

September 11, 2019

Mr. Chris Swain
Bureau of Remediation and Waste Management
Maine Department of Environmental Protection
17 State House Station
Augusta ME 04333

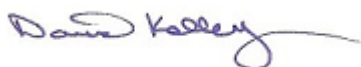
**Subject: Monthly Progress Report –August 2019
Orrington Remediation Site
Orrington, Maine**

Dear Mr. Swain:

This Monthly Progress Report is submitted to Maine Department of Environmental Protection (DEP) in compliance with reporting requirements in the Board of Environmental Protection (BEP) Order (Order) effective April 3, 2014 for the Orrington Remediation Site (Site) in Orrington, Maine, which incorporates, with modifications, the Compliance Order issued by the DEP dated November 24, 2008. This Report covers the period of **August 2019** and is submitted on behalf of Mallinckrodt US LLC.

If you have questions regarding this report, please contact me at 774-284-2207.

Sincerely,



David Kelley
Remediation Program Manager

cc: (all electronic copies)
Kelly Bay – Director, Orrington Town Library
Joseph Hayes- Interim Town Manager, Town of Orrington
Alan Snell– Chairman of Board of Selectman, Town of Orrington
Patricia Duft – Mallinckrodt US LLC
Susanne Miller – Maine DEP, Bangor
David Wright – Maine DEP

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019**

Report Date September 11, 2019

This Monthly Progress Report is submitted to the Maine Department of Environmental Protection (DEP) documenting the activities completed by Mallinckrodt US LLC (Mallinckrodt) and/or its representatives at the Orrington Remediation Site (the Site) along with a description of upcoming activities.

A discussion of all tasks and actions completed during the reporting period toward achieving compliance with the Order

- The monthly Mallinckrodt – DEP call was held on August 7, 2019. Plant Area work plans were discussed along with GW monitoring and installation activities. Additional other discussions took place during the month to discuss Site activities as needed.
- Continued inspection and maintenance of site erosion and stormwater controls
- The on-site DEP oversight inspector continued to participate in weekly construction meetings in which current activities as well as a two-week look ahead are discussed. The on-site inspector also continued daily emails to summarize activities to ensure all parties agree on what is planned/accomplished.
- Continued operation of the perimeter air monitoring system and meteorological station
- Stockpile operations continue to support excavation material and rail car loading
- Landfill 1 (CMI Plan – Rev2 Apr 30, 2018; DEP Conditional Approval Letter May 10, 2018; CMI Plan – Rev2 May 17, 2018 (revised to incorporate all conditions in DEP CAL)
 - no new activity
 - Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.) and Plant Area CMIP - Phase 1A (Retort-01 Area and Cell Building Pre-Trenching) work plan July 9,2019. -DEP conditional approval on July 12, 2019
 - Completed excavation and backfill of Retort 01 area
 - Started Pre-Construction activities at Cell Building area
 - Submitted Plant Area CMI Plan – Cell Building Scoping memo and associated plans to Maine DEP on August 7, 2019.
 - Continued operation of the SVE system
 - Submitted SVE system performance report for July 2019 on 8/8/19
 - Continued Phase II piping and well vaults installations. Backfilled piping on north side of RR tracks.
- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017, DEP Approval Oct 16, 2018)
Continued to maintain erosion and sediment control measures.
- Southern Cove (CMI Closure Report Jan 14, 2018, DEP Approval Aug 3, 2018)
 - Continued to maintain erosion and sediment control measures adjacent to the Cove.

MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019

- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
 - The Short-Term CMP includes monitoring of potential remediation impacts as well as ongoing monitoring of groundwater, the GW extraction system (GWES) and Landfill 5.
 - Conducted monitoring according to the Short-Term Comprehensive Monitoring Plan (CMP) during the week of August 5. August monitoring included monthly sampling of surface water, sediment, and groundwater in the vicinity of the Plant Area and Landfill 1 remediation areas.
 - Submitted a response to DEP comments on the Q1 2019 Short-Term Comprehensive Monitoring Plan Report received 7-2-19 on August 28, 2019

- Groundwater Final GW Extraction System (GWES) Plan Oct 16, 2017; DEP Approval Jan 9, 2018)
 - Following receipt of DEP comments in the Final GWES design, submitted response and two revised drawings on Nov 6, 2018 and received DEP approval on Nov 7, 2018.
 - Began Final GWES construction on December 3, 2018.
 - Updated the force-main and electrical/communication conduit alignment and provided updated site plan to DEP on January 16, 2019. DEP provided approval on January 17, 2019.
 - Continued coordination with Woodard & Curran treatment plant personnel for temporary groundwater extraction system (GWES) operation and planning for Final GWES.
 - Continued oversight for Final GWES construction
 - Continued set-up and testing of Final GWES.
 - Conducted non-routine monitoring in the vicinity of Landfill 1: Obtained samples for chloropicrin analysis from Final GWES extraction wells on August 8, following a one-day shutdown of the Interim Extraction System (IES; EW-3 and EW-5).
 - The final GWES was started up during the week of August 19, 2019. Seven wells were brought on-line at the beginning of the week. Following two days of stable operation, the IES was decommissioned and EW-5 was retrofitted for operation in the Final GWES. EW-5 was brought on-line on Friday August 23, 2019.

