

January 16, 2020

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

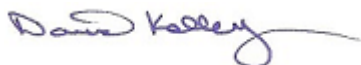
**Subject: Monthly Progress Report –December 2019  
Orrington Remediation Site  
Orrington, Maine**

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 of **December 2019** and is submitted on behalf of Mallinckrodt US LLC.

If you have questions regarding this report, please contact me at 774-284-2207.

Sincerely,



David Kelley  
Remediation Program Manager

cc: (all electronic copies)  
Kelly Bay – Director, Orrington Town Library  
Joseph Hayes- Interim Town Manager, Town of Orrington  
Alan Snell– Chairman of Board of Selectman, Town of Orrington  
Patricia Duft – Mallinckrodt US LLC  
Susanne Miller – Maine DEP, Bangor  
David Wright – Maine DEP

**MONTHLY PROGRESS REPORT  
ORRINGTON REMEDIATION SITE  
Orrington, Maine  
December 2019**

**Report Date January 16, 2020**

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 monthly Mallinckrodt – Maine DEP call was held on December 4, 2019. Plant Area Cell Building work plans were discussed along with GW monitoring and installation activities. Additional other discussions took place during the month to discuss Site activities as needed.
- Continued inspection and maintenance of site erosion and stormwater controls
- The on-site Maine DEP oversight inspector continued to participate in weekly construction meetings in which current activities as well as a two-week look ahead are discussed. The on-site inspector also continued daily emails to summarize activities to ensure all parties agree on what is planned/accomplished.
- Continued operation of the perimeter air monitoring system and meteorological station
- Stockpile operations continue to support excavation material and rail car loading
- Submitted Site Winter monitoring and maintenance Plan to Maine DEP on December 19 , 2019
- Landfill 1 (CMI Plan – Rev2 Apr 30, 2018; DEP Conditional Approval Letter May 10, 2018; CMI Plan – Rev2 May 17, 2018 (revised to incorporate all conditions in DEP CAL)
  - no new activity
- Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.) and Plant Area CMIP - Phase 1A (Retort-01 Area and Cell Building Pre-Trenching) work plan July 9,2019. -DEP conditional approval on July 12, 2019
  - Continued SVE system operation and groundwater monitoring
  - Started 2<sup>nd</sup> Blower 12/4/19
- Plant Area Cell Building CMI Plan Scoping memo and associated plans August 7, 2019 :DEP conditional approval September 6, 2019.
  - Charter/Fleming continued Sheet Piling installation for Cell Building
  - Completed excavation to Waler/Tieback depth
  - Commenced Waler/Tieback installations
  - Continued excavation in Cell Building area in support of sheet pile installation
  - Continued Dewatering and additional sump installations
  - Continued weekly Construction meetings

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- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017, DEP Approval Oct 16, 2018)  
Continued to maintain erosion and sediment control measures
  
- Southern Cove (CMI Closure Report Jan 14, 2018, DEP Approval Aug 3, 2018)
- 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 GW extraction system (GWES) and Landfill 5.
  - Conducted monitoring according to the Short-Term Comprehensive Monitoring Plan (CMP) during the week of December 9. December monitoring included monthly and quarterly sampling of groundwater, surface water, and sediment in the vicinity of the Plant Area remediation area; final quarterly monitoring of groundwater in the vicinity of the Landfill 1 remediation area, and quarterly monitoring according to the Landfill 5, Site Vicinity, Landfill 1 GWES, and Former Landfill 1 Vicinity monitoring programs.
  
- Groundwater Final GW Extraction System (GWES) Plan Oct 16, 2017; DEP Approval Jan 9, 2018)
  - Following receipt of Maine DEP comments in the Final GWES design, submitted response and two revised drawings on Nov 6, 2018 and received Maine DEP approval on Nov 7, 2018.
  - Began Final GWES construction on December 3, 2018.
  - Updated the force-main and electrical/communication conduit alignment and provided updated site plan to Maine DEP on January 16, 2019. Maine DEP provided approval on January 17, 2019.
  - Continued coordination with Woodard & Curran treatment plant personnel for operation of Final GWES.
  - On-going communication and coordination with MEDEP for Landfill 1 area monitoring, GWES operations and backup power.
  - Continued management and maintenance of Final GWES and restoration of control building and vicinity.
  - Continued preparation for backup power supply for groundwater treatment and groundwater extraction systems. Work in December included coordination with mechanical engineer, electrician, and contractor for site work; utility clearance in the vicinity of site work; demolition of existing concrete pad; excavation for utilities; and concrete pad construction.
  
