Commerce St. Plume Superfund Site
Williston, VT

U.S. EPA | SUPERFUND CLEANUP 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.*

YOUR OPINION COUNTS: OPPORTUNITIES TO COMMENT ON THE PLAN

EPA will be accepting public comments on this proposed cleanup plan from August 6, 2015 through September 4, 2015. You don't have to be a technical expert to comment. If you have a concern, suggestion or preference regarding this Proposed Plan, EPA wants to hear from you before making a final decision on how to protect your community. Comments can be sent by mail, e-mail, or fax. People also can offer oral or written comments at a formal public hearing (see page 14 for details). If you have specific needs for the upcoming public meeting or hearing, questions about the facility and its accessibility, or questions on how to comment, please contact Pamela Harting-Barrat (see below).

PUBLIC INFO MEETING
WED 8/12/15 • 7 PM
Town Hall, 7900 Williston Road
Williston, VT 05495

FORMAL PUBLIC HEARING
WED 8/12/15 • 8 PM
Town Hall, 7900 Williston Road
Williston, VT 05495

CLEANUP PROPOSAL SNAPSHOT

The Proposed Plan for the soil and groundwater contamination at the Commerce Street Plume Site generally includes:

- Excavation and off-site disposal of approximately 630 cubic yards of contaminated soil in the area of a former wastewater lagoon at 96 Commerce Street;
- In situ treatment of volatile organic compounds (VOCs) in the overburden aquifer, followed by monitored natural attenuation (MNA);
- Continued operation and maintenance of an existing vapor mitigation system at 830 South Brownell Road. Based on future data collection and risk assessment,

continued >

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present system may need upgrading or replacement to prevent unacceptable risk from inhaling VOCs;

- Contingency to remediate other locations, as necessary, to address unacceptable vapor intrusion risks;
- Institutional controls, such as deed restrictions and/or municipal ordinances, and state reclassification of groundwater to Class IV (non-potable) to limit the withdrawal of ground water, limit harmful exposures when working in soils saturated with contaminated groundwater and to require continued operation of a vapor mitigation system, until cleanup levels are met;
- Long-term groundwater monitoring to assess effectiveness of MNA and any migration of contamination across the new Class IV boundary; and
- Long-term operation and maintence (O&M) and periodic reviews of the remedy.

EPA's proposed remedy, including construction, O&M and long-term monitoring, is estimated to cost approximately $8.4 million in net present value. The proposed remedy is expected to take approximately two to three years to implement, and is estimated to require 50 to 75 years (based on analytical modeling) for groundwater to achieve cleanup levels. A more detailed description of this proposal is outlined in this document.

A CLOSER LOOK AT EPA'S PROPOSED CLEANUP APPROACH

The July 2015 Remedial Investigation (RI) Report for the Commerce Street Plume Superfund Site (Site) summarized the nature and extent of contamination at the Site and was used to prepare a July 2015 Feasibility Study that identified all the options EPA considered for cleanup. The study evaluated the efficacy of different cleanup options (also called "alternatives") to restrict access to, contain, remove and/or treat contamination to protect human health and the environment by preventing risk of exposure to Site-related contaminants in soil, groundwater and indoor air. Based upon the alternatives evaluated in the Feasibility Study, EPA is proposing the following long-term cleanup approach for the Site:

Soil

EPA's preferred alternative for the soil cleanup is **Alternative SO3** in the Feasibility Study, Excavation and Off-Site Disposal, which includes the following components:

- Excavation of about 630 cubic yards of soil contaminated with chromium, arsenic and polycyclic aromatic hydro carbons (PAHs) in the area of a former wastewater lagoon, located behind the building once occupied by Mitec Systems Corporation (Mitec Systems);
- Hauling the contaminated soil to a licensed waste disposal facility; and
- Backfilling the area with clean soil and restoring the natural grade and vegetation.

Groundwater

EPA's preferred alternative for the groundwater cleanup is the series of treatments described in **Alternative GW5** in the Feasibility Study, In Situ Treatment and MNA, which includes the following components:

- Injection of chemical oxidants followed by biological stimulants into the most contaminated portions of the overburden aquifer to reduce the concentrations of VOCs;
- Monitoring naturally-occurring degradation of VOC contamination across the lesser contaminated portions of the groundwater plume;
- Implementing institutional controls (e.g., deed restrictions, municipal ordinance, state reclassification of groundwater to non-potable Class IV) to limit withdrawal of groundwater and to limit the exposure of utility workers and others who many come in contact with soils saturated with contaminated groundwater until cleanup levels are met;
- Long-term groundwater monitoring to assess effectiveness of MNA and any migration of contamination across the Site/Class IV boundary; and
- Long-term O&M and reviews every five years to assure that the remedy remains protective.

Figures 2 and 3 show the extent of the groundwater plume and a conceptual configuration of in situ treatment areas, respectively. The design will be refined based on bench scale and/or pilot studies

that will determine the effectiveness of various chemical reagents, oxidants, bioaugmentation and nutrient sources, given the conditions found in the subsurface at the Site.

Vapor Intrusion

EPA's preferred alternative for the vapor intrusion pathway is **Alternative VM3** in the Feasibility Study, Enhanced Vapor Mitigation, which includes the following components:

- Continued operation of the sump pump, passive gas venting and sump water discharge system presently installed at 830 South Brownell Road to reduce the vapor inhalation risks to the residents at that location and installation of a treatment system for sump water discharge;
- Institutional controls to require continued operation of and allow access to the existing vapor mitigation system at 830 South Brownell;
- Installation of additional vapor mitigation or other engineering controls at 830 South Brownell, as determined necessary to protect human health, based on risk analysis of additional data to be collected during remedial design;
- Installation of vapor mitigation system(s) or other engineering controls in other residential or commercial buildings in the vicinity of the plume should data collected in the future (e.g., indoor air, sub-slab) indicate a risk to human health; and
- Reviews every five years to assure that the remedy remains protective.

The estimated total present value of this proposed cleanup approach, including construction, operation and maintenance, and long-term monitoring, is approximately $8.4 million. "Present value" is the amount of money set aside today to ensure that enough money is available over the expected life of the project, assuming certain economic conditions (e.g., inflation). A discount rate of 7% was assumed. Each component is discussed in the Feasibility Study in greater detail.

POTENTIAL COMMUNITY IMPACTS

Short-term impacts to Site workers include the potential inhalation of airborne contaminants during soil excavation. Measures such as spraying with water and particulate monitoring will ensure that dust does not travel to nearby properties. The work will be performed during typical work hours to minimize noise in nearby residential areas. Approximately 21 truckloads of material will be taken off site to a licensed disposal facility. Efforts will be made to deliver clean fill on the return trips to the Site to minimize truck traffic. During excavation, access to the area will be restricted to Site workers only. It is anticipated that less than one month will be needed to completely excavate and backfill.

The pressurized injection of reagents or amendments for the active component of groundwater treatment creates a potential risk to Site workers that may be exposed to those substances. However, that risk can be mitigated through implemention of proper engineering controls and health and safety procedures. Administrative and engineering controls, and communication with local officials and the community would ensure the safe transportation, storage and injection of these materials and would be included as part of remedial design. Any potential risks to workers at the Site and the general public will be minimized with proper planning and controls. Implementation of the active groundwater treatment is expected to occur in four pulses, each lasting three weeks, spread out over two to three years.

SITE DESCRIPTION AND HISTORY

The Commerce Street Plume Superfund Site is located in the Town of Williston, Chittenden County, Vermont. It encompasses the former Alling Industrial Park (AIP) on Commerce Street, residential Kirby Lane, and portions of South Brownell and Shunpike Roads, which include mixed commercial and residential uses (Figure 1). The Site is defined by a 70-acre plume of VOC contamination (primarily trichloroethylene or TCE) in the overburden groundwater (Figure 2). A small stream, which runs along the eastern side of the Site, flows into a tributary of the Muddy River a mile south of the Site.

The unconsolidated material in the overburden consists of three units: a 40-foot thick layer of sand that grades to fine sand and silt at depth, underlain by a 10- to 30-foot thick layer of clay which acts as a barrier to the downward migration of contamination. Beneath the clay is a layer (10 to 50 feet thick) of dense glacial till. Regional groundwater flow is generally north-northeast to south-southwest, however, in the central portion of the Site there is a southeastern component that flows towards the unnamed stream. The water table is on average five feet below ground surface, but seasonally can be much higher requiring some residents to use sump pumps.

