

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

A585841391

FACILITY: Mead Johnson & Company, LLC	SRN / ID: A5858
LOCATION: 725 E. Main Street, ZEELAND	DISTRICT: Grand Rapids
CITY: ZEELAND	COUNTY: OTTAWA
CONTACT: Thomas A. Joelson , Senior EH&S Facilitator	ACTIVITY DATE: 08/31/2017
STAFF: Kaitlyn DeVries	COMPLIANCE STATUS: Compliance
SUBJECT: The purpose of this inspection was to determine compliance with MI-ROP-A5858-2017 and other applicable air quality rules and regulations.	
RESOLVED COMPLAINTS:	

On Thursday August 31, 2017 Air Quality Division (AQD) staff Kaitlyn DeVries (KD) conducted an unannounced, scheduled inspection of Mead Johnson & Company, LLC located at 725 E. Main Street, Zeeland, Michigan. The purpose of this inspection was to determine compliance with MI-ROP-A5858-2017 and other applicable air quality rules and regulations.

Prior to entering the facility, KD surveyed the perimeter for any excess odors or opacity; none were noted. Upon arrival, KD met with Mr. Tom Joelson, EHS Associate Manager, who accompanied KD on the tour of the facility.

Mr. Joelson explained that Mead Johnson was undergoing some scheduled maintenance over the weekend, was why much of the equipment was shut down at the time of her visit. Rooftop observations were made from the ZSP building, and no issues were noted at that time. No stack dimensions were measured as part of this full compliance evaluation, however, all stacks appeared to be of proper dimension.

Facility Description

Mead Johnson & Company, LLC (Mead Johnson) is a manufacturer of powdered milk products for infants and seniors including products for people with special nutritional or medical needs. The manufacturing process consists of combining and drying raw materials, which are then blended with vitamins and minerals before being weighted and packaged. The primary operations are in two (2) buildings, ZIPP and ZSP. Other auxiliary equipment is in the powerhouse. The facility also has an on-site waste water treatment plant.

Regulatory Analysis

The facility is currently operating under Title V permit MI-ROP-A5858-2017, which was renewed in May 2017. The facility is a major source of Hazardous Air Pollutants (HAPs) and is subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM), 40 CFR Part 63 Subpart DDDDD for boilers and process heater, 40 CFR Part 64 Subpart ZZZZ for reciprocating internal combustion engines, and the to the new source performance standards (NSPS) provisions of 40 CFR Part 60 Subpart JJJJ for stationary spark ignition internal combustion engines.

Compliance Evaluation

EUBOWEN-DRYER

This emission unit covers the process for which the liquid product is atomized into a hot air stream evaporating all of the moisture. The dried product is recovered by the dryer and a multi-cyclone. Particulate Matter (PM) emissions are controlled by a wet scrubber.

PM emission are limited to 0.02 lbs/1,000 lbs of exhaust gas, based on test protocol; there is also a 5% opacity limit on the dryer. While the process was not operating at the time of the inspection, KD was able to observe the water flow switch, and records indicate that flow switch was last calibrated on May 6, 2017. Records of the flow through the scrubber show the scrubber is operating between 23 and 27 gallons per minute (gpm). Records also indicate that Mead Johnson is implementing their Malfunction Abatement Plan (MAP) and performing preventative maintenance (PM) to ensure proper functionality of the equipment.

EUDIGEST-TANKS

This emission unit is a specialty digestion process consisting of digesters, a process tanks, solids handling and liquefaction, and associated ancillary equipment. Fugitive Volatile Organic Compounds (VOC) losses from the

digesters and process tanks exhaust through eight (8) process room exhaust stacks. There are six (6) active 3,000-gallon digest tanks associated with this emission unit. There are ten (10) inactive tanks, but Mead Johnson currently has no plan to use these inactive tanks. Process emissions from a draw-off process to remove material using a vacuum with a steam ejector, are controlled by a knock out pot and condenser. A rotoclone wet scrubber is used to control PM from the dry materials handling system.

