Solvents Recovery Service of New England

Superfund Site Project Update

September 2013

SRSNE SITE PROJECT UPDATE: SEPTEMBER 2013

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Site Background & History

Background & History – Formation of the SRSNE Site Group

The contamination at the Solvents Recovery Service of New England, Inc. (SRSNE) Superfund Site is the result of the practices of SRSNE. **Starting in 1955,** companies all around New England that wanted to avoid dumping waste solvents into landfills began **using SRSNE to distill their spent solvents**, a practice that resulted in most of the cleaned solvents being returned to the client companies. Distilling and re-using the solvents was an **early "recycling" approach**, but the distillation process also generated unusable solvent sludge that was placed in unlined lagoons on the property. SRSNE's operation of the facility in Southington **resulted in numerous leaks and spills to the bare ground** associated with loading and unloading tank trucks, transfer of solvents to storage tanks, issues during the distillation process, and improper handling and storage of drums.

The **U.S. Environmental Protection Agency (USEPA) and the State of Connecticut took legal actions** to compel SRSNE to clean up the facility and its operations. **SRSNE failed to comply** with these actions, resulting in the closure of the facility and significant financial settlements between SRSNE, USEPA, and the State of Connecticut. In 1994, after the death of SRSNE's President and the bankruptcy of SRSNE, USEPA approached approximately 1,700 client companies – those companies who sent solvents to the Site for processing – under the auspices of the federal "Superfund law" to have them take on responsibility for the investigation and remediation of the Site. In response, **the SRSNE Site Group formed** as an unincorporated association of companies. The group members signed on as Settling Defendants to the 2008 Remedial Design / Remedial Action (RD/RA) Consent Decree for the Site, and are **responsible for funding and carrying out the final cleanup plan**.

Of the companies USEPA notified in 1994, 882 companies agreed to a "de minimis" settlement offer from USEPA to settle their liability. This offer applied to companies that had shipped no more than 10,000 gallons of waste to the Site. More than 300 of the remaining companies agreed to perform work required under USEPA Administrative Orders issued in 1994 and 1998 – key elements included the construction and operation of a groundwater containment and treatment system and completion of the Remedial Investigation/Feasibility Study (RI/FS). See page 7 for information on the treatment system.

Other actions completed under the 1994 Administrative Order included:
- construction of a new wetland in the floodplain of the Quinnipiac River
- demolition and removal of remaining Site structures associated with SRSNE
- extension of a public water supply line to a neighboring residence and businesses

Completion of the RI/FS led to USEPA issuing the 2005 Record of Decision (referred to as a ROD), which described the final cleanup plan for the Site. Negotiations with the Group resulted in 90 companies signing on to perform the work required under the 2008 RD/RA Consent Decree. Another 214 companies participated in a second *de minimis* settlement, which was documented in a separate 2008 Consent Decree.

Work under the 1994 and 1998 Administrative Orders cost the Group $22 million. To date, the Group has spent another $23 million under the 2008 RD/RA Consent Decree. These costs also include reimbursement of USEPA and the Connecticut Department of Energy and Environmental Protection (CTDEEP) for their costs in overseeing the Group's work.

View of the wetland constructed in the Quinnipiac River floodplain

Site Operations Timeline

- **1955 - 1991:** More than 41 million gallons of waste solvents, fuels, paints, and other materials were processed at the facility between 1967 and 1991 (pre-1967 records were destroyed in a fire). The bulk of the distilled solvents were returned to the generators, and waste oil was sold as fuel.
- **1957 - 1967:** Waste materials generated during processing were disposed of on-site. After 1967, wastes were either transported to an off-site disposal facility or burned on-site. The State of Connecticut issued an order to stop burning waste in the 1970s.
- **Late 1970s:** USEPA conducted the initial groundwater investigations.
- **1979:** USEPA filed suit against SRSNE under the Resource Conservation and Recovery Act (referred to as RCRA).
- **1983:** SRSNE Site added to the Superfund Program's National Priorities List.
- **1990:** USEPA started the Remedial Investigation process to characterize the nature and extent of impacts from historical operations.
- **1991:** Site operations cease.

