, is the area where the scrap foam is shredded and either re-used or condensed into blocks for sale elsewhere. All of the emissions from the densifying machine are released back into the in-plant environment. This process is exempt from Rule 201 permitting under Rule 285 (l)(vi)(B). Atlas has three (3) Cleaver Brooks Natural Gas only boilers that were manufactured in 1958, 1969, and 1976. All three (3) are 8,369,000 BTU Boilers and are exempt from Rule 201 permitting under Rule 282 (b)(i). Additionally, these boilers are not subject to the Boiler MACT. Atlas uses the heat from these boilers to heat several rooms (4 in plant 1 and 5 in plant 2) where the molded blocks sit for anywhere from two (2) to seven (7) days at 140°F to allow for further off-gassing of the pentane. The air from the rooms is recirculated via heat and steam pipes throughout the plant.

Atlas also has a cooling tower that uses recycled water for cooling the molding equipment. This is exempt from Rule 201 permitting under Rule 280 (d).

The application of the hot melt adhesive (MSDS attached) is exempt from Rule 201 permitting under Rule 287 (i).

The fabrication department, located in plant 1, does cutting of the foam as well. This process is exempt from rule 201 permitting under Rule 285 (l)(vi).

Lastly, Per Mr. Espinoza, Atlas does not have any emergency generators or cold cleaners.

Compliance Determination

Based on the observations made during the time of the inspection and a subsequent review of the records, it appears as if Atlas is in compliance with MI-ROP-N1497-2012.

NAME Kaitlyn DeVine DATE 5/26/2016 SUPERVISOR