

December 12, 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 – November 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 **November 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
November 2016**

Report Date: December 12, 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

- 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.
- Submitted an updated master schedule for the site remediation work to DEP on Nov 8, 2016. 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 activity.
- Short-Term Comprehensive Monitoring Plan (Draft ST CMP submitted Apr 12, 2016)
 - No new activity. 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 plan is approved, the current groundwater monitoring programs continue to be implemented.
- Landfill Ridge Area (CMI Plan Rev 1 - Oct 28, 2015; DEP Conditional Approval - Dec 10, 2015)
 - Continued to maintain erosion and sediment control measures.
 - Continued preparation of the Landfill Ridge CMI Closure Report.
- Landfill 1
 - Began preparing the conceptual design for the Landfill 1 remedy.
- Landfill 2 (CMI Plan – Rev 1, Oct 7, 2016, Addendum 1 Nov 29, 2016)
 - Submitted the Landfill 2 CMIP Rev 1 Addendum 1 (describing the areas to be managed as listed waste) to DEP Nov 29, 2016 followed by the waste characterization sampling data and locations on Dec 1, 2016.
- Landfills 3, 4 and 5 (CMI Plan – Rev 1, May 26, 2016; DEP Approval, Jul 12, 2016)
 - Completed winter erosion control measures and initiated maintenance/inspection procedures.
- Plant Area
 - Continued developing the Draft CMIP (design) which will be discussed with DEP at a meeting on December 14.
- Scrap Metal Yard (CMI Plan – Rev 1, Jun 22, 2016; DEP Conditional Approval, Jul 22, 2016)
 - Completed winter erosion control measures and initiated maintenance/inspection procedures.
- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
 - Submitted Issued for Construction drawings to DEP on Nov 18, 2016.
 - Began pre-construction tasks including clearing and construction of access road and decontamination pad to implement the Southerly Stream remedial action.

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- Northern Drainage Ditch (CMI Plan – Rev 1, Aug 23, 2016; DEP Approved upon submittal; Final Addendum 1 Oct 27, 2016;)
 - Continued pre-construction activities including installation of sheet pile walls, access road construction, and began excavation work.
- Southern Cove (Draft CMI Plan, Jun 8, 2016; DEP Comments Aug 26 & Sept 27, 2016)
 - Held a conference call with DEP on Nov 17, 2016 to further discuss confirmation sampling issues.
 - Submitted the Individual Permit Application, including the biological assessment that will be forwarded to NMFS and USFWS, to US ACE on Nov 30, 2016
 - Submitted the Draft Construction Plan and Environmental Monitoring Plan for the Southern Cove CMIP to DEP on Nov 28, 2016.
 - Continued preparing responses to DEP comments on the Draft Southern Cove CMI Plan.
- Groundwater
 - Retro-fitted MW-402-O1, MW-602-O1, PZ14-09, and PZ14-10 to be flush mount wells and protected with water valve covers to withstand truck traffic.
 - Installed piezometers in two deep bedrock boreholes drilled in April 2016.
 - Continued preparation of Ferry Road Current Conditions Assessment report.
 - Interim Extraction System (IES):
 - Continue operation of extractions wells and quarterly monitoring and reporting.
 - 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)
 - Drilled of four bedrock coreholes, logging of core, selection of screen intervals, and installation of piezometer screens.
 - Conducted preliminary pumping of three wells (P-4, P-13, and MW-410-B1) to assess potential yield, to contribute to planning for a pumping test in the Landfills 3-5 area.
 - Conducted falling-head slug testing of newly-installed monitoring wells in the Landfills 3-5 area.
- 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.
 - The 10-month monitoring requirement was met for the Landfill Ridge remedial area.
 - The Scrap Metal Yard work began in August and November was month 4 of the monitoring required for this area.
 - The average daily plant discharge flow was approximately 47,000 gallons per day, with approximately 173,000 total gallons of construction-related water and approximately 5,500 gallons of drill cutting water treated in the GWTP this month.
 - Submitted the October 2016 NetDMR and Toxsheet and Effluent Mercury Test Report forms to DEP on Nov 14, 2016.
 - Generated a total of 14 cubic yards of filter press cake and shipped to US Ecology in Michigan on Nov 28, 2016.

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- Activated and sampled the new Chlorite building vault pump system and initiated pumping on Nov 21, 2016. The vault mercury concentration was 1.07 ug/L.
- Installed a virgin Mersorb bed into the 001 treatment train..
- 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.