- Groundwater at Landfills 3,4,5 (PD WP Jul 19, 2018)
 - Landfills 3-5 Bedrock Groundwater Testing Report and Extraction Design Plan (Design Plan) transmitted to DEP on May 16. DEP comments and conditional approval received June 13, 2019
 - On-going communication and coordination with MEDEP for Landfills 3-5 area drilling programs.
 - Investigations and testing according to the Landfills 3-5 Bedrock Groundwater Testing Report and Extraction Design Plan (Design Plan):
 - Continued development of piezometers PZ-721-B1 and PZ-723-B1 during the week of August 5, 2019.
 - Obtained low-flow groundwater samples from PZ-721-B1 and PZ-723-B1 on August 14, 2019 and submitted for laboratory analysis in accordance with the Landfills 3-5 Design Plan.

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019**

- Obtained low-flow groundwater samples from PZ-721-B1 and PZ-723-B1 on August 26, following receipt of initial sampling data and observation of potential matrix interference of chloropicrin. Samples were submitted for laboratory analysis in accordance with the Landfills 3-5 Design Plan.
- Conducted packer sampling in boreholes EW-14, -15, and -16 during the week of August 26, 2019.

- Groundwater Model (Model Feb 22, 2016, DEP Acceptance of Model Sept 15, 2017)
 - No new activity
- Groundwater Treatment Plant (GWTP) Operation
 - Continued to collect mercury compliance samples from Outfall 001 (once per month with analysis per USEPA Method 1631) and Outfall 002 (one sample per quarter with analysis per USEPA Method 245.1) for transport to Katahdin Analytical Services (Katahdin) for analysis per the MEPDES permit dated May 3, 2019
 - Provided support to CDM as necessary for ongoing remedial site activities including routine treatment of excavation/ construction water generated during remedial activities.
 - The average daily flow through the GWTP was 57,686 gallons with 324,509 gallons total from precipitation and construction related activities.
 - Submitted the July 2019 NetDMR to MEDEP on August 1, 2019
 - Submitted the July 2019 Toxheets on August 1, 2019
 - Replaced one Mersorb bed, T-4440 with 42,330,460 gallon thru-put on August 6th, placed both online as final polish before discharge.
 - Replaced failed Magnetite lift pump motor.
 - Repaired minor leaks in the building roof.
 - Cut away limbs obstructing the weather station signal
 - Disposed of 1500 pounds of Mersorb and 3000 pounds of carbon to TSSA 1 for shipment.
 - Provided support to Anchor QEA for their work associated with compiling Site data.
- Other Site Activities
 - Completed routine site maintenance activities

A detailed summary of all results of sampling, tests, shipments from the Site and other data received by Mallinckrodt in the prior (previous month) reporting period pursuant to this Order

- Air monitoring and meteorological data is collected continuously by the perimeter air monitoring system and stored in the computer system. Weekly reports are sent to Mallinckrodt. Mallinckrodt will notify the DEP of exceedances in accordance with the updated notification protocol sent to DEP on Aug 28, 2018. An annual report of all data for the preceding year will be submitted to DEP by March 1 of the following year.

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019**

- Unvalidated data and laboratory reports are submitted to DEP via the automated database system as they are available. Data validation is conducted by TechLaw as outlined in the Maine DEP approved Data Validation Protocol dated Jan 29, 2018 and a summary of the validation results sent to DEP and Mallinckrodt.
- Conducted internal quality control review of July monitoring data and submitted EGAD EDDs and laboratory analytical reports to MEDEP on August 21, 2019.
- Received laboratory analytical data from August monitoring according to the Short-Term CMP, baseline water quality monitoring from Landfill 1 extraction wells, and initial sampling from PZ-721-B1 and PZ-723-B1. Data will be submitted to MEDEP following internal quality control review.

Completed Areas:

- Landfill Ridge Area (CMI Closure Report Feb 3, 2017; DEP Acceptance Aug 21, 2017)
- Landfill 2 (CMI Closure Report Dec 21, 2017; DEP Approval Jul 2, 2018)
- Landfills 3, 4 and 5 (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
- Scrap Metal Yard (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
- Southerly Stream (CMI Closure Report Nov 15, 2017, DEP Approval Oct 16, 2018)
 - Continue to maintain erosion and sediment control measures and cap inspections as appropriate.

