

Environmental Cleanup Update

150 Sohier Road Property, Beverly MA | **FALL 2026**

This annual fact sheet provides an overview of the status of environmental investigation and treatment of the former Varian Facility at 150 Sohier Road in Beverly, Massachusetts.

Varian Completes System Installation and Continues Environmental Treatment

Throughout 2026, the Varian project team continued to implement the environmental cleanup plan. This work has included continuing to operate existing treatment systems and beginning operation of new treatment systems for indoor air, soil, shallow groundwater, and bedrock groundwater at the former Varian Site.

The Site environmental remedies include five treatment areas (Figure 1):

- PSL-10 (Open Field) Source Area
- Building 3 Source Area
- Bedrock near Buildings 3 and 5
- Stream A Seep
- Building 5 Source Area

In 2026, two new treatment systems started operation – injection treatment below Building 5 (spring 2026) and the thermal system below Building 3 (summer 2026).

A Temporary Solution Statement was submitted for the former Varian Site in February 2024 to the Massachusetts Department of Environmental Protection (MassDEP). This statement, prepared by a Massachusetts Licensed Site Professional (LSP), demonstrated that the Site does not pose a human health risk, but that treatment needs to continue to achieve a Permanent Solution. Sampling results from the Site continue to support this conclusion. The remedies being implemented are expected to accomplish the additional treatment needed for a Permanent Solution.

Public updates occur during the year through Public Involvement Plan and Technical Advisory Group meetings. In addition, the Varian project team submits Phase IV Status Reports twice a year in accordance with MassDEP requirements, as well as monthly updates distributed to the public mailing list and posted on the project website (<https://beverlysitecleanup.com/>). Varian is continuing to work actively with the Beverly community and MassDEP to achieve a Permanent Solution at the site.

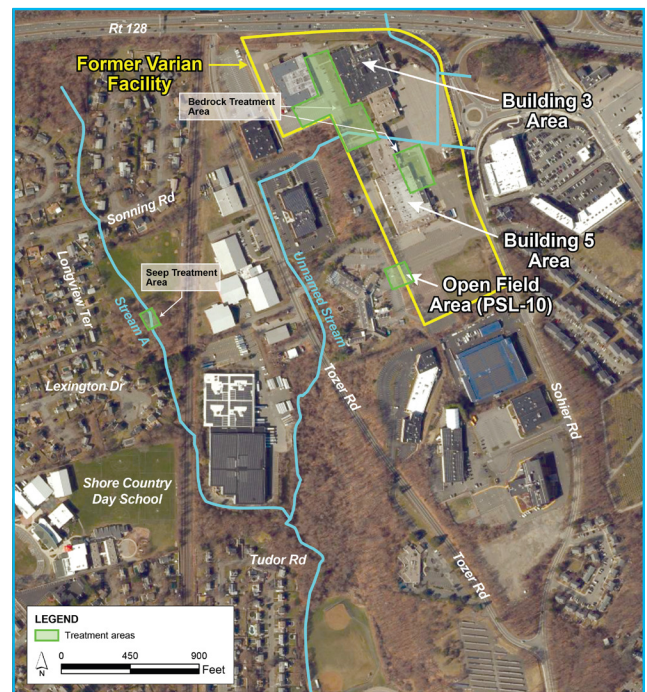


Figure 1. Site map and selected treatment areas

Site History and Overview

The former Varian Facility, located at 150 Sohier Road, is currently owned by another firm and operates as an active manufacturing facility for microwave and radar products. The 150 Sohier Road property has been used as an industrial facility since the early 1950s. Industrial solvents were released to the environment due to the chemical handling and disposal practices that were common at the time, before stricter environmental regulations were enacted. These solvents, used primarily for surface treatment, cleaning, and degreasing operations, included trichloroethene (TCE), perchloroethene (PCE), and 1,1,1-trichloroethane (TCA). Releases of these solvents occurred in three main areas: the Building 3 area, the Building 5 area, and an open field known as potential source location (PSL) 10. TCE, PCE, and TCA are heavier than water and have limited ability to dissolve in water. They also tend to evaporate easily and are referred to as volatile organic compounds (VOCs). Varian, with support from Jacobs Solutions, has investigated and is actively cleaning up the Site in accordance with Massachusetts regulations, known as the Massachusetts Contingency Plan (MCP). The Site is listed by MassDEP as Site Number 3-0485.