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Work Completed: 1990 - 2009

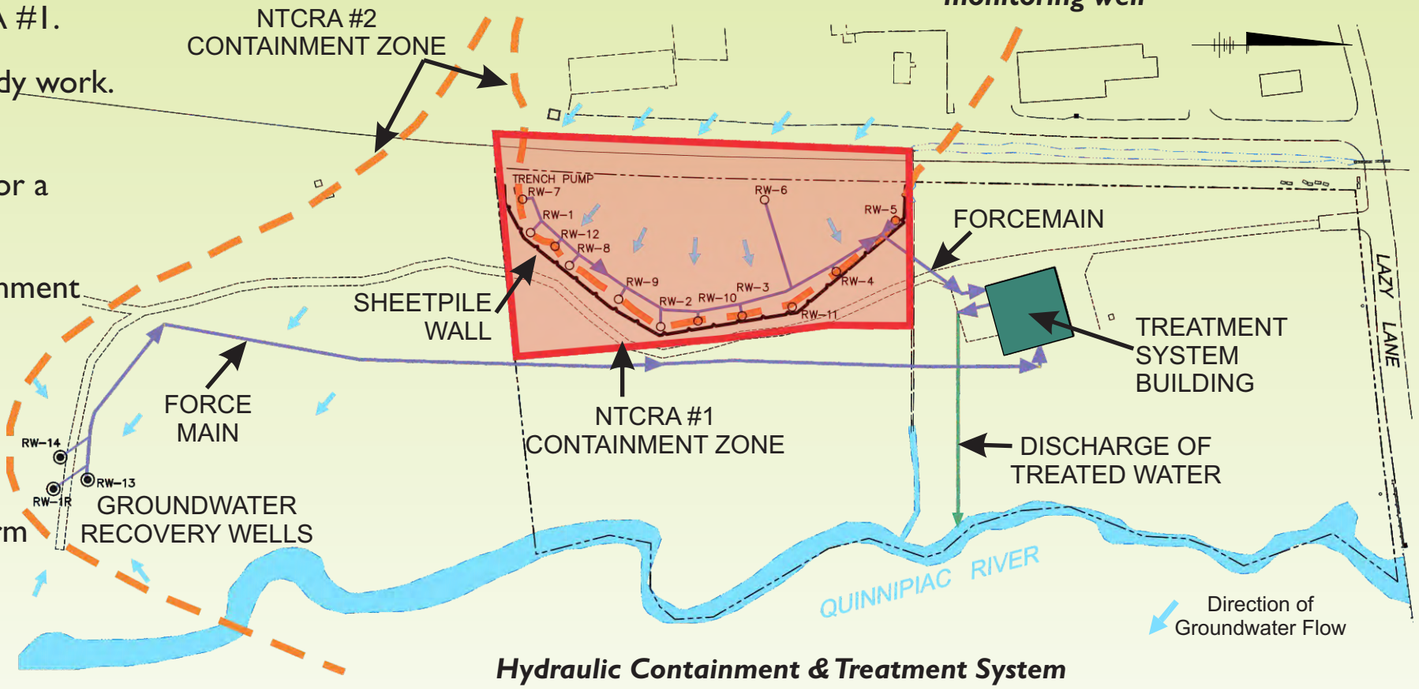
Key Investigations & Actions

Since 1990, more than 15 investigations have been completed across a 50-acre study area, and 275 groundwater monitoring wells have been installed. Highlights of work completed prior to 2009 include:

- **1990 - 1994:** USEPA's Remedial Investigation – carried out in three phases.
- **1992**: USEPA removes soils from the railroad drainage ditch and chemicals stored at the Site – this was referred to as a Time-Critical Removal Action, or TCRA. A TCRA is defined as a removal program that can be completed in no more than 6 months for less than $2 million.
- **1995:** SRSNE Site Group builds a pump and treat system to prevent migration of highly contaminated groundwater in response to a USEPA order for a Non-Time-Critical Removal Action, or NTCRA. This work was referred to as NTCRA #1.
- **1996**: SRSNE Site Group begins new Remedial Investigation & Feasibility Study work.
- **1999**: SRSNE Site Group adds pumping wells to enhance the groundwater containment system. This work was done in response to a USEPA order for a second NTCRA.
- **1995/1999 - Present**: SRSNE Site Group operates the groundwater containment and treatment systems.
- **2005**: USEPA issues the Record of Decision for the Site. Referred to as the ROD, this document describes the final cleanup plan (see page 3 for an overview, and pages 4-8 for details).
- **2008:** USEPA and the SRSNE Site Group sign the Consent Decree to perform the final cleanup.
- **2009**: Agreement for design and implementation of the final cleanup plan is finalized, engineering work begins.