The AIP has had light industrial and commercial tenants since 1946. From 1979 to 1986, Mitec Systems, leased 15 (now 96) Commerce Street. During that time, Mitec Systems discharged rinse waters and sludge wastes containing metals and industrial solvents associated with the manufacture of microwave and electronic components through a pipe that ran directly from the building to an unlined lagoon at the rear of the property. In 1982, the VT Agency of Natural Resources (VT ANR) (now the Department of Environmental Conservation or DEC) found Mitec Systems to be in violation of hazardous waste disposal regulations, and identified the lagoon and a leach field on the property as potential sources of contamination. In 1984, private water supply wells downgradient of Mitec Systems were found to be contaminated with VOCs and public water was brought into the area.

Between 1985 and 1999, numerous environmental studies were conducted by and for the State of Vermont throughout the AIP. With each successive investigation, the plume was found to be more widespread, extending into neighboring residential areas. A 1989 VT ANR study of indoor air quality found that but for one residence, which was addressed around that time, the potential for harmful vapors from the ever-expanding VOC plume was not a concern due to the depth of contamination in groundwater. The Site was listed on the National Priorities List on April 27, 2005, with the concurrence of the Governor of Vermont.

COMMERCE STREET PLUME SITE TIMELINE

1979-1986: Mitec Systems leases the property on Commerce Street in the former AIP. Discharges occur of an undisclosed amount of wastewater from the manufacture of microwave and electronic components into an unlined lagoon at the rear of the property.

1982: Based on a tip from an employee of Mitec Systems, VT ANR inspects the facility and finds violations of hazardous waste disposal regulations.

1984: Metals are found in groundwater monitoring wells installed by Mitec Systems.

1985: Private water supply wells in an area adjacent to AIP found to be contaminated with VOCs; public water is brought into the area.

1985: Contaminated soil from the sides and bottom of the unlined lagoon excavated and hauled off site for proper disposal.

1989: VT ANR begins a multi-year study of vapor intrusion in homes across the Site; mitigation system installed by VT ANR found to be needed in only one residence.

1986 - 1996: Multiple environmental investigations performed throughout the AIP to identify the nature and extent of groundwater contamination and potential sources.

1997 - 2000: HSI GeoTrans, on behalf of Mitec Systems' parent company Mitec Telecom, Inc. and under the direction of the State of Vermont, maps a widespread plume of VOC contamination in the overburden aquifer.

2005: Site is listed on the Superfund National Priorities List, making it eligible for public funding for investigation and remediation.

2009: Mitec Telecom, Inc. agrees to a settlement with EPA based on its ability to pay.

2008 - 2014: EPA conducts additional remedial investigations in multiple phases.

2014: After conducting testing for potential risk from vapor inhalation, VT DEC, in consultation with EPA, installs new sump pump, passive venting and water discharge sytem at 830 South Brownell Road.

2015: Remedial Investigation Report, including the human health and ecological risk assessments, and a Feasibility Study Report are completed and EPA issues this Proposed Plan for the Site.

Prior Cleanup Actions

In 1982, VT ANR conducted an inspection of Mitec Systems' facility, finding the unlined lagoon to be ten feet in diameter with two feet of waste "of a deep green color". In 1983, the State of Vermont notified Mitec Systems that they were illegally disposing materials containing chromium and cadmium into the lagoon and Mitec Systems discontinued the practice shortly thereafter. In 1985, 30 cubic yards of contaminated material was removed from the sides and bottom of the lagoon and sent off site to a licensed waste disposal facility. During the excavation, State personnel reported a strong odor attributed to VOCs.

There have been cleanups on parcels other than Mitec Systems in the former AIP. Two underground storage tanks were removed from a lot across from Mitec Systems. Soil was removed from a disposal pit and sediment removed from an outfall to the unnamed stream at a parcel upgradient from Mitec. These sources do not appear to have contributed to the wide-spread VOC groundwater plume that is attributed to Mitec Systems' past operations and wastewater disposal practices.

CURRENT & FUTURE LAND USE

The existing land use at the Commerce Street Site is a mix of commercial, light industrial and residential. Current zoning in Williston does not preclude residential use of any parcel; therefore, any cleanup must be based on the presumption of future residential exposures.

Per Vermont's Groundwater Protection statute, it is the policy of the State of Vermont to protect its groundwater resources, which it holds in trust for the public, to maintain high-quality drinking water. Consistent with that policy, EPA is proposing cleanup levels that support the use of the groundwater as a future potential drinking water source based on federal and state drinking water standards and acceptable risk levels when no state or federal standard is available.

EPA is proposing to require institutional controls, such as deed restrictions and/or municipal ordinances, to limit the use of groundwater at the Site. Vermont law also dictates that groundwater exceeding drinking water standards be reclassified to Class IV, designating the water as non-potable and restricting the use of drinking water supply wells on any property within the new Class IV boundary. The Class IV boundary will be drawn to include all groundwater that currently exceeds drinking water standards and may also include buffer zones.

WHY CLEANUP IS NEEDED

Past operations at the Site resulted in the contamination of soil and groundwater. From 1979 until 1984, Mitec Systems disposed of an undisclosed amount of rinse waters and sludge wastes containing metals and industrial solvents associated with the manufacture of microwave and electronic components into an unlined lagoon at the rear of the property it was leasing in the Alling Industrial Park. Given the nature and extent of contamination, it appears that industrial solvents may also have been disposed of on the property in a leach field, which was only intended for sanitary use.

Site Contaminants

The main contaminants of concern at the Site include, but are not limited to:

Volatile Organic Compounds (VOCs), a variety of chemicals that are used in glue, paint, solvents and other products, and evaporate easily. Trichloroethylene (TCE) is a common VOC and is found in groundwater at the Site at concentrations as high as 10,000 times federal and state drinking water standards. VOCs that have adsorbed to the finer grained sand and clay in the deeper portions of the overburden aquifer are an on-going source of groundwater contamination.

Polycyclic Aromatic Hydrocarbons (PAHs), a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil, garbage and other organic substances like tobacco or charbroiled meat. They can also be found in asphalt pavement and roofing products but a few are used in medicines or to make dyes, plastics and pesticides. Several PAHs (benzo(a)anthracene,

HOW IS RISK TO PEOPLE EXPRESSED?

In evaluating risk to humans, estimates for risk from carcinogens and non-carcinogens (chemicals that may cause adverse effects other than cancer) are expressed differently.

For carcinogens, risk estimates are expressed in terms of probability. For example, exposure to a particular carcinogenic chemical may present a 1 in 10,000 increased chance of causing cancer over an estimated lifetime of 70 years. This can also be expressed as 1 x 10-4. The EPA acceptable risk range for carcinogens is 1 x 10-6 (1 in 1,000,000) to 1 x 10-4 (1 in 10,000) in a 70 year lifetime. In general, calculated risks higher than this range would require consideration of clean-up alternatives.

For non-carcinogens, exposures are first estimated and then compared to a reference dose (RfD). RfDs are developed by EPA scientists to estimate the amount of a chemical a person (including the most sensitive person) could be exposed to over a lifetime without developing adverse health effects. The exposure dose is divided by the RfD to calculate the measure known as a hazard index (HI) (a ratio). An HI greater than 1 suggests that adverse effects may be possible.

benzo(a)pyrene and benzo(b)fluoranthene) were detected at low concentrations but above risk-based cleanup levels in soil at the location of the former unlined lagoon.

Metals, including arsenic, chromium, cobalt and iron were found in soil and groundwater at the Site. At one location near the former unlined lagoon, the chromium was found to be the more toxic hexavalent form. To be conservative, it is assumed that all chromium detected on the former Mitec Systems parcel is hexavalent.

Exposure Pathways & Potential Risk

Just because contamination exists does not mean people or the environment are at risk. There has to be exposure to the contaminant for there to be potential risk. Exposure occurs when people or other living organisms eat, drink, breathe or have direct skin contact with a hazardous substance or waste material. Based on existing or reasonably anticipated future land use at a site, EPA develops different possible exposure scenarios to determine potential risk, appropriate cleanup levels for contaminants and potential cleanup approaches.

Human health and ecological risk assessments have been prepared for the Site and can be found in Volume 2 of the July 2015 RI Report. These assessments use a number of possible contamination exposure scenarios to determine if and where there are current or potential future unacceptable risks.