The knock-out pot and condenser were not in use at the time of the inspection. This emission unit is subject to the requirements of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). Mead Johnson has successfully been completing all the requirements for monitoring and reporting as required by the CAM plan. The liquid level of the knock-out pot is continuously monitored, and the pot is equipped with two (2) high level alarms. The water flow switch for the condenser was installed, and per records the flow switch was last calibrated in August 2017.

There is also a rotoclone scrubber associated with this process. The water pressure switch associated with the scrubber was also last calibrated in August 2017. The minimum water pressure thought t scrubber during operation is 12 psi, and per the records the pressure has been above 100 psi.

Mead Johnson is conducting regular PM as required by the MAP; records for PM are attached.

VOC emissions from the process room air exhaust are limited to 181.7 lbs per 24-hour time period and 33.2 tons per year (tpy), based on a 12-month rolling time period. Per the attached records, the 12-month rolling VOC emissions are 1.41 tons and the 24- hour VOC emission are 91.0 lbs. Similarly, the steam ejector stack has a 24-hour VOC limit of 96.4 lbs and a 12-month rolling VOC limit of 8.8 tpy. Per the records, the maximum 24-hour VOC emissions were 31.5 lbs and the 12-month rolling VOC emission were 1.82 tons.

PM emissions from the dry materials handling system are limited to 0.04 lbs/1,000 lbs of exhaust gases, on a dry gas basis, based on test protocol. The dry materials handling system also has a 10% opacity limit.

EUZSP-VIT-WEIGH

This emission unit is the vitamin weigh scale, where dry materials are transferred into containers and weighed. The vitamin weigh scale in the ZSP building was not in use at the time of the inspection, however, KD was able to observe the Torit dust collector and the associated broken bag detector that are used to control PM. PM emissions are limited to 0.01 lb./1000 lbs exhaust gas, based on test protocol, and 5% opacity. No opacity was noted, and maintenance records per the MAP show PM is being done on the unit with the broken bag detected was last calibrated on July 16, 2017. The stack was not measured, but appeared to be of correct dimensions.

EULIQUIFER-TANK

This emission unit is located in the ZIPP building, and is where dry ingredients are added to and mixed with liquid ingredients in mix tanks. A rotoclone wet scrubber controls PM. The water pressure switch was installed, and operating at a pressure of 85 psi, which is above the minimum 23 psi. Mead Johnson records the water pressure, and records indicate an operational range of around 85 psi. Additionally, the water pressure switch is calibrated semi-annually, with the last calibration being done on August 22, 2017. Mead Johnson also appears to be following the specifications as outlined in the MAP.

EUZSP-LIQ-PROCESS

This emission unit is the ZSP liquid process center and covers the equipment for liquefying and mixing dry powdered materials. A rotoclone wet scrubber controls PM emissions. This process was not operating at the time of the inspection, but KD was able to observe the flow indicator, which is required to maintain a minimum flow of 1.5 gpm; the water flow transmitter is required to be calibrated at least semi-annually. The last calibration was done on April 20, 2017.

PM emissions are limited to 0.04 lbs/1,000 lbs of exhaust gas, based on test protocol. There is also a 10% opacity limit. Mead Johnson has successfully implemented the MAP, and is conducting regular PM to ensure proper operation.

EUZSP-SPRAY-DRYER

This emission unit is a spray dryer which consists of a natural gas fired process heater, spray drying operations, and spray dry cleaning operations. This process was not in operation at the time of the inspection.

Sodium Hydroxide is used as part of the cleaning process and is limited to 167 lbs per wash cycle, and per the records, Mead Johnson has not used more than 152 lbs in a wash cycle. VOC emissions are limited to 1.8 tpy per 12-month rolling time period, and per the records the 12-month rolling VOC emissions were 357 lbs (0.18 tons).

