

State Registration Number
SRN A5858

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-A5858-2022a

Mead Johnson & Company, LLC

State Registration Number (SRN): SRN A5858

Located at

725 East Main Street, Zeeland, Ottawa County, Michigan 49464

Permit Number: MI-ROP-A5858-2022a

Staff Report Date: July 4, 2022

Amended Date: October 17, 2024

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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State Registration Number

A5858

RENEWABLE OPERATING PERMIT

July 4, 2022 - STAFF REPORT

ROP Number

MI-ROP-A5858-2022

Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan’s Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source’s applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

General Information

Stationary Source Mailing Address:	Mead Johnson & Company 725 East Main Street Zeeland, Michigan 49464
Source Registration Number (SRN):	A5858
North American Industry Classification System (NAICS) Code:	311514
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	202100212
Responsible Official:	Felipe Martinez, Site Director 616-748-7100
AQD Contact:	Chris Robinson, Environmental Quality Analyst 616-286-0083
Date Application Received:	October 11, 2021
Date Application Was Administratively Complete:	October 11, 2021
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	July 4, 2022
Deadline for Public Comment:	August 3, 2022

Source Description

Mead Johnson & Company is a manufacturer of powdered milk products for infants and seniors including products for people with special nutritional or medical needs. The manufacturing operations consist of combining and drying raw materials, which are then blended with vitamins and minerals before being weighed and packaged. The facility also has an onsite wastewater treatment plant. The facility has multiple sources of particulate material controlled by baghouses, rotoclones, or wet scrubbers.

The facility is located in the City of Zeeland in Ottawa County. Directly south of the site is a public athletic field, to the west are private residences, to the north, east and southeast are industrial facilities.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year **2020**.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Ammonia	0.31
Carbon Monoxide (CO)	16.65
Lead (Pb)	0.0001
Nitrogen Oxides (NOx)	20.84
Particulate Matter (PM)	53.54
Sulfur Dioxide (SO ₂)	0.13
TOC	0.02
Volatile Organic Compounds (VOCs)	20.18

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2020 by Mead Johnson:

Individual Hazardous Air Pollutants (HAPs) **	Tons per Year
Toluene	19.3
Remaining HAPs at less than 0.1 tpy each	0.4
Total Hazardous Air Pollutants (HAPs)	19.7

**As listed pursuant to Section 112(b) of the federal Clean Air Act.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

The stationary source is in Ottawa County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year. In addition, the source has the potential to emit of Nitrogen Oxides (NOx) exceeding 100 tons per year.

The stationary source is currently not a major source of PM-10 as the facility has provided information that indicates that the potential to emit is less than 100 tons per year.

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451, because at the time of New Source Review permitting the potential to emit of particulate matter was less than 250 tons per year.

Permit to Install (PTI) No. 87-18 was issued on June 12, 2018. The conditions of this PTI were rolled into the ROP during the 2018 minor modification issued on October 30, 2018. This PTI was for existing equipment that previously vented internally but now vents externally.

Permit to Install (PTI) No. 81-21 was issued on October 26, 2021, which increased the production rate for the product spray dryers in the Zeeland Integrated Powder Plant (ZIPP). The conditions of this permit are being incorporated into this ROP renewal.

Other changes to the ROP include updating emission unit tables to the most recent AQD versions, updating emission unit summary and flexible group summary tables, creating a new table (FGGAS1HEATMACTLARGE) to separate 10 MMBTU/hr. or higher boilers from boilers less than 10 MMBTU/hr.

EUBOILERNO1 and EUBOILERNO2 were installed prior to August 15, 1967. As a result, this equipment is considered "grandfathered" and is not subject to New Source Review (NSR) permitting requirements. However, future modifications of this equipment may be subject to NSR.

EU-FIREPUMP at the stationary source is subject to the National Emissions Standards for Hazardous Air Pollutants for existing Compression Ignition Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

EUNG-GENERATOR and EUPROP-GENERATOR at the stationary source are subject to the National Emissions Standards for Hazardous Air Pollutants for existing stationary spark ignition Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

EUNG2-GENERATOR at the stationary source is subject to the New Source Performance Standards for new stationary spark ignition Reciprocating internal combustion engines (RICE) promulgated in 40 CFR Part 60, Subpart A and JJJJ and the National Emissions Standards for Hazardous Air Pollutants for new stationary spark ignition Reciprocating internal combustion engines (RICE) promulgated in 40 CFR Part 63, Subparts A and ZZZZ. However, compliance with 40 CFR Part 63, Subparts A and ZZZZ are demonstrated by complying with 40 CFR Part 60, Subpart A and JJJJ.

EUZSP-SPRAY-DRYER at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for the Maximum Achievable Control Technology Standards for existing and new small (Heat Input capacity < 10MMBTU/hr.) boilers/process heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD.