Site reports and other documentation can be found under “Supporting Documents” in MassDEP’s data portal at <https://eeonline.eea.state.ma.us/portal/dep/wastesite/detailviewer/3-0000485>.



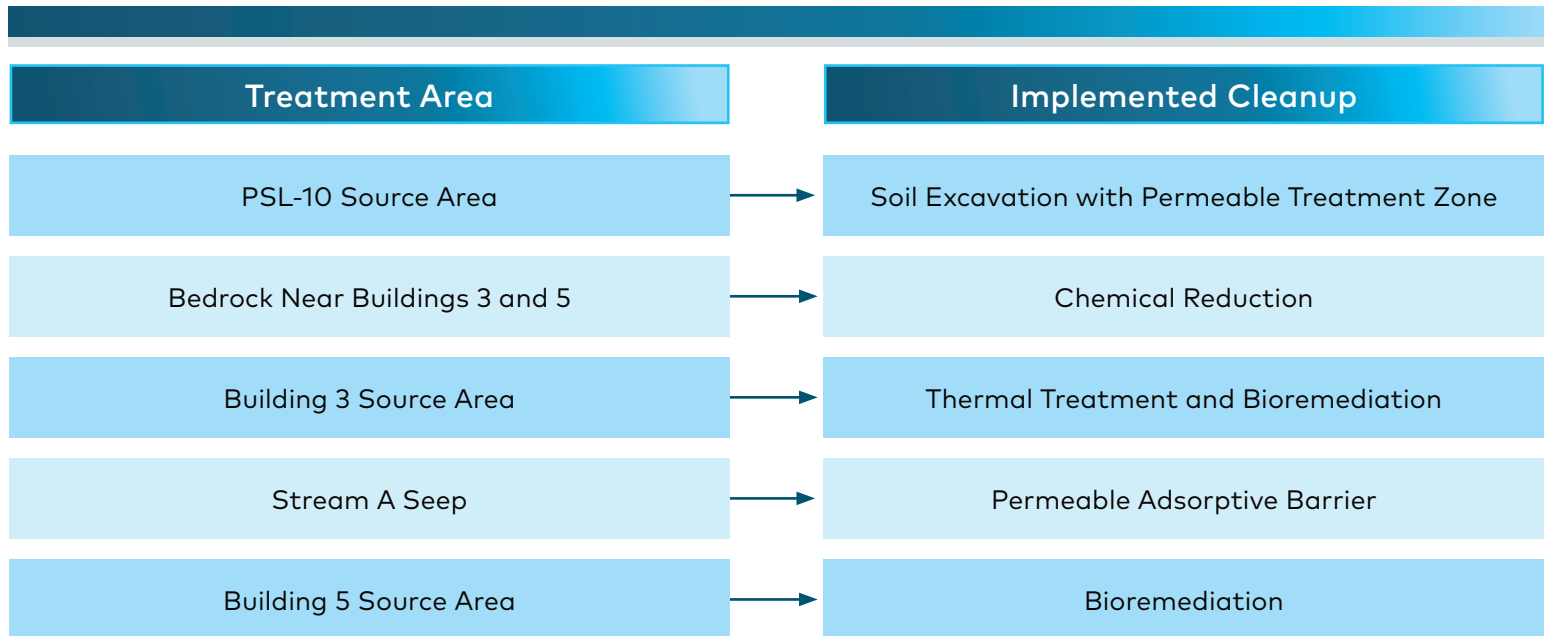


Figure 2. Cleanup approach in each area

PSL-10 Source Area – Soil Excavation with Permeable Treatment Zone

The selected treatment for the PSL-10 (Open Field) source area is soil excavation with installation of an underground **permeable treatment zone**.

