Contractor Profile

Charter Contracting Company, LLC has been selected to complete three critical environmental remediation projects at the former HoltraChem site in Orrington. The New England-based firm has substantial experience in Maine and was selected by Mallinckrodt US LLC to remediate the Scrap Metal Yard, the Northern Drainage Ditch and the Landfill 2 areas at the Site.

Paul Bertolino, project executive in Orrington for Charter Contracting Company, LLC

Charter is one of the top civil and environmental construction firms in the country with seasoned leadership and expertise forged from their selection for some of the more complex engineering projects in the Northeast. Their experience with high-profile Maine projects, such as the Callahan Mine Superfund Site Remedial Action in Brooksville, and the Casco Bay Pipeline Remediation in Brunswick, was an important factor in their selection for the Orrington project.

According to Kathryn Zeigler, Remediation Program Manager for Mallinckrodt US LLC: "Charter's proposals for remediation of the Scrap Metal Yard, Landfill 2 and the Northern Ditch included a comprehensive plan and technical details for executing the work efficiently and minimizing costs. They also showed a clear understanding of the water management requirements, which will be critical in all three areas where they will be working."

As Charter's presence in Maine has grown, it chose to build its equipment yard and 20,000 square foot fabrication and equipment maintenance facility in Elliot, Maine, which will enable the firm to more easily respond to the demands of the work at the Orrington Site. Local laborers from the Orrington area have already been hired and are being trained for the specific work they will perform on the three Charter projects.

"We have found over the years that when you hire locally you will find people who are not only skilled in what they do, but who are also committed to doing their jobs well because this is also where they live," said Paul Bertolino, Charter project executive for the Orrington work.

While every site poses its own unique challenges and difficulty, the firm's breadth of experience working on projects similar to the Orrington Site has prepared them well, said Bertolino. "The challenge in these projects is always to manage the environment we find ourselves working in so that when we are doing construction that involves diverting water and excavating soils, we are also managing storm water and erosion controls while maintaining a safe working environment."

Although the physical techniques of excavating soil may not have changed that dramatically over the past 20 years, advances in technology such as global positioning satellite guides on equipment and more precise machinery controls have significantly improved a contractor's ability to excavate soils to precise design limits.

In addition to applicable remediation experience, Mallinckrodt was impressed by Charter's commitment to health and safety. The company's safety statistics are better than the industry average and Charter has a comprehensive safety training program in place.

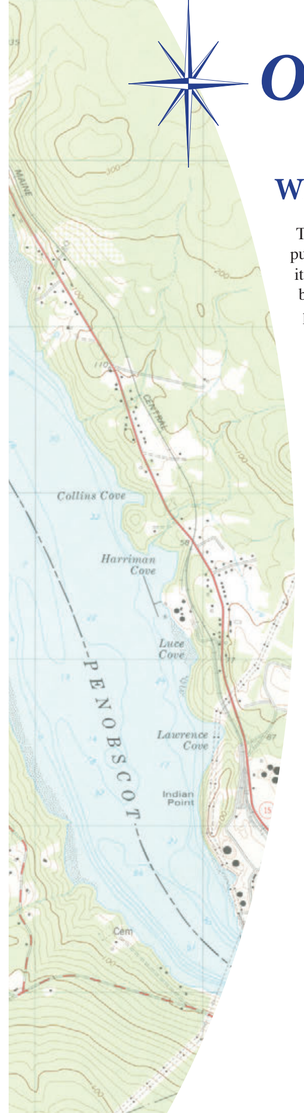
Charter

This series of photos tells the story about the final restoration of the Landfill Ridge Area. After completing the excavation of contaminated soils from the area, engineers returned this past spring to install storm water management systems and regrade the newly restored slope. After seeding the new soil, watering crews spent the spring and early summer bringing vegetation back to the area to complete the restoration and recovery process.

Printed on 100% recycled paper. Please recycle when done.
Published by Mallinckrodt US LLC.

On The Penobscot
P.O. Box 14
99 Industrial Way
Orrington, ME 04474

PRSRT STD
U.S. Postage
PAID
Permit #76
Bangor, ME



On the Penobscot

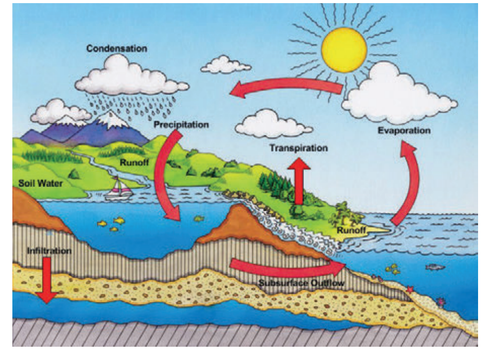
Summer 2016 Vol. 12, Issue 1

What is Groundwater?

