

Mallinckrodt US LLC

October 10, 2016

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 – September 2016
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 **September 1 – 30, 2016**, 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
September 2016**

Report Date: October 10, 2016

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 monthly conference call with DEP on September 7, 2016 to discuss site activities.
- Modified the online web map to include confirmation sampling results as a separate data layer.
- Submitted the Winter Erosion & Sedimentation Control Plan to DEP on September 30, 2016.
- 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)
 - No new information
 - See Southern Cove for updates to water related permitting activities
- Facility Dismantling Plan
 - Submitted the Facility Dismantling Closure Report for the dismantling work and the remediation of former Leach Field and Nitromethane Building Foundation Area to DEP on September 27, 2016.
- Short-Term Comprehensive Monitoring Plan (Draft ST CMP submitted April 12, 2016)
 - No new activity.
- Landfill Ridge Area (CMI Plan Revision 1 - Oct 28, 2015; DEP Conditional Approval - Dec 10, 2015)
 - CDM Smith maintained erosion and sediment control measures and continued watering grass and plants until fully established.
 - Continued preparation of the Landfill Ridge CMI Closure Report.
- Landfill 1
 - Continued testing associated with the Landfill 1 Geochemical Analysis and Leaching Study and preparing the Landfill 1 Geochemical Analysis and Leaching Study Technical Memo.
- Landfill 2 (Draft CMI Plan, Jan 13; DEP Comments, May 26; RTC/Contractor WPs July 29, 2016; DEP Comments Sept 12, DEP Final Confirmation Sampling Plan Sept 26 (comments) & Sept 28 (map)
 - Received DEP's comments on the Response to Comments on the Draft CMI Plan, Draft Excavation and Restoration Work Plan and Draft Construction Water Management Work Plan on September 12, 2016.
 - Received DEP's final comments on the confirmation sampling plan approach on September 26 and the map showing DEP's approved Confirmation Sampling Plan on September 28, 2016.
- Landfills 3, 4 and 5 (CMI Plan – Revision 1, May 26, 2016; DEP Approval, July 12, 2016)
 - Completed removal of existing landfill cover soils on all three landfills.
 - Completed installation of GCL, HDPE Liner and Geocomposite on all three landfills.
 - Completed placement of protective soil layer on Landfill 4 and 5.
 - Commenced placement of topsoil layers on Landfill 4 and 5.

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- Plant Area
 - Submitted the Chloropicrin Treatability Study Technical Memo to DEP on September 26, 2016.
 - Continued developing the conceptual design to be presented to DEP on October 26, 2016.
- Scrap Metal Yard (CMI Plan – Revision 1, June 22, 2016; DEP Conditional Approval, July 22, 2016)
 - Continued excavation, confirmation sampling, and backfilling in accordance with the approved CMI Plan and the Confirmation Sampling & DEP Split Sampling Protocol.
- Southerly Stream (Draft CMI Plan, Jan 13; DEP Comments, Jun 22; RTC/Contractor WPs July 22; DEP Comments Sept 19)
 - Received DEP comments on the Response to Comments on the Draft CMI Plan, Draft Excavation and Restoration Work Plan and Draft Construction Water Management Work Plan on September 19, 2016.
- Northern Drainage Ditch (CMI Plan – Revision 1, August 23, 2016; DEP Approved upon submittal)
 - Submitted Northern Drainage Ditch CMI Plan - Rev 1 Addendum 1 Excavation Support Submittal to DEP on September 30, 2016.
- Southern Cove (Draft CMI Plan, Jun 8, 2016; DEP Comments, Aug 26 & Sept 27, 2016)
 - Received DEP response regarding waste characterization of southern cove sediments on September 27, 2016.
 - Selected Severson as the remediation contractor to implement the Southern Cove remedy
 - Began preparing responses to DEP comments on the Draft Southern Cove CMI Plan.
 - Initiated discussions/emails with USACE, DMR, DEP-NRPA and MDIFW and began final preparation of permit applications.
- Groundwater
 - Continued preparation of Ferry Road Current Conditions Assessment report.
 - Collected surface water samples from off-site background locations the week of September 26.
 - Collected groundwater samples from off-site background locations (production wells 6-1 and 6-7) for manganese analyses.
 - Interim Extraction System (IES):
 - On September 24 the EW-1 pump failed and the pump and motor were replaced and brought back online on September 26, 2016. The reason for replacement was age with no unusual conditions.
 - Conducted 3rd quarter IES sampling and routine quarterly water quality monitoring during the week of September 26, 2016.
 - Three-dimensional Groundwater Model (submitted Feb 22, 2016)
 - No new activity.
 - Pre-Design Groundwater Control Work Plan for Landfills 3, 4, 5 (DEP CAL Sept 18, 2015)
 - Submitted water level elevation data from the Landfills 3, 4, 5 area to DEP on September 6. The submittal included a discussion of findings over the nine months of monitoring to date.
- 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.

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- 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. The requirement to monitor for 10 consecutive months was met for the Landfill Ridge remedial area. The Scrap Metal Yard work started in August therefore the expanded monitoring continues and September was month 2 of the 10 month monitoring required for this area.
- The average daily plant discharge flow was approximately 42,000 gallons per day, with approximately 62,000 total gallons of construction-related water treated in the GWTP this month.
- Submitted the August 2016 NetDMR and August 2016 Toxsheet and Effluent Mercury Test Report forms to DEP on September 12 and September 14, 2016 respectively.
- Completed routine 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.

