

# Mallinckrodt US LLC

November 7, 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 – October 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 **October 2018** and is submitted on behalf of Mallinckrodt US LLC.

If you have questions regarding this report, please contact me at 314-225-4454.

Sincerely,



Kathy Zeigler  
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  
October 2018**

**Report Date: November 7, 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 held on Oct 3, 2018, and additional other discussions took place to discuss site activities as needed.
- Provided a response to DEP on Oct 26, 2018 to questions regarding air monitoring during well development and air monitoring and water management during the pump test near Landfill 3.
- 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 Ridge Area (CMI Closure Report Feb 3, 2017; DEP Acceptance Aug 21, 2017)
  - Continued to maintain erosion and sediment control measures.
- 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))
  - Continued excavation and backfill activities in accordance with the DEP approved design documents and with DEP oversight.
  - Continued confirmation and record sampling in accordance with approved plans.
  - Began placing backfill on slope and constructing the riprap swale
- Landfill 2 (CMI Closure Report Dec 21, 2017; DEP Approval Jul 2, 2018)
  - Continued to maintain erosion and sediment control measures.
- Landfills 3, 4 and 5 (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
  - Continued to maintain erosion and sediment control measures and cap inspections.
- Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.)
  - Seeded and mulched PA10 excavation area.
  - Continued operation of the Phase 1 SVE system.
  - Provided additional information requested by DEP on Oct 1, 2018 regarding the Revised Petition to Modify the BEP Order.
  - Received comments on the Chloropicrin Phase 2 Design Memo on 10/12/18 and 10/23/18 from Maine DEP
  - Submitted Response to Comments on Chloropicrin Phase 2 Design Memo and Quarterly Performance Report on Oct 31, 2018

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**October 2018**

- Scrap Metal Yard (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
  - Continued to maintain erosion and sediment control measures.
- Southerly Stream (CMI Closure Report Nov 15, 2017, DEP Approval Oct 16, 2018)
  - Received DEP approval of the Southerly Stream Closure Report.
  - Continued to maintain erosion and sediment control measures.
- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017, DEP Approval Oct 16, 2018)
  - Received DEP approval of the Southerly Stream Closure Report.
  - 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.
  - 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 in accordance with the Short-Term CMP the week of Oct 8, 2018.
- Groundwater
  - Final GW Extraction System (GWES) Plan Oct 16, 2017; DEP Approval Jan 9, 2018)
    - Submitted a revision to the forcemain and electrical/communication conduit design for the Final GWES to DEP on Oct 1, 2018 and received approval on Oct 3, 2018.
    - Completed drilling program for the Final GWES extraction wells and piezometers the week of Oct 1 and surveyed newly-installed points during the week of Oct 15, 2018.
    - Received DEP Approval of the Final GWES Design submittal on Oct 30, 2018.
  - Groundwater at Landfills 3,4,5 (PD WP Jul 19, 2018)
    - Drilled new bedrock piezometers in the vicinity of Landfill 3 the week of Oct 8, 2018.
    - Completed borehole geophysical logging of two newly-installed bedrock boreholes on Oct 22, 2018.
    - Based on borehole geophysical logs and drilling observations, proposed piezometer screen intervals to DEP on Oct 29 and received approval on Oct 30, 2018.
  - 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).
  - Continued expanded Outfall 001 effluent monitoring (volatiles, semivolatiles, herbicides and manganese) for “new wastestreams” (i.e. construction water) per the MEPDES Discharge permit. Expanded monitoring is required for 10 months or until wastestream ends. October was Month 10 for the Plant Area and Month 6 for the Landfill 1 Area.
  - The average daily flow through the GWTP was 57,667 gallons with 222,975 gallons of construction-related water.
  - Brought a new carbon bed and an experienced Mersorb bed online on Oct 2, 2018. The GWTP is currently operating with a total of seven carbon &/or Mersorb beds.