Previous investigations have indicated that a relatively small shallow area of soil may be contributing volatile compounds to groundwater in this area. Under these conditions, an effective remedy is to excavate the soil and backfill the excavated area with amendments that can enhance biological and chemical breakdown of the volatile compounds remaining underground. Using a solar-powered pumping system, groundwater in the treatment area is recirculated through the amendment backfill to provide continued groundwater cleanup. This type of permeable treatment area is referred to as a “subgrade biogeochemical reactor” (Figure 3).

In early 2025, contaminated soil in the PSL-10 source area was removed and transported offsite for disposal at a licensed facility. The SBGR was constructed in February and March 2025 (Figure 4) and began operating in April 2025. Local, sustainably sourced, and common materials were used as amendments to create the treatment media. These materials included lobster shells, crushed concrete, peat moss, and spent grain from local breweries. The amendments were mixed onsite and placed into the excavation prior to backfilling with clean soil to ground surface.

The SBGR has operated actively (pumping) and passively to treat groundwater, with additional monitoring ongoing. The most recent post-treatment sampling event took place in May 2026, and results are available in the August 2026 Phase IV Status Report. Results of additional quarterly post treatment sampling events will be presented in future Phase IV Status Reports.

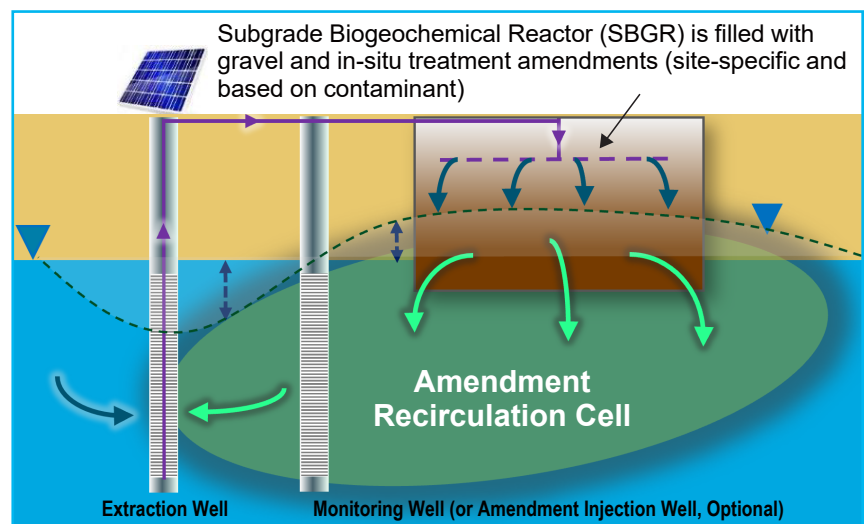


Figure 3. Diagram of an SBGR

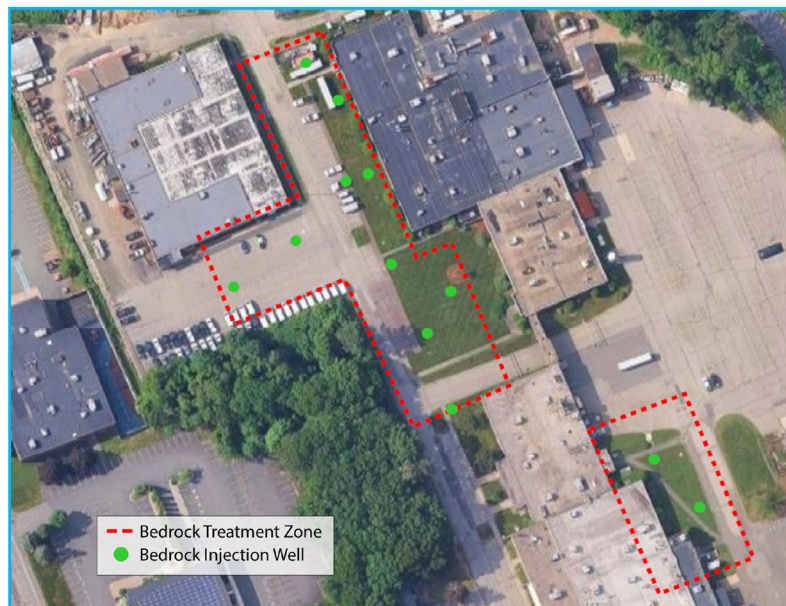


Figure 4. Final SBGR treatment cell

Bedrock Near Buildings 3 and 5 – Chemical Reduction

A bedrock treatment zone has been delineated along the western boundary of the property near the Building 3 source area and adjacent to the Building 5 source area. In these areas, **chemical reduction** has been implemented to treat volatile compounds in groundwater within bedrock cracks or fractures. Data collected in 2024 and 2025 indicated that VOCs in the Building 3 and Building 5 source areas were passing through these fractures before migrating to the west of the property. Fracture treatment will destroy VOCs before they can move further west.

Chemical reduction involves injecting a mixture of emulsified vegetable oil and small particles of zero-valent iron to break down volatile compounds that are present in the fractures. Volatile compounds break down through chemical reactions with the zero-valent iron and through biological reactions with the emulsified vegetable oil and microorganisms naturally present below ground.