Testing for non-aqueous phase liquids

Drilling a groundwater monitoring well



Hydraulic Containment & Treatment System

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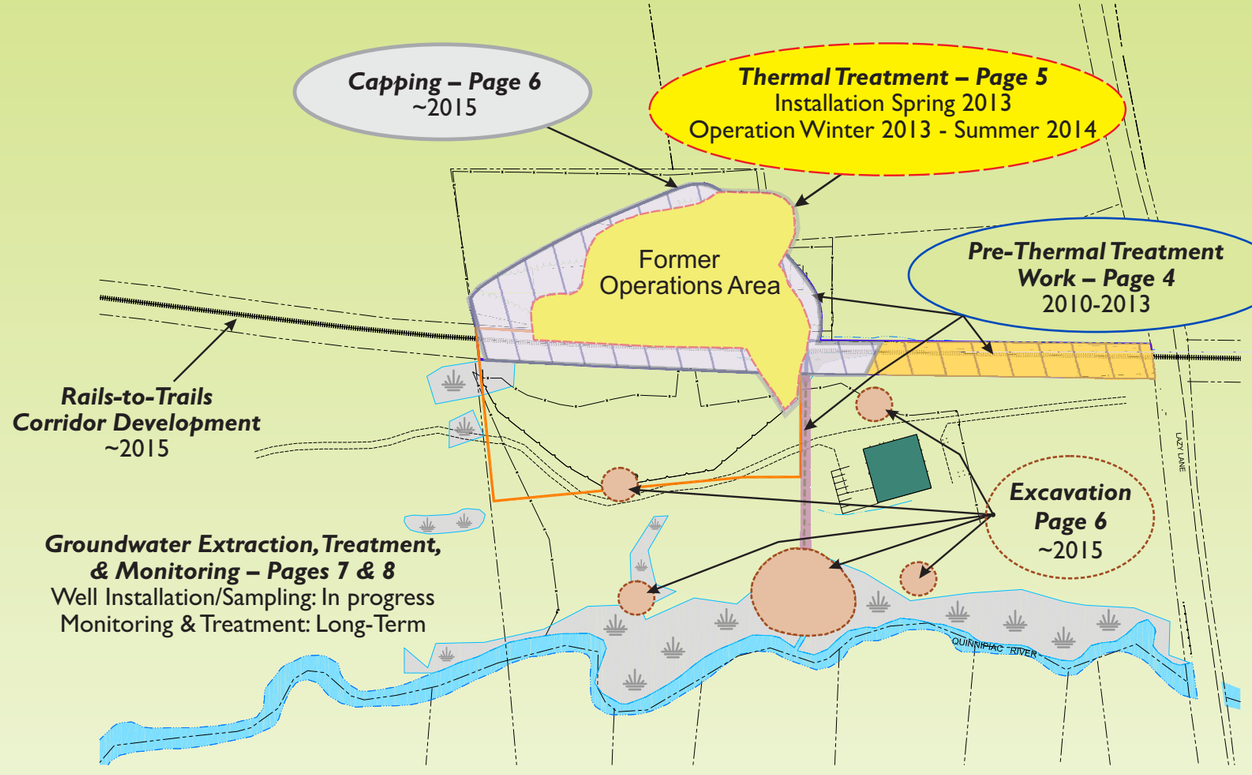
Overview of the Cleanup Plan

In 2005, USEPA issued the ROD to describe the **final cleanup plan for the Site**, and the SRSNE Site Group reached an agreement with USEPA in 2008 to carry out the elements of the final plan. The key elements of the cleanup effort – which is designed to control and treat sources of pollution in the soil, sediment, and groundwater of the Site – are as follows:

- **Site Preparation:** Preparing the Site to effectively carry out the cleanup plan. (see page 4 for details)
- **Thermal Treatment:** Heating soils in the former SRSNE Operations Area to remove, capture, and treat waste oils and solvents present in the ground. This process is called *in situ* (or in place) thermal treatment. (see page 5)
- **Excavation, Consolidation, and Capping:** Digging up targeted areas of soil and wetland soil from across the Site, consolidating the soils into one location in the former Operations Area, and then covering the materials with a permanent, waterproof cap. (see page 6)
- **Treat Groundwater:** Continuing to pump and treat groundwater in select areas of the Site where relevant federal and state drinking water standards are currently not being met. (see pages 7 & 8)
- **Monitor Groundwater:** Continuing to monitor groundwater across the Site to make sure levels of contamination continue to decline (this process is called Monitored Natural Attenuation). (see pages 7 & 8)
- **Limit Future Use & Monitor:** Placing restrictions on future use of the property and groundwater (referred to as institutional controls) and carrying out long-term monitoring to make sure all the elements of the cleanup plan continue to function as expected.
- **Restore:** Completing efforts to restore habitats affected by the cleanup work by planting native vegetation, improving the value of restored habitats, and supporting recreational enhancements by expanding the rails-to-trails corridor. (see page 9)



LEGEND

- Approximate Excavation Areas
- Wetland Areas
- Treatment System Building

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Remedy Components: Site Preparation

In 2008, the SRSNE Site Group reached an agreement with USEPA to carry out the cleanup activities described in the ROD. Since that time, much of the work has been focused on **preparing the Site for thermal treatment** (see page 5 for more detail). These activities included (completion dates in parentheses):

- Mapping the locations of wetlands and evaluating conditions of local habitat – this will guide replanting and restoration work after the cleanup is done (Fall 2010)
- Clearing work areas and building temporary access roads (Fall 2010)
- Moving the property fence so it encloses the entire work zone (December 2010)
- Grading/leveling soils across the entire treatment area (December 2010)
- Installing additional groundwater wells to expand the monitoring network (Spring 2011)
- Rerouting an existing AT&T fiber optic line so it would no longer cross through the construction zone (August 2012)
- Excavating targeted soils from along the railroad tracks (October 2012)
- Relocating a drainage culvert (November 2012)
- Installing extensions to an underground barrier wall to reduce the amount of groundwater that will flow into the thermal treatment zone – this will make the soils easier to heat up to the desired temperature (October 2012)
- Installing the components of the thermal treatment system (April 2013 - present)

The eastern hognose snake and the eastern box turtle are species of special concern in Connecticut. Measures are in place to protect these species if encountered at the Site.

