Groveland Wells Nos. 1 & 2 Superfund Site

Groveland, MA

U.S. EPA | HAZARDOUS WASTE PROGRAM AT EPA NEW ENGLAND

THE SUPERFUND PROGRAM protects human health and the environment by investigating and cleaning up often-abandoned hazardous waste sites and engaging communities throughout the process. Many of these sites are complex and need long-term cleanup actions. Those responsible for contamination are held liable for cleanup costs. EPA strives to return previously contaminated land and groundwater to productive use.

INTRODUCTION

The Groveland Wells Superfund (Site) is located near 64 Washington Street, in Groveland, Massachusetts. The Site is bounded to the west by Washington Street; the former Haverhill Municipal Landfill and Johnson Creek; to the south by Center Street; to the east by Argilla Brook; and to the north by the abandoned railroad right-of-way. Land uses within the Site boundaries include numerous private residences, town-owned land, a Town drinking water supply well, some industries, small businesses, a solar array, and religious and community institutions.

Several small creeks and brooks flow through the Site, including Johnson Creek, Argilla Brook, and Brindle Brook. There are limited wetland and 100-year floodplain areas and Mill Pond is located within the Site. See Figure 1.

SITE BACKGROUND

EPA's Remedial Investigations conducted at the Site in 1991, determined that the main source of contamination at the Site was from the manufacturing activities at the former Valley Manufactured Products Company (Valley), located at 64 Washington Street, where metal parts, screws and cable connectors were produced. Their manufacturing process involved producing metal parts and screws, lathing, degreasing and finishing the parts. Hazardous wastes generated included waste oils from the machining and lathing operations and subsurface disposal of halogenated solvents from the degreasing operations. Hazardous substances that were released included cutting oils, mineral spirits, Trichloroethylene (TCE), Volatile Organic Compounds (VOCs), and acid bath wastes. Waste oils, which contained TCE, were disposed of onto the ground and at least 500 gallons of pure TCE was released from a former underground storage tank into the soil beneath a concrete slab that was located at the south end of the Valley building. These releases migrated to groundwater beneath the Valley property and eventually

KEY CONTACTS:

DERRICK GOLDEN
EPA Project Manager
617-918-1448
golden.derrick@epa.gov

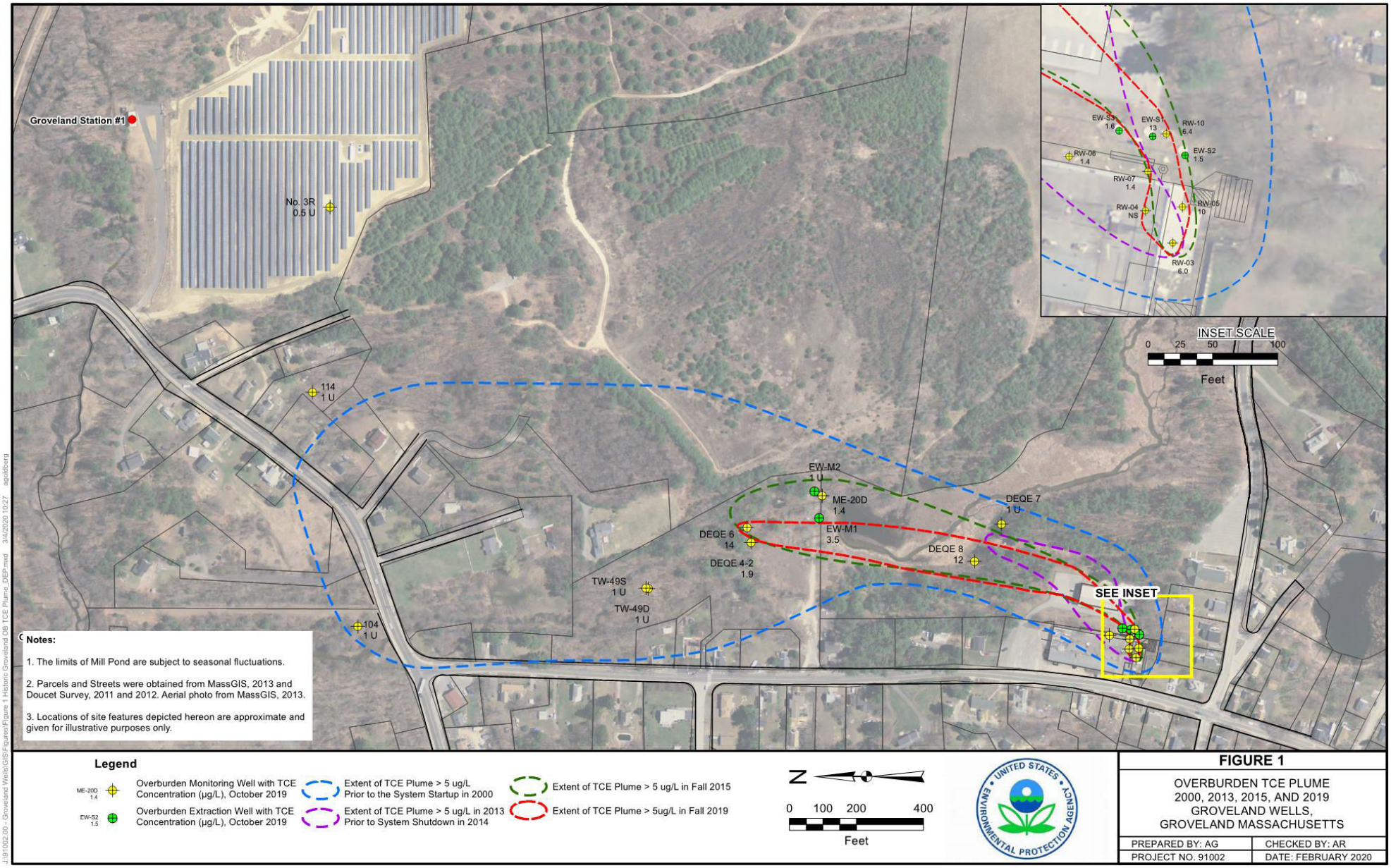
SARAH WHITE
EPA Community Involvement Coordinator
617-918-1026
white.sarah@epa.gov