There have been a number of articles regarding the groundwater extraction, pumping and treatment system at the Orrington Remediation Site. And while it may be fairly straightforward to understand why the groundwater located beneath the Site needs to be captured and treated to remove impacts from past manufacturing operations, do you ever wonder about groundwater in general? If yes, keep reading and we will explain what we mean.

Water moves in a continuous cycle between the air, ground, plants and animals. The water cycle is generally described as the circulation of the earth's water. Water evaporates from the ocean and surface water (and to a lesser degree from the land) into the atmosphere during warm temperatures; then condenses and falls back to earth as rain or snow during cooler temperatures. The rain or snow flows across the land to lakes and oceans, or percolates beneath the surface of the earth and becomes shallow groundwater. This shallow groundwater eventually makes its way back to the surface through natural flow or from being pumped out, and this surfacing groundwater, as well as the rain and snow that reached the lakes and oceans, all evaporates back into the atmosphere - starting the cycle over again. The water cycle is also called the hydrologic cycle.

Hydrologic Cycle



Groundwater continued

For groundwater to be available as a water source, it must be able to move through underground materials fast enough to supply useful amounts of water to wells or springs. Water moves through different materials at different rates - faster through gravel, slower through sand, and even slower through clay. Groundwater that can be extracted or pumped from below the surface is considered to be in an aquifer.

According to the journal Nature Geoscience, reporting the results of a Canadian-led scientific team, the total amount of groundwater on the planet -- held in the earth beneath our feet -- is estimated to be 6,000,000 million trillion gallons. No, that is not a typo. It means 6,000,000,000,000,000,000 gallons!

Assuming you're having trouble visualizing this volume, imagine the Earth's entire land surface covered in a layer of water about 590 feet deep. For a comparison closer to home, this volume of water would fill Moosehead Lake over 4.3 million times!

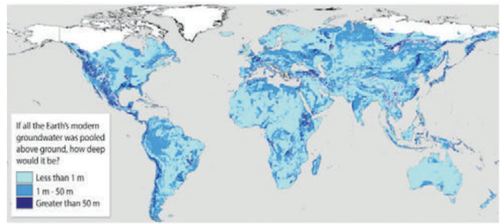


Image copyright
GLEESON et al/NATURE GEOSCIENCE

Before you start leaving the faucet on while you brush your teeth, it's important to point out that only a small percentage of the total groundwater -- an estimated 6 percent -- is actually in a form that is readily usable by people. Most water on the planet does not exist naturally in a form that is safe for people to drink, or may be too deep to be accessible. The vast majority of the groundwater on earth is very deep underground or in subsurface materials that hold it so tightly it can't be extracted.

Just as the demand for water varies across areas, the availability of water also varies in different areas of the world and groundwater is not evenly distributed beneath the earth's surface. According to the journal Nature Geoscience, groundwater that is less than 50 years old and which is the most recently recharged is considered "modern groundwater". The map below shows the distribution of modern groundwater and the depth as understood by scientists. Even where modern groundwater is plentiful, the natural quality of the water can be variable. Natural groundwater may have high salinity, or contain metals or other chemicals that must be removed before being used for human or agricultural purposes.

These scientific facts and figures quickly lead to an obvious conclusion: management and protection of water resources, including the groundwater we can't even see, is vital for the future.

A large part of the remedial focus at the Orrington Remediation Site is on groundwater – cleaning it up to remove mercury then protecting and monitoring this important resource in the future. As previously described, a state-of-the art groundwater treatment system is in place at the site to extract impacted groundwater, treat it to remove mercury and any other contaminants, and discharge the clean water in accordance with the Maine Department of Environmental Protection (DEP) permitting requirements. A detailed model of the groundwater at the site has been submitted to the Maine (DEP) for review, and this model along with extensive site investigation data, will be used to design the final treatment system and the long-term monitoring program for the Site.

Next Up: Removal of the Scrap Metal Yard

In our Winter 2016 newsletter, we told you that future newsletters would answer the Who, What, Where and When for the various remedial areas at the site and the project to cap Landfills 3, 4 and 5 was described. With completion of the Landfill Ridge Area remediation (see photos), site engineers are turning their attention to an area of the former HoltraChem Site formerly used to store scrap metal, old equipment, and other debris collected at the former manufacturing site. (This is known as the Scrap Metal Yard Area.) The debris on the surface has long since been removed, and this remedial project involves excavating soils and restoring the area.

