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## Treatment of the Tutu Wellfield Superfund Site

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Commissioner  
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The point of origin was a textile factory from 1969-1971

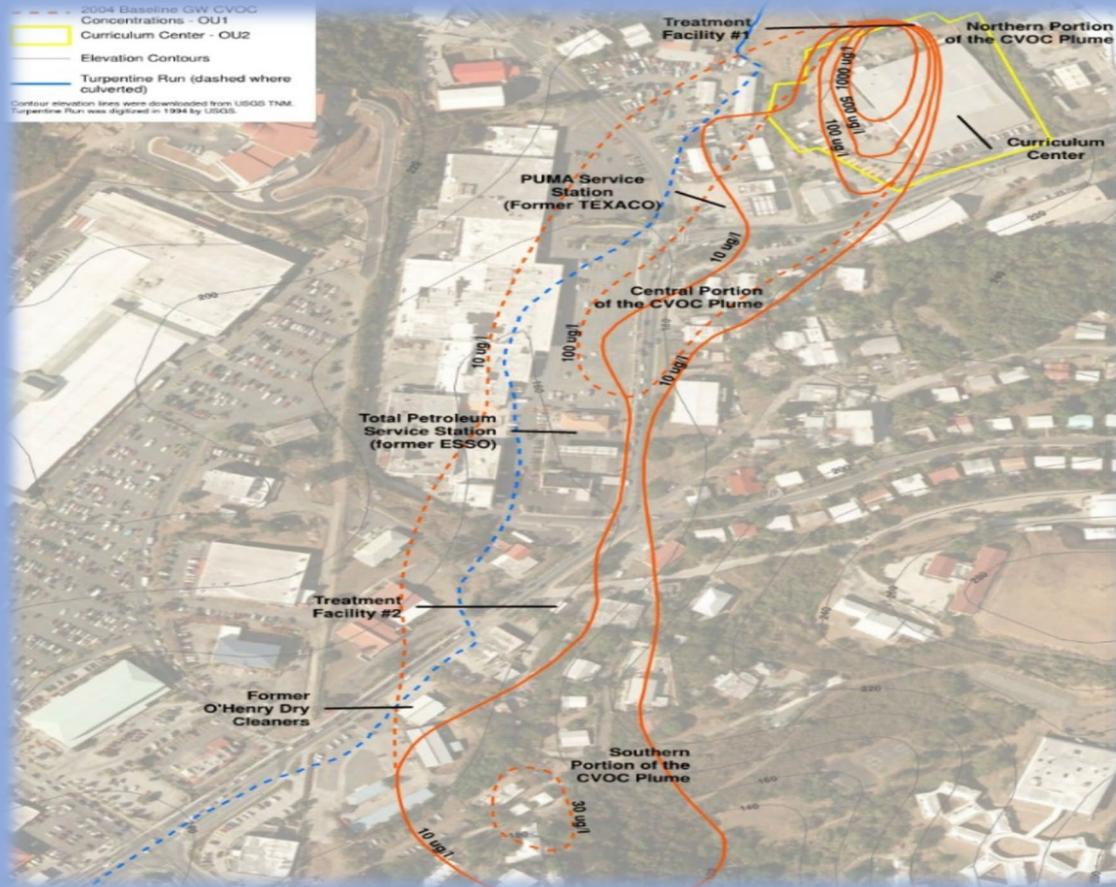
The property then transitioned to a dry cleaning facility in 1971 to 1978

In 1981 the property was sold to the GVI and was transformed into the DOE Curriculum Center





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When the dry cleaner was operational, tetrachloroethene as the cleaning agent

Tutu Wellfield Superfund Site is in the east-central neighborhood of Anna's Retreat

Several investigations from 1982-1995; finds that the contaminated area spans 108 acres and groundwater enters the Turpentine Run Gut or stream



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Since 2001, been employing pump and treat remediation at three (3) groundwater well locations





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In 2018, EPA conducted additional investigation of the site and held public hearings

Five Alternatives developed, and “Alternative 2/2A” for additional pump and treat with reinjection determined to be the preferred alternative and the USVI concurred

ROD issued in Oct 2021



## EPA SELECTS EXPANDED CLEANUP PLAN TUTU WELLFIELD SUPERFUND SITE

OCTOBER 2021



The U.S. Environmental Protection Agency (EPA) finalized an expanded cleanup plan for the Tutu Wellfield Superfund site in St. Thomas, U.S. Virgin Islands, on September 30, 2021. The final cleanup plan includes an expansion of the groundwater treatment system that is currently operating at the site to better address contaminated groundwater. The U.S. Virgin Islands Department of Planning and Natural Resources (DPNR) supports the technical aspects of the selected cleanup plan.