Bedrock treatment has been performed in stages, with each stage informing the next. During each stage, borehole testing was conducted to identify fractures with VOC-containing groundwater and to characterize connectivity of bedrock fractures across the treatment area to determine how groundwater was moving through the fractures. Stage 1 treatment near Building 3 was completed in August and September 2025. Stage 2 treatment adjacent to Building 5 was completed in January 2026. Drilling for Stage 3 treatment near Building 3 was completed in August 2026 and treatment will take place in the fall. The most recent post-treatment sampling event took place in May 2026, and results are available in the August 2026 Phase IV Status Report.

Figure 5. Location of injection wells for bedrock chemical reduction

Building 3 Source Area – Thermal Treatment and Bioremediation

Groundwater below Building 3 is currently being treated using **thermal treatment** and will be followed by a **bioremediation** polish and continued operation of the **soil vapor extraction system**.

Thermal treatment involved installing heating elements into the ground below Building 3; these are used to heat the groundwater to the boiling point. The heating elements are like the ones in a toaster, only larger. Heating the groundwater causes the volatile compounds to become vapors. The treatment system uses extraction wells to capture the VOC vapors and pump them to the ground surface for treatment using activated carbon. The activated carbon filters out the volatile compounds (in much the same way a household water filter does), and the clean vapors are released to the environment. The carbon containing the captured volatile compounds is recycled at a licensed offsite facility.

Following thermal treatment, **bioremediation** will continue to reduce the concentrations of volatile compounds by taking advantage of the increased temperature underground. The warm groundwater that remains after thermal treatment provides an excellent environment for microbial growth. Certain microbes “eat” compounds, such as TCE and PCE, and break them down into harmless elements. Bioremediation involves stimulating microbial growth by injecting amendments (such as vegetable oil or molasses) which provide food that microbes use to grow and multiply, so they can consume more volatile compounds.

Drilling and installation of the underground thermal wells was completed in April 2026. Vapor extraction began in June 2026 and final installation of the treatment equipment was completed in July 2026. Subsurface heating started in July 2026 at wells outside of the building, and heating under the building began shortly thereafter. Through the end of September, the system has removed more than 3,000 lbs of VOCs.