EUBOILERNO1, EUBOILERNO2, EUBOILERNO3, EUS-DRYER-HEATER, and EUN-DRYER-HEATER at the stationary source are subject to the National Emission Standard for Hazardous Air Pollutants for the Maximum Achievable Control Technology Standards for existing and new large (Heat input capacity of 10MMBTU/hr. or greater) boilers/process heaters promulgated in 40 CFR Part 63, Subparts A and DDDDD.

The AQD's Rules 287 and 290 were revised on December 20, 2016. FGRULE287(2)(c) and FGRULE290 are flexible group tables created for emission units subject to these rules. Emission units installed before December 20, 2016, can comply with the requirements of Rule 287 and Rule 290 in effect at the time of installation or modification as identified in the tables. However, emission units installed or modified on or after December 20, 2016, must comply with the requirements of the current rules as outlined in the tables.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

EUZSP-VIT-WEIGH and FGZIPP-PMSOURCES (EUZIPP-VIT-WEIGH & EU-ZIPP-MINORS-STATIONS) do not have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64, because the units do not have potential pre-control emissions over the major source thresholds. Particulate Matter from these emission units are controlled by individual baghouses.

The following Emission Units/Flexible Groups are subject to CAM:

Emission Unit/Flexible group ID	Pollutant/Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
EUBOWEN-DRYER	PM / 0.02 lb. per 1,000 lbs. exhaust gas	R 336.1205(3), R 336.1331(1)(c)	Wet Scrubber	Water Flow Switch (18 gpm minimum)	FGCAMPM	No
EUDIGEST-TANKS	PM / 0.04 lb. per 1,000 lbs. exhaust gas, on a dry gas basis	R 336.1205(3), R 336.1331(1)(c)	Wet Scrubber	Water pressure switch (23 psi minimum)	FGCAMPM	No
	VOC / 96.4 lbs. per day and 8.8 tpy	R 336.1225, R 336.1702(a)	Condenser and knock out pot.	High level alarm and a cooling water flow switch (50 gpm minimum)	EUDIGEST-TANKS	No
EULIQUIFIER-TANK	PM / 0.04 lb. per 1,000 lbs. exhaust gas	R 336.1205(3), R 336.1331(1)(c)	Wet Scrubber	Water pressure switch (23 psi minimum)	FGCAMPM	No
EUZSP-LIQ-PROCESS	PM / 0.04 pounds per 1,000 pounds exhaust gas	R 336.1205(3), R 336.1331(1)(c)	Wet Scrubber	Water Flow Transmitter (1.5 gpm minimum)	FGCAMPM	No
EUZSP-SPRAY-DRYER,	PM / 0.02 lbs. per 1000 lbs. of exhaust gases	R 336.1331	One fabric filter baghouse	** Broken Bag Detectors & opacity	FGCAMPM	No
	PM10 / 2.76 pph	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)				

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
FGZSP-BLEND-FILL (EUN-POWDER-BLEND, EUS-POWDER-BLEND, EUZSP-FILL-LINE)	PM / 0.02 lb. per 1,000 lbs. exhaust gas	R 336.1331(1)(c), R 336.1205(3)	Three fabric filter collectors.	**Broken Bag Detectors & opacity	FGCAMPM	No
FGZIPP-PMSOURCES (EUCAN-FILL-LINE, EUN-BAG-LINE, EUS-BAG-LINE)	PM / 0.04 lb. per 1,000 lbs. exhaust gas	R 336.1205(3), R 336.1224, R 336.1225, R 336.1331(1)(c)	Three fabric filter collectors.	**Broken Bag Detectors & opacity	FGCAMPM	No
FGNS-DRYERS (EUN-DRYER and EUS-DRYER)	Particulate Matter (PM)/ 0.01 lb. per 1,000 lbs. of exhaust gases	R 336.1331(1)(c) and R 336.1205(3)	Two Parallel fabric filter collectors.	**Broken Bag Detectors & opacity	FGCAMPM	No
	PM10 / 1.72 pph	R 336.1331 40 CFR 52.21 (c)&(d)				
	PM2.5 / 1.72 pph	R 336.1331 40 CFR 52.21 (c)&(d)				
FGDRY-POWDER (EUDRY-POWDER1, EUDRY-POWDER2)	PM / 0.02 lb. per 1,000 lb. exhaust gas, calculated on a dry gas basis	R 336.1331	Fabric Filters	**Broken Bag Detectors & opacity	FGCAMPM	No

*Presumptively Acceptable Monitoring (PAM)

** A triboelectric signal greater than 70% of the broken bag detector scale (alarm state) occurs for more than 5 consecutive minutes and the presence of visible emissions.

