

April 17, 2017

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

**Subject: Monthly Progress Report – March 2017  
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 **March 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  
March 2017**

**Report Date: April 17, 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**

- Held conference calls with DEP on Mar 27 to discuss ongoing remediation topics.
- 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, including quarterly calibration, 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)
  - Plant Area permits
    - The Self-verification form for the General Permit was submitted to USACE on Mar 27, 2017. Since this is a self-verification form no further approval is required.
    - The Maine Construction General Permit was submitted to DEP on Mar 27, 2017. There is a two week presumptive approval timeframe for this permit after which we are approved to proceed.
    - The Request for Renewal of Site Review was submitted to the Maine DIFW and a response to this submittal is required.
- 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 short-term monitoring of the Scrap Metal Yard and Southerly Stream areas as well as ongoing groundwater & IES monitoring per the Revised Short-Term CMP.
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017)
  - Continued to maintain erosion and sediment control measures.
- Landfill 1
  - Continued preparing the Draft Landfill 1 CMI Plan including a work plan for additional field work.
  - Began evaluating the approach to conduct the Landfill 1 remediation before the Plant Area remediation which would result in the Landfill 1 starting in late 2017.
- Landfill 2 (CMI Plan Rev1 Oct 7 & Addendum 1 Nov 29, 2016; DEP Approval Feb 2, 2017)
  - Submitted Response to DEP Comments on the Landfill 2 Sheet Pile design to DEP Mar 6, 2017.
  - Continued pre-construction activities including construction of decontamination pad, clearing and grubbing and sheet pile installation.
  - Completed pre-excavation confirmation sampling along sheet pile wall alignment

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

- Landfills 3, 4 and 5 (CMI Plan – Rev 1, May 26, 2016; DEP Approval, Jul 12, 2016)
  - Continued to maintain erosion and sediment control measures and cap inspections.
  - Continued preparation of the Landfills 3-5 CMI Closure Report
- Plant Area (Draft CMI Plan Feb 13, 2017)
  - DEP Comments on the Draft Plant Area CMIP Appendix K (Field WP) were received on Mar 2, 2017
  - A Response to DEP Comments (RTC) on the Draft Plant Area CMIP Appendix K was submitted to DEP on Mar 8, 2017.
  - DEP Comments on the Draft Plant Area CMIP Appendix M (construction work plan for the construction of TSSA #3) were received on Mar 20, 2017.
  - Initiated field work to collect additional samples for pre-excavation confirmation locations, mercury speciation testing, and data related to the design of the in situ treatment of the chloropicrin impacted soils.
  - Continued development of the Draft Chloropicrin Work Plan that provides an outline of the conceptual design for in situ treatment of the chloropicrin in soil.
  - Began evaluating the approach to conduct the Landfill 1 remediation before the Plant Area remediation which would result in the Plant Area starting in 2018.
- Scrap Metal Yard (CMI Plan – Rev 1, June 22, 2016; DEP Approval, July 22, 2016)
  - Continued to maintain erosion and sediment control measures.
  - Continued preparation of the Scrap Metal Yard CMI Closure Report
- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
  - Continued implementation of the remedial action including confirmation sampling and backfilling activities.
- Northern Drainage Ditch (CMI Plan – Rev 1, Aug 23, 2016; DEP Approved upon submittal; Final Addendum 1 Oct 27, 2016;)
  - Completed excavation and confirmation sampling of the remedial area, and continued backfilling and compaction activities.
  - Began construction of the southern segment of the new Northern Drainage Ditch
- Southern Cove (Draft CMI Plan, Jun 8, 2016; DEP Comments Aug 26 & Sept 27, 2016 )
  - DMR confirmed the agency did not have any comments on the Draft Southern Cove Draft CMIP on Mar 1, 2017.
  - A response to DEP comments (RTC) on the Draft Southern Cove CMIP, Draft Contractor WPs & the revised **Sampling Protocol** was submitted to DEP Mar 12, 2017.
  - DEP approved the RTC to Draft Southern Cove CMIP, draft Contractor WPs and revised Sampling Protocol on Mar 27, 2017.
  - Continued discussion with the US ACE and NOAA-NMFS regarding the permit.
- Groundwater
  - Conducted borehole geophysical logging in P-13 to located fracture zones.
  - Placed PVC riser extensions on wells B-320-O1 and B-320-B1 and surveyed elevations.
  - Conducted quarterly groundwater quality monitoring the week of Mar 20, 2017 per the Revised Short-Term CMP.
  - Interim Extraction System (IES):
    - Continue operation of extractions wells and quarterly monitoring and reporting.

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

- Groundwater Model (submitted Feb 22, 2016, DEP comments Jan 6, 2017)
  - Began preparation of a response to DEP comments on the GW Model including additional evaluations of the model itself.
- Pre-Design for Groundwater at Landfills 3,4,5 (WP Aug 3, 2015; DEP CAL Sept 18,2015)
  - Postponed the pump test in the area of Landfills 3, 4, and 5 to evaluate the impact of the new caps on the groundwater levels and quality beneath all three landfills.
- 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 monthly Outfall 001 effluent monitoring and reporting (volatiles, semivolatiles, herbicides and manganese) per the MEPDES permit requirements for a “new wastestream” to address additional water being treated in the GWTP from remedial construction activities.
    - March was month 4 for the Northern Drainage Ditch construction water and month 2 for the Southerly Stream construction water which are “new wastestreams” and thus require expanded monitoring for 10 months per the permit.
  - The average daily flow through the GWTP was 47,000 gpd with 112,000 gallons of construction-related water. Warming weather with three snow events resulted in significant snow melt and Southerly Stream flows which increased the daily flow average and volume of construction-related water.
  - Submitted the February 2017 NetDMR to DEP on Mar 14 and the Toxsheet and Effluent Mercury Test Report form to DEP on Mar 15, 2017.
  - Began designing a piping system for the installation of a temporary, seasonal weir tank to receive construction water flows
  - 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**

- Routine operational data is reported on the DMR per the MEPDES Permit.
- Air monitoring and meteorological data is collected continuously by the perimeter air monitoring system and stored in the computer system. Weekly reports are submitted to DEP.
- Quarterly groundwater monitoring data and Interim Extraction System monitoring data is reported in quarterly reports and EGAD EDDs 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.

