

October 9, 2017

Mr. Kyle Jellison
Bureau of Remediation and Waste Management
Maine Department of Environmental Protection
17 State House Station
Augusta ME 04333

**Subject: Monthly Progress Report – September 2017
Orrington Remediation Site
Orrington, Maine**

Dear Mr. Jellison:

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, 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
September 2017**

Report Date: October 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 on Sept 6, 19, and 21 and met at the Site on Sept 28 to discuss site remediation activities.
- 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 Maine Certified on-site lab. Received the 2017 Laboratory Certification On-Site Assessment confirmation from DHHS on Sept 6, 2017.
- Continued stockpile management of excavated materials and loading railcars for off-site shipment.
- Submitted payment for DEP Oversight for Jul 1, 2017 through Jun 30, 2018 per DEP letter dated Jul 28, 2017.
- Permitting (Upland)
 - No new activity
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017; DEP Acceptance Aug 21, 2017)
 - Continued to maintain erosion and sediment control measures.
- Landfill 1 (Draft CMIP Apr 25; DEP Comments May 31; RTC Jul 25; DEP response Aug 24)
 - Received DEP's comment on Excavation and Restoration and Construction Water Management Work Plans on Sept 29, 2017.
 - Held detailed technical discussions on the proposed remedial design with DEP on Sept 6, 19, 21, and 28, 2017.
 - Received DEP requirement for additional excavation and confirmation sampling locations and reached agreement on the final excavation limits and sampling plan on Sept 28, 2017.
 - Began preparation of the final Landfill 1 CMI Plan Revision 1 which will incorporate all DEP comments and include the revised final Excavation and Restoration and Construction Water Management Work Plans.
- Landfill 2 (CMI Plan Rev1 Oct 7, 2016; Addendums 1-3, final DEP Approval Apr 26, 2017)
 - Completed restoration activities
 - Began preparation of Landfill 2 CMI Closure Report.
 - Established and maintained erosion and sediment control measures.
- Landfills 3, 4 and 5 (CMI Closure Report Jul 25, 2017)
 - Continued to maintain erosion and sediment control measures and cap inspections.
 - Completed seeding and restoration of the staging area.

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- Plant Area (Draft CMI Plan Feb 13, 2017)
 - Began new rail spur construction off rail line near former Landfill 2 area.
 - Submitted Chloropicrin RTC letter and Dosage Study Report to Maine DEP on Sept 20.
 - Presented final results from the dosing studies to DEP on Sept 28, 2017.
 - Submitted detailed Technical Memo regarding issues related to the Plant Area design to DEP on Sept 27, 2017.
 - Submitted SOPs for concrete sampling to DEP on Sept 30, 2017.
 - Held detailed technical discussions on the proposed remedial design for the Plant Area with DEP on Sept 28, 2017.
- Scrap Metal Yard (CMI Closure Report Jul 25, 2017)
 - Continued to maintain erosion and sediment control measures.
- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
 - Continued to maintain erosion and sediment control measures.
 - Completed restoration activities
 - Continued preparation of Southerly Stream CMI Closure Report.
- Northern Drainage Ditch (CMI Plan – Rev 1, Aug 23, 2016; DEP Approved upon submittal; Final Addendum 1 Oct 27, 2016;)
 - Continued to maintain erosion and sediment control measures.
 - Continued preparation of the Northern Drainage Ditch CMI Closure Report
- Southern Cove (Final CMI Plan May 15, 2017; USACE Permit NAE-1999-02231 Apr 17, 2017; USACE Permit Modification May 3, 2017)
 - Continued to inspect and maintain sediment controls and silt fences.
 - Continued water quality monitoring and visual inspections for turbidity plumes.
 - Continued sediment removal and backfill operations in SMA-2 and SMA-3.
 - Continued confirmation sampling in accordance with approved sampling protocol.
- 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 ongoing monitoring of IES, Landfill 5, and Site Perimeter wells, and remediation monitoring in the vicinity of the Scrap Metal Yard, Southerly Stream, and Landfill 2 in accordance with the Short-Term CMP the week of Sept 11, 2017.
 - Submitted the 2nd Quarter 2017 monitoring report to DEP on Sept 21, 2017.
- Groundwater
 - Final Extraction System at Landfill 1 (Draft Design Aug 15, 2017):
 - Continued operation of extractions wells and quarterly monitoring and reporting.
 - Received DEP comments on the Draft Design Sept 21, 2017
 - 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 Model (submitted Feb 22, 2016, DEP comments Jan 6, RTC Apr 28, 2017)
 - Received DEP Acceptance of Groundwater Model on Sept 15, 2017