A baghouse is used to control the PM emissions from this process, and the emissions are limited to 0.02 lbs/1,000 lbs of exhaust gases and to 2.76 pounds per hour (pph), both based on test protocol. A broken bag detector has been installed on the baghouse, and the pressure drop on the magnehelic was reading 1" water column. The broken bag detector was most recently calibrated on July 11, 2017. The MAP has successfully been implemented and regular PM is done on the unit.

FGNS-DRYER-HTRS

This flexible group covers two (2) identical natural gas fired heaters that are used to produce a hot air stream for the north and south spray dryers. Neither dryer was in operation at the time of the inspection, however, KD has not noticed any opacity when she has been in the area at other times throughout the year.

Both of these process heaters are subject to 40 CFR Part 63 Subpart DDDDD, but specific compliance requirements for that regulation will be discussed below, in the appropriate section.

FGBOILERS

There are three (3) boilers in this flexible group. Two (2) of the boilers are identical Erie City Company boilers that can fire natural gas or fuel oil, while the other boiler is a Cleaver Brooks natural gas only boiler. Per Mr. Joelson, the two (2) boilers that have the capability of burning fuel oil have not burned oil in years. He went on to state that that fuel oil tank and transfer piping have all been removed. The internal components for burning fuel are still present, but the boilers could be considered disabled for fuel use. Mead Johnson, however, has chosen to keep fuel oil as an option, just in case they ever decide to burn it again. All three (3) units are subject to the provisions of 40 CFR Part 63 Subpart DDDDD, but this will be detailed in the appropriate sections below.

In addition to the NEHSAP, EUBOILER3 is subject to NSPS Dc, and the initial notification was received on October 18, 2012.

The two (2) oil capable boilers (EUBOILER1 and EUBOILER2) have several individual SO₂ and NO_x limits that apply to the boilers when they are burning fuel oil, however since these units have not burned oil in years, these limits are not being evaluated at this time. Similarly, since Mead Johnson is not burning fuel, no sulfur content or any other fuel oil related records were obtained and will no

All three (3) boilers have a combined 12-month rolling SO₂ limit of 88.25 tpy, and per the attached records the 12-month rolling SO₂ emissions were 0.06 tons. EUBOILER1 and EUBOILER2 have hourly NO_x limits of 4.39 pph, for EUBOILER3, and 4.9 pph individually for EUBOILER1 and EUBOILER 2. Combined, all three (3) boilers have an hourly NO_x limit of 16.2 pph. Records indicate the maximum pound per hour NO_x emission of at 1.4, and the combined pound per hour emission of NO_x at 1.6. The three (3) boilers also have a 12-month rolling NO_x limit of 66.2 tpy, and records indicate 4.47 tons. Natural gas usage and hours of operation is also properly being tracked for each boiler.

Mead Johnson has implemented and maintained a MAP for the boilers. No opacity was noted from any of the boilers during the inspection, and while stack dimensions were not explicitly measured, they appeared to be correct.

FGZSP-BLEND-FILL

This flexible group consists of two (2) lines where dry powdered ingredients are mixed in blenders and one (1) line where the product is sifted and placed into hoppers which are then used to fill containers. Each of these systems is controlled by a separate fabric filter collector. All equipment in this flexible group is in the ZSP building.

All three (3) baghouses associated with this process were operating at the time of the inspection, and KD could see the broken bag detectors. Mr. Joelson explained that the entire process would shut down if the broken bag

detector indicated there was a problem with the dust collector. The broken bag detector has been properly operating thus Mead Johnson has not needed to perform non-certified visual emissions observations. The broken bag detector was last calibrated on July 23, 2017.

PM emissions from this flexible group are limited to 0.02 lbs per 1,000 lbs of exhaust gases, based on test protocol. Opacity is limited to 5%; no opacity was noted at the time of the inspection. Mead Johnson has implemented a MAP and is conducting regular PM.