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 December 7, 2016 to discuss site activities and meet with DEP on December 14, 2016.
- Submit an update to the master schedule for the Orrington Remediation Site to DEP.
- Respond to comments and submit a Revised Winter Erosion & Sedimentation Control Plan to DEP.
- 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)
 - No activity planned
- Short-Term Comprehensive Monitoring Plan (Draft ST CMP April 12, 2016)
 - Receive DEP comments on the Draft Short-Term CMP and respond as applicable.
- Landfill Ridge Area (CMI Plan Rev 1, Oct 28, 2015; DEP CAL, Dec 10, 2015)
 - Maintain erosion and sediment control measures.
 - Continue preparation of the Landfill Ridge CMI Closure Report.
- Landfill 1
 - Present the conceptual design for the Landfill 1 remedy to DEP on Dec 14, 2016.
 - Continue developing the remedial design and the work plan for additional field work.
- Landfill 2 (CMI Plan – Rev 1, Oct 7, 2016, Addendum 1 Nov 29, 2016)
 - Receive DEP Approval of the Landfill 2 CMI Plan Rev 1 and Addendum 1.
 - Begin implementation of the remedial action upon DEP approval.
 - Final restoration is expected to be complete in May 2017.
- Landfills 3-5 (CMI Plan – Rev 1, May 26, 2016; DEP Approval July 12, 2016)
 - Maintain winter erosion control measures and new landfills caps.
 - Final restoration should be completed in Spring 2017.

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- Plant Area
 - Continue developing the remedial design and the work plan for additional field work and discuss the draft remedial design with DEP at the meeting on Dec 14, 2016.
- Scrap Metal Yard (CMI Plan – Rev 1, June 22, 2016; DEP CAL, July 22, 2016)
 - Maintain winter erosion control measures.
 - Final restoration should be completed in Spring 2017.
- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
 - Submit a drawing for the minor modification to the temporary by-pass discharge pad to DEP.
 - Continue implementation of the Southerly Stream CMI Plan including confirmation sampling of completed excavation areas.
 - Construction is expected to be completed in May 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;)
 - Receive DEP approval of the response to comments on the CMIP Addendum 1 Excavation Support Submittal and revised documents.
 - Continue construction of the remedial action at the Northern Drainage Ditch and begin confirmation sampling of completed excavation areas.
 - Construction and final restoration is expected to be completed in May 2017.
- Southern Cove (Draft CMI Plan, Jun 8, 2016; DEP Comments, Aug 26 & Sept 27, 2016)
 - Submit responses to DEP comments on the Draft Southern Cove CMI Plan.
 - Follow-up to Oct 9, 2016 email to DMR regarding comments on the Draft Southern Cove CMIP.
 - Follow-up to Oct 12, 2016 email to DIFW regarding comments on work in the Southern Cove.
 - 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 as late as September or October 2017.
- Groundwater
 - Conduct 3rd quarter routine and Interim Extraction System water quality monitoring during the week of Dec 5, 2016.
 - Finalize and submit report summarizing Ferry Road Current Conditions data and observations.
 - Interim Extraction System (IES):
 - Continue operation of extractions wells and quarterly monitoring and reporting.
 - Three-dimensional Groundwater Model (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)
 - Conduct inverse step testing in three wells in the Landfills 3-5 area: MW-410-B1, MW-709-B2, and MW-710-B3.
- Groundwater Treatment Plant (GWTP) Operation
 - Continue compliance sampling of Outfall 001 and 002 as described above.
 - Submit November 2016 NetDMR and Toxsheet and Effluent Mercury Test Report forms to DEP.
 - Provide oversight of the interceptor vault installation.
 - Continue winter preparation activities and routine GWTP maintenance.
- Other Site Activities
 - Complete routine site maintenance activities.

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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

- Two roll-offs of general debris were shipped off site to Juniper Ridge Casella landfill:
 - 4,940 lbs, mercury concentrations in both representative samples were non-detect for total mercury.
 - 18,320lbs, mercury concentrations in representative samples were 0.26 mg/kg and 0.09 mg/kg total mercury.
- As of the end of November 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.
 - 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:
 - 63 railcars of Scrap Metal Yard soils were shipped in November 2016.
 - A total of 367 railcars, containing over 35,000 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.

Additional information regarding the progress of the work

- None