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 monthly conference call with DEP on October 5, 2016 to discuss site activities.
- 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)
 - Submit the Notice of Termination for the Construction General Permit for the Landfill Ridge work
- Facility Dismantling Plan
 - This work is complete unless DEP has comments on the Facility Dismantling Closure Report.
- Short-Term Comprehensive Monitoring Plan (Draft ST CMP April 12, 2016)
 - Receive DEP comments on the Draft Short-Term Comprehensive Monitoring Plan and discuss and/or respond as applicable. The Short-Term CMP includes monitoring of potential remediation impacts as well as ongoing groundwater monitoring, quarterly IES monitoring, and annual monitoring of Landfill 5. Until the revised groundwater monitoring components of this CMP are approved, the current groundwater monitoring plans will continue to be implemented as usual.
- Landfill Ridge Area (CMI Plan Revision 1, Oct 28, 2015; DEP CAL, Dec 10, 2015)
 - Maintain erosion and sediment control measures and continued watering plants until established.
 - Continue preparation of the Landfill Ridge CMI Closure Report. In accordance with discussions and agreement between DEP and Mallinckrodt, submittal will be deferred until November 2016.

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- Landfill 1
 - Submit the Landfill 1 Geochemical Analysis and Leaching Study Technical Memo to DEP.
- Landfill 2 (Draft CMI Plan, Jan 13; DEP Comments, May 26; RTC/Contractor WPs July 29, 2016; DEP Comments Sept 12, DEP Final Confirmation Sampling Plan Sept 26 (comments) & Sept 28 (map))
 - Submit the Landfill 2 Corrective Measures Implementation Plan – Revision 1 (final design) to DEP, including revised Contractor Work Plans and DEP approved Confirmation Sampling Plan.
 - Construction expected to start in late Fall 2016 and be completed in Spring 2017.
- Landfills 3-5 (CMI Plan – Revision 1, May 26, 2016; DEP Approval July 12, 2016)
 - Commence placement of protective soil and topsoil layers on all three landfills.
 - Complete seed, fertilizer and erosion control blanket placement on all three landfills.
 - Construction expected to be complete in October 2016. Restoration is targeted for the end of 2016 however depending on weather conditions this may not be complete until Spring 2017.
- Plant Area
 - Discuss the in situ chloropicrin treatability options with DEP on October 26, 2016.
 - Present the conceptual design for the Plant Area to DEP on October 26, 2016.
- Scrap Metal Yard (CMI Plan – Revision 1, June 22, 2016; DEP CAL, July 22, 2016)
 - Continue excavation, confirmation sampling, and backfilling in accordance with the approved CMI Plan and the Confirmation Sampling & DEP Split Sampling Protocol.
 - Construction expected to be complete in October 2016. Restoration is targeted for the end of 2016 however depending on weather conditions this may not be complete until Spring 2017.
- Southerly Stream (Draft CMI Plan, Jan 13; DEP Comments, Jun 22; RTC/Contractor WPs July 22; DEP Comments Sept 19)
 - Submit the Southerly Stream Corrective Measures Implementation Plan – Revision 1 (final design) to DEP, including revised Contractor Work Plans and DEP approved Confirmation Sampling Plan.
 - Construction expected to start in late Fall 2016 and be completed in Spring 2017 including restoration of both the northern and southern segments of the Southerly Stream.
- Northern Drainage Ditch (CMI Plan – Revision 1, August 23, 2016; DEP Approved upon submittal)
 - Receive DEP comments on the CMIP Addendum 1 Excavation Support Submittal, incorporate comments and submit final plans to DEP.
 - Begin construction of the remedial action at the Northern Drainage Ditch.
 - Construction expected to be completed in December 2016 with restoration completed Spring 2017.
- Southern Cove (Draft CMI Plan, Jun 8, 2016; DEP Comments, Aug 26 & Sept 27, 2016)
 - Hold a conference call with DEP to discuss confirmation sampling issues and potential alternatives to the traditional confirmation sampling approach.
 - Continue discussions with USACE, DMR, DEP-NRPA and MDIFW and preparation of permit applications and biological assessment as needed.
 - Begin working with Severson to develop detailed contractor work plans.
 - Continue preparing responses to DEP comments on the Draft Southern Cove CMI Plan.
 - Construction in the dry is expected to start late Summer 2017. The start date for in-water work will be established in agency permits and may be late September or October 2017.
- Groundwater
 - Finalize and submit report summarizing Ferry Road Current Conditions data and observations.

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- Interim Extraction System (IES):
 - Continue operation of extractions wells and quarterly monitoring and reporting.
- Three-dimensional Groundwater Model (submitted Feb 22, 2016)
 - Respond to any DEP comments received and revise GW model as appropriate.
- Pre-Design Groundwater Control Work Plan for Landfills 3, 4, 5 (DEP CAL Sept 18, 2015)
 - Construct proposed piezometers MW-709-B1, MW-709-B2, MW-710-B1, and MW-710-B2, following MEDEP review and approval.
 - Resume drilling program for Landfills 3-5 bedrock groundwater assessment, following completion of Landfills 3-5 cap construction and site restoration
- Groundwater Treatment Plant (GWTP) Operation
 - Continue compliance sampling of Outfall 001 and 002 as described above.
 - Submit September 2016 NetDMR and Toxsheet and Effluent Mercury Test Report forms to DEP.
- 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

- Specific submittal and due dates for various documents are included in the description above.
- No changes to the anticipated construction periods described above.

The quantity of waste shipped to the various disposal locations

- As of the end of September 2016:
 - 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.
 - 20 railcars of Landfill Ridge soils were shipping in August 2016.
 - A total of 564 railcars, containing over 55,000 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:
 - 112 railcars of Scrap Metal Yard soils were shipped in September 2016.
 - A total of 202 railcars, containing over 19,600 tons of non-hazardous Scrap Metal Yard soils, have been shipped offsite to the Republic disposal facility in Niagara Falls, New York.

Additional information regarding the progress of the work

- None