Human Health

People have the potential for exposure to Site contaminants through drinking or direct contact with groundwater; direct contact with soils, surface water or sediment; or inhalation of vapors emanating from groundwater contamination. The risk assessment evaluated the exposure pathways discussed below.

Exposure Assessment
Curent land use is mixed residential, commercial and light industrial. However, because Williston zoning does not prevent residential use of any parcel, the Human Health Risk Assessment conservatively presumed residential use across the entire Site. Residential use refers to use of property for the location of a residential dwelling, with the assumption that young children and adults spend the majority of their time each day in the residential dwelling at their property. Residential land uses are assumed to involve exposure to soils and use of groundwater for drinking, bathing and showering. Health risks were evaluated for other possible current and future uses of the Site, including passive recreation and construction/utility workers. The passive recreational use scenario evaluated young children and adults who were assumed to be exposed to surface water and sediments if wading or swimming in the unnamed stream that runs along the eastern edge of the Site. Fish consumption is an unlikely exposure pathway given the size and condition of the unnamed stream. The construction/utility worker scenario evaluated the potential for direct contact with shallow groundwater and inhalation of vapors during trenching, digging foundations and other such activities. EPA conducted an indoor air study of seven structures (five residential, two commercial) that are representative of conditions across the Site and confirmed VT ANR's 1989 finding that vapor intrusion is not an area-wide concern. VT DEC and EPA later evaluated the health risk to residents at 830 South Brownell Road from direct vapor inhalation from contaminated groundwater that without the existing sump pump system could flood the basement.

Overall, EPA found that the following pathways pose an unacceptable risk:

- **Future Residential Consumption of Groundwater.** Public water is supplied thoughout the Site, so there are no current risks to human health. However, future consumption of the groundwater, which is Vermont's stated goal, may pose a 9 in 100 (9.2 x 10-2) chance of causing cancer which is higher than EPA's acceptable cancer risk range. The non-cancer risk of future consumption of the groundwater is also unacceptable because the Hazard Index (HI) for children was more than 3000 times (HI = 3181) higher than the acceptable HI of 1, due primarily to TCE.

- **Future Residential Contact with Soil**. Current use of the parcel at 96 Commerce Street that was once occupied by Mitec Systems is commercial. However, Williston zoning practices permit future residential use. Assuming residential exposures across the Site, soil poses a cancer risk of 4 in 100,000 (4 x 10-5) which is within EPA's acceptable cancer risk range. The non-cancer risk of residential exposures to the soil is acceptable because the HI was less than 1. Due to uncertainty about how much of the chromium in the area of the former lagoon is the more toxic hexavalent form, EPA calculated an unacceptable cancer risk of 1 in 1000 (1.1 x 10-3) for residential exposures to soil on the former Mitec Systems parcel, making the assumption that all the chromium is hexavalent. Based on this second, more conservative risk evaluation, EPA is recommending soil excavation and off-site disposal at 96 Commerce Street.

- **Current and Future Construction/ Utility Worker Contact with Groundwater and Inhalation of Groundwater Vapors.** Workers were assumed to be exposed to shallow groundwater for

eight hours a day, five days a week for a period of six months. Under this scenario, exposure to shallow groundwater poses a cancer risk of 2 in 1,000,000 (2 x 10-6) which is within EPA's acceptable cancer risk range. However, the non-cancer risk is HI = 3, which is higher than the acceptable HI of 1.

• **Current Residential Inhalation of Groundwater Vapors.** EPA evaluated indoor air risk from direct inhalation of TCE volatilizing from exposed contaminated groundwater that could flood the basement at 830 South Brownell Road based on sump pump water samples. The calculated residential indoor air risk, based on a maximum TCE concentration of 104 ug/L in groundwater, is 9 in 100 (8.8 x 10-2) which is higher than EPA's acceptable cancer risk range. The non-cancer risk of residential exposures to inhalation of TCE volatilizing from contaminated groundwater is HI = 20,000, which is higher than the acceptable HI of 1.

Threats to the Environment

A screening level ecological risk assessment (SLERA) looked for impacts from Site-related VOCs on the unnamed stream that runs along the eastern side of the Site. Pore water (the water between grains of sand or silt), sediment, surface water and benthic invertebrate samples were collected and compared to upstream reference locations. The SLERA concluded that while there are impacts to the stream, they are due to factors unrelated to the Site.

CLEANUP ALTERNATIVES CONSIDERED

Once possible exposure pathways and potential risks have been identified at a site, cleanup alternatives are developed to address the identified risks and achieve the site-specific Remedial Action Objectives, also known as cleanup objectives. The proposed cleanup levels for soil and groundwater provided in Table 1 have been developed to be protective of human health and the environment as well as to achieve the cleanup objectives for the Site as summarized below :

(1) Prevent potential future residential exposure to contaminants in soil in the area of the former unlined lagoon at 96 Commerce Street that would result in an unacceptable risk to human health;

(2) Prevent ingestion and other household uses of groundwater that would result in an unacceptable risk to human health;

(3) Restore groundwater to its beneficial use as a potential drinking water supply by meeting federal and state drinking water standards or, in their absence, by achieving acceptable risk to human health;

(3) Minimize the migration of contaminants in groundwater beyond the Site/ Class IV (non-potable) boundary;

(4) Prevent construction workers from being exposed to shallow groundwater and volatiles in trench air at concentrations that would result in an unacceptable risk to human health; and

(5) Prevent inhalation of vapors in indoor air emanating from contaminated groundwater at concentrations that would result in an unacceptable risk to human health.

A detailed description and analysis of each alternative developed to meet these cleanup objectives and reduce risks from soil, groundwater and vapor intrusion is presented in the Feasibility Study. The Feasibility Study is available for public review (see page 14 for more information on where you can find Site related documents). Below is a summary of the multiple cleanup alternatives considered. No matter which cleanup plan is selected, an assessment of the remedy will be conducted every five years (Five-Year Review or FYR) to ensure that it remains protective of human health and the environment.

Soil Alternatives

SO1: No Action

Under the No Action alternative, no further actions would be taken to prevent exposure to contaminated soil in the location of the former unlined lagoon at 96 Commerce Street. Any reduction in risk will occur through natural attenutation processes. FYRs would still be performed as part of the No Action alternative. As required by the Superfund law, the No Action alternative will serve as a baseline for comparing the effectiveness of other remedial alternatives to be developed for soil. The only cost associated with this alternative is $62,000 for FYRs.

SO2: Limited Action/Institutional and Engineering Controls

Under this alternative, access to impacted soil at 96 Commerce Street will be restricted by institutional and engineering controls. Institutional controls in the form of a deed restriction will be placed on the 96 Commerce Street property to prevent disturbance of the soil without protective measures during invasive subsurface activities (e.g., excavations, utility trenches) to prevent human exposures to contaminated soil. A fence with lockable gates will be placed around the impacted soil in the area of the former unlined lagoon, and would require routine O&M. Warning signs will be attached to the fence alerting visitors to the hazards associated with contact with the soil. A fence and signs can be installed in about a week; deed restric-

tions however can take several years. The estimated present value cost of this alternative is $184,000.

SO3: Excavation and Off-Site Disposal (EPA's Preferred Alternative)
This alternative includes the excavation of approximately 630 cubic yards of soil that exceeds cleanup levels in the area of the former unlined lagoon at 96 Commerce Street and will take less than one month to complete. The contaminated soil will be taken off site to a licensed hazardous waste disposal facility. The area will be backfilled with clean soil, and all disturbed areas will be restored to existing grades and seeded. The estimated present value cost of this alternative is $658,000.

Groundwater Alternatives

GW1: No Action
Under the No Action alternative, no further actions would be taken to prevent exposure to contaminated groundwater at the Site. Any reduction in risk will occur through natural attenuation processes. FYRs would still be performed as part of the No Action alternative. As required by the Superfund law, the No Action alternative will serve as a baseline for comparing the effectiveness of other remedial alternatives to be developed for groundwater. The only cost associated with this alternative is $62,000 for FYRs.

GW2: Limited Action/Institutional Controls
Under this alternative, exposure to contaminated groundwater will be restricted by institutional controls. Institutional controls such as deed restrictions and/or municipal ordiances would be used to limit withdrawal of groundwater and to limit the exposure of utility workers and others who may come in contact with soils saturated with contaminated groundwater until cleanup levels are met. As an additional institutional control, the State of Vermont will reclassify contaminated groundwater at the Site as Class IV, designating it non-potable and restricting the use of drinking water supply wells on properties near the 70-acre plume. Institutional controls may take several years to complete. This alternative would include limited groundwater monitoring for contaminant migration across the Site/Class IV boundary, which would result in more groundwater being deemed unfit for drinking and other household uses. O&M on the groundwater monitoring wells would be needed. The estimated present value cost of this alternative is $246,000.

