

September 11, 2017

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

**Subject: Monthly Progress Report – August 2017  
Orrington Remediation Site  
Orrington, Maine**

Dear Mr. Jellison:

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 **August 1 – 31, 2017**, 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  
Audrey Snowden – Orrington Town Library  
Paul White – Town of Orrington  
David Wright – Maine DEP

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
August 2017**

**Report Date: September 11, 2017**

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**

- Met with DEP on Aug 2 and Aug 29 via conference calls 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 and submitted weekly PAM reports to DEP.
- Continued operation of the on-site lab in compliance with DEP certification.
- Continued stockpile management of excavated materials and loading railcars for off-site shipment.
- Permitting (Upland)
  - No new activity
- 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 IES and Landfill 5.
  - Conducted remediation monitoring in accordance with the Short-Term CMP the week of Aug 14, 2017.
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017)
  - Received DEP Acceptance of Landfill Ridge Closure Report on Aug 21, 2017.
  - Continued to maintain erosion and sediment control measures.
- Landfill 1 (Draft CMIP Apr 25; DEP Comments May 31; RTC Jul 25; DEP response Aug 24)
  - Submitted draft Excavation and Restoration and Construction Water Management Work Plans for Landfill 1 to DEP on Aug 8, 2017.
  - Submitted a Waste Characterization letter for Landfill 1 to DEP on Aug 24, 2017.
  - Received DEP follow-up comments on the Response to DEP's initial comments on the Draft Landfill 1 CMI Plan to DEP on Aug 24, 2017.
- Landfill 2 (CMI Plan Rev1 Oct 7, 2016; Addendums 1-3, final DEP Approval Apr 26, 2017)
  - Completed excavation, removed sheeting and continued backfilling.
  - Began restoration activities
  - Established and maintained erosion and sediment control measures.
- Landfills 3, 4 and 5 (CMI Closure Report Jul 25, 2017)
  - Continued to maintain erosion and sediment control measures and cap inspections.
  - Removed staging area gravel and spread topsoil in preparation for final seeding.

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
August 2017**

- Plant Area (Draft CMI Plan Feb 13, 2017)
  - Completed dosing studies for the in-situ treatment of the chloropicrin area.
  - Received DEP comments on the design of the in situ treatment of the chloropicrin area to DEP on Aug 21, 2017.
  - Received DEP Comments on Draft Plant Area CMIP Appendix J Concrete Sampling on Aug 29, 2017 and held follow-up discussions with DEP.
  - Continued discussions about the proposed remedial design for the Plant Area with DEP including both technical and strategic approaches to resolve the issues.
- Scrap Metal Yard (CMI Closure Report Jul 25, 2017)
  - Continued to maintain erosion and sediment control measures.
- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
  - Continued to maintain erosion and sediment control measures.
  - Continued restoration activities
  - Continued preparation of Southerly Stream CMI Closure Report.
- Northern Drainage Ditch (CMI Plan – Rev 1, Aug 23, 2016; DEP Approved upon submittal; Final Addendum 1 Oct 27, 2016;)
  - Continued to maintain erosion and sediment control measures.
  - Continued preparation of the Northern Drainage Ditch CMI Closure Report
- Southern Cove (Final CMI Plan May 15, 2017; USACE Permit NAE-1999-02231 Apr 17, 2017; USACE Permit Modification May 3, 2017)
  - Continued to inspect and maintain soil erosion and sediment control features.
  - Completed baseline turbidity monitoring and began water quality monitoring.
  - Received DEP concurrence with approach to documentation of confirmation sampling results on Aug 22, 2017.
  - Commenced sediment removal and backfill operations in SMA-2 and SMA-3.
  - Continued confirmation sampling in accordance with approved sampling protocol and with input from DEP representatives.
- Groundwater
  - Extraction System (draft Final Groundwater Extraction System Design Aug 15, 2017):
    - Continued operation of extractions wells and quarterly monitoring and reporting.
    - Submitted the draft design for the Final Groundwater Extraction System to DEP on Aug 15, 2017.
  - Groundwater Model (submitted Feb 22, 2016, DEP comments Jan 6, RTC Apr 28, 2017)
    - No new activity
  - Pre-Design for Groundwater at Landfills 3,4,5 (WP Aug 3, 2015; DEP CAL Sept 18,2015)
    - The pump test in the area of Landfills 3, 4, and 5 has been postponed until 2018 in order to evaluate the impact of the new caps on area groundwater levels and quality.
- 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.

