NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Sylvester/Gilson Road Site
Nashua
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The Sylvester Superfund Site (Site), also called the Gilson Road Site, is a seven-acre sand and gravel pit that was used for disposal of hazardous liquids and solid waste from the late 1960s through 1979. Over 900,000 gallons of fluids containing a variety of toxic organic and inorganic compounds were disposed at the Site, contaminating the soils and groundwater. The contaminated groundwater plume migrated to the northwest and threatened drinking water wells of nearby homes. The leading edge of the contaminated groundwater plume flowed into and under Lyle Reed Brook, and was carried downstream to the Nashua River, and then to the Merrimack River. This posed a potential threat to public water supplies.

Several emergency actions were undertaken after discovery to ensure protection of public health and the environment, including: 1) a security fence was placed around the entire Site by the City of Nashua in May 1980; 2) over 1,300 drums were removed and sent to an approved hazardous waste treatment and disposal facility; 3) after the signing of the Record of Decision (ROD) in July 1982, the United States Environmental Protection Agency (EPA) installed an emergency groundwater interception and recirculation system to impede the migration of contaminated groundwater to Lyle Reed Brook; 4) in late 1982, a bentonite slurry wall was constructed around the Site to inhibit migration of contaminated groundwater from the Site, and an impervious cap was placed over the Site to prevent the infiltration and contamination of rainwater; and 5) the City of Nashua extended municipal water to the surrounding area in 1983.

In the fall of 1983, EPA issued a supplemental ROD that authorized construction of a $5.4 million groundwater treatment facility and established cleanup goals for the Site. Construction of the facility began in the spring of 1984, and it was completed in 1986. Between 1986 and 1996, the facility treated groundwater at a rate of approximately one-half million gallons per day. Inorganic constituents were initially precipitated from the water and dewatered in a filter press before placement in an on-site lined landfill. Volatile organic compounds (VOC) were then stripped from the groundwater and destroyed by incineration. The processed water was then pumped back into groundwater recharge wells located within the bentonite slurry wall containment area. More than one billion gallons of groundwater was pumped through the treatment facility during its operational life, and more than 430,000 pounds of contaminants were removed.

In 1995, EPA and New Hampshire Department of Environmental Services (NHDES) determined that active treatment goals had been achieved, and groundwater treatment ceased in January 1996. The facility was maintained in an operational condition for five years following shut-down. Discussions between EPA and NHDES officials led to the conclusion that the treatment plant was obsolete, and that less expensive alternative remedial technologies existed if

contaminant levels ever rebound and additional treatment was determined to be necessary. Pumping and recharge wells were left in place, but the treatment plant was decommissioned, with associated equipment dismantled and removed by August 2001. The second of the two on-site landfill cells was closed during the summer of 2005.

The NHDES has continued to monitor groundwater and surface waters both within the containment area and offsite. The data show a continued downward concentration trend of contaminant concentrations associated with the original plume.

It has been found that sediment in Lyle Reed Brook contains elevated levels of arsenic, though arsenic is not a contaminant historically associated with the contaminant plume. The arsenic has likely been mobilized from the natural soils of the area to a greater extent than would otherwise occur under ambient conditions due to the chemical dynamics of the Site. However, sampling performed since 2004 indicates that Lyle Reed Brook is in compliance with current New Hampshire surface water quality regulations. Further, an evaluation conducted by NHDES, found that arsenic-containing sediments do not pose a significant risk to benthic organisms or to human health (*Evaluation of Sediment Quality to Support an Ecological Risk Assessment at the Gilson Road Superfund Site, NHDES, Concord, NH, July 2004*).

Beginning in 2009, NHDES worked with the City of Nashua to expand and combine the Groundwater Management Zones for the Gilson Road Site and Four Hills Landfill through a municipal ordinance (EPA Doc ID 548474) that was finalized in October 2013. In addition, in 2012, NHDES contracted with an environmental consultant to evaluate the potential for contaminant vapors to migrate to indoor air in nearby residential neighborhoods; the subsequent report concluded that there was no risk of vapor intrusion. Finally, NHDES and EPA worked with an EPA research group in Ada Oklahoma to evaluate the current and long-term functionality of the cap and slurry wall; the report was finalized in May 2014 and concluded that the slurry wall and cap continue to function as intended, minimizing groundwater and surface water influx to the encapsulated area.

EPA's Sixth Five-Year Review was signed in August 2019, and found the remedy protective of human health and the environment in the short-term due to: (1) a fence, impermeable cap, and slurry wall surround the 20-acre source area, preventing direct contact with contaminants;(2) institutional controls prevent groundwater use for drinking water and signage and a fence prevent human contact with sediment; and (3) public water is supplied to all areas potentially affected by impacts from the Site. Additional measures were recommended to establish protectiveness in the long-term.

NHDES continues to perform groundwater and surface water monitoring on a periodic basis, including analysis for VOCs, arsenic, iron, manganese, 1,4-dioxane, and the emerging contaminant known as per- and polyfluorinated alkyl substances (PFAS).