

January 9, 2018

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 – December 2018
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 December 2018 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
Andy Fish – Interim Town Manager, Town of Orrington
Keith Bowden – 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
December 2018**

Report Date: January 10, 2018

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 cancelled for December because a meeting was held with DEP on December 19, 2018 in Augusta to discuss the approach to Plant Area Phase 2, groundwater topics, and other site activities.
- Submitted the RCRA Corrective Action Groundwater Environmental Indicator (EI) to DEP on December 19, 2018.
- 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.
- Continued operation of the Maine certified on-site lab.
- Continued stockpile management of excavated materials and loading railcars for off-site shipment.
- 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)
 - Sprayed hay mulch/tackifier
 - Completed demobilization
- Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.)
 - The SVE blower panel issues caused the system to be shutdown during December and the system is anticipated to be back in service in January.
 - Continued chloropicrin groundwater performance monitoring
 - Continued excavation PA1-11 and PA1-12 in accordance with the DEP approved design documents and with DEP oversight.
 - Submitted Partial backfill notification for PA1-11 to DEP on December 19, 2018
 - Continued interim winter restoration of Plant Area Phase 1 remedial areas
 - Mallinckrodt provided a Response to DEP’s response to the Revised Petition on December 4, 2018
 - Attended a meeting with DEP on December 19, 2018 to present a revised approach to Plant area Phase 2 work which proposes to remove all soils above the MPS in the Cell building, Retort building and Former Retort building locations
- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017, DEP Approval Oct 16, 2018)
 - Continued to maintain erosion and sediment control measures.

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- 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.
 - Monitored plantings in disturbed wetland areas.
- 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 CMP during the week of December 10. December monitoring included quarterly monitoring according to the Interim Extraction System, Landfill 5, and Site Perimeter monitoring programs, and monthly and quarterly sampling of surface water, sediment, and groundwater in the vicinity of the Plant Area and Landfill 1 remediation areas.
- 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. December construction activities included installation of forcemain and conduit between individual extraction wells and the control building, and foundation construction for the control building
 - Groundwater at Landfills 3,4,5 (PD WP Jul 19, 2018)
 - Began analysis of pump testing data from testing conducted at P-13-B1 during the week of November 12th.
 - Groundwater Model (Model Feb 22, 2016, DEP Acceptance of Model Sept 15, 2017)
 - No new activity
- Groundwater Treatment Plant (GWTP) Operation
 - Collected mercury compliance samples from Outfall 001 (3x/week with analysis per USEPA Method 1631) and Outfall 002 (one sample per discharge day with analysis per USEPA Method 245.1).
 - Expanded Outfall 001 effluent monitoring (volatiles, semivolatiles, herbicides and manganese) for “new wastestreams” (i.e. construction water) per the MEPDES Discharge permit has ended. Expanded monitoring is required for 10 months or until wastestream ends. Ten months of monitoring has been completed for the Plant Area. November was Month 7 for the Landfill 1 Area however this remediation is now complete.
 - The average daily flow through the GWTP was 63,071 gallons with 516,527 gallons of construction-related water.
 - Educted a new final carbon bed on December 13th. The replaced bed had treated 9,457,050 gallons.
 - Submitted the November 2018 NetDMR to DEP on December 8, 2018
 - Submitted the November 2018 Toxsheet and Effluent Mercury Test Report forms to DEP on December 8, 2018.
 - Completed routine GWTP maintenance activities.
 - Awaiting response to MEPDES permit renewal application submitted May 20, 2018. An email from Gregg Wood on Nov 26, 2018 indicated the draft permit is expected to be issued before the end of the year.

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- Other Site Activities
 - Completed routine site maintenance activities
 - Provided a site tour to Interim Town of Orrington Manager Andy Fish on 12/18/18

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.
- 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.
 - Submitted laboratory analytical reports and EGAD EDDs for data collected in November according to the Short-Term Comprehensive Monitoring Plan (CMP) on December 19, 2018.

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 operation of the on-site lab in compliance with Maine certification.
- Continue stockpile management of excavated materials and loading railcars for shipment
- Continue to maintain erosion and sediment control measures and cap inspections as appropriate in completed areas listed above.

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- 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 to be in place over the winter.
- Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.)
 - Submit Plant Area Phase 2 Technical memorandum per discussion with DEP on December 19, 2018.
 - Maintain erosion and sediment controls to be in place over the winter.
 - Excavate area PA1-13 and backfill areas PA1-11 and PA1-12 – Postponed until early spring when temperatures moderate.
 - Continue interim winter restoration of Phase 1 areas – weather permitting
 - Continue to implement the Phase 2 chloropicrin treatment injections per the Phase 2 design.
 - Continue operation of the SVE system and performance monitoring upon installation of new blower panel.
- 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)
 - Continue construction of the Final GWES.
 - Continue quarterly monitoring and reporting per the approved Short-Term CMP.
 - Groundwater at Landfills 3,4,5 (PD WP Jul 19, 2018)
 - Continue field investigations per the Pre-Design Work Plan for Landfills 3-5 Bedrock Groundwater Conditions.
 - Groundwater Model (Model Feb 22, 2016, DEP Acceptance of Model Sept 15, 2017)
 - No planned activity
- Groundwater Treatment Plant (GWTP) Operation
 - Receive the draft MEPDES permit renewal.
 - Continue compliance sampling of Outfall 001 and 002 per the MEPDES permit.
 - Submit December 2018 NetDMR to MEDEP.
 - Complete and submit to MEDEP the December 2018 Toxsheet and Effluent Mercury Test Report forms.
 - Continue maintenance activities and routine GWTP maintenance.
- Other Site Activities
 - Continue routine site maintenance activities.

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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.**
 - 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: Soil excavation and shipments are ongoing.**

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- In December 2018, 15 railcars of Plant Area non-hazardous soils were shipped off site.
- A total of 225 railcars containing 20,398 tons (TSDf weight) of non-hazardous soils have been shipped from the Site:
 - 205 railcars to the Republic disposal facility in Niagara Falls, New York
 - 20 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Landfill 1: Soil excavation and shipments are ongoing.**
 - In December 2018, a total of 37 railcars of Landfill 1 soils were shipped off site:
 - 37 rail cars containing 3622 tons of Non-Hazardous soils
 - A total of 613 railcars containing Landfill 1 soils have been shipped off site to date.
 - 387 railcars of 337,872 tons (Site weight) of non-hazardous soils
 - 387 railcars to the Republic disposal facility in Niagara Falls, New York
 - 0 railcars to the US Ecology Stablex disposal facility in Quebec, Canada
 - 210 railcars containing 20,506 tons (Site weight) of hazardous soils to the US Ecology Stablex disposal facility in Quebec, Canada
- **General Debris**
 - General Debris, Aim Recycle Metals 21,000lbs 12/7/18
 - - Total Mercury Sample A = 0.029
 - Total Mercury Sample B = 0.099
 - General Debris, Juniper Ridge 7,760lbs 12/7/18
 - Total Mercury Sample A = ND
 - Total Mercury Sample B = ND
- **GWTP Sludge**
 - None

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 Dec 31, 2018, the total paid under this program is \$2,652,120.**
 - 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.

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- 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
- 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 December 31, 2018, the total paid under this requirement is \$21,201.86.

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.