JANET S. WALDRON
MassDEP Project Manager
617-556-1156
janet.waldron@mass.gov

GENERAL INFO:

EPA TOLL-FREE CUSTOMER SERVICE
1-888-EPA-7341

UPDATES AT:
www.epa.gov/superfund/groveland


Groveland Station #1
No. 3R
0.5 U
114
1 U
104
1 U
TW-49S
1 U
TW-49D
1 U
DEQE 6
14
DEQE 4-2
1.9
EW-M2
1 U
ME-20D
1.4
EW-M1
3.5
DEQE 7
1 U
DEQE 8
12
SEE INSET
EW-S3
1.6
EW-S1
13
RW-10
6.4
EW-S2
1.5
RW-06
1.4
RW-07
1.4
RW-04
NS
RW-05
10
RW-03
6.0
INSET SCALE
0 25 50 100
Feet
Notes:
1. The limits of Mill Pond are subject to seasonal fluctuations.
2. Parcels and Streets were obtained from MassGIS, 2013 and Doucet Survey, 2011 and 2012. Aerial photo from MassGIS, 2013.
3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.
Legend
ME-20D 1.4
Overburden Monitoring Well with TCE Concentration (µg/L), October 2019
EW-S2 1.5
Overburden Extraction Well with TCE Concentration (µg/L), October 2019
Extent of TCE Plume > 5 ug/L Prior to the System Startup in 2000
Extent of TCE Plume > 5 ug/L in 2013 Prior to System Shutdown in 2014
Extent of TCE Plume > 5 ug/L in Fall 2015
Extent of TCE Plume > 5ug/L in Fall 2019
N
0 100 200 400
Feet
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
FIGURE 1
OVERBURDEN TCE PLUME
2000, 2013, 2015, AND 2019
GROVELAND WELLS,
GROVELAND MASSACHUSETTS
PREPARED BY: AG
CHECKED BY: AR
PROJECT NO. 91002
DATE: FEBRUARY 2020
J:\91002.00 - Groveland Wells\GIS\Figures\Figure 1 Historic Groveland OB TCE Plume_DEP.mxd 3/4/2020 10:27 apoldberg

contaminated the aquifer that supplied the town of Groveland's drinking water, causing Groveland to shut down two municipal wells. In approximately 2001, Valley ceased manufacturing operations and the soil vapor extraction cleanup at the facility and abandoned the building. Soil Vapor Extraction (SVE) is a technique that is used to remove volatile organic compounds from unsaturated soils. Air is pumped from the contaminated area and the chemicals are removed from the resulting vapor stream.

CLEANUP ACTIONS TAKEN TO ADDRESS CONTAMINATION

In 1999, EPA funded and oversaw the construction of the Groundwater Treatment Facility (GWTF). The system began operating in April of 2000. The GWTF was built on the Archdiocese of Boston property located at 62 Washington Street, behind the Valley building. EPA operated and maintained the groundwater treatment system from 2000-2011. During this time, the system removed more than 1,130 pounds of total VOCs and pumped and treated more than 4 million gallons of contaminated groundwater. After nearly 10 years of treatment, the groundwater and soil contamination levels remained high in the source area. To address this contamination, EPA funded and oversaw the construction and operation of a thermally-enhanced soil vapor extraction system, known as Electrical Resistive Heating (ERH), which operated from August 2010 through February of 2011, removing more than 1,300 pounds of VOCs, 18 gallons of Non-aqueous Phase Liquids, 311 million cubic feet of vapors and over 2 million gallons of groundwater and contaminated condensate.