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- Submitted the September 2018 NetDMR and Toxsheet and Effluent Mercury Test Report forms to DEP on Oct 10, 2018.
- Completed routine GWTP maintenance activities.
- Awaiting response to MEPDES permit renewal application submitted May 20, 2018. Sent an email to Gregg Wood on Oct 25, 2018 requesting a status update.
- 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.
- 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 September on Oct 10, 2018 according to the Short-Term CMP.

**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.
- Submit the *Winter Monitoring and Maintenance of Erosion and Sediment Controls in Active Remedial Construction Areas* to DEP
- 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
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017; DEP Acceptance Aug 21, 2017)
  - Continue to maintain erosion and sediment control measures.
- 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)
  - Complete excavation and backfill of Landfill 1 soils and complete backfill on slope and riprap swale
  - Begin placing loam on slope
  - Implement erosion and sediment controls to be in place over the winter.

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- Landfill 2 (CMI Closure Report Dec 21, 2017; DEP Approval Jul 2, 2018)
  - Continue to maintain erosion and sediment control measures.
- Landfills 3, 4 and 5 (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
  - Continue to maintain erosion and sediment control measures and complete cap inspections.
- Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.)
  - Complete Phase I excavation including excavation of PA1-11, PA1-12, and PA1-13 areas.
  - Continue final restoration of Phase 1 Plant Area.
  - Install erosion and sediment controls in preparation for winter weather.
  - Implement the Phase 2 chloropicrin treatment injections per the Phase 2 design.
  - Continue operation of the SVE system and performance monitoring.
  - Receive formal approval of the Piping within Excavations Protocol submitted to DEP on Jun 27, 2018.
  - Receive DEP Response to the Revised Petition to DEP.
- Scrap Metal Yard (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
  - Continue to maintain erosion and sediment control measures.
- Southerly Stream (CMI Closure Report Nov 15, 2017, DEP Approval Oct 16, 2018)
  - Continue to maintain erosion and sediment control measures.
- 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 renewed MEPDES permit
  - Continue compliance sampling of Outfall 001 and 002 per the MEPDES permit.
  - Submit the Oct 2018 NetDMR and Toxsheet and Effluent Mercury Test Report to DEP.
  - 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**

- The approach to the Plant Area CMI Phase 2 is under discussion with the Maine DEP as outlined in the Petition to Modify the BEP Order described above.

**As of the end of October 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.

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- **Plant Area: Soil excavation and shipments are ongoing.**
  - In October 2018, 0 railcars of Plant Area non-hazardous soils were shipped off site.
  - A total of 185 railcars containing 17,950 tons (TSDf weight) of non-hazardous soils have been shipped from the Site:
    - 165 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 October 2018, a total of 122 railcars of Landfill 1 soils were shipped off site:
    - 68 railcars containing 6,662 tons of non-hazardous soils
    - 54 railcars containing 5,272 tons of hazardous soils
  - A total of 509 railcars containing Landfill 1 soils have been shipped off site to date.
    - 325 railcars of 31,807 tons (Site weight) of non-hazardous soils
      - 325 railcars to the Republic disposal facility in Niagara Falls, New York
      - 0 railcars to the US Ecology Stablex disposal facility in Quebec, Canada
    - 184 railcars containing 17,979 tons (Site weight) of hazardous soils to the US Ecology Stablex disposal facility in Quebec, Canada
- **General Debris**
  - General Debris (6,140 lbs) was shipped to Juniper Ridge landfill on Oct 16, 2018
    - Total Mercury Samples were 0.048 mg/kg and 0.063 mg/kg
- **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 Oct 31, 2018 the total paid under this program is \$2,147,094
  - The 2<sup>nd</sup> 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 3<sup>rd</sup> 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 4<sup>th</sup> 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 1<sup>st</sup> Quarter 2018 report lists 0 tons of hazardous soil transported and disposed off site.
  - The 2<sup>nd</sup> 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.
- 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 Oct 31, 2018 the total paid under this requirement is \$31,832.55.

**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.