

May 9, 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 – April 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 **April 1 – 30, 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
April 2017**

Report Date: May 9, 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 to discuss various 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 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)
 - The Maine Construction General Permit was submitted to DEP on Mar 27, 2017. The two week presumptive approval timeframe has passed therefore it is approved.
- 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 the vicinity of the Scrap Metal Yard, Southerly Stream, and Landfill 2 remediation areas during the week of April 24, 2017.
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017)
 - Continued to maintain erosion and sediment control measures.
- Landfill 1 (Draft CMI Plan Apr 25, 2017)
 - Submitted the proposed Draft Landfill 1 CMI Plan to DEP for review on Apr 25, 2017, including the work plan for additional field work.
- Landfill 2 (CMI Plan Rev1 Oct 7, 2016; Addendums 1-3, final DEP Approval Apr 26, 2017)
 - Submitted Landfill 2 CMI Plan Revision 1 Addendum 3 to Maine DEP on Apr 18, 2017.
 - Received approval of Landfill 2 CMI Plan Revision 1 Addendum 3 from Maine DEP via email on Apr 26, 2017.
 - Installed sheet piles in Landfill 2 area.
 - Began excavation and confirmation sampling activities per CMI Plan.
- 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)
 - Submitted a revised plan for the construction of TSSA #3 to DEP on Apr 18 and received DEP comments on the revised plan on Apr 28, 2017.

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- Continued field work to collect additional samples for mercury speciation testing, and data related to the design of the in situ treatment of the chloropicrin impacted soils.
- Submitted the Chloropicrin Work Plan that provides the preliminary design for in situ treatment of the chloropicrin to DEP on Apr 12, 2017.
- Received preliminary comments from DEP on the Draft Plant Area CMI Plan on Apr 13, 2017 including disagreement with the proposed approach to leave certain native soils in place with mercury concentrations above the MPS.
- 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 construction of the southern segment of the new Northern Drainage Ditch
 - Continued final grading and construction of staging area and plunge pool.
- Southern Cove (Draft CMI Plan, Jun 8, 2016; DEP Comments Aug 26 & Sept 27, 2016)
 - Received US ACE permit NAE-1999-02231 to conduct the Southern Cove remedial work in 2017.
 - Continued preparation of the Final Southern Cove CMI Plan which will include the final Construction Work Plan and Water Quality and Fish Monitoring Plan to submit to DEP.
- Groundwater
 - Downloaded pressure transducers in the vicinity of Landfill 1 during the week of April 24.
 - Interim Extraction System (IES):
 - Continue operation of extractions wells and quarterly monitoring and reporting.
 - Submitted 4th quarter 2016 IES operations summary report to MEDEP on April 17.
 - Groundwater Model (submitted Feb 22, 2016, DEP comments Jan 6, RTC Apr 28, 2017)
 - Finalized response to MEDEP comments on the Groundwater Simulation Model, and submitted to MEDEP on April 28, 2017.
 - 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.
 - 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). April was month 5 for the Northern Drainage Ditch, month 3 for the Southerly Stream and month 1 for the Landfill 2 areas.

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- The average daily flow through the GWTP was 58,500 gpd with 471,347 gallons of construction-related water. Increased flows were due to higher precipitation in April (~6 inches) compared March (less than 2 inches) combined with residual snow melt.
- Installed the new weir tank to intercept construction water from the TSSAs to reduce total solids in influent.
- Submitted the March 2017 NetDMR to DEP on Apr 12 and the Toxsheet and Effluent Mercury Test Report form to DEP on Apr 13, 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

- 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.
 - April remediation monitoring data and laboratory analytical report submitted to MEDEP on April 12

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)
 - Receive a response from MDIFW to the Request for Renewal of Site Review
- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
 - Conduct Short-Term CMP remediation monitoring in the vicinity of the Scrap Metal Yard, Southerly Stream, and Landfill 2 remediation areas.
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017)
 - Continue to maintain erosion and sediment control measures.
- Landfill 1 (Draft CMI Plan Apr 25, 2017)
 - Present the overall approach to the Landfill 1 remedial design, review the planned supplemental sampling and present the revised schedule to DEP at the meeting on May 10.
 - Implement field work as outlined in the appendix to the Draft Landfill 1 CMI Plan.

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- Receive preliminary comments from DEP and hold discussions about the Draft Landfill 1 CMI Plan.
- Landfill 2 (CMI Plan Rev1 Oct 7, 2016; Addendums 1-3, final DEP Approval Apr 26, 2017)
 - Continue excavation, confirmation sampling and backfill activities as outlined in the approved CMIP and Addendums 1-3.
 - 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)
 - Submit a response to DEP comments on the revised plan for the construction of TSSA #3.
 - Continue additional sampling in the plant area to collect additional samples for mercury speciation testing and data related to the design of the in situ treatment of the chloropicrin.
 - Discuss the Chloropicrin Work Plan (preliminary design for in situ treatment of the chloropicrin) and supplemental data collected to date with DEP on May 10, 2017.
 - Continue discussions about the proposed remedial design for the Plant Area with DEP and evaluate both technical and strategic approaches to resolve the issues.
- 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.
- 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;)
 - Complete staging area and final grading.
 - Continue to maintain erosion and sediment control measures.
 - 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.
 - Submit a request for two minor modifications to the USACE permit for the Southern Cove remedial action to USACE.
 - Construction in the dry will start in June and the in-water work will start in mid-July.
- Groundwater
 - Address questions and/or receive comments from DEP on Ferry Road Current Conditions Assessment report

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- Prepare and submit data transmittal report for 1st quarter 2017 routine and remediation monitoring data.
- 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, RTC Apr 28, 2017)
 - Respond to any comments on the Response to DEP Comments on the GW model report.
 - 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 April 2017 NetDMR and Toxsheet and Effluent Mercury Test Report forms to DEP.
 - 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

- Due to concerns with the Draft Plant Area design and the need for further discussions with DEP and others, 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 will be presented to DEP at the May 10, 2017 meeting.

The quantity of waste shipped to the various disposal locations

- Two roll-offs of general debris were shipped to the Juniper Ridge Casella landfill in April 2017. One roll-off contained 7500 tons and one roll-off contained 14,380 tons. All total mercury results were less than 0.25 mg/kg.
- One roll-off contained 29, 560 tons of recyclable metal was shipped to AIM Recycle in April 2017. All total mercury results were less than 1.10 mg/kg.
- As of the end of April **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 55,158 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.

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- 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
 - 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:
 - 31 railcars of Northern Drainage Ditch soils were shipped in April 2017.
 - A total of 207 railcars, containing over 20,000 tons of non-hazardous Northern Drainage Ditch soils, have been shipped offsite.
 - 207 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:
 - 27 railcars of Southerly Stream soils were shipped in April 2017.
 - A total of 75 railcars, containing over 7,300 tons of non-hazardous Southerly Stream soils, have been shipped offsite.
 - 65 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:
 - 15 railcars of Landfill 2 soils were shipped in April 2017.
 - A total of 15 railcars, containing 1470 tons of non-hazardous Landfill 2 soils, have been shipped offsite
 - 15 railcars containing 1470 tons of non-hazardous waste to the Republic disposal facility in Niagara Falls, New York
 - 0 railcars containing 0 tons of listed waste to the US Ecology Stablex disposal facility in Quebec, Canada

Additional information regarding the progress of the work

- None