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
August 2017**

- Continued expanded Outfall 001 effluent monitoring (volatiles, semivolatiles, herbicides and manganese) for “new wastestreams” (i.e. construction water from each remedial area) per the MEPDES Discharge permit. Expanded monitoring for each new wastestream is required for 10 months or until wastestream ends. August was month 5 for Landfill 2 area and month 2 for the Southern Cove dewatering operations.
- The average daily flow through the GWTP was 41,410 gallons with 25,546 gallons of construction-related water which was significantly reduced from July.
- Generated 1.5 cubic yards of sludge in August.
- Submitted the July 2017 NetDMR to DEP on Aug 10 and the Toxsheet and Effluent Mercury Test Report form to DEP on Aug 18, 2017.
- Completed routine GWTP maintenance activities.
- 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 with weekly reports submitted to DEP.
- Validated EGAD EDDs and laboratory reports are submitted to DEP via the automated database system or the ftp site (for large laboratory reports) as they are available.
- Submitted EGAD EDDs of validated June and July remediation monitoring data to DEP on Aug 18 and Aug 29, 2017, respectively.

**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.**

- Meet with DEP on Sept 28 to discuss ongoing remediation activities and pending submittals.
- Continue operation of the perimeter air monitoring system and weekly PAM reports to DEP.
- Continue operation of the on-site lab in compliance with DEP certification.
- Continue stockpile management of excavated materials and loading railcars for off-site shipment.
- Permitting (Upland)
  - Receive approval of the Maine Construction General Permit Notice of Intent for the Landfill 1 remedial construction.
- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
  - Conduct Short-Term CMP remediation monitoring in accordance with the approved plan.
  - Submit the 2<sup>nd</sup> quarter groundwater and remediation monitoring report to DEP.
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017)
  - Continue to maintain erosion and sediment control measures.

**MONTHLY PROGRESS REPORT**  
**ORRINGTON REMEDIATION SITE**  
**Orrington, Maine**  
**August 2017**

- Landfill 1 (Draft CMIP Apr 25; DEP Comments May 31; RTC Jul 25; DEP response Aug 24)
  - Finalize the sampling plan for the Landfill 1 excavations and respond to DEP's comments on excavation limits.
  - Receive DEP Comments on the draft Excavation and Restoration and Construction Water Management Work Plans once the excavation limits are finalized.
  - Receive DEP response to Waste Characterization letter.
- Landfill 2 (CMI Plan Rev1 Oct 7, 2016; Addendums 1-3, final DEP Approval Apr 26, 2017)
  - Continue restoration activities.
  - Continue to maintain erosion and sediment control measures.
- Landfills 3-5 (CMI Closure Report Jul 25, 2017)
  - Continue to maintain erosion and sediment control measures and complete cap inspections.
- Plant Area (Draft CMI Plan Feb 13, 2017)
  - Submit detailed technical memo regarding issues related to the Plant Area design to DEP.
- Scrap Metal Yard (CMI Closure Report Jul 25, 2017)
  - Continue to maintain erosion and sediment control measures.
- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
  - Continue to maintain erosion and sediment control measures.
  - Continue restoration activities
  - Continue preparation of CMI Closure Report.
- Northern Drainage Ditch (CMI Plan Rev 1, Aug 23, 2016; DEP Approved upon submittal; Final Addendum 1 Oct 27, 2016;)
  - Continue to maintain erosion and sediment control measures.
  - Continue preparation of the Northern Drainage Ditch Closure Report.
- Southern Cove (Final CMI Plan May 15, 2017; USACE Permit NAE-1999-02231 Apr 17, 2017; USACE Permit Modification May 3, 2017)
  - Continue to inspect and maintain soil erosion and sediment control features.
  - Continue water quality monitoring.
  - Re-mobilize the moonpool equipment with the new turbidity curtain
  - Continue sediment removal and backfill operations in SMA-2 and SMA-3 along with confirmation sampling in accordance with approved sampling protocol.
- Groundwater
  - Extraction System (draft Final Groundwater Extraction System Design Aug 15, 2017):
    - Continue operation of extraction wells and quarterly monitoring and reporting per the Revised Short-Term CMP
    - Receive DEP Comments on the draft design for the Final Groundwater Extraction System to DEP.
  - Groundwater Model (submitted Feb 22, 2016, DEP comments Jan 6, RTC Apr 28, 2017)
    - Receive DEP approval &/or any final comments on the GW model.
  - Pre-Design for Groundwater at Landfills 3,4,5 (WP Aug 3, 2015; DEP CAL Sept 18,2015)
    - No current activity other than ongoing monitoring of groundwater levels and quality.