GW3: Monitored Natural Attenuation (MNA) and Long-Term Monitoring
This alternative includes the institutional controls, including Class IV redesignation, to prevent exposure to groundwater that exceeds federal and state drinking water standards, as described in GW2. In addition, it uses MNA to assess reduction in risk from natural attenuation processes. Long-term, regular monitoring of VOCs and geochemical parameters to determine MNA effectiveness will be conducted across the entire plume and be subject to trend analysis. The groundwater monitoring wells will require O&M. Based on analytical modeling developed only for purposes of comparing one groundwater alternative to another, it may take anywhere from 115 to 250 years, or longer, to achieve groundwater cleanup levels with MNA. The estimated present value cost of this alternative is $1.6 million.

GW5: In Situ Treatment and Monitored Natural Attenuation (EPA's Preferred Alternative)
In addition to all the elements of Alternatives GW2 and GW3, Alternative GW5 includes active treatment of the groundwater plume. Chemical reagents (e.g., hydrogen peroxide, ozone, etc) and/or biological stimulants (e.g., molasses, VOC-loving microbes, etc) will be injected into the most contaminated portions of the overburden aquifer to reduce the concentrations of VOCs. Of the in situ treatment options evaluated in the Feasibilty Study, the one that EPA believes will achieve Vermont's groundwater restoration goals in a reasonable timeframe is a treatment train of chemical oxidation in portions of the plume where TCE concentrations exceed 50,000 ppb, followed by biological treatment where TCE concentrations are greater than 500 ppb, as shown on Figure 3. Conceptually, in situ treatment is expected to last two to three years, consisting of a total of four injections, each lasting three weeks. The time between injections is expected to be six months to a year depending on how long the reagents last in the subsurface. A treatment plan addressing delivery methods; types and volumes of amendments to be applied; locations and arrangements of injections; duration and schedule of injections; etc, will be refined during remedial design. The remainder of the plume will be treated with an MNA polishing step until groundwater cleanup levels are met. Based on analytical modeling, it may take anywhere from 50 to 75 years, or longer, to achieve groundwater cleanup levels with in situ treatment and MNA. The estimated present value cost of this in situ treatment option is $7.6 million.

Vapor Mitigation Alternatives

VM1: No Action
Under the No Action alternative, no further actions would be taken to prevent potential exposure to vapors in indoor air at 830 South Brownell Road from contaminated groundwater that could flood the basement and is below the

THE NINE CRITERIA FOR CHOOSING A CLEANUP PLAN

EPA uses nine criteria to evaluate cleanup alternatives and select a final cleanup plan. EPA has already evaluated how well each of the cleanup alternatives developed for the Commerce Street Plume Superfund Site meets the first seven criteria in the Feasibility Study. Once comments from the state and the community are received and considered, EPA will select the final cleanup plan.

1. Overall protection of human health and the environment: Will it protect you and the plant and animal life on and near the site? EPA will not choose a cleanup plan that does not meet this basic criterion.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs): Does the alternative meet all federal and state environmental statutes, regulations and requirements? The cleanup plan must meet this criterion.

3. Long-term effectiveness and permanence: Will the effects of the cleanup plan last or could contamination cause future risk?

4. Reduction of toxicity, mobility or volume through treatment: Using treatment, does the alternative reduce the harmful effects of the contaminants, the spread of contaminants, and the amount of contaminated material?

5. Short-term effectiveness: How soon will site risks be adequately reduced? Could the cleanup cause short-term hazards to workers, residents or the environment?

6. Implementability: Is the alternative technically feasible? Are the right goods and services (i.e. treatment equipment, space at an approved disposal facility) available?

7. Cost: What is the total cost of an alternative over time? EPA must select a cleanup plan that provides necessary protection for a reasonable cost.

8. State acceptance: Do state environmental agencies agree with EPA's proposal?

9. Community acceptance: What support, objections, suggestions or modifications did the public offer during the comment period?

basement. FYRs would still be performed as part of the No Action alternative. As required by the Superfund law, the No Action alternative will serve as a baseline for comparing the effectiveness of other remedial alternatives to be developed for vapor mitigation. The only cost associated with this alternative is $62,000 for FYRs.

VM2: Sump Pump, Vapor Venting, Treatment and Discharge

Under this alternative, institutional controls in the form of a deed restriction would be implemented to require the continued operation of and allow access to the sump pump, passive gas venting and sump water discharge system already installed at 830 South Brownell Road by VT DEC, in consultation with EPA. In addition, a system will be installed on the property (e.g., carbon filters in a shed on site) for the treatment of sump water prior to discharge to the ground surface and indirectly to groundwater, as required by Vermont's Water Pollution Control law. The estimated present value cost of this alternative is $113,000.

VM3: Enhanced Vapor Mitigation (EPA's Preferred Alternative)

This alternative includes all elements described in Alternative VM2, but also requires, as determined necessary based on a risk analysis of additional data collected during pre-design, the installation of additional vapor mitigation (e.g., active venting, vapor barrier, etc) or other engineering controls to supplement or replace the existing vapor mitigation system at 830 South Brownell Road. The alternative also includes the installation of vapor mitigation or other engineering controls in other residential or commercial buildings in the vicinity of the plume if data (e.g., indoor air, sub-slab) collected during future sampling events for FYRs or other reasons indicates a risk to human health. The alternative will require an institutional control in the form of a deed restriction, requiring the continued operation of and allow access to the enhanced vapor mitigation system. The estimated present value cost of this alternative is $157,000.

CLEANUP ALTERNATIVES COMPARISON

The alternatives for soil, groundwater and vapor intrusion were compared with each other to identify how well each alternative meets EPA's evaluation criteria. The following discussion and Table 2 present a general comparison summary of the

alternatives. More detailed evaluations and comparisons of the alternatives are included in the Feasibility Study.

Soil

Overall Protection of Human Health and the Environment

Alternative SO1 (No Action) does not meet this criterion; both SO2 and SO3 do. Alternative SO2 helps protect human health by limiting exposure to the impacted soil with land use restrictions and a physical barrier to prevent access. Alternative SO3 protects human health by removing the contaminated soil and taking it off site to a licensed hazardous waste treatment and disposal facility. Since SO3 fully eliminates from the Site the risk posed by the contaminated soil, it is more protective than SO2, which is less protective overall due to potential damage, vandalism, trespass or other failure of the fencing and institutional control restrictions.

Compliance with ARARs

Neither Alternative SO1 nor SO2 meet this criterion; SO3 does. Resource Conservation and Recovery Act (RCRA) characteristic hazardous waste was disposed in the lagoon at 96 Commerce Street, thus requiring either full removal of contaminated soil or a RCRA cap. Neither SO1 nor SO2 meet this action-specific ARAR requirement. Alternative SO3, by contrast, will remove the contaminated soils from 96 Commerce Street and will comply with all applicable RCRA requirements, and dipose of contaminated soils off site in a RCRA-compliant facility. Alternative SO2 and SO3 will include a confirmatory wetland and buffer zone delineation and any alterations to existing wetlands from soil excavation will be mitigated to restore ecological functions and values to comply with wetland rules. Erosion control measures will be implemented, if necessary, to minimize impacts to wetland areas that may be nearby. As soils at the Site were identified to potentially contain pre-contact archaeological sites, SO2 and SO3 will be implemented in conformance with state and federal archaeological and historic preservation laws.

Long-Term Effectiveness and Permanence

The No Action alternative (SO1) does not meet this criterion. Alternative SO2 leaves the contaminated soil on site and relies on individuals to abide by land use restrictions. The fence would be susceptible to vandalism, wear and tear and weather-related damage, and would have to be repaired or replaced periodically. Alternative SO3 provides a greater degree of long-term effectiveness and permanence than SO2 because the impacted soil is removed and disposed off site.

Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment

Neither Alternative SO1 nor SO2 achieve this criterion. Alternative SO3 reduces toxicity, mobility and volume of contaminated soil at the Site by removing it and taking it to a licensed treatment or disposal facility.