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

**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.**

- Hold conference calls with DEP as needed and plan for DEP meeting on May 10, 2017.
- 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.
- Continued stockpile management of excavated materials and loading railcars for off-site shipment.
- Permitting (Upland)
  - Plant Area
    - Receive a response from MDIFW to the Request for Renewal of Site Review
- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
  - Continue short-term monitoring of the Scrap Metal Yard, Southerly Stream and Landfill 2 areas per the Revised Short-Term CMP.
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017)
  - Continue to maintain erosion and sediment control measures.
- Landfill 1
  - Submit the Draft Landfill 1 CMI Plan, including the work plan for additional field work, to DEP for review.
  - Evaluate if the Landfill 1 remediation will be conducted before the Plant Area remediation and review the decision with DEP.
- Landfill 2 (CMI Plan Rev1 Oct 7 & Addendum 1 Nov 29, 2016; DEP Approval Feb 2, 2017)
  - Begin installing sheet piles in Landfill 2 area and start excavation.
  - Final restoration is expected to be complete by early summer 2017.
- Landfills 3-5 (CMI Plan – Rev 1, May 26, 2016; DEP Approval July 12, 2016)
  - Continue to maintain erosion and sediment control measures and complete cap inspections.
  - Continue preparation of the Landfills 3-5 CMI Closure Report
  - Complete final restoration in Spring 2017.
- Plant Area (Draft CMI Plan Feb 13, 2017)
  - Conduct additional sampling in the plant area as outlined in Appendix K and in accordance with DEP comments.
  - Submit the Draft Chloropicrin Work Plan that describes the additional sampling and dosing study planned for Spring 2017 and provides an outline of the conceptual design for in situ treatment of the chloropicrin in soil.
  - Evaluate if the Landfill 1 remediation will be conducted before the Plant Area remediation and review the decision with DEP.
- Scrap Metal Yard (CMI Plan – Rev 1, June 22, 2016; DEP Approval, July 22, 2016)
  - Continue to maintain erosion and sediment control measures.
  - Continue preparation of the Scrap Metal Yard CMI Closure Report
  - Complete final restoration in Spring 2017.

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

- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
  - Continue implementation of the remedial action including confirmation sampling and backfilling.
  - Construction is expected to be completed in Spring 2017 including final restoration of both the northern and southern segments of the Southerly Stream.
- 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.
  - Complete construction of the southern segment of the new Northern Drainage Ditch
  - Final restoration is expected to be completed in Spring 2017.
- Southern Cove (Draft CMI Plan, Jun 8, 2016; DEP Comments, Aug 26 & Sept 27, 2016 )
  - Submit final Southern Cove CMI Plan – including final Construction Work Plan, Environmental Monitoring Plan, and Sampling Protocol to DEP.
  - Receive final USACE permit for the Southern Cove remedial action
  - Construction in the dry is expected to start late Summer 2017. The start date for in-water work will be established in agency permits.
- Groundwater
  - Address questions and/or receive comments from DEP on Ferry Road Current Conditions Assessment report
  - Interim Extraction System (IES):
    - Continue operation of extractions wells and quarterly monitoring and reporting per the Revised Short-Term CMP.
  - Groundwater Model (submitted Feb 22, 2016, DEP comments Jan 6, 2017)
    - Submit a response to DEP comments, including results of modifications and sensitivity analyses 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.
- Groundwater Treatment Plant (GWTP) Operation
  - Continue compliance sampling of Outfall 001 and 002 as described above.
  - Submit March 2017 NetDMR and Toxsheet and Effluent Mercury Test Report forms to DEP.
  - Install, pipe, and activate a temporary weir tank to treat substandard CDM flows.
  - 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**

- None

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

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

- As of the end of March 2017:
  - Leach Field: Soil excavation and off-site disposal is complete.
    - A total of 14 railcars, containing 1379 tons 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 over 55,158 tons of non-hazardous Landfill Ridge soils, have been shipped offsite to the Republic disposal facility in Niagara Falls, New York or the 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 of non-hazardous Scrap Metal Yard soils, have been shipped offsite to the Republic disposal facility in Niagara Falls, New York or the Stablex disposal facility in Quebec, Canada.
  - Northern Drainage Ditch:
    - 46 railcars of Northern Drainage Ditch soils were shipped in March 2017.
    - A total of 176 railcars, containing over 17,100 tons of non-hazardous Northern Drainage Ditch soils, have been shipped offsite to the Republic disposal facility in Niagara Falls, New York.
  - Southerly Stream:
    - 27 railcars of Southerly Stream soils were shipped in March 2017.
    - A total of 48 railcars, containing over 4,600 tons of non-hazardous Southerly Stream soils, have been shipped offsite to the Republic disposal facility in Niagara Falls, New York.

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

- None