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
August 2017**

- Groundwater Treatment Plant (GWTP) Operation
  - Continue compliance sampling of Outfall 001 and 002 as described above.
  - Submit August 2017 NetDMR and Toxsheet and Effluent Mercury Test Report to DEP.
  - Ship 7 cubic yards of GWTP sludge offsite.
  - Continue maintenance activities and routine GWTP maintenance.
- Other Site Activities
  - Complete 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 overall schedule was modified to begin remediation of Landfill 1 in late 2017 and remediation of the Plant Area in 2018.
- A revised master schedule was presented to DEP at the Jul 26, 2017 meeting and will be updated again for the Sept 28, 2017 meeting.

**The quantity of waste shipped to the various disposal locations**

- As of the end of **AUGUST 2017:**
  - **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 the Republic disposal 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.
  - **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 complete, off-site disposal continued.**
    - A total of 227 railcars, containing 22,149 tons (Site weight) of non-hazardous Northern Drainage Ditch soils, have been shipped offsite.
      - 227 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 complete, off-site disposal continued.**
    - A total of 112 railcars, containing 10,961 tons (Site 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.

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
August 2017**

- **Landfill 2: Soil excavation complete, off-site disposal continued.**
  - In August 2017, 92 railcars of Landfill 2 soils were shipped off site.
    - 27 railcars containing 2,647 tons of non-hazardous Landfill 2 soils to the Republic disposal facility in Niagara Falls, New York
    - 65 railcars containing 6,332 tons of listed waste soils from Landfill 2 to the US Ecology Stablex disposal facility in Quebec, Canada
  - A total of 337 railcars containing Landfill 2 soils have been shipped offsite to date.
    - 117 railcars containing over 11,468 tons of non-hazardous Landfill 2 soils
      - 107 railcars of non-hazardous soils to the Republic disposal facility in Niagara Falls, New York
      - 10 railcars of non-hazardous soils to the US Ecology Stablex disposal facility in Quebec, Canada.
    - 220 railcars containing 21,431 tons of listed waste soils to the US Ecology Stablex disposal facility in Quebec, Canada
- **General Debris**
  - Two roll-offs were sent to Juniper Ridge Casella
    - 5,740lbs on Aug 17, 2017; Total Mercury results: 0.04mg/kg and Non-Detect
    - 24,680 lbs on Aug 24, 2017; Total Mercury results: 0.12mg/kg and 0.44mg/kg
  - One roll-off of scrap metal was sent to AIM Recycle Metals on Aug 23, 2017
    - 19,300lbs, Total Mercury results: 0.08mg/kg and non-Detect

**Maine Hazardous Waste Tax**

- The total Maine Hazardous Waste Tax paid as of August 31, 2017 is \$789,039.
  - These taxes are paid quarterly so the total tax paid is not directly related to the total tons of hazardous waste shipped as of August 31.
  - Stablex is in the process of paying the current quarter taxes and the next report will have an updated total amount paid.

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

- The next *On The Penobscot* community newsletter will be mailed to residents and key community contacts in September/October.
- The BeyondHoltraChem.com website is periodically updated to reflect ongoing remediation activities.