

Mallinckrodt US LLC

June 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 – May 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 **May 1 – 31, 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
Senior Remediation Consultant

cc: Leslie Anderson – Maine DEP
Patricia Duft – Mallinckrodt US LLC
Audrey Snowden – Orrington Town Library
Paul White – Town of Orrington
David Wright – Maine DEP

**MONTHLY PROGRESS REPORT
ORRINGTON REMEDIATION SITE
Orrington, Maine
May 2016**

Report Date: June 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

- 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.
- On May 3, 2016 submitted a revised Master Remediation Schedule to DEP for all remedial activities.
- Permitting
 - No new information
- Facility Dismantling Plan
 - No new activity.
- Short-Term Comprehensive Monitoring Plan (Draft ST CMP Apr 12, 2016)
 - No new activity.
- Landfill Ridge Area (CMI Plan Revised, Oct 28, 2015; DEP CAL, Dec 10, 2015)
 - Continue drainage feature construction and site restoration per the approved CMI Plan including assembling gabion baskets, placing erosion control blankets, installing rip rap apron at bottom of the down chute, beginning down chute construction, backfilling and grading with reuse materials, and installing sand drainage layer between Swales 3 and 5.
 - Continued pumping storm water from collection area at the top of the downchute to the GWTP.
- Landfill 1
 - Continued testing associated with the Landfill 1 Geochemical Analysis and Leaching Study.
 - Submitted the Geochemistry Study Update #1 to DEP on May 27, 2016.
- Landfill 2 (Draft CMI Plan, Jan 13, 2016)
 - Received DEP comments on the Draft Landfill 2 CMI Plan on May 24, 2016.
 - Drafted a response to comments on the Draft CMI Plan, revised the excavation and confirmation sampling plans to address discussions and agreements related to the Draft Scrap Metal Yard plans,
 - Began drafting the Excavation and Restoration Plan and Draft Construction Water Management Plan for submittal to DEP.
- Landfills 3-5 (CMI Plan – Rev 1, May 26, 2016)
 - Submitted the Draft Landfills 3-5 CMI Plan – Revision 1, including the revised Contractor Work Plan, to DEP on May 26, 2016. DEP approval is due on Jun 21, 2016.
- Plant Area
 - Continued bench scale treatability work associated with the chloropicrin study.
- Scrap Metal Yard (Draft CMI Plan, Nov 9, 2015; DEP Comments Mar 24 & 25, 2016)
 - Continued discussions with DEP on the confirmation sampling plan and held multiple conference calls with DEP to discuss revisions. The agreed upon revised excavation plan and confirmation sampling plan was summarized on an email from DEP on May 11, 2016.

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- Began drafting the Scrap Metal Yard CMI Plan – Revision 1, which will include the revised excavation and confirmation sampling plans as well as the final Excavation and Restoration Plan and Draft Construction Water Management Plans.
- Completed clearing for bypass and excavation
- Southerly Stream (Draft CMI Plan, Jan 13, 2016)
 - Began drafting the Draft Excavation and Restoration Plan and Draft Construction Water Management Plan for submittal to DEP.
- Northern Ditch (Draft CMI Plan, Feb 5, 2016)
 - Received DEP comments on the Draft Landfill 2 CMI Plan on May 17, 2016.
 - Drafted a response to comments on the Draft CMI Plan, revised the excavation and confirmation sampling plans to address discussions and agreements related to the Draft Scrap Metal Yard plans,
 - Began drafting the Excavation and Restoration Plan and Draft Construction Water Management Plan for submittal to DEP.
- Southern Cove
 - On May 27, 2016 submitted to DEP the locations and rationale for additional sediment sampling to finalize the three removal areas to be addressed by the Southern Cove CMI Plan.
 - Completed the additional sampling described in the Revised Technical Memo on Sediment Removal Areas (submitted March 25, 2016, conditionally approved by DEP Apr 4, 2016).
 - Continued developing the design and the Draft CMI Plan for the Southern Cove remedy.
- Groundwater
 - Manually measured water levels for calibration of pressure transducers during the week of May 23
 - Interim Extraction System (IES):
 - Continued operation with no issues.
 - 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)
 - Conducted borehole geophysical logging of newly-installed bedrock boreholes B-709 and B-710 during the week of May 2, 2016.
 - Developed & surveyed newly-installed monitoring well MW-708-B2, and collected samples for water quality analysis during the week of May 23, 2016
- 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.
 - Collected weekly samples from Outfall 003 and the Southerly Stream and transported to Katahdin for analysis. Per previous protocol, all samples are analyzed for mercury using USEPA Method 245.1. If analytical results are ≤ 200 ng/L, the applicable sample will be re-analyzed using USEPA Method 1631.
 - Continued monthly Outfall 001 effluent monitoring and reporting (volatiles, semivolatiles, herbicides and manganese) per the MEPDES permit requirements for a “new wastestream” to address the construction water (storm water from TSSA #1) related to the Landfill Ridge corrective measures implementation. Only those organics specified in the permit are reported as part of the monthly sampling and May was month 6 of the 10 consecutive month minimum requirement.