- Groundwater at Landfills 3,4,5 (PD WP Jul 19, 2018)
  - Landfills 3-5 Bedrock Groundwater Testing Report and Extraction Design Plan (Design Plan) transmitted to Maine DEP on May 16, 2019. Maine DEP comments and conditional approval received June 13, 2019
  - On-going communication and coordination with MEDEP for final GWES operations and backup power, and Landfills 3-5 area investigations and testing.
  - Continued Phase 2 investigations and testing in the Landfills 3-5 area:

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- Completed drilling on December 2. Drilling program for B-720, B-722, and B-724 began during the week of November 18.
- Conducted hydraulic testing of EW-14, EW-15, and EW-16 during the week of December 2.
- Oversaw borehole geophysical logging of B-720, B-722, and B-724 during the week of December 9.
  
- Groundwater Model (Model Feb 22, 2016, DEP Acceptance of Model Sept 15, 2017)
  - No new activity
- Groundwater Treatment Plant (GWTP) Operation
  - Continued to collect mercury compliance samples from Outfall 001 (once per month with analysis per USEPA Method 1631) and Outfall 002 (one sample per quarter with analysis per USEPA Method 245.1) for transport to Katahdin Analytical Services (Katahdin) for analysis per the MEPDES permit dated May 3, 2019
  - Provided support to CDM as necessary for ongoing remedial site activities including routine treatment of excavation/ construction water generated during remedial activities.
  - The average daily flow through the GWTP was 54,300 gallons with 214,846 gallons total from precipitation and construction related activities.
  - Submitted the November 2019 NetDMR to MEDEP on December 5, 2019
  - Submitted the November 2019 Toxsheets on December 5, 2019
  - Replaced CoMag magnetite tumbler drive chain and recycle shear.
  - Completed all routine maintenance.
  - Generated 1500 pounds of sludge
  - Provided support to Anchor QEA for their work associated with compiling Site data.
  
- 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. Weekly reports are sent to Mallinckrodt. Mallinckrodt will notify the Maine DEP of exceedances in accordance with the updated notification protocol sent to Maine DEP on Aug 28, 2018. An annual report of all data for the preceding year will be submitted to DEP by March 1 of the following year.
- Unvalidated data and laboratory reports are submitted to Maine DEP via the automated database system as they are available. Data validation is conducted by TechLaw as outlined in the Maine DEP approved Data Validation Protocol dated Jan 29, 2018 and a summary of the validation results sent to Maine DEP and Mallinckrodt.

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- Received laboratory analytical data from December monitoring according to the Final GWES Design Plan and Former Landfill 1 Vicinity monitoring plan. Data were submitted to MEDEP on December 23.
- Received laboratory analytical data from December monitoring according to the Short-Term CMP. Data will be submitted to MEDEP following completion of internal quality control review.
- Received laboratory analytical data from December monitoring following hydraulic testing in the Landfills 3-5 vicinity. Data will be submitted to MEDEP following completion of internal quality control review.

**Completed Areas:**

- Landfill Ridge Area (CMI Closure Report Feb 3, 2017; DEP Acceptance Aug 21, 2017)
- Landfill 2 (CMI Closure Report Dec 21, 2017; DEP Approval Jul 2, 2018)
- Landfills 3, 4 and 5 (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
- Scrap Metal Yard (CMI Closure Report Jul 25, 2017; DEP Acceptance Oct 3, 2017)
- Southerly Stream (CMI Closure Report Nov 15, 2017, DEP Approval Oct 16, 2018)
  - Continue to maintain erosion and sediment control measures and cap inspections as appropriate.

**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 Maine DEP on remediation activities and pending submittals.
- Continue to include the on-site Maine DEP oversight inspector in weekly construction meetings.
- Continue to review the on-site Maine DEP oversight inspector emails outlining planned and completed activities to ensure no miscommunication.
- Continue operation of the perimeter air monitoring system.
- Continue stockpile management of excavated materials and loading railcars for shipment
- Continue to maintain and improve erosion and sediment control measures and cap inspections as appropriate in completed areas listed above.
  