In 2011, after the ERH cleanup was completed and the soil beneath the eastern and southern areas inside and outside the Valley building had time to cool, EPA conducted post treatment soil sampling. Soil samples were taken from 16 boring locations, one to three soil samples were obtained from various depth at each boring location for a total number of 44 soil samples. Only two of the 44 soil samples were above the TCE cleanup goal of 77 Milligrams per Kilogram (mg/kg) or parts per million. The 2018, groundwater sampling results taken from within the same area as soil samples ranged from 2.8 Part Per Billion (ppb) to 7.3 ppb for TCE. Prior to the ERH cleanup, the TCE concentration in groundwater in this area was approximately 11,000 ppb. The cleanup level for TCE at the Site is 5.0 ppb. In May of 2011, EPA transferred the operation, maintenance and long term groundwater monitoring activities to MassDEP.

In 2013, EPA completed an optimization study of the GWTF, because after implementation of the ERH, the source area contamination was mostly removed and the TCE concentrations in groundwater were substantially reduced. The report recommended going from semi-annual groundwater monitoring to monthly in order to evaluate the decline in contaminant levels and the possible shut down of the GWTF, based on specific shutdown criteria. MassDEP continued to monitor the groundwater on a monthly basis and the results indicated that the concentrations of contaminants continued to meet the shutdown criteria. In May of 2014, based on the monthly sampling data collected in 2013 and 2014, MassDEP, with approval from EPA, stopped active groundwater treatment and continued with monitored natural attenuation. Monitored natural attenuation relies on natural processes to decrease or "attenuate" concentrations of contaminants in soil and groundwater. Groundwater is monitored routinely to make sure natural attenuation is occuring. The treatment equipment remained on-site within the treatment building while MassDEP and EPA continued to ensure contaminant concentrations did not increase to levels above the protective shutdown criteria.

The 2018 annual groundwater sampling event demonstrates that TCE concentrations at the Site did not increase or rebound and continue to decrease, since the ERH was completed in 2011. Therefore, the GWTF continues to remain shut down. Groundwater monitoring, which is part of monitored natural attenuation, continues to be conducted at the Site on an annual basis. The GWTF will be properly dismantled, while groundwater monitoring and monitored natural attenuation continues to be conducted at the Site on an annual basis.. In 2000, the area of contaminated groundwater that exceeded the cleanup goal of 5 ppb for TCE was 36 acres and based on the Fall 2017 and 2018 groundwater data, has decreased to approximately 4.21 acres, a 95% reduction in the contaminated groundwater. See Figure 1.

CURRENT STATUS

In December 2019, MassDEP working in conjunction with the State Office of Surplus Property, began the auctioning process for the groundwater treatment equipment. In addition, MassDEP is developing a scope of work to hire a qualified contractor to clean

out the inside of the groundwater facility, once the auctioning process is complete. The piping for the extraction system will also be properly abandoned, cut and capped in place (underground). After all the equipment is removed and the building cleaned, it will be transferred to the owner of that property, the Archdiocese of Boston.

Under the Safe Drinking Water Act, the Town samples the supply wells to ensure that the water meets all protective standards. In addition to well head sampling conducted by the Town, MassDEP collects groundwater samples from two "sentinel" groundwater monitoring wells on a quarterly basis. These two sentinel wells are located between the Valley property and Town Well #1, to detect any contamination prior to it reaching the town well. The 2019 groundwater sampling events (conducted in January, May, August, and October 2019) continue to demonstrate that these sentinel wells do not have detectable levels of Site related contamination.

Institutional Controls (ICs) are in place on the Valley property, and are also in place on 64 and 62 Washington Streets. ICs are non-engineered instruments, such as deed restrictions, which provide administrative and legal controls to protect the integrity of the cleanup actions, for example, the groundwater monitoring, and extraction wells. The ICs also prohibit residential, agricultural or other uses of these properties that may present an unacceptable human health risk, and also prohibit extraction of groundwater and subsurface excavation unless EPA and MassDEP approve a workplan or until all protective cleanup levels are achieved.

2020 FIVE YEAR REVIEW

EPA and MassDEP are in the process of conducting a fourth Five Year Review (FYR) of the remedy and will continue to evaluate conditions at the Site every five years to ensure that the cleanup actions continue to remain protective of human health and the environment. As part of the FYR, MassDEP and EPA will continue with long term groundwater monitoring and in June of 2020, the fourth Five Year Review (FYR) will be completed. A copy of the final 2020, FYR will be provided to the town and made available to the public on the Groveland Wells Superfund site web page at: **www.epa.gov/superfund/groveland**

Groundwater Treatment Plant Interior (2000)

Groundwater Treatment Plant Interior – Dismantling (2020)