Mead Johnson uses both baghouses (fabric filters) and wet scrubbers for controlling PM emissions. The baghouses are equipped with broken bag detectors for measuring differential pressure (psi) and the scrubbers are equipped with either a water pressure switch for measuring water pressure (psi) or a water flow transmitter for measuring water flow (gpm). All of these are being used as indicators for compliance with the PM emission limits for demonstrating compliance with the CAM requirements. Monitoring the fabric filter differential pressure and the wet scrubber water flow or pressure provides a means of detecting a change in the operational status of the control devices which could be indicative of an issue with the system that could possibly lead to increased emissions. If the broken bag detector, water pressure switch or water flow transmitter malfunction, daily non-certified visible opacity observations are conducted.

For EUDIGEST-TANKS the monitoring devices for the control device, which includes a knock-out pot and condenser, are a high-level alarm and a cooling water flow switch, respectively. These are the indicators for compliance assurance monitoring for the VOC emission limits. This was chosen because during solvent draw-off, the CAM subject pollutant is above the boiling point and is emitted as vapor. Prior to being emitted, the exhaust gases pass through the knock-out pot where vapors that condensed in the duct work are removed from the exhaust stream. The exhaust gases then pass through a condenser to remove a majority of the remaining solvent out of the exhaust stream and collect it for disposal/recycling as a liquid waste. Either a high level in the knock-out pot and/or failure to maintain an adequate flow of cooling water reduces the effectiveness of toluene vapor condensation. The high-level alarm ensures the knock-out pot does not overflow while the cooling water flow switch ensures proper water flow for adequate heat transfer.

Source-Wide Permit to Install (PTI)

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-A5858-2017 are identified in Appendix 6 of the ROP.

PTI Number			
356-77A	448-77C	319-92	633-93
765-80A	317-92	42-08B	110-10
285-04	121-07	90-15	
27-12	498-78	850-79	

Streamlined/Subsumed Requirements

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

Non-applicable Requirements

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

Processes in Application Not Identified in Draft ROP

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
EUHVAC-UNITS	33 natural gas-fired HVAC units around plant; max size 3.1 MMBTU/hr.	Rule 212(4)(c)	Rule 282(2)(b)(i)
EUAREA-HEATERS	23 natural gas-fired area space heaters at plant; max size 0.20 MMBTU/hr.	Rule 212(4)(c)	Rule 282(2)(b)(i)
EUWATER-HEATER	ZIPP natural gas-fired water heater	Rule 212(4)(c)	Rule 282(2)(b)(i)

Draft ROP Terms/Conditions Not Agreed to by Applicant

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

Action taken by EGLE, AQD

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Heidi Hollenbach, Grand Rapids District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.

State Registration Number

A5858

RENEWABLE OPERATING PERMIT

August 5, 2022 - STAFF REPORT ADDENDUM

ROP Number

MI-ROP-A5858-2022

Purpose

A Staff Report dated July 4, 2022, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Felipe Martinez, Site Director 616-748-7100
AQD Contact:	Chris Robinson, Environmental Quality Analyst 616-286-0083

Summary of Pertinent Comments

No pertinent comments were received during the 30-day public comment period.

Changes to the July 4, 2022 Draft ROP

No changes were made to the draft ROP.

State Registration Number
A5858

RENEWABLE OPERATING PERMIT
October 17, 2024 - STAFF REPORT FOR RULE
216(2) MINOR MODIFICATION

ROP Number
MI-ROP-A5858-2022a

Purpose

On September 20, 2022, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-A5858-2022 to Mead Johnson & Company, LLC pursuant to Rule 214 of the administrative rules promulgated under Act 451. Once issued, a company is required to submit an application for changes to the ROP as described in Rule 216. The purpose of this Staff Report is to describe the changes that were made to the ROP pursuant to Rule 216(2).

General Information

Responsible Official:	Kirk Sakel, Site Director
AQD Contact:	Caryn Owens, Senior Environmental Engineer 231-878-6688
Application Number:	202400153
Date Application for Minor Modification was Submitted:	September 19, 2024

Regulatory Analysis

The AQD has determined that the change requested by the stationary source meets the qualifications for a Minor Modification pursuant to Rule 216(2).

Description of Changes to the ROP

Minor Modification Number 202400153 was to incorporate PTI No. 42-08C into the ROP which was to install a new 9,000-gallon digest tank and remove older tanks. PTI No. 42-08C was not required to go through the public participation process.

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements associated with the emission unit(s) involved with the change as of the date of approval of the Minor Modification to the ROP.

Action Taken by EGLE

The AQD proposes to approve a Minor Modification to ROP No. MI-ROP-A5858-2022, as requested by the stationary source. A final decision on the Minor Modification to the ROP will not be made until any affected states and the United States Environmental Protection Agency (USEPA) has been allowed 45 days to review the proposed changes to the ROP. The delegated decision maker for the AQD is the District Supervisor. The final determination for approval of the Minor Modification will be based on the contents of the permit application, a judgment that the stationary source will be able to comply with applicable emission limits and other requirements, and resolution of any objections by any affected states or the USEPA.