- Landfill 1 (CMI Plan – Rev2 Apr 30, 2018; DEP Conditional Approval Letter May 10, 2018; CMI Plan – Rev2 May 17, 2018 (revised to incorporate all conditions in DEP CAL)
  - Monitor and Maintain restored areas as needed

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- Plant Area (Draft CMI Plan Feb 13, 2017; Phase 1 Excavation Memo Rev1 Jan 2, 2018; DEP Approval of Phase 1 Jan 9, 2018.) and Plant Area CMIP - Phase 1A (Retort-01 Area and Cell Building Pre-Trenching) DEP approval on July 12, 2019
  - Maintain erosion and sediment controls.
  - Continue SVE system operation and continue groundwater monitoring
  
- Plant Area Cell Building CMI Plan Scoping memo and associated plans August 7, 2019 :DEP conditional approval September 6, 2019
  - Complete Sheet Piling installation for Cell Building
  - Complete Waler/Tieback installations
  - Begin excavating to depth for Anchor installations
  - Start installation of soil anchors in Cell Building area
  - Continue excavation in Cell Building area
  - Continue dewatering and additional sump installations as needed
  
- Northern Drainage Ditch (CMI Closure Report Nov 27, 2017, DEP Approval Oct 16, 2018)
  - Continue to maintain erosion and sediment control measures.
- Southern Cove (CMI Closure Report Jan 14, 2018, DEP Approval Aug 3, 2018)
  - Monitor vegetation growth and maintain as needed.
- Short-Term Comprehensive Monitoring Plan (Revised ST CMP Feb 24, 2017)
  - Conduct Short-Term CMP remediation monitoring in accordance with the approved plan
- Groundwater
  - Final GW Extraction System (GWES) Plan Oct 16, 2017; DEP Approval Jan 9, 2018)
  - Conduct monitoring according to the Short-Term CMP.
  - Begin installation of backup power components .
- Groundwater at Landfills 3,4,5 (PD WP Jul 19, 2018)
  - Continue investigations and testing according to the Landfills 3-5 Design Plan:
    - Review and discuss borehole geophysical data from B-720, B-722, and B-724 with MEDEP, select piezometer screen intervals for PZ-720-B1, PZ-722-B1, and PZ-724-B1.
    - Install PVC well materials
    - Continue implementation of backup power plan for groundwater treatment and groundwater extraction systems
- Groundwater Model (Model Feb 22, 2016, DEP Acceptance of Model Sept 15, 2017)
  - No planned activity
  
- Groundwater Treatment Plant (GWTP) Operation
  - Continue compliance sampling of Outfall 001 and 002 per the MEPDES permit.

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- Submit December 2019 NetDMR to MEDEP.
- Complete and submit to Maine DEP the December 2019 Toxscan Report.
- Continue Sludge tank dewatering.
- Replace the CoMag Tumbler bearings and install zerk fittings to allow future greasing
- Continue to support CDM and Sevee & Maher with ongoing remedial site activities, as needed.
  
- Other Site Activities
  - Continue routine site maintenance activities.
  - Submit response to Maine DEP comments to the 2018 Annual Perimeter Air monitoring report letter dated March 26, 2019.

**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**

None

**As of the end of September 2019 the quantity of waste shipped is shown below:**

- **Leach Field: Soil excavation and off-site disposal is complete.**
  - A total of 14 railcars, containing 1,379 tons (TSDF weight) of non-hazardous Leach Field soils, have been shipped off site to Republic 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 off site.
    - 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 off site
    - 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 and off-site disposal is complete.**
  - A total of 307 railcars, containing 29,440 tons (TSDF weight) of non-hazardous Northern Drainage Ditch soils, have been shipped off site.
    - 307 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: Soil excavation and off-site disposal is complete.**
  - A total of 112 railcars, containing 10,583 tons (TSDF weight) of non-hazardous Southerly Stream soils, have been shipped off site.
    - 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 and off-site disposal is complete.**