A discussion of all tasks and actions scheduled for the coming reporting period including the date for initiating and completing such activities including percent completion where applicable.

- Continue technical discussions with DEP on remediation activities and pending submittals.
- Continue to include the on-site DEP oversight inspector in weekly construction meetings.
- Continue to review the on-site DEP oversight inspector emails outlining planned and completed activities to ensure no miscommunication.
- Continue operation of the perimeter air monitoring system.
- Continue stockpile management of excavated materials and loading railcars for shipment
- Continue to maintain and improve erosion and sediment control measures and cap inspections as appropriate in completed areas listed above.
- Landfill 1 (CMI Plan – Rev2 Apr 30, 2018; DEP Conditional Approval Letter May 10, 2018; CMI Plan – Rev2 May 17, 2018 (revised to incorporate all conditions in DEP CAL)
 - Maintain erosion and sediment controls

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019**

- Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.) and Plant Area CMIP - Phase 1A (Retort-01 Area and Cell Building Pre-Trenching) DEP approval on July 12, 2019
 - Continue Pre-Construction activities at Cell Building area
 - Maintain erosion and sediment controls.
 - SVE system operation and continue groundwater monitoring
 - Continue SVE Phase II piping and well vaults installations
 - Respond to DEP comments as received for the Plant Area Cell Building CMI workplans
 - Schedule Kickoff meeting for Plant Area Cell Building CMI plans
- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017, DEP Approval Oct 16, 2018)
 - Continue to maintain erosion and sediment control measures.
- Southern Cove (CMI Closure Report Jan 14, 2018, DEP Approval Aug 3, 2018)
 - Monitor vegetation growth and maintain as needed.
- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
 - Conduct Short-Term CMP remediation monitoring in accordance with the approved plan
- Groundwater
 - Final GW Extraction System (GWES) Plan Oct 16, 2017; DEP Approval Jan 9, 2018)
 - Conduct monitoring according to the Short-Term CMP.
 - Continue fine-tuning Final GWES
- Groundwater at Landfills 3,4,5 (PD WP Jul 19, 2018)
 - Continued investigations and testing in the Landfills 3-5 Area according to the Design Plan:
 - Conduct open borehole sampling at EW-14, -15, and -16.
 - Respond to DEP comments on 2018 Landfill 5 annual monitoring report letter dated March 26,2019
- Groundwater Model (Model Feb 22, 2016, DEP Acceptance of Model Sept 15, 2017)
 - No planned activity
- Groundwater Treatment Plant (GWTP) Operation
 - Continue compliance sampling of Outfall 001 and 002 per the MEPDES permit.
 - Submit August 2019 NetDMR to MEDEP.
 - Complete and submit to MEDEP the August 2019 Toxscan Report.
 - Replace two saturating Mersorb beds in the CoMag train.
 - Continue Sludge tank dewatering and hose it out in prep for the cell building excavation.
 - Continue to support CDM and Sevee & Maher with ongoing remedial site activities, as needed.
- Other Site Activities
 - Continue routine site maintenance activities.

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019**

- Submit response to DEP comments to the 2018 Annual Perimeter Air monitoring report letter dated March 26, 2019.

Tasks not completed as required, original and revised completion dates, reasons for delay, actions taken to minimize the delay and any other problems or anticipated problems

None

As of the end of December 2018, the quantity of waste shipped is shown below:

- **Leach Field: Soil excavation and off-site disposal is complete.**
 - A total of 14 railcars, containing 1,379 tons (TSDf weight) of non-hazardous Leach Field soils, have been shipped off site to Republic facility in Niagara Falls, New York.
- **Landfill Ridge: Soil excavation and off-site disposal is complete.**
 - A total of 564 railcars, containing 55,158 (TSDf weight) tons of non-hazardous Landfill Ridge soils, have been shipped off site.
 - 534 railcars to the Republic disposal facility in Niagara Falls, New York
 - 30 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Scrap Metal Yard: Soil excavation and off-site disposal is complete.**
 - A total of 413 railcars, containing 40,556 tons (TSDf weight) of non-hazardous Scrap Metal Yard soils, have been shipped off site
 - 412 railcars to the Republic disposal facility in Niagara Falls, New York
 - 1 railcar to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Northern Drainage Ditch: Soil excavation and off-site disposal is complete.**
 - A total of 307 railcars, containing 29,440 tons (TSDf weight) of non-hazardous Northern Drainage Ditch soils, have been shipped off site.
 - 307 railcars to the Republic disposal facility in Niagara Falls, New York
 - 0 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Southerly Stream: Soil excavation and off-site disposal is complete.**
 - A total of 112 railcars, containing 10,583 tons (TSDf weight) of non-hazardous Southerly Stream soils, have been shipped off site.
 - 102 railcars to the Republic disposal facility in Niagara Falls, New York
 - 10 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Landfill 2: Soil excavation and off-site disposal is complete.**
 - A total of 441 railcars containing Landfill 2 soils have been shipped off site to date.
 - 118 railcars of 11,557 tons (TSDf weight) of non-hazardous Landfill 2 soils
 - 108 railcars to the Republic disposal facility in Niagara Falls, New York
 - 10 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
 - 323 railcars containing 31,497 tons (Site weight) of hazardous (listed waste) soils to the US Ecology Stablex disposal facility in Quebec, Canada
- **Southern Cove: Sediment removal and off-site disposal is complete.**