Short-Term Effectiveness

The No Action alternative would not reduce risk from exposure to contaminated soil. A fence (Alternative SO2) can be constructed quickly, however, recording land use restrictions on deeds can take years. Alternative SO3 would most fully reduce risk from Site soils in the shortest period of time.

No active remedial actions other than installation of fencing are associated with Alternatives SO1 and SO2, and as such there would be only nominal short-term risks to the community, Site workers or the environment from implementation of either one. Alternative SO3 has the greatest potential for short-term impacts to Site workers from the inhalation of airborne contaminants during excavation, however these can be addressed through dust suppression measures and personal protective equipment. Impacts to the community include an increase in truck traffic as contaminated material is taken off site and clean fill is brought in. However, as this is expected to take no more than two weeks to complete, any inconveniences will be short lived. Work will be performed during typical work hours to minimize noise in nearby residential areas.

Implementability

Alternative SO1 is easy to implement as it requires only review of the remedy every five years as is the case with all the clean-up options evaluated. The engineering controls in Alternative SO2 are also easy to implement; contractors to install the fence are readily available and could do so in one week's time. O&M of this alternative includes seasonal inspections and maintenance as needed. Deed restrictions can be more difficult to implement as EPA cannot record them unilaterally and needs the cooperation and assistance of third parties (e.g., property owners, mortgage holders, town officials). Alternative SO3 is also easy to implement. Contractors capable of performing the excavation and restoration (backfilling, grading, seeding) are readily available and the active construction is expected to take about two weeks. The material to be shipped off site is a relatively small volume and locating a licensed treatment or disposal facility is not expected to be an issue. Deed restrictions would not be required under Alternative SO3, making Alternative SO3 easier to implement than SO2.

Cost

See Table 2 for a breakdown of the estimated costs for each soil alternative.

Alternative SO3 is the most expensive of the three alternatives, however, it is the only one that includes active remediation of the contaminated soil.

State and Community Acceptance
Each will be evaluated once feedback is received during the public comment period.

Groundwater

Overall Protection of Human Health and the Environment
Alternative GW1 does not meet this criterion; GW2, GW3 and GW5 do. Residents and businesses at the Site currently use municipal water. Under Alternatives GW2, GW3 and GW5, institutional controls such as deed restrictions and/or municipal ordinances will be implemented to limit withdrawal of groundwater, as well as the State of Vermont's reclassification of contaminated groundwater at the Site to Class IV (non-potable), which also prohibits the use of drinking water wells. Alternative GW2 includes only limited monitoring for the possible migration of contaminants across the Site/Class IV boundary. The monitoring programs in Alternatives GW3 and GW5 are more comprehensive to monitor possible migration as well as evaluate the effectiveness of natural degradation processes across the entire plume. Alternative GW5 is the most protective of human health and the environment as it includes active treatment to destroy in a shorter time period the contaminants in the groundwater that exceed federal and state drinking water standards.

Compliance with ARARs
Alternative GW1 does not meet this criterion; GW2, GW3 and GW5 do. Because alternatives GW2 and GW3 include no active remediation, compliance with ARARs will be relatively straightforward. Any work associated with GW2, GW3 or GW5, however, (e.g., for installation of wells) will be performed in conformance with state and federal archeological and historic preservation laws, wetlands laws and upon further delineation of work areas, wetlands, wetland buffer zones and riparian buffer zones. GW5 will be conducted to comply with state and federal underground injection rules, and with RCRA Chemical, Physical and Biological Treatment regulations.

Alternative GW5, the only alternative that includes active treatment of contaminated groundwater, is the only alternative that will achieve the chemical-specific ARAR cleanup levels earlier than natural attentuation. Implementation of this technology has the potential to meet chemical-specific ARARs for TCE in approximately 50 to 75 years (based on analytical modeling) whereas it will take 115 to 250 years with Alternatives GW1, GW2 and GW3.

Long-Term Effectiveness and Permanence
Alternative GW1 provides the least long-term effectiveness and permanence since no actions will be taken. Alternatives GW2 and GW3 are more effective than GW1 due to institutional controls that will limit the withdrawl of groundwater, limit the exposure to utility workers and others who may come in contact with soils saturated with contaminated groundwater and reclassify groundwater to Class IV (non-potable). Alternative GW5 would provide the highest level of long-term effectiveness and permanence because it relies on destructive in situ treatment, implemented over a relatively short (two to three years) period of time, to achieve cleanup levels in the shortest period of time.

Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment
Alternative GW1 provides no reduction of contaminant toxicity, mobility or volume through treatment. Alternatives GW2 and GW3 provide no active treatment for groundwater and rely on natural degradation processes to decrease contaminant mass in the long term. Without treatment, the volume, toxicity and migration of the contaminant plume will persist except for the slow effect of natural degredation. Alternative GW5 would actively reduce the toxicity, mobility and volume of the contamination at the Site, and satisfies CERCLA's statuatory preference for treatment better than GW2 and GW3.

Short-Term Effectiveness
No active treatments are associated with Alternatives GW1, GW2 or GW3; therefore, short-term risks to the community, Site workers or the environment from implementation of these alternatives are minimal based on any incidental work such as the installation of new wells. Alternative GW5 is an active treatment that would take place in an area that is heavily developed. The pressurized injection of reagents or amendments creates a risk to Site workers that can be mitigated through implementation of proper engineering controls and health and safety measures. Administrative and engineering controls and communication with local officials and the community would ensure the safe transportation, storage and injection of these materials.

Based on an analytical model of groundwater contaminant transport and degradation, under Alternatives GW1, GW2 and GW3, cleanup could take as many as one to two hundred years. By adding active treatment with GW5, cleanup times could be reduced to decades. It is important to note that the model cannot predict when cleanup levels will actually be achieved. It is used only to evaluate how the alternatives compare to each other given a similar set of assumptions.

Implementability
Each groundwater alternative is generally easy to implement. Alternative GW1 requires no action other than FYRs and is therefore the easiest. All alternatives except for GW1 require administrative actions and coordination with third parties to enact institutional controls, and require monitoring at the Site/Class IV boundary. The monitored natural attenuation programs under GW3 and GW5 would be more comprehensive than monitoring under GW2, however, redevelopment of existing monitoring wells or installation of new monitoring wells is not expected to require a significant effort. Methods for sampling groundwater and analysis are well established. Of the groundwater alternatives, GW5 is the most difficult to implement because it requires injections in several locations and phases. However, in situ technology has been used at other Superfund sites with similar subsurface conditions, and contractors capable of performing the work are readily available.

Cost
See Table 2 for a breakdown of the estimated costs for each groundwater alternative. Alternative GW5 is the most expensive of the four alternatives retained, however it is the only alternative that includes active treatment of the contaminated groundwater.

State and Community Acceptance
Each will be evaluated once feedback is received during the public comment period.

Vapor Mitigation

Overall Protection of Human Health and the Environment
Alternative VM1 (No Action) does not meet this criterion because it does not require the continued operation of the existing vapor mitigation system (sump pump, passive venting and water discharge) at 830 South Brownell Road. Alternative VM2 better protects human health by limiting exposure to vapors emanating directly from groundwater that could flood the basement and is below the basement, but it does not meet this criterion because it does not include the necessary collection of additional data and risk analysis, and the required improvement or replacement of the system as deemed necessary based on that study. Alternative VM3 requires data collection (e.g., indoor air, sub-slab) and the installation of additional vapor mitigation or other engineering controls to supplement or replace the existing sump, venting and discharge system, as necessary, based on risk analysis of the additional data collected during design. Alternative VM3 also contains a contingency to treat other residential or commercial buildings in the vicinity of the groundwater plume if future data collection and analysis indicate an exceedance of acceptable risk.

Compliance with ARARs
All alternatives meet this criterion. No chemical-specific ARAR exists with respect to exposure to contaminants in vapor. Alternative VM2 and VM3 which involve the continued operation of the previously installed sump pump, venting and water discharge system, will be implemented to treat sump water before discharge in conformance with Vermont's Water Pollution Control law. Soil disturbance for the installation of the water treatment system or other engineering control is expected to be very minimal, but work will conform with state and federal archeological and historic preservation laws and wetlands laws, upon further delineation of work areas, wetlands, wetland buffer zones, and riparian buffer zones.

