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

N714940979

FACILITY: Nestle Waters North America		**SRN / ID:** N7149
LOCATION: 19275 Eight Mile Road, STANWOOD		**DISTRICT:** Grand Rapids
CITY: STANWOOD		**COUNTY:** MECOSTA
CONTACT:		**ACTIVITY DATE:** 07/19/2017
STAFF: Tyler Salamasick	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Minor source inspection. FY-2017		
RESOLVED COMPLAINTS:		

Background

Nestle Waters North America (Nestle) SRN: N7149 is a water bottling facility located at 19275 8 Mile Road, Stanwood, Michigan 49346. Nestle is located in a primarily rural area with the nearest residential structures approximately 1000 feet from the facility. The facility was inspected on 7/19/2017 by Tyler Salamasick, Environmental Quality Analyst of the Michigan Department of Environmental Quality, Air Quality Division. The intent of the inspection was to determine the facility's compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended and Michigan's Air Pollution Control Rules. Nestle does not have permits with the MDEQ AQD and operates its equipment under applicable exemptions.

Inspection

Site arrival was at 1:45pm, 7/19/17. Upon entry I presented my State of Michigan identification card, informed the facility representative of the intent of my inspection and was permitted onto the site. The primary site contact, Mitchell Plosz was not at the facility during my inspection. Nestle requires that all visitors receive health and safety training prior to entering the production area of the facility. After completing the safety training I met with the Safety, Health and Environmental Manager, Rich Wallace, the Technical Manager of Maintenance, Jeremiah Thompson, and the Quality Resource Manager, Nicole Geese. We had an introductory meeting prior to my inspection of the facility. I informed the representatives that I was conducting an unannounced, scheduled inspection of the facility and I described the potential areas I would focus my inspection on. After the meeting the representatives showed me the facility and its processes.

Process overview

The first step of Nestle's process involves transporting water to the facility. Nestle operates a total of nine production wells. Two of the wells are located at the bottling facility and seven of the wells are remote. All of the wells are pumped electronically. Of the seven remote wells, four of the wells have the water piped directly to the facility whereas the other three wells use tanker trucks. Electronically powered wells do not directly utilize combustion and would not appear to generate air emissions. The air emissions caused by the hauling of water might be considered mobile source and would not be subject to MDEQ Rules and Regulations.

After the water is brought on site, the water must be conditioned. Nestle staff showed me the water conditioning and utility areas. These areas can be section into two primary areas, the boilers and the refrigeration units. In the boiler area the facility uses two small boilers to heat the incoming cold water. The boilers are used to temper the water and prevent condensation in the building. The facility wide usage of natural gas for 2016 was 269,599 CCF. These boilers appear to meet exemption R 336 1282(2)(i) for natural gas boilers under 50,000,000 Btu per hour. In the refrigeration area, Nestle utilizes two Freon chillers and one closed loop anhydrous ammonia refrigeration unit. The anhydrous

ammonia tank is rated to hold 2750 lbs at its maximum, 80% capacity. The tank capacity equates to 483 gallon, which is 17 gallons below the Rule 280 exemption limit for anhydrous ammonia. Anhydrous ammonia vapors are toxic and can be deadly if breathed in. As a safety measure, Nestle keeps the anhydrous ammonia in its own separate, locked section of the utility area equipped with anhydrous ammonia detectors. This acts as an added safety feature and helps prevent accidental exposure to the anhydrous ammonia if there were to be an accidental release. Both the Freon chillers and the closed loop anhydrous ammonia refrigeration unit appear to meet the exemption R 336.1280(2)(a) which in part states:

(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following: (a) Cold storage refrigeration equipment and storage of the refrigerant, including cold storage equipment using anhydrous ammonia that has storage capacity of less than 500 gallons.

I inspected the cooling towers associated with the refrigeration units. I asked Rich if the facility uses any chrome compounds in the cooling tower to prevent algae growth. He did not believe that they did, and he indicated that GE services the cooling towers. We inspected some of the chemicals stored in the utility room and it appeared that the towers were cleaned with a bleach like solution. Both sets of cooling towers appeared to meet the exemption R 336.1280(2)(d) for cooling towers. In addition to the utility area the facility has a maintenance room that was equipped with drills, grinders and cutting tools. This equipment was used for regular maintenance and appears to meet the exemption R 336.1285(2)(l)(vi)(B)

The next area I inspected was the bottle manufacturing area. Nestle manufacturers nearly all of their own plastic bottles that are filled at this facility. The facility utilizes injection molding to manufacture the plastic bottles from polyethylene terephthalate (PET) resin. Nestle does use some water containers that are not made on site. The bottles that are not made on site are the larger volume container lines. These water containers require different molding equipment that Nestle does not have at this location. In addition to molding preforms for their own bottling lines, Nestle also produces preforms plastic bottles for sale to other facilities. In an email, Rich later indicated that in 2016 the facility used approximately 70,000,000 lbs of PET resin.

