

# Mallinckrodt US LLC

May 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 – April 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 from **April 1 – 30, 2018**, and is submitted on behalf of Mallinckrodt US LLC.

If you have any questions regarding this report please feel free to contact me at 314-281-5947.

Sincerely,



Kathy Zeigler  
Remediation Program Manager

cc: (all electronic copies)  
Patricia Duft – Mallinckrodt US LLC  
Susanne Miller – Maine DEP, Bangor  
Orrington Town Library  
Paul White – Town of Orrington  
David Wright – Maine DEP

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
April 2018**

**Report Date: May 9, 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**

- Held multiple conference calls with DEP to discuss site remediation activities.
- 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.
- 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 (CMIP – Revision 2 Apr 30, 2018)
  - Received DEP comments on Landfill CMIP – Revision 1 (including revised Work Plans) on Apr 10, 2018.
  - Submitted Response to DEP Comments on Landfill CMIP – Rev 1 to DEP Apr 27, 2018.
  - Submitted Landfill CMIP – Revision 2 to DEP Apr 30, 2018. This revision addressed all comments in the DEP letter dated Apr 10, 2018.
  - Received DEP letter TechLaw's comments on Mar 14, 2018 regarding Mallinckrodt's Response to Comment letter (Jan 30, 2018) re: Landfill 1 Column Test Study.
  - Received DEP letter with conclusions regarding Landfill 1 Column Test Study and leachability data on Apr 10, 2018.
  - Performed additional waste characterization sampling in the Landfill 1 Area.
- Landfill 2 (CMI Closure Report Dec 21, 2017)
  - 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.)
  - Continued Plant Area Phase 1 excavations in PA1 and PA2 areas.
  - Began backfilling Plant Area Phase 1 excavations in PA1, PA2, and PA3 areas.
  - Continued operation of the Phase 1 SVE system.
- 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)
  - Continued to maintain erosion and sediment control measures.

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
April 2018**

- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017)
  - Continued to maintain erosion and sediment control measures.
- Southern Cove (CMI Closure Report Jan 14, 2018)
  - Continued to maintain erosion and sediment control measures adjacent to the Cove.
- 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 Apr 9, 2018.
- Groundwater
  - Abandoned monitoring wells and piezometers in the Landfill 1 Area during the weeks of Apr 2 and Apr 9, 2018 as previously approved by the Maine DEP.
  - Groundwater Extraction System (Final Design of GWES at Landfill 1 Oct 16, 2017; DEP Approval Jan 9, 2018):
    - Continued operation of extractions wells and quarterly monitoring and reporting.
  - Groundwater at Landfills 3,4,5 (WP Aug 3, 2015; DEP CAL Sept 18,2015)
    - Deployed pressure transducers in monitoring points in the vicinity of Landfills 3-5 during the week of Apr 2, 2018.
    - Reviewed historical and recent water level elevations and analytical data in the Landfills 3-5 area, in preparation for next steps in the bedrock groundwater assessment.
    - The pump test in the area of Landfills 3, 4, and 5 has been postponed in order to evaluate the impact of the new caps on area groundwater levels and quality.
  - 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) for analysis by Katahdin Analytical Labs.
  - 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. April was Month 4 for the Plant Area construction activity.
  - The average daily flow through the GWTP was 53,074 gallons with 288,289 gallons of construction-related water.
  - Submitted the March 2018 NetDMR and the Toxsheet and Effluent Mercury Test Report form to DEP on Apr 9, 2018.
  - Completed routine GWTP maintenance activities.
- Other Site Activities
  - Completed routine site maintenance activities

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
April 2018**

**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. If a measurement that exceeds 50% of MPS occurs, Mallinckrodt will notify the DEP within 48 hours. An annual report of all data will also be submitted to DEP.
- 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 Data Validation Protocol dated Jan 29, 2018 with a summary of the validation results sent to DEP and Mallinckrodt.