The cleanup plan is available online in a decision document called a record of decision, or ROD:  
[www.epa.gov/superfund/tutu-wellfield](https://www.epa.gov/superfund/tutu-wellfield)

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### The Selected Cleanup

EPA's cleanup plan requires expanding and enhancing the existing groundwater pump and treatment system to capture more of the ongoing source of contamination already being addressed by the existing cleanup system. The current system was designed to address three separate areas where contaminants are dispersed in groundwater known as plumes. These groundwater plumes are contaminated with chlorinated volatile organic compounds and petroleum products. While the existing system is effectively preventing the contamination from moving further, the concentrations

### Community Input

EPA shared a pre-recorded presentation on YouTube to



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Matrix diffusion modeling was performed to simulate the fate and transport of PCE in fractured bedrock where matrix diffusion plays a role in attenuating the contaminant's life in the system after the source has been removed. Results of the matrix diffusion modeling indicate concentrations at the property boundary are predicted to drop below the MCL within an estimated range of 17 - 25 years after complete source removal.

Alternatives 2 through 4 include long-term monitoring to ensure that groundwater quality improves following implementation of these alternatives until such time as clean up levels are achieved.

Assumptions were made in the FS for areas that were not fully investigated during the FSRI, specifically, beneath the northern portion of the Curriculum Center building. Alternatives 2 through 4 will include a pre-design investigations (PDI) to verify FS assumptions, to address data gaps and to obtain design parameters for the completion of an RD at the Curriculum Center source areas. The timeframes for remediation presented below include the time for PDIs, remedial design, contract procurements and the actual time required to construct and implement the action.

Alternatives 2 through 4 also include ICs that will rely on ground water use restrictions in the form of local well use laws until RAOs are achieved to ensure the remedy remains protective. Specifically, Title 12, Chapter 5 of Virgin Islands Code regulates installation of any well other than a public water supply well in the Virgin Islands. ICs will include vapor intrusion restrictions for any new construction at the site.

action would be implemented beyond the remedy selected in the 1996 remedy. Existing ICs that were required under the 1996 remedy would remain in place.

Capital Cost: \$0  
 O&M Costs: \$0  
 Present-Worth Cost: \$0  
 Time frame: Not Applicable

### Alternative 2: Expand and Optimize Existing Groundwater Extraction and Ex-Situ Treatment (Pump and Treat)

Capital Cost: \$4,802,538  
 Present-Worth O&M Costs: \$8,481,677  
 Present-Worth Cost: \$13,340,565  
 Time frame: 30 years

This remedial alternative consists of expanding the current groundwater treatment system (GWTF #1) with the addition of new extraction wells downgradient of the Curriculum Center. The addition of downgradient wells will allow for more flexibility in containing the plume as it migrates from the source area. Alternative 2 also includes upgrading the GWTF #1 current system capacity and adding alternate pumping and dual-phase extraction (DPE)/enhanced fluid recovery (EFR) from existing monitoring wells with high contaminant concentrations.

For the conceptual design, it is estimated that two additional extraction wells would be installed downgradient of the existing recovery wells to a target depth of 140 feet bgs. It is estimated that the existing GWTF#1 system's capacity will be upgraded from 60 to 100 gpm and will operate in "flow control" mode rather than at the current "constant

the 1996 ROD, natural processes would be relied upon to achieve the MCLs for areas outside the capture zone and not targeted for active remediation. The success of the remedy in meeting the RAOs will be evaluated through the above-mentioned statutorily required five-year reviews.

The conceptual design would be refined during the RD phase if this alternative is selected.

### Alternative Enhancement 2A: Reinjection

Capital Cost: \$437,053  
 Present-Worth O&M Costs: \$51,364 plus Alt 2  
 Present-Worth Cost: \$488,417  
 Time frame: 30 years

This enhancement for Alternative 2, the cost of which would be in addition to Alternative 2, includes enhancing the existing pump and treat system as described in Alternative 2 with reinjection of the treated ground water downgradient of the Curriculum Center in an effort to act as a hydraulic barrier to prevent further off property migration of the contamination.

For the conceptual design, it is estimated that two injection wells would be installed downgradient of the existing and proposed extraction wells and along major fracture/weathered zone trends identified during the FSRI.

For cost-estimating and planning purposes, an estimated remediation time frame of 30 years is used for developing costs associated with O&M activities.

### Alternative Enhancement 2B: Air Sparging/Soil Vapor Extraction

Capital Cost: \$1,739,745

Current cost to operate the pump and treat is ~\$500k/year

With the additional alternatives, there's an additional \$5M in capital costs in first few years, then \$800k/year for O&M



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## ALTERNATIVE PROJECTS

Consider abatement of ACM in buildings

Treatment at the landfills, particularly the Bovoni landfill, for metals



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**QUESTIONS?**