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- A total of 441 railcars containing Landfill 2 soils have been shipped off site to date.
  - 118 railcars of 11,557 tons (TSDf weight) of non-hazardous Landfill 2 soils
    - 108 railcars to the Republic disposal facility in Niagara Falls, New York
    - 10 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
  - 323 railcars containing 31,497 tons (Site weight) of hazardous (listed waste) soils to the US Ecology Stablex disposal facility in Quebec, Canada
- **Southern Cove: Sediment removal and off-site disposal is complete.**
  - A total of 190 railcars containing 18,548 tons (TSDf weight) of non-hazardous Southern Cove sediments, have been shipped off site.
    - 190 railcars to the Republic disposal facility in Niagara Falls, New York
    - 0 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Plant Area Phase 1: Soil excavation and shipments are complete**
  - A total of 303 railcars containing 29,490.73 tons (TSDf weight) of non-hazardous soils have been shipped from the Site:
    - 283 railcars to the Republic disposal facility in Niagara Falls, New York
    - 20 railcars to the US Ecology Stablex disposal facility in Quebec, Canada.
- **Plant area Phase 1 A and Cell Building Soils excavation and shipments are ongoing**
  - In December 15 rail cars of Plant Area Phase 1 A and Cell Building soils were shipped off site
    - 10 rail cars containing 974.35 tons of non-hazardous soils( site weight)
    - 5 rail cars containing 487 tons of Hazardous soils( site weight)
  - A Total of 187 rail cars of Plant Area Phase 1 A and Cell Building soils have been shipped of site to date
    - 60 railcars containing 5991.40 tons of non- hazardous soils ( site weight)
      - 60 railcars to the Republic disposal facility in Niagara Falls, New York
      - 1 railcar to US ecology Stablex disposal facility in Quebec
    - 126 railcars containing 12,273.855tons of hazardous Soils(site weight)
      - 126 railcars to the US Ecology Stablex disposal facility in Quebec, Canada
- **Landfill 1: Soil excavation and shipments Complete.**
  - A total of 886 railcars of Landfill 1 soils have been shipped off site.
    - 676 railcars containing 66,111.70 tons (TSDf weight) of non-hazardous Landfill 1 soils
      - 676 railcars to the Republic disposal facility in Niagara Falls, New York
    - 210 railcars containing 20,506.1 tons (TSDf weight) of hazardous Landfill 1 soils
      - 210 railcars to the US Ecology Stablex disposal facility in Quebec, Canada
- **General Debris**
  - General Debris
    - General Debris, Juniper Ridge 11,520lbs 12/9/19



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- a. Total Mercury Sample A= 0.112
  - b. Total Mercury Sample B= ND
- General Debris, Juniper Ridge 14,340lbs 12/17/19
  - a. Total Mercury Sample A= 0.058
  - b. Total Mercury Sample B= ND
- 
- **GWTP Sludge**
  - NA

**Maine Hazardous Waste Fees**

Under the DEP Hazardous Waste Transporter Program, EQ Northeast, Inc. pays \$60/ton to the Maine Hazardous Waste Fund for hazardous wastes transported and disposed off-site. **As of March 31, 2019, the total paid under this program is \$3,118,368.00 ( by rail) and \$ 1,800.00 (by Truck)**

- The 2<sup>nd</sup> Quarter 2017 report lists 13,150.65 tons of hazardous soil transported by rail and disposed off site for a total fee of \$789,039 which was paid 9/28/17.
- The 3<sup>rd</sup> Quarter 2017 report lists 14,125.95 tons of hazardous soil transported by rail and disposed off site for a total fee of \$847,557 which was paid 12/1/17.
- The 4<sup>th</sup> Quarter 2017 report lists 4,190.10 tons of hazardous soil transported by rail and disposed off site for a total fee of \$251,406 which was paid.
- On Nov 13, 2017 an additional 30 tons of hazardous waste was transported by truck and disposed off site for a total fee of \$1,800.
- The 1<sup>st</sup> Quarter 2018 report lists 0 tons of hazardous soil transported and disposed off site.
- The 2<sup>nd</sup> Quarter 2018 report lists 4,288.20 tons of hazardous soil transported by rail and disposed off site for a total fee of \$257,292 which was paid 8/22/18.
- The 3<sup>rd</sup> Quarter 2018 report lists 8,4170.10 tons of hazardous soils transported by rail and disposed of off site for a total fee of \$ 505,026.00
- The 4<sup>th</sup> Quarter 2018 report lists 7800.08 tons of hazardous soils transported by rail and disposed of off site for a total fee of \$ 468,048.00

Maine Statute 1319-I requires transporters of regulated hazardous materials (per 49 CFR 172.101) by rail to pay 15 cents/ton on the shipments. As of March 31, 2019, the total paid under this requirement is \$ **\$43,058.58**

**Additional information regarding the progress of the work**

- BeyondHoltraChem.com is periodically updated to reflect ongoing site activities.
- The *On The Penobscot* newsletter is issued periodically to update area residents on the Site.