Excavating along the northern end of the railroad tracks.

Installing the extension to the barrier wall around the treatment zone.

Installing vapor extraction wells for the thermal treatment process.

View of the former Operations Area in December 2010 after completion of grading work.

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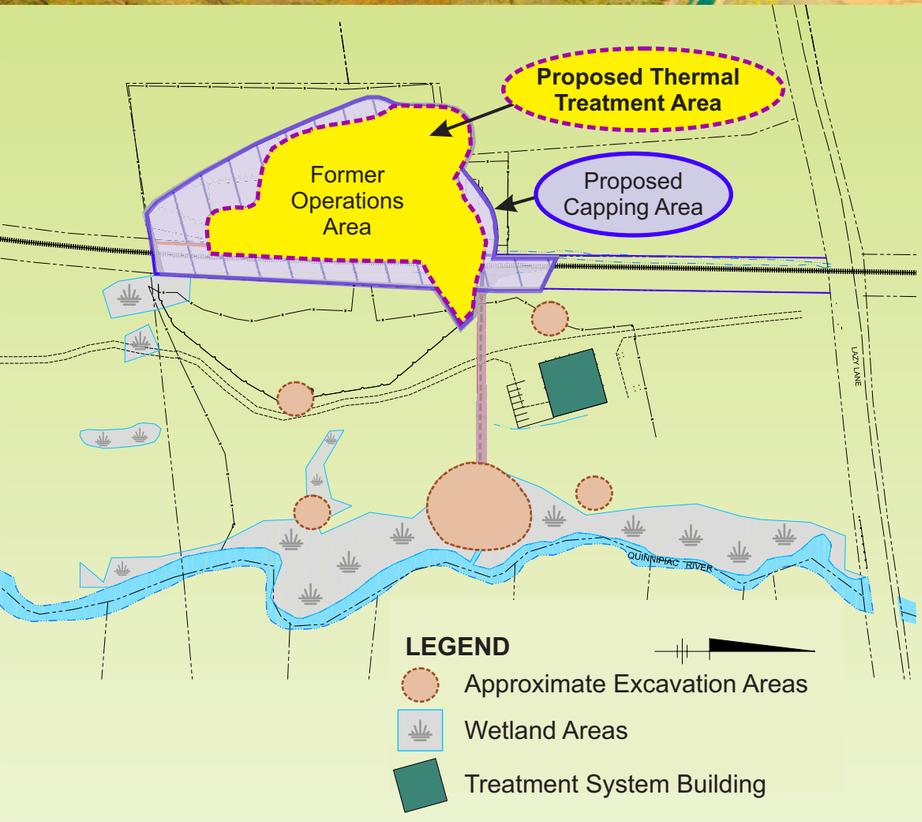
Remedy Components: Thermal Treatment



***In situ* thermal treatment** involves heating to move or "mobilize" chemicals in soil and groundwater. "In situ" means in place – this is a way to effectively treat the contaminated soil at the SRSNE Site without a large-scale excavation project.

Thermal treatment is a key element of the final remedy, and is designed to remove the waste oils and solvents in the former Operations Area of the Site (see location in the figure to the left). As part of this process, electrical heaters are placed inside steel wells to generate heat. The heat inside the wells then heats the surrounding soil and groundwater to the boiling point, and contaminants are vaporized. A vacuum is applied to nearby vapor-extraction wells, and the vaporized contaminants are removed for treatment in an above-ground system. A cap is placed on the ground in the treatment area to insulate the heated area and prevent chemicals from being released into the air. As described on page 6, the thermal treatment area will be covered under a permanent, waterproof cap.

What to expect during thermal treatment:

- More than 1,300 wells are currently being installed (see photo below, left) to heat the soils, collect the chemical vapors, and monitor the process.
- Minor increases in truck traffic and the sounds of equipment operation are expected during installation of the system. To achieve the clean up goals, the system will need to operate 24 hours per day, 7 days per week for about six months. The equipment is not expected to create much noise, and all requirements of local noise ordinances will be met throughout the treatment process.
- The solvents will be removed from the ground as a mixture of vapor, steam, and air. The solvents and steam will be treated and removed prior to the air being discharged from the stack. During operation of the system, a cloud of water vapor may be visible, particularly in mornings or evenings (see photo below, right).
- Crews will conduct continuous air monitoring on the boundaries of the Site to verify the treatment system is working properly.
- Workers will be on-site for about 10 hours every day to operate and maintain the treatment system. During off hours, they will be able to get to the Site within 20 minutes. In the event of any treatment system issues, the equipment will automatically shut down, and the operators will be alerted to report to the Site.