**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 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 (CMIP – Revision 2 Apr 30, 2018)
  - Receive DEP approval of Landfill 1 CMIP – Rev2.
  - Mobilize contractor to begin implementation of the Landfill 1 remediation.
- Landfill 2 (CMI Closure Report Dec 12, 2017)
  - Continue to maintain erosion and sediment control measures.
  - Receive DEP approval of the Landfill 2 Closure Report.
- 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.)
  - Continue Plant Area Phase 1 excavations, sampling, and backfilling.
  - Continue discussions with DEP regarding the Phase 2 approach in the Plant Area.
- 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)
  - Continue to maintain erosion and sediment control measures.
  - Receive DEP approval of the Southerly Stream Closure Report.
- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017)
  - Continue to maintain erosion and sediment control measures.
  - Receive DEP approval of the Northern Ditch Closure Report.

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
April 2018**

- Southern Cove (CMI Closure Report Jan 14, 2018)
  - Continue to maintain erosion and sediment control measures adjacent to the Cove.
  - Complete final restoration of the Southern Cove in Summer 2018.
  - Receive DEP approval of the Southern Cove Closure Report.
- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
  - Conduct Short-Term CMP remediation monitoring in accordance with the approved plan.
- Groundwater
  - Groundwater Extraction System (Final Design of GWES at Landfill 1 Oct 16, 2017; DEP Approval Jan 9, 2018):
    - Continue operation of extraction wells.
    - Continue quarterly monitoring and reporting per the approved Short-Term CMP.
  - Groundwater at Landfills 3,4,5 (WP Aug 3, 2015; DEP CAL Sept 18,2015)
    - Continue monitoring groundwater levels and quality.
    - Begin preparation of a work plan to evaluate groundwater in the area of Landfills 3, 4, and 5.
  - 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 April 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.

**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 start of the Landfill 1 CMI has been delayed due to additional DEP comments on the Landfill 1 CMIP-Rev1. The revised CMIP (Rev2) was submitted Apr 30, 2018 which addressed all the additional DEP comments. Field work needs to begin as soon as possible in order to be completed before winter conditions in late 2018.

**As of the end of April 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 1379 tons (TSDF weight) of non-hazardous Leach Field soils, have been shipped offsite 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 offsite.
    - 534 railcars to the Republic disposal facility in Niagara Falls, New York
    - 30 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
April 2018**

- **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 offsite
    - 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 30,015 tons (Site weight) of non-hazardous Northern Drainage Ditch soils, have been shipped offsite.
    - 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 offsite.
    - 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 offsite 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 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 sediments to the Republic disposal facility in Niagara Falls, New York
- **Plant Area: Soil excavation and shipments are ongoing.**
  - In April 2018, 56 railcars of Plant Area non-hazardous soils were shipped off site containing 5,460 tons.
  - A total of 135 railcars containing 13,194 tons (Site weight) of non-hazardous soils to the Republic disposal facility in Niagara Falls, New York
    - 115 railcars to the Republic disposal facility in Niagara Falls, New York
    - 20 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **General Debris**
  - One roll-off of metal debris containing 8,260 lbs was shipped to AIM Recycle Metals on Apr 13, 2018. Total mercury in samples was 0.026 mg/kg and 0.023 mg/kg.
- **GWTP Sludge**
  - None

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
April 2018**

**Maine Hazardous Waste Tax**

- **As of April 30, 2018 (through Q1 2018) the total Maine State Hazardous Waste Tax paid to the State of Maine is \$1,889,804.**
  - The 2<sup>nd</sup> Quarter 2017 report shows 13,150.65 tons of hazardous soil disposed for a total fee of \$789,039 which was paid 9/28/17.
  - The 3<sup>rd</sup> Quarter 2017 report shows 14,125.95 tons of hazardous soil disposed for a total fee of \$847,557 which was paid 12/1/17.
  - The 4<sup>th</sup> Quarter 2017 report shows 4,220.13 tons of hazardous soil disposed for a total fee of \$253,208 which was paid.
  - The 1<sup>st</sup> Quarter 2018 report shows 0 tons of hazardous soil disposed for a total fee of \$0 which was paid.

**Additional information regarding the progress of the work**

- The BeyondHoltraChem.com website is periodically updated to reflect ongoing remediation activities.