FGZIPP-PMSOURCES

There are four (4) lines, each controlled by a fabric filter collector, where dry ingredients are transferred, mixed, and placed into cans or other containers comprising this flexible group. There are broken bag detectors on all of the associated baghouses in this flexible group as well; the baghouses were properly operating with no opacity at the time of the inspection. No malfunctions of the broken bag detectors have been reported for this flexible group, therefore no non-certified visual emissions observations were made.

PM emissions are limited to 0.04 lbs/1,000 lbs of exhaust gases, based on test protocol. The MAP for this flexible group has been implemented and regular PM is performed.

FGNS-DRYERS

This flexible group is for the two (2) identical north and south spray dryers and associated processes. PM is controlled by two (2) parallel fabric filters for each dryer. Broken bag detectors were installed for each of the baghouses, with the most recent calibration being done on May 5, 2017. This flexible group is also subject to the CAM requirements; CAM monitoring has not indicated any excursions or exceedances during the most recent reporting period.

No opacity was noted from these units during the inspection, and PM emissions from the dryers are limited to 0.01 lbs/1,000 lbs of exhaust gas, based on test protocol. Regular PM is done on the units in accordance with the MAP.

FGDRY-POWDER

There are two (2) dry powder blending processes and associated pneumatic powder transfer system in this flexible group. Fabric filter collectors control the PM emissions from the dry blender and powder transfer systems. The vacuum pumps have an in-line HEPA filter system.

The dust collector systems had broken bag detectors installed, with no reported incidents of non-proper operation. The broken bag detectors were last calibrated between July and August of 2017. No product, however, was being processed through this system at the time of the inspection. The MAP outlines PM that is being done regularly by Mead Johnson to ensure proper operation.

FGGAS1HEATMACT

Five (5) natural gas boilers that are subject to the provisions of 40 CFR Part 63 Subpart DDDDD for existing boilers and process heaters at major sources of HAP's are included in this flexible group. Records indicate that the boilers had their most recent tune up on August 1, 2017. All required initial notifications were received in 2013, and the compliance report reports have been submitted. The one-time energy assessments have also already been completed.

FGNEWBOILMACT

There is one (1) boiler that is subject to the provisions of 40 CFR Part 63 subpart DDDDD for new boilers/process heaters at major sources of HAPS. EUBOILER3 is the unit that has the requirements of the new boilers/process heaters and only burns natural gas. An initial notification was also received for this unit, and the required tune-ups have been completed as recent as August 2017.

FGCI-RICEMACT

This flexible group covers one (1) diesel fired emergency fire pump. This engine is subject to the provisions of 40 CFR Part 63 Subpart ZZZZ for stationary reciprocating internal combustion engines. The pump is equipped

with a non-resettable hour meter and the facility is properly complying with the oil and filter change requirements. This unit was not in operation at the time of the inspection, but based on the records, runs approximately one (1) hour per month for maintenance purposes.

FGSI-RICEMACT

The three (3) existing emergency spark ignition reciprocating internal combustion engines. Each of these engines are subject to the provision of the new source performance standards 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ. The engines are either natural gas or propane. None of the engines were not in operation at the time of the inspection, but all are properly equipped with non-resettable hour meters. Records (attached) show that the facility is complying with the requirements of oil and filter changes, and are tracking the hours of operation.

FGRULE290

There are several emission units that rely on Rule 290 for compliance, consisting of various small baghouses and other equipment. All of the baghouses were equipped with broken bag detectors that would shut the processes down if an issue was detected. All Rule 290 records indicate compliance with the appropriate screening levels.

FGCOLDCLEANERS

Mead Johnson has three (3) cold cleaners located throughout the facility. During the inspection, the lids were closed and had appropriate AQD signs.

Waste Water Treatment Plant

The onsite waste water treatment plant has odor control equipment and is exempt from Rule 201 permitting under Rule 285(2)(m).

Compliance Determination

Based on the observations made during the inspection and a subsequent review of the records, it appears as if Mead Johnson & Company, LLC is in compliance with MI-ROP-A5858-2017.

NAME Kailey D. White DATE 9/7/2017 SUPERVISOR LB