The aboveground treatment system at the SRSNE Site will look similar to the system depicted at left. The vapors collected from the extraction wells will be treated to remove the volatile contaminants driven out of the soil.

Above left: Installing the heater and vapor extraction wells at the Site in preparation for thermal treatment. Above right: A cloud of water vapor like the one pictured here may be visible while the treatment system is in operation.

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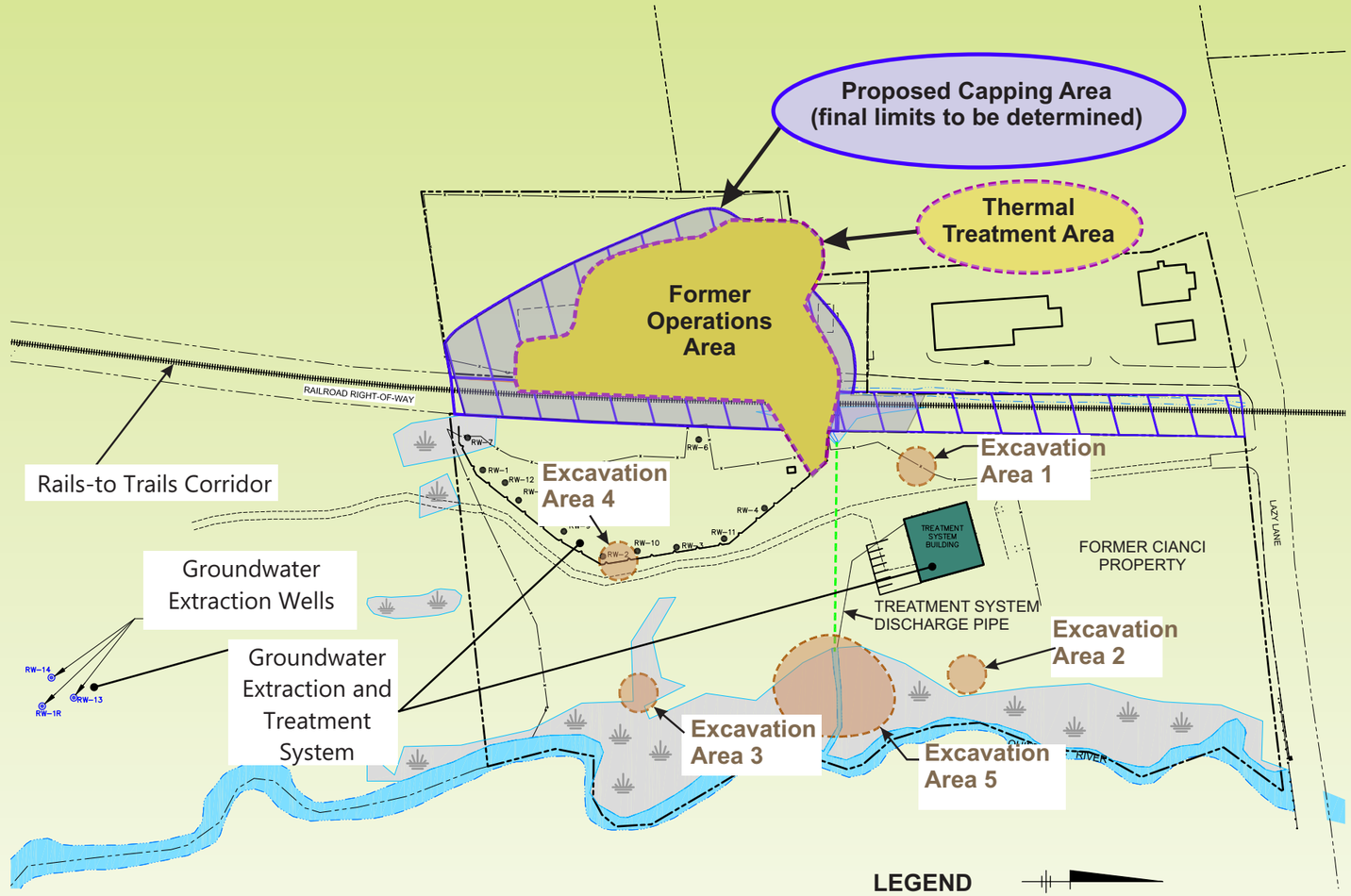
Remedy Components: Excavation and Capping

Excavation: Soils from five areas (approximate locations are shown on the map at right) will be dug up and consolidated in the proposed capping area.