The site of the scrap metal yard is shown here at the former HoltraChem plant where site workers (below) excavated a small test pit and then segregated soils for testing to determine levels of contaminants

Site engineers have completed a thorough assessment of the Scrap Material Yard Area and defined both the footprint and the depth of soils that contain mercury at levels above the clean-up criteria established for the Site.

"Before remedial design plans can be completed, it is critical to understand where the contaminated soils are so appropriate excavation plans and water management controls can be developed," said Mallinckrodt US LLC Remediation Program Manager Kathryn Zeigler.

Additional objectives of this remediation project include establishing final grades and re-vegetating the area so it blends in with the surrounding areas, preventing storm water from accumulating and minimizing future erosion. Overall, the project will contour the final ground levels to be used in the future.

This project will use much of the site infrastructure that was constructed to support the Landfill Ridge remediation, including the temporary soil stockpile areas and rail-loading areas. A new access road, staging area, decontamination area and erosion controls will be built. A bypass for the Southerly Stream will also be put into place to minimize the water resulting from remediation and prevent the stream from being re-contaminated while other areas of the Site await remediation.

The final plans for the excavation of the Scrap Metal Yard Area were submitted to the Maine DEP in June 2016. They include:

- *Corrective Measures Implementation (CMI) Plan*, which provides data used to define the project boundaries, technical details of the design, confirmation sampling plans, final grades and restoration requirements, and transportation and off-site disposal.
- *Excavation and Restoration Plan*, which outlines methods and equipment to remove soils, including how the contractor will meet the excavation limits, achieve required excavation rates, ensure open excavations are safe, and conduct backfill and grading operations.
- *Construction Water Management Plan*, which details methods and equipment to manage storm water that flows around the work area, prevent storm water from flowing into the excavation areas and provisions for storage pre-treatment and conveyance to the on-site groundwater treatment plant as needed.

The existing *Perimeter Air Monitoring plan* approved by DEP will continue to be implemented during the Scrap Metal Yard Area remediation and the Site-wide Health & Safety Plan will also be followed by all workers on site.

The Scrap Metal Yard area removal is being conducted by Charter Contracting Company, LLC (see related profile) under the direction of CDM Smith. The work is scheduled to begin in July and the excavation will be completed in 2016 with final restoration being conducted in spring 2017.

Orrington Celebrates Old Home Week

It may not have all the provisions you would find at "On the Run," but this reenacted General Store had what you need a couple of hundred years ago when life was simpler.

If you were traveling on the River Road in Orrington in July, convinced that the year was 2016, you would have been startled to witness the sights and sounds of the Northeast Primitive Rendezvous at the historic Wiswell Farm. Looking more like a scene from the earlier settler days, more than 300 reenactors brought to life two centuries of history from 1640-1840.

In addition to the Rendezvous, Old Home Week in Orrington included "Lovers & Monsters" on stage, an RC Expo, demonstrations and sales of various crafts, BBQs and ice cream socials, games and contests. The ever-popular Endless Yard Sale was back, which helped residents clean out their garages, basements and attics of items looking for new homes – some of which likely ended up at the Used Book Fair at the town library.

The Girl Scouts and Boy Scouts were present at the entry to the encampment area, providing food and drink for visitors. Although the Boy Scouts had more options (hot dogs, chips, soda), the Girl Scouts won the best advertisement with a giant root beer float outside their tent.

Orrington's rich history was on full display as it celebrated its incorporation 218 years ago in 1788. The location of the encampment at the Wiswell Farm was especially appropriate as the Wiswell family has continuously owned the land for eight generations and was among the original families that incorporated the town. Many other families still living in Orrington can also trace their family roots back generations.

Some notable historic facts:

- In 1820, 32 years after Orrington was incorporated, the top of Massachusetts was carved off to create the State of Maine under the Missouri Compromise that balanced free states and slave states.
- The outbreak of war against the British nearly altered the future of Orrington as one of its earliest settlers, Capt. John Brewer, became so annoyed with the British holding up his land grant that he left town and didn't return until after the war ended.
- The original name for the town was New Worcester (Brewer was from Worcester, Mass.) and was then supposed to be named after a town in Maryland named Orangetown, but a spelling error in the incorporation papers was written as Orrington.

The events were made possible by the generous volunteerism and tireless energy of the Old Home Week committee and financial support for the event came from many local individuals and companies that helped make this year's celebration even bigger than those past.