Figure 6. Drilling and installation of interior thermal wells

Stream A Seep – Permeable Adsorptive Barrier

Permeable adsorptive barriers were installed in October 2023 at two seep areas along Stream A to capture volatile compounds in groundwater seeps before they could discharge to the stream. Reactive core mats containing granular activated carbon filter out the volatile compounds (like a water filter does), with the compounds sticking to the carbon as the water passes through the mats. The mats are covered with stone to prevent access or damage (Figure 7). Once the upgradient treatment has been completed, the mats will be removed, and the carbon filter material will be recycled at a licensed offsite facility.

A conservative risk assessment indicated that there was no significant risk to people or pets from contact with the stream before the mats were installed. The seep treatment is being conducted as an additional protective measure.

Regular inspection of the treatment mats continues as scheduled.



Figure 7. Stone covers reactive core mats along the stream

Building 5 Source Area – Bioremediation

The selected treatment technology for groundwater in the Building 5 area is **bioremediation** and continued operation of the **soil vapor extraction system**.

Concentrations of volatile compounds in groundwater beneath Building 5 are significantly lower than beneath Building 3. In addition, bioremediation has previously been successful in the Building 5 area. Therefore, bioremediation technology was selected and expanded to new locations beneath the building. To address the deep groundwater, pressure injection was used as a new application method. During the implementation of the bioremediation treatment in the Building 5 source area, the **soil vapor extraction system** continued to operate to protect building occupants.

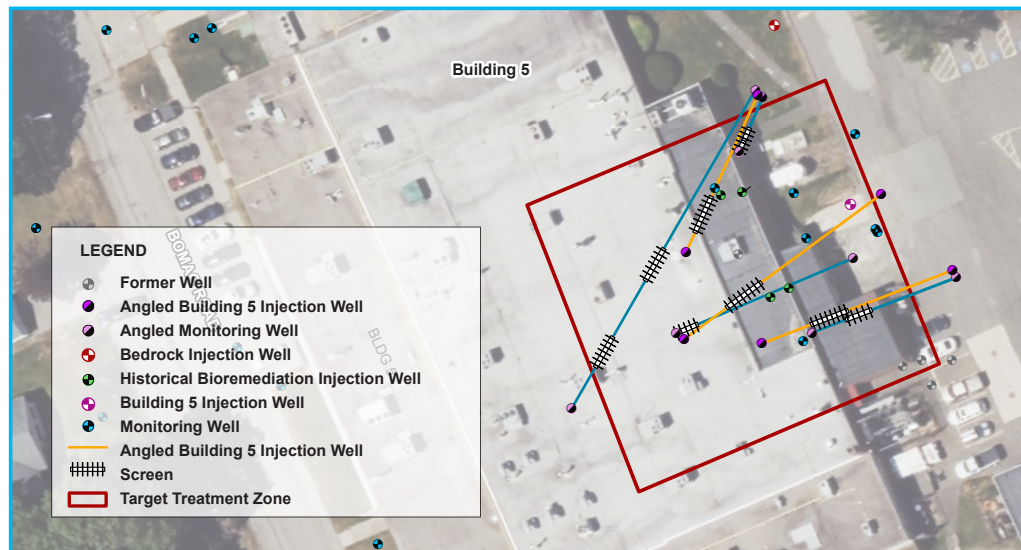


Figure 8. Bioremediation treatment in Building 5 source area

Investigation and treatment activities occurred simultaneously. Well installation and treatment beneath and adjacent to the building were conducted from January to May 2026, with pressure injections used to increase the reach of treatment.

Varian is actively working with the Beverly community and MassDEP to achieve a permanent solution at the site.

FOR MORE INFORMATION

Sign up for our mailing list: <https://beverlysitecleanup.com/more-information/>

View recent site documents: Beverly Public Library Reference Desk

Email questions: beverlysitecleanup@jacobs.com

View all site documents on the MassDEP's website: <https://eeaonline.eea.state.ma.us/portal/dep/wastesite/detailviewer/3-0000485>

In 2027, the operating systems will continue treatment and groundwater testing will confirm progress of the cleanup.

Visit the project website:



<https://beverlysitecleanup.com/>