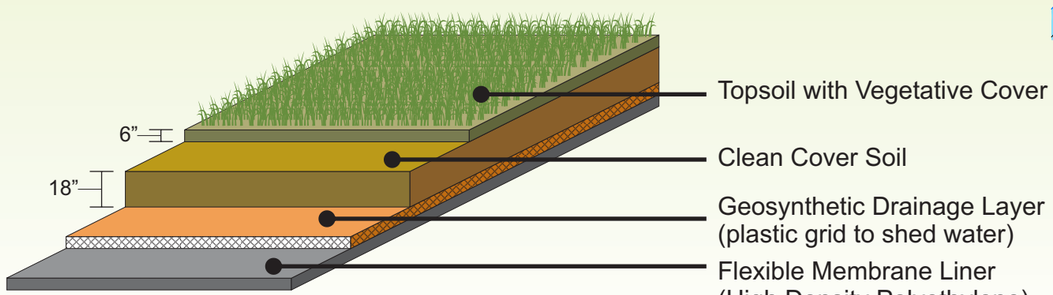
Capping: After thermal treatment (see page 5) is complete, some additional soil sampling will be carried out to define the final boundaries of the area to be capped. The cap will be designed to isolate contaminated surface soils in the former Operations Area and materials excavated from other areas of the Site.

The cap will include waterproof liners to separate the isolated materials from the clean fill and soil added on top. These liner layers will keep rain water from soaking down into the consolidation area and spreading the remaining contamination into the groundwater. They will also keep animals from burrowing down into the treated and consolidated soils. After the liner and drainage layers are in place, clean soil will be added across the entire capping area, and the soil will be planted with native grasses. The final cap, which will be about 18 inches thick, will be inspected over the long term and repaired as necessary to ensure that it continues to function as intended.

After the active cleanup work is complete, a new trail along the rails-to-trails corridor will be paved along the former railroad grade between Lazy Lane and Curtiss Street, and a new parking area will be built at the Lazy Lane end (opposite the Police Station) for visitors to access the trail.



Typical layers of an engineered cap are shown below:



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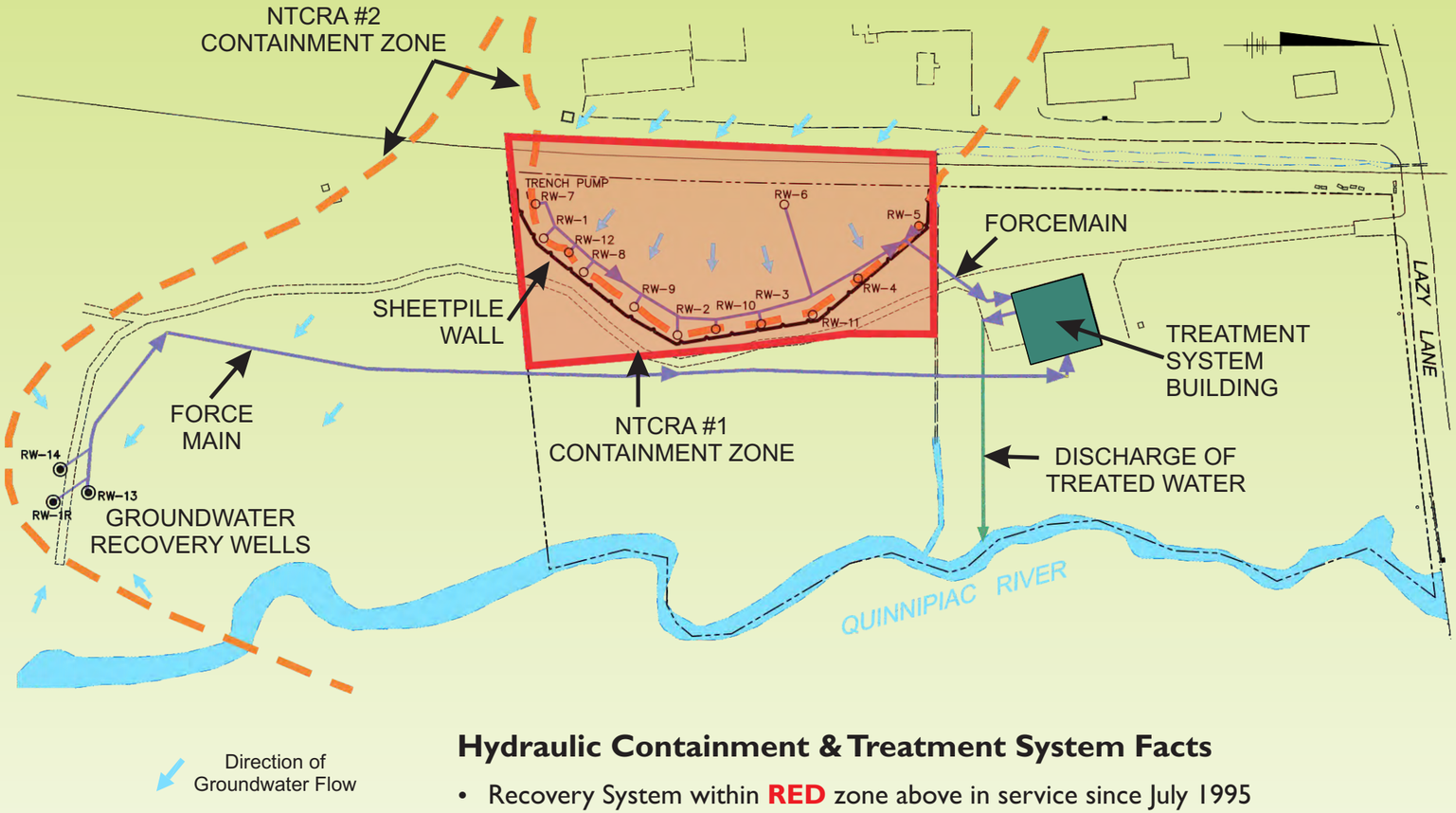
Remedy Components: Groundwater Extraction and Treatment