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- Received MEDEP approval on May 10, 2016 for requested permit modification to increase flow limit from 60,000 gpd to 100,000 gpd.
- Replaced one carbon bed replaced on May 19, 2016.
- Between April 19 and May 13, completed 34 filter press runs.
- The average daily plant discharge flow was approximately 45,000 gallons per day with approximately 76,500 total gallons of construction-related water treated in the GWTP
- Initiated completion of the NetDMR Subscriber agreement paper work
- Submitted the April 2016 eDMR and the April 2016 Toxsheet and Effluent Mercury Test Report forms to DEP on May 11, 2016.
- Completed routine maintenance activities including overhauling both the sludge transfer and sludge reseed pumps in preparation for GWTP flow modifications.
- Other Site Activities
 - Completed routine 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 to DEP.
- Data submittals this month included:
 - Daily EGAD EDDs submitted to DEP via the automated database system.
 - Validated EGAD EDDs and laboratory reports 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 June 1, 2016 to discuss site activities.
- Meet with DEP on Jun 15 and 16 to discuss various Draft CMI Plans and other topics.
- Meet with DEP and DMR at the Orrington Site on Jun 16 to discuss the Southern Cove.
- Address any DEP comments on the Revised Master Remediation Schedule submitted May 3, 2016.
- Respond to the DEP 2016 funding request for the Oversight Inspector (March 16, 2016) and the additional information received April 1, 2016.
- Complete construction of TSSA #2.
- Continue operation of the perimeter air monitoring system and meteorological station and submittal of 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
 - No new information
- Facility Dismantling Plan
 - Submit the trichloropropane groundwater results as an Amendment to the Leach Field well data package and request DEP approval to permanently close the Leach Field wells.