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- 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. September was month 3 for the Southern Cove dewatering operations and the final month for the Landfill 2 area which is now complete.
 - The average daily flow through the GWTP was 41,599 gallons with 27,482 gallons of construction-related water.
 - Submitted the August 2017 NetDMR to DEP on Sept 11 and the Toxsheet and Effluent Mercury Test Report form to DEP on Sept 13, 2017.
 - Conducted annual backflow prevention assembly test and submitted passing results report to The Bangor Water District.
 - 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

- Air monitoring and meteorological data is collected continuously by the perimeter air monitoring system and stored in the computer system with weekly reports submitted 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.
- Submitted EGAD EDDs of validated remediation monitoring data to DEP on Sept 22, 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.

- Continue technical discussions with DEP on remediation activities and pending submittals.
- Continue operation of the perimeter air monitoring system and weekly PAM reports to DEP.
- Continue operation of the on-site lab in compliance with Maine certification.
- Continue stockpile management of excavated materials and loading railcars for off-site shipment.
- Permitting (Upland)
 - No new submittals planned
- Landfill Ridge Area (CMI Closure Report Feb 3, 2017; DEP Acceptance Aug 21, 2017)
 - Continue to maintain erosion and sediment control measures.

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- Landfill 1 (Draft CMIP Apr 25; DEP Comments May 31; RTC Jul 25; DEP response Aug 24)
 - Begin pre-construction activities in the Landfill 1 Area including construction of the staging area.
 - Receive DEP response to Waste Characterization letter.
 - Submit the Landfill 1 CMI Plan Revision 1 to DEP for final approval.
 - Begin Landfill 1 CMI work in late October.
- Landfill 2 (CMI Plan Rev1 Oct 7, 2016; Addendums 1-3, final DEP Approval Apr 26, 2017)
 - Continue preparation of Landfill 2 CMI Closure Report.
 - Continue to maintain erosion and sediment control measures.
- Landfills 3-5 (CMI Closure Report Jul 25, 2017)
 - Continue to maintain erosion and sediment control measures and complete cap inspections.
- Plant Area (Draft CMI Plan Feb 13, 2017)
 - Set up the chloropicrin treatment system enclosure and begin the Phase 1 in situ treatment (injections) and SVE well installations.
 - Complete new rail spur construction and scale installation near former Landfill 2 area.
 - Receive DEP comment on the concrete testing SOPs and submit a response and revised SOPs as needed.
- Scrap Metal Yard (CMI Closure Report Jul 25, 2017)
 - Continue to maintain erosion and sediment control measures.
- Southerly Stream (CMI Plan – Rev 1, Oct 14, 2016; DEP Approval Nov 7, 2016)
 - Continue to maintain erosion and sediment control measures.
 - Continue preparation of the Southerly Stream CMI Closure Report.
- 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.
 - Continue preparation of the Northern Drainage Ditch Closure Report.
- Southern Cove (Final CMI Plan May 15, 2017; USACE Permit NAE-1999-02231 Apr 17, 2017; USACE Permit Modification May 3, 2017)
 - Continue to inspect and maintain sediment controls and silt fences.
 - Continue water quality monitoring and visual inspections for turbidity plumes.
 - Re-mobilize the moonpool equipment with the new turbidity curtain
 - Continue sediment removal and backfill operations in SMA-2 and SMA-3 along with confirmation sampling in accordance with approved sampling protocol.
- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
 - Conduct Short-Term CMP remediation monitoring in accordance with the approved plan the week of Oct 23, 2017.
- Groundwater
 - Final Extraction System at Landfill 1 (Draft Design Aug 15, 2017):
 - Continue operation of extraction wells and quarterly monitoring and reporting per the Revised Short-Term CMP
 - Submit a response to DEP Comments and the Revised Final Design for the Final Groundwater Extraction System to DEP.