Since 1995, a **groundwater extraction and treatment system** has been in operation to capture and treat groundwater underneath the SRSNE Site. The focus of the treatment process has been on areas where the measured levels of chemicals of concern are above the federal and state drinking water standards. The current monitoring network consists of more than 150 wells installed across the Site to collect groundwater from a variety of depths and locations.

To date, the groundwater extraction and treatment system has **recovered over 250 million gallons of groundwater and removed more than 17,000 pounds of contamination**. The groundwater extraction and treatment is a key component of the overall remedy for the Site, and it will continue to operate until groundwater standards are met.

Groundwater extraction and treatment is a common and safe method for cleaning up groundwater contaminated with the types of waste oils and solvents present at the SRSNE Site. In the treatment process, the groundwater is pumped from wells to an aboveground treatment system where chemicals are removed. The solvents are destroyed on-site using a process called UV/oxidation, and the treated water is discharged to the Quinnipiac River. The pumping prevents chemicals in the groundwater from migrating outside the containment zones shown on the map (marked by the red and orange lines).

The treatment system is monitored to make sure chemicals are being removed to achieve target levels established by CTDEEP.



Hydraulic Containment & Treatment System Facts

- Recovery System within **RED** zone above in service since July 1995
- Recovery System within **ORANGE** zone above in service since July 1999
- More than **250 million gallons** of groundwater recovered and treated since 1995, resulting in the removal of approximately **17,000 pounds** of Volatile Organic Compounds (VOCs)

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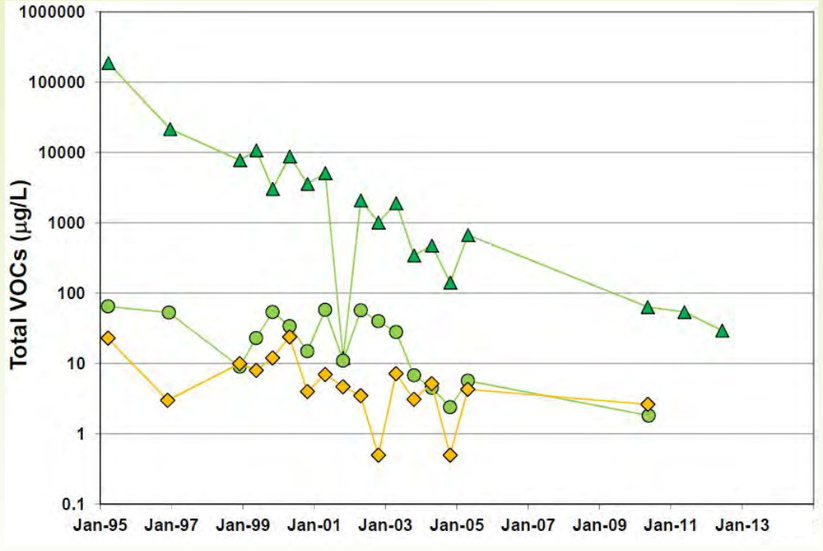
Remedy Components: Groundwater Monitoring

During the time active cleanup work is underway, groundwater samples will continue to be collected to monitor the five groundwater zones present at the Site. Certain areas of the groundwater will be addressed using Monitored Natural Attenuation, or MNA. MNA relies on natural processes to achieve site-specific cleanup goals. MNA is always used in combination with source control and as part of a carefully controlled and monitored cleanup program.