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- Short-Term Comprehensive Monitoring Plan (Draft ST CMP April 12, 2016)
 - Respond to any DEP comments on the Drilling Data Transmittal (Feb 26, 2016) and/or the Current Conditions Data Transmittal (Mar 25, 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 impacts related to implementation of the remedial activities and also includes ongoing groundwater monitoring, quarterly IES monitoring, and annual monitoring of Landfill 5.
- Landfill Ridge Area (CMI Plan Revised, Oct 28, 2015; DEP CAL, Dec 10, 2015)
 - Complete backfilling, drainage feature construction and site restoration per the approved CMI Plan.
- Landfill 1
 - Continue laboratory testing associated with the Geochemical Analysis and Leaching Study.
 - Submit the Geochemistry Study Update #2 to DEP on Jun 20, 2016.
- Landfill 2 (Draft CMI Plan, January 13, 2016)
 - Submit the Draft Excavation and Restoration Plan and Draft Construction Water Management Plan for submittal to DEP. These plans were initially due to DEP by May 31 however submittal will be in June due to the delay receiving DEP comments on the Draft CMI Plan. This delay is not expected to affect the construction schedule.
- Landfills 3-5 (CMI Plan – Rev 1, May 26, 2016)
 - Receive DEP Approval of the Landfills 3-5 CMI Plan – Revision 1 on Jun 21, 2016.
- Plant Area
 - Continue conducting the chloropicrin treatability study.
- Scrap Metal Yard Draft CMI Plan
 - Receive DEP comments on the Draft Excavation and Restoration Plan and Draft Construction Water Management Plan.
 - Submit the Scrap Metal Yard CMI Plan – Revision 1, including the revised excavation and confirmation sampling plans and the final Contractor Work Plans, to DEP on Jun 30, 2016. Continue discussions regarding clean soil layers and confirmation sampling with DEP.
- Southerly Stream (Draft CMI Plan, Jan 13, 2016)
 - Receive DEP comments and discuss and/or respond as applicable.
- Northern Drainage Ditch (Draft CMI Plan, Feb 5, 2016)
 - Submit the Draft Excavation and Restoration Plan and Draft Construction Water Management Plan for submittal to DEP. These plans were initially due to DEP by Jun 2 however submittal will be in late June due to the delay receiving DEP comments on the Draft CMI Plan. This delay is not expected to affect the construction schedule.
- Southern Cove
 - Complete the additional sediment sampling outlined in the May 27, 2016 email to DEP, the purpose of which is to finalize the removal areas to be addressed by the Southern Cove CMI Plan.
 - Submit the Draft CMI Plan for the Southern Cove remedy.
- Groundwater
 - Conduct 2nd quarter IES sampling during the week of June 6, 2016.
 - Continue preparation of Ferry Road Current Conditions Assessment report.
 - Interim Extraction System (IES):
 - Continue operation of extractions wells and quarterly monitoring and reporting.

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- Three-dimensional Groundwater Model (submitted Feb 22, 2016)
 - Receive DEP comments and discuss and/or respond as applicable.
- Pre-Design Groundwater Control Work Plan for Landfills 3, 4, 5 (DEP CAL Sept 18, 2015)
 - Submit proposed piezometer screen intervals for MW-709-B1, MW-709-B2, MW-710-B1, and MW-710-B2 to DEP and upon approval, construct proposed piezometers
- Groundwater Treatment Plant (GWTP) Operation
 - Continue compliance sampling of Outfall 001 and 002 as described above.
 - Submit the NetDMR Subscriber agreement to DEP.
 - Respond to any comments on the March 9, 2016 letter to DEP regarding the MEPDES permit requirement for increased monthly Outfall 001 effluent monitoring and reporting during the ongoing remediation activities.
 - Submit May 2016 eDMR and Toxsheet and Effluent Mercury Test Report forms to DEP.
- Other Site Activities
 - Complete routine 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 Draft CMI Plan for the Southern Cove was originally scheduled to be submitted to DEP on March 28, 2016 however due to additional sampling completed in May 2016, the Draft Southern Cove CMI Plan will be submitted on June 8, 2016.
- Comments are pending from DEP for certain submittals as described above.

The quantity of waste shipped to the various disposal locations

- Transported one shipment of general debris (5.7 tons) and five shipments of railroad ties (50.6 tons) to Casella Juniper Ridge between May 3 and 18, 2016.
- Transported one shipment of recyclable metals (8.6 tons) to AIM Recycle Metals on May 18, 2016.
- At the end of May 2016, over 42,500 tons of soil from the Landfill Ridge Area has been shipped off-site in 437 rail cars to the Republic disposal facility in Niagara Falls, New York and the Stalex disposal facility in Canada.
- Transported spent carbon (two cubic yards), spent Mersorb (one cubic yard), and filter press sludge (19 cubic yards) to US Ecology's hazardous waste disposal facility in Michigan.

Additional information regarding the progress of the work

- None.