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- Initiate drilling program for new groundwater extraction well EW-5 and three piezometers, according to anticipated approval of Design Plan for Final Groundwater Extraction System
- Groundwater at Landfills 3,4,5 (WP Aug 3, 2015; DEP CAL Sept 18,2015)
 - Ongoing monitoring of groundwater levels and quality.
- Groundwater Model (submitted Feb 22, 2016, DEP comments Jan 6, RTC Apr 28, 2017)
 - No planned activity
- Groundwater Treatment Plant (GWTP) Operation
 - Continue compliance sampling of Outfall 001 and 002 as described above.
 - Submit September 2017 NetDMR and Toxsheet and Effluent Mercury Test Report 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

- A revised master schedule will be submitted to DEP in October 2017.

The quantity of waste shipped to the various disposal locations

- As of the end of **September 2017:**
 - **Leach Field: Soil excavation and off-site disposal is complete.**
 - A total of 14 railcars, containing 1379 tons (TSDf weight) 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 (TSDf weight) 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.
 - **Scrap Metal Yard: Soil excavation and off-site disposal is complete.**
 - A total of 413 railcars, containing 40,556 tons (TSDf weight) 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: Soil excavation is complete.**
 - A total of 273 railcars, containing 26,668 tons (Site weight) of non-hazardous Northern Drainage Ditch soils, have been shipped offsite.
 - 273 railcars to the Republic disposal facility in Niagara Falls, New York
 - 0 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.

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- **Southerly Stream: Soil excavation and off-site disposal is complete.**
 - A total of 112 railcars, containing 10,961 tons (Site weight) of non-hazardous Southerly Stream soils, have been shipped offsite.
 - 102 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: Soil excavation is complete.**
 - In September 2017, 61 railcars of Landfill 2 soils were shipped off site.
 - 1 railcar containing 98 tons of non-hazardous Landfill 2 soils to the Republic disposal facility in Niagara Falls, New York
 - 60 railcars containing 5,846 tons of listed waste soils from Landfill 2 to the US Ecology Stablex disposal facility in Quebec, Canada
 - A total of 398 railcars containing Landfill 2 soils have been shipped offsite to date.
 - 118 railcars containing 11,565 tons of non-hazardous Landfill 2 soils
 - 108 railcars of non-hazardous soils to the Republic disposal facility in Niagara Falls, New York
 - 10 railcars of non-hazardous soils to the US Ecology Stablex disposal facility in Quebec, Canada.
 - 280 railcars containing 27,277 tons of listed waste soils to the US Ecology Stablex disposal facility in Quebec, Canada
- **General Debris**
 - One roll-off was sent to Juniper Ridge Casella in September 2017
 - 7,740lbs; Total Mercury results: 0.01 mg/kg and Non-Detect

Maine Hazardous Waste Tax

- The total Maine Hazardous Waste Tax paid as of August 31, 2017 is \$789,039.
 - These taxes are paid quarterly and the amount above represents the first quarterly payment only.

Additional information regarding the progress of the work

- An Open House for Orrington residents was held at the Site on Sept 30, 2017.
- The Fall 2017 *On The Penobscot* community newsletter was mailed to residents and key community contacts the week of Sept 25, 2017.
- The BeyondHoltraChem.com website is periodically updated to reflect ongoing remediation activities.