Nestle has six injection molding stations. Each station is very similar in design, but capable of molding different size water bottles. Nearly all of the water bottled at the facility utilizes bottles made on site. The first step of the bottle manufacturing process is the importing of resin. The resin comes in as small beads or pellets. These beads are offloaded from a truck using a vacuum like system. Nestle has six injection molding stations that it utilizes to manufacture plastic bottle. When the beads leave the storage silos they can be sent to any of the six lines. Once the beads enter the processing lines, they are dried in large drying towers. PET is hygroscopic and will absorb water from the ambient air. It is important to dry PET prior to molding. If the PET is not properly dried the plastic product will be impure and malformed. Each of the towers uses their own small natural gas burners to dry the beads. It takes approximately 8 hours for the beads to travel from the top of the drier to the bottom. This process assures that the beads are completely dry prior to the injection molding. The combustion by product from the natural gas driers were vented through stacks to the ambient outside air. The storage handling and drying of the PET beads appear to be exempt from Rule 201 pursuant to R 336.1286(2)(b) which states:

… (2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following: … (b) Plastic injection, compression, and transfer molding equipment and associated plastic

resin handling, storage, and drying equipment. …

Once dry, the beads are moved into a feed barrel. The barrel utilizes electricity to heat the beads until they are soft and moldable. A corkscrew conveyor pushes the beads along the heated barrel and extrudes the plastic. The plastic is then injected into the preform mold on the other side of the equipment. A preform is the base structure of the bottle that will later be stretched and blown into shape. Prior to the blowing and stretching step, the preform resembles a small test tube with a threaded water bottle neck. The injection molding station that I observed was producing 144 preforms approximately every seven seconds. Nestle staff informed me that the facility does not uses a mold release between each cycle. This is important to note because some plastic manufacturing facilities use mold release agents with hazardous air pollutants HAPs, and the use of release agents can generate significant emissions. Once the preforms are completed, they are sorted into bins. Some of the preforms are sent to different bottling facilities, while the majority are used on Nestles bottling lines.

Emissions from the plastic injection molding appear to be minimal and also appear to meet exemption R 336.1286(2)(b). MDEQ AQD Permit Section suggests that typical emissions from a single injection molding unit consist of approximately 0.1 tons per year of volatile organic compounds (VOCs). Combining the estimated emissions from all six injection moldings units would equate to 0.6 tons per year of VOCs which is well below any significant levels.

Excessive heating of PET during the injection molding processes could have the potential to generate degradation products including acetaldehyde. Acetaldehyde is listed as a HAP by the US EPA. Acetaldehyde has a sweet fruit like smell which I did not observe near any of the process equipment. If Nestle were mishandling the PET in a manner that would generate this by product the emission it would be evident in the product flavor. Nestle appears to be handing the PET properly and it does not appear that they are generating acetaldehyde in any significant amount that would impact the National Ambient Air Quality Standards (NAAQS).

Nestle currently has ten bottling lines and is in the process of adding more. Each bottling station uses the preforms and blow molds them into a bottle just prior to filling. In order to mold the preforms the PET must be softened with heat. Nestle uses electric preheating ovens. The oven uses a series of what appeared to be high intensity light bulbs to heat the PET just enough to soften the material, but not hot enough to degrade it. Once the preforms are heated they enter the blowing area. A long rod is used to stretch the bottle lengthwise while filtered ambient air is blown into the preform. The soft plastic expands as a bottle shaped mold closes around it. This process appears to meet exemption R 336.1286(2)(c)(i) which in part states:

(2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following: …(c) Plastic blow molding equipment and associated plastic resin handling, storage, and drying equipment if the blowing gas is 1 or more of the following gasses: (i) Air. …

Once the bottles are completed, they are filled with water and capped. The exception to this is Nestle's Gerber, line which run once every two weeks. This water line has ozone added to the water just prior to capping the bottle. Ground level ozone is a criteria pollutant and is regulated by the Clean Air Act (CAA). Nestle's process uses very limited amounts of ozone and it appeared that nearly all of the ozone would be contained in the product. The addition of ozone was not vented outdoors and does not appear to be a significant source of air emissions.

After the bottles are filled and capped they pass through a series of sensors that reject defective bottles. The bottles then have premade label glued on. The adhesive appears to meet exemption R 336.1287(i) for hot melt adhesives. Once labeled the bottles are packaged into cases of either 28 or 48 bottles where they are stamped with product information using an ink jet coder. Rich submitted purchase records for 2016 that indicated the facility used 83 gallons. The ink usage is minimal and meets the exemption R 336.1287(2)(c) because the facility uses less than 200 gallons per month.

After inspecting the facility we had an exit meeting. I informed the facility of the potential exemptions and we discussed the anhydrous ammonia refrigeration unit. I also requested some documentation for the usage of natural gas, PET resin and ink.

Conclusion

It appears that Nestle is in compliance with the Federal Clean Air Act Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, and Michigan's Air Pollution Control Rules.

NAME _____ DATE 8/7/17 SUPERVISOR _____