Long-Term Effectiveness and Permanence
The No Action alternative (VM1) does not meet this criterion. Through the implementation of an institutional control, Alternative VM2 ensures the continued operation of the existing vapor mitigation system at 830 South Brownell Road to help protect the residents in that home from harmful vapors until such time as groundwater concentrations are reduced and no longer pose a potential inhalation risk. Alternative VM3 provides the best long-term effectiveness and permanence because it will require the improvement or replacement of the existing vapor mitigation system, as determined necessary based on additional data sampling and risk assessment. Additional data are needed to confirm that the existing vapor mitigation system at 830 South Brownell Road adequately protects residents from inhaling potentially harmful vapors emanating from contaminated groundwater. Moreover, it includes a contingency to address additional residential or commercial buildings surrounding the groundwater plume if future data and risk assessment determine it is necessary to address excessive risk.

Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment
Alternative VM1, the No-Action Alternative, does not meet this criterion. Alternatives VM2 and VM3 use engineering controls (rather than treatment) to reduce the toxicity, mobility and volume of vapors into 830 South Brownell Road. However, per the requirement of Vermont's Water Pollution Control law, VM2 and VM3 do require treatment of water from the sump in the basement at 830 South Brownell Road prior to discharge to the ground surface and indirectly to groundwater.

Short-Term Effectiveness
There are no short-term risks to the community, Site workers or the environment from implementation of Alternatives VM1, VM2, or VM3. Alternative VM1 does not reduce exposure to vapors.

Implementability
Alternative VM1 is easy to implement as it requires no action other than FYRs. The system requirements under Alternatives VM2 and VM3 are easy to implement; contractors capable of designing and installing a sump discharge treatment system (e.g., running the discharge through activated carbon in a treatment shed on site) and/or active venting or vapor barrier mitigation measures, if deemed necessary, are readily available.

Cost
See Table 2 for a breakdown of the estimated costs for each vapor mitigation alternative. If additional controls are needed to prevent unacceptable risk, Alternative VM3 will be the most expensive. However, it is the only one that ensures overall protection of human health at 830 South Brownell Road and, with the contingency, across the Site.

State and Community Acceptance
Each will be evaluated once feedback is received during the public comment period.

WHAT IS IN SITU TREATMENT?

In situ or "in place" technologies inject materials into the ground to treat soil without having to excavate it and treat groundwater without having to pump it out of the aquifer to the surface.

Chemical oxidation (or "ISCO") uses reagents, typically hydrogen peroxide, ozone, permanganate or persulfate, to cause chemical reactions that destroy harmful contaminants and create less toxic by-products. ISCO is often followed by other types of treatment to clean up the smaller amounts of contaminants left behind. The use of ISCO poses little risk to the surrounding community. Workers wear protective clothing when handling oxidants, and when handled properly, these chemicals are not harmful to people or the environment. Because soil and groundwater are cleaned up underground, ISCO does not expose workers or others at the Site to contamination.

Bioremediation (or "ISB") is a technology that cleans up contaminated soil and groundwater by stimulating the growth of small organisms that live naturally in the environment. There are certain types of microbes that eat and digest contaminants, usually changing them into small amounts of water and gases like carbon dioxide and ethene. For ISB to be effective, the right temperature, nutrients and food must be present, so the microbes can grow and multiply...and eat more contaminants. Subsurface conditions may be improved by adding household items like molasses and vegetable oil. Sometimes, microbes are added to jump start the process. These microbes pose no threat to people at the Site or in the community and typically die off once their contaminant food source is gone.

WHY EPA RECOMMENDS THIS PROPOSED CLEANUP PLAN

EPA believes the proposed cleanup plan for the Commerce Street Plume Superfund Site achieves the best overall balance among EPA's nine criteria (excluding state and community acceptance which will be considered following public comment) used to evaluate the various alternatives presented in the Feasibility Study. The proposed cleanup approach is protective of human health and the environment, uses proven cleanup technologies such as excavation and in situ groundwater treatment, and is cost effective, while achieving the site-specific cleanup objectives in a reasonable timeframe. This cleanup approach provides both short- and long-term protection of human health and the environment; attains all applicable or relevant and appropriate federal and state environmental laws and regulations; reduces the toxicity, mobility and volume of contaminated soil and groundwater through treatment, to the maximum extent practicable; utilizes permanent solutions and uses land use restrictions to prevent unacceptable exposures in the future.

Alternative SO3 is EPA's preferred soil alternative because it permanently addresses the threat of release and direct exposure by removing the contaminated soils from the Site for off-site treatment or disposal where they can be properly managed. It is also the only soil alternative to meet ARARs.

Alternative GW5 is EPA's preferred groundwater alternative for the following reasons:

- In situ treatment is the only ground water alternative that is expected to meet ARARs including Vermont's

goal of restoration of all waters of the State to high-quality drinking water in a reasonable timeframe;

- Institutional controls will prevent potential human exposure to contaminants in the overburden aquifer that exceed ARARs or target risk limits until cleanup goals are met; and

- In situ treatment reduces toxicity, mobility and volume of the contaminated groundwater at the Site, satisfying CERCLA's statutory preference for treatment.

Alternative VM3 is EPA's preferred vapor mitigation alternative because it is the only alternative that fully protects residents at 830 South Brownell Road and the Site from potential risk from inhalation of VOCs by requiring, at minimum, the continued operation of the existing vapor mitigation system and as necessary, based on risk analysis of data to be collected in the future, the replacement or improvement of the 830 South Brownell Road system, and/or installation of vapor mitigation systems or other engineering controls in other buildings in the vicinity of the plume.

FOR MORE DETAILED INFORMATION:

The Administrative Record, which includes all documents that EPA has considered or relied upon in proposing this cleanup plan for the Commerce Street Plume Superfund Site is available for public review shortly before the start of the comment period and comment at the following locations:

EPA Records and Information Center
5 Post Office Square, First Floor
Boston, MA 02109-3912
617-918-1440

Dorothy Alling Memorial Library
21 Library Lane
Williston, VT 05495
802-878-4918

Information is also available for review on-line at www.epa.gov/region1/superfund/sites/commercestreet

WHAT IS A FORMAL COMMENT?

EPA will accept public comments during a 30-day formal comment period. EPA considers and uses these comments to improve its cleanup approach. During the formal comment period, EPA will accept written comments via mail, e-mail, and fax. Additionally, verbal comments may be made during the formal Public Hearing on August 12, 2015, during which a stenographer will record all offered comments during the hearing. EPA will not respond to your comments during the formal Public Hearing.

EPA will hold a brief informational meeting prior to the start of the formal Public Hearing on August 12, 2015. Additionally, once the formal Public Hearing portion of the meeting is closed, EPA can informally respond to any questions from the public.

EPA will review the transcript of all formal comments received during the hearing and all written comments received during the formal comment period, before making a final cleanup decision. EPA will then prepare a written response to all the formal written and oral comments received. Your formal comment will become part of the official public record. The transcript of comments and EPA's written responses will be issued in a document called a Responsiveness Summary when EPA releases the final cleanup plan, in a document referred to as the Record of Decision. The Responsiveness Summary and Record of Decision will be made available to the public on-line, at the Dorothy Alling Memorial Library, and at the EPA Records Center (see addresses below). EPA will announce the final decision on the cleanup plan through the local media and on EPA's website.

SEND US YOUR COMMENTS:

Provide EPA with your written comments about the Proposed Plan for the Commerce Street Plume Superfund Site.

Please e-mail (lumino.karen@epa.gov), fax (617-918-0348), or mail comments, postmarked no later than September 4, 2015 to:

Karen Lumino
EPA Region 1
5 Post Office Square, Suite 100
Mailcode OSRR07-04
Boston, MA 02109-3912

ACRONYMS

AIP	Alling Industrial Park
ARAR	Applicable or relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (a.k.a. "Superfund")
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
HI	Hazard index
MNA	Monitored natural attenuation
O&M	Operation and maintenance
PAHs	Polycyclic aromatic hydrocarbons
PPB	Parts per billion
RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
TCE	Trichloroethylene
VOC	Volatile organic compound
VT ANR	Vermont Agency of Natural Resources
VT DEC	Vermont Department of Environmental Conservation

In accordance with Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the law that established the Superfund program, this document summarizes EPA's cleanup proposal. For detailed information on the cleanup options evaluated for use at the Site, see the Commerce Street Plume Superfund Site Feasibility Study and other documents contained in the Site's Administrative Record available for review shortly before the start of the comment period online at www.epa.gov/region1/superfund/sites/commercestreet or at the Site information repositories at the Dorothy Alling Library, 21 Library Lane, Williston, VT, and at the EPA New England Records Center, 5 Post Office Sq., First Floor, Boston, MA.