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019**

- A total of 190 railcars containing 18,548 tons (TSDf weight) of non-hazardous Southern Cove sediments, have been shipped off site.
 - 190 railcars to the Republic disposal facility in Niagara Falls, New York
 - 0 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Plant Area Phase 1: Soil excavation and shipments are complete**
 - A total of 303 railcars containing 29,490.73 tons (TSDf weight) of non-hazardous soils have been shipped from the Site:
 - 283 railcars to the Republic disposal facility in Niagara Falls, New York
 - 20 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Plant area Phase 1 A: Soil excavation and shipments are ongoing**
 - In August 38 rail cars of Plant Area Phase 1 A soils were shipped off site
 - 13 rail cars containing 1,275.45 tons of non-hazardous soils(site weight)
 - 25 rail cars containing 2,435.95 tons of Hazardous soils(site weight)
 - A Total of 42 rail cars of Plant Area Phase 1 A soils have been shipped of site to date
 - 17 railcars containing 1,668.30 tons of non- hazardous soils (site weight)
 - 17 railcars to the Republic disposal facility in Niagara Falls, New York
 - 25 railcars containing 2,435.95 tons of hazardous Soils(site weight)
 - 25 railcars to the US Ecology Stablex disposal facility in Quebec, Canada
- **Landfill 1: Soil excavation and shipments Complete.**
 - A total of 886 railcars of Landfill 1 soils have been shipped off site.
 - 676 railcars containing 66,111.70 tons (TSDf weight) of non-hazardous Landfill 1 soils
 - 676 railcars to the Republic disposal facility in Niagara Falls, New York
 - 210 railcars containing 20,506.1 tons (TSDf weight) of hazardous Landfill 1 soils
 - 210 railcars to the US Ecology Stablex disposal facility in Quebec, Canada
- **General Debris**
 - General Debris- NA

- **GWTP Sludge**
 - NA.

Maine Hazardous Waste Fees

Under the DEP Hazardous Waste Transporter Program, EQ Northeast, Inc. pays \$60/ton to the Maine Hazardous Waste Fund for hazardous wastes transported and disposed off-site. **As of March**

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
August 2019**

31, 2019, the total paid under this program is \$3,118,368.00 (by rail) and \$ 1,800.00 (by Truck)

- The 2nd Quarter 2017 report lists 13,150.65 tons of hazardous soil transported by rail and disposed off site for a total fee of \$789,039 which was paid 9/28/17.
- The 3rd Quarter 2017 report lists 14,125.95 tons of hazardous soil transported by rail and disposed off site for a total fee of \$847,557 which was paid 12/1/17.
- The 4th Quarter 2017 report lists 4,190.10 tons of hazardous soil transported by rail and disposed off site for a total fee of \$251,406 which was paid.
- On Nov 13, 2017 an additional 30 tons of hazardous waste was transported by truck and disposed off site for a total fee of \$1,800.
- The 1st Quarter 2018 report lists 0 tons of hazardous soil transported and disposed off site.
- The 2nd Quarter 2018 report lists 4,288.20 tons of hazardous soil transported by rail and disposed off site for a total fee of \$257,292 which was paid 8/22/18.
- The 3rd Quarter 2018 report lists 8,4170.10 tons of hazardous soils transported by rail and disposed of off site for a total fee of \$ 505,026.00
- The 4th Quarter 2018 report lists 7800.08 tons of hazardous soils transported by rail and disposed of off site for a total fee of \$ 468,048.00

Maine Statute 1319-I requires transporters of regulated hazardous materials (per 49 CFR 172.101) by rail to pay 15 cents/ton on the shipments. As of March 31, 2019, the total paid under this requirement is \$ **\$43,058.58**

Additional information regarding the progress of the work

- BeyondHoltraChem.com is periodically updated to reflect ongoing site activities.
- The *On The Penobscot* newsletter is issued periodically to update area residents on the Site.