At the SRSNE Site, the key chemicals of concern are chlorinated solvents, such as TCE (formally called trichloroethylene, a common degreaser). **MNA is an appropriate cleanup approach for groundwater** at the Site based on:

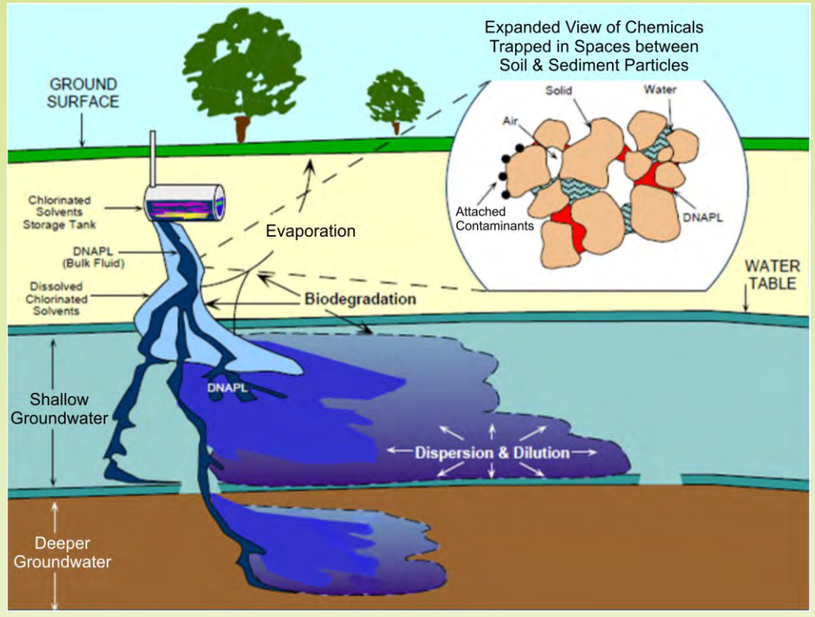
- **Historical groundwater data**, which show a declining trend in measured levels of chemicals over time at most monitoring locations
- **Hydrogeological and geochemical data**, which demonstrate that conditions in the soil and groundwater are right for MNA
- The documented **presence of microorganisms** capable of breaking down chemicals of concern in the soils of the Site

The groundwater monitoring program will continue after active cleanup work is complete to verify that the cap (as described on page 6) and groundwater treatment system (see page 7) are performing as expected. The frequency of sampling and the chemicals analyzed vary depending on the locations and depths of the wells. Selected monitoring wells are sampled at least once per year, and an expanded network of 130 wells is sampled every five years. The program can be modified if conditions change or results indicate an update is appropriate.



At left: Monitoring results from three groundwater wells at the SRSNE Site show declining concentrations of chemicals over time.

What happens when chemicals are spilled on the ground?



As chemicals like chlorinated solvents sink down below the ground surface, the solvents may follow different paths. The liquid may be: 1) trapped in the spaces in the soil or sediment, 2) evaporate, 3) attach on to soil particles, and 4) dissolve in the groundwater. Some chlorinated solvent liquids are heavier than water – these are called dense non-aqueous phase liquid, or DNAPL – and may sink below the water table. The portion that dissolves can move with the natural flow of the groundwater, and over time, the measured amounts of the dissolved solvents is lowered by dilution. Microorganisms and chemical reactions may further break down chlorinated solvents. These are the primary mechanisms of natural recovery, and when the changes are measured over time as part of a cleanup program, it is called MNA.

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Public Outreach - Project Contacts - Future Activities

USEPA's May 2013 Fact Sheet

The SRSNE Site Group Website

Public Outreach

This briefing book provides an overview of the next phase of cleanup work set to begin at the SRSNE Superfund Site. Throughout the work, USEPA, CTDEEP, and the SRSNE Site Group are collaborating to carry out **community involvement and outreach activities**. Tools the team is using to provide updates on the status of work include:

- Project fact sheets
- Open house sessions
- Project websites
- Document archive at the Southington Public Library

After reviewing this briefing book, if you have any questions, please contact any of the project representatives listed on this page to learn more. You can also visit **www.epa.gov/region1/superfund/sites/srs** or the **Southington Public Library** at 255 Main Street in Southington for additional information. Detailed work plans, engineering design documents, and project reports submitted to USEPA and CTDEEP are available on the SRSNE Site Group's website: **www.srsnesite.com.**

Scan the codes below to link to the project websites:

USEPA

SRSNE Site Group

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Future Activities

Once the cleanup work is complete, the SRSNE Site Group will build a new segment of the **Farmington Canal Heritage Trail**, paving the former railroad right-of-way between **Curtiss Street and Lazy Lane**. This will link up the existing rails-to-trails corridor in Southington, and provide additional recreational opportunities for local residents and visitors. Plans for the trail also include construction of a **public parking lot** just off Lazy Lane.