Table 1: Proposed Cleanup Levels (PCL)		
Contaminant	Selected PCL	Basis
Groundwater – VOCs		
1,2 Dichloroethane	5 µg/L	MCL†
cis-1,2 Dichloroethylene	70 µg/L	MCL
Methylene Chloride	5 µg/L	MCL
Tetrachloroethylene *	5 µg/L	MCL
Trichloroethylene	5 µg/L	MCL
Vinyl Chloride	2 µg/L	MCL
Groundwater – Metals		
Arsenic	10 µg/L	MCL
Total Chromium	100 µg/L	MCL
Cobalt	6 µg/L	Risk-based (HQ=1, residential)
Iron	14,000 µg/L	Risk-based (HQ=1, residential)
Soils – PAHs (for 96 Commerce Street only)		
Benzo(a)anthracene**	0.15 mg/Kg	Risk-based (10^{-6}, residential)
Benzo(a)pyrene**	0.015 mg/Kg	Risk-based (10^{-6}, residential)
Benzo(b)fluoranthene**	0.15 mg/Kg	Risk-based (10^{-6}, residential)
Soils – Metals (for 96 Commerce Street only)		
Hexavalent Chromium	0.3 mg/kg	Risk-based (10^{-6}, residential)
Arsenic**	0.67 mg/kg	Risk-based (10^{-6}, residential)

† Maximum Contaminant Level (MCL) per federal and equivalent state drinking water standards.

* Direct contact to and inhalation of shallow groundwater with TCE concentrations in excess of 2.3 µg/L pose a risk to the construction/utility worker. EPA is selecting the MCL for TCE as the cleanup level as a matter of policy, and based on Site-specific conditions. Specifically, the TCE plume is generally at depths ranging from 10 to 15 feet below the water table, and, the exposure assumptions (8 hrs/day, 5 days/per week, for 6 months) are highly conservative.

** Or background, as determined during pre-remedial design soil sampling, whichever is higher.

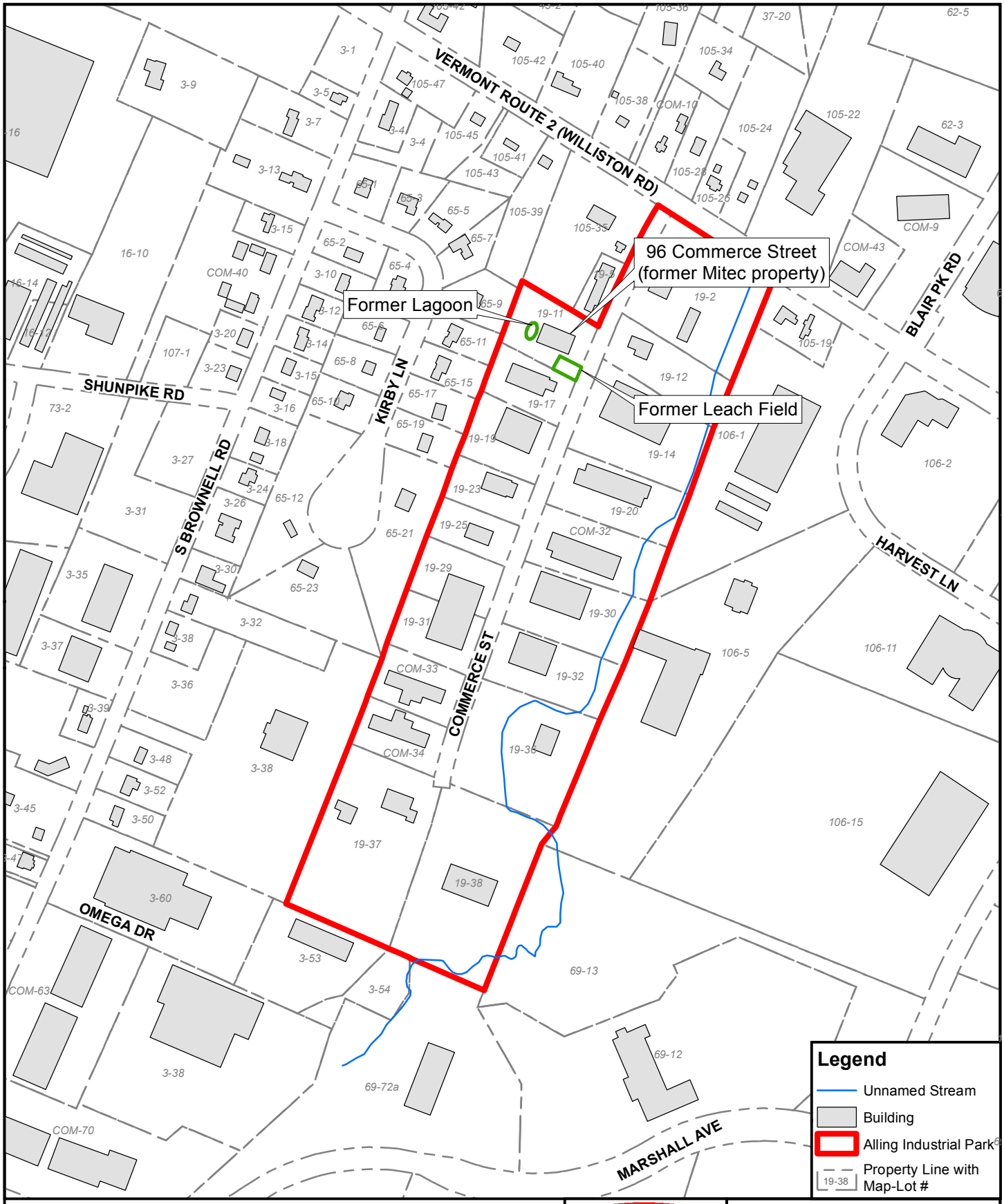
Table 2 - Comparison of Cleanup Alternatives [a]

➢ **Media:**	Soil			Groundwater				Vapor Mitigation		
Nine Criteria	SO1 No Action	SO2 Institutional/ Engineering Controls	***SO3 Excavation and Off-Site Disposal**	GW1 No Action	GW2 Institutional Controls	GW3 MNA and Long-Term Monitoring	***GW5 *In situ* Treatment and MNA**	VM1 No Action	VM2 Sump Pump, Vapor Venting, Treatment and Discharge	***VM3 Enhanced Vapor Mitigation**
Protects human health & environment	✗	✓	✓	✗	✓	✓	✓	✗	✗	✓
Meets federal & state requirements	✗	✗	✓	✗	✓	✓	✓	✗	✓	✓
Provides long-term effectiveness	✗	✓	✓	✗	✓	✓	✓	✗	✓	✓
Reduces mobility, toxicity or volume	✗	✗	✓	✗	✗	✗	✓	✗	✓	✓
Provides short-term effectiveness	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Implementable	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cost ■ **Capital Cost**	$0	$55,341	$595,159	$0	$61,461	$238,345	$6,805,101	$0	$15,428	$47,291
■ **O&M[b]**		$128,844	$62,037		$184,178	$1,349,179	$767,042		$97,713	$110,121
■ **Total Cost**		$184,185	$657,196		$245,639	$1,587,524	$7,572,143		$113,141	$157,412
State of Vermont acceptance	To be determined after the public comment period									
Community acceptance	To be determined after the public comment period									

* **EPA's preferred option** ✓ **Meets or exceeds criterion** ✓ **Partially meets criterion** ✗ **Does NOT meet criterion**

[a] This table depicts a summary of the alternatives. It is not a substitute for the detailed analysis included in the Feasibility Study.

[b] O&M considers Net Present Value and is provided at a discount rate of 7%



Notes:

1. Site features are depicted for display purposes only.

0 200 400 800

Feet

1 inch = 400 feet

N

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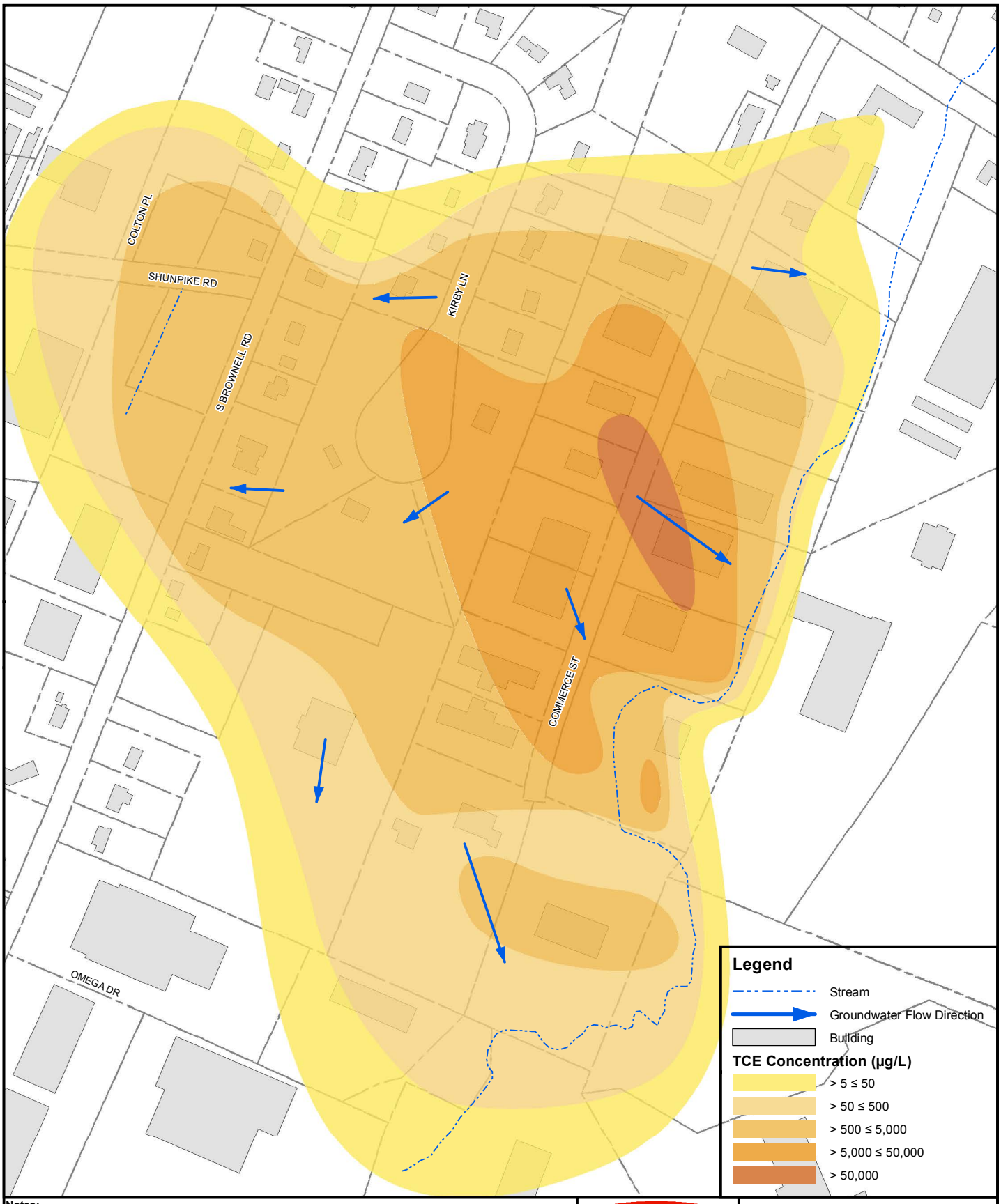
FIGURE 1

STUDY AREA

COMMERCE STREET PLUME
SUPERFUND SITE
WILLISTON, VERMONT



Notes:

1. Location of all features is approximate. Map is for reference purposes only. Nobis Engineering Inc. makes no claims, warranties, representations, expressed or implied, relating to the completeness, accuracy, or reliability of the data shown.

2. Groundwater TCE contours are a generalized combination of the shallow, intermediate, and deep interval aquifers. The contours are based on maximum TCE concentrations obtained during groundwater sampling events between 2008 and 2012. This is one interpretation of the data, others are possible.

0 150 300
Feet
1 inch = 300 feet

N

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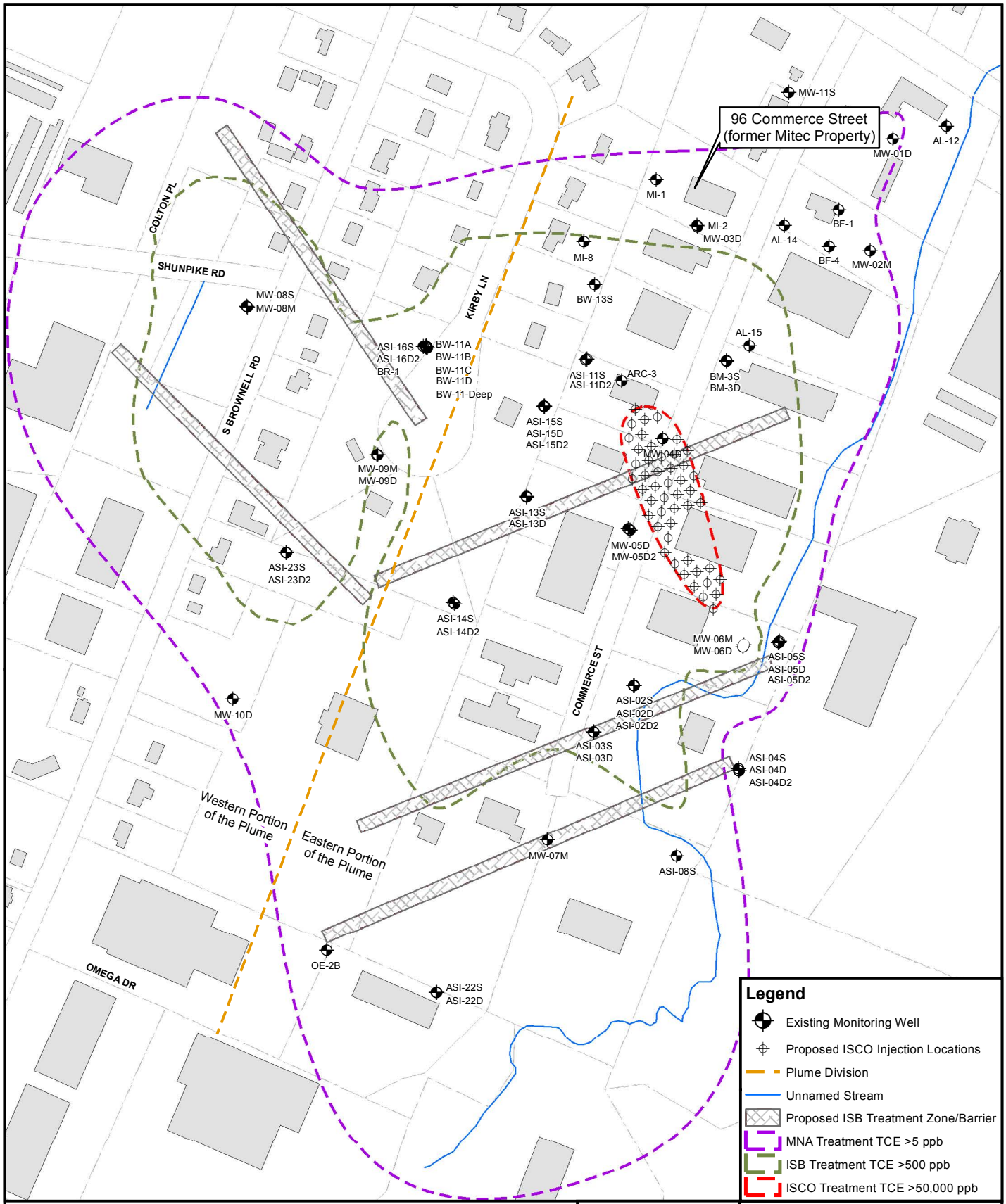
FIGURE 2

OVERBURDEN TCE PLUME

COMMERCE STREET PLUME
SUPERFUND SITE
WILLISTON, VERMONT



Notes:

1. Extent of groundwater impacts based on TCE concentrations observed during the October 2012 groundwater sampling round and represents the total spatial extent from the shallow, intermediate, and deep intervals. TCE was the most widespread contaminant found.

2. A radius of influence of 20 ft. is assumed for injection wells. Wells are located based on 30 ft. spacing for sufficient coverage.

0 150 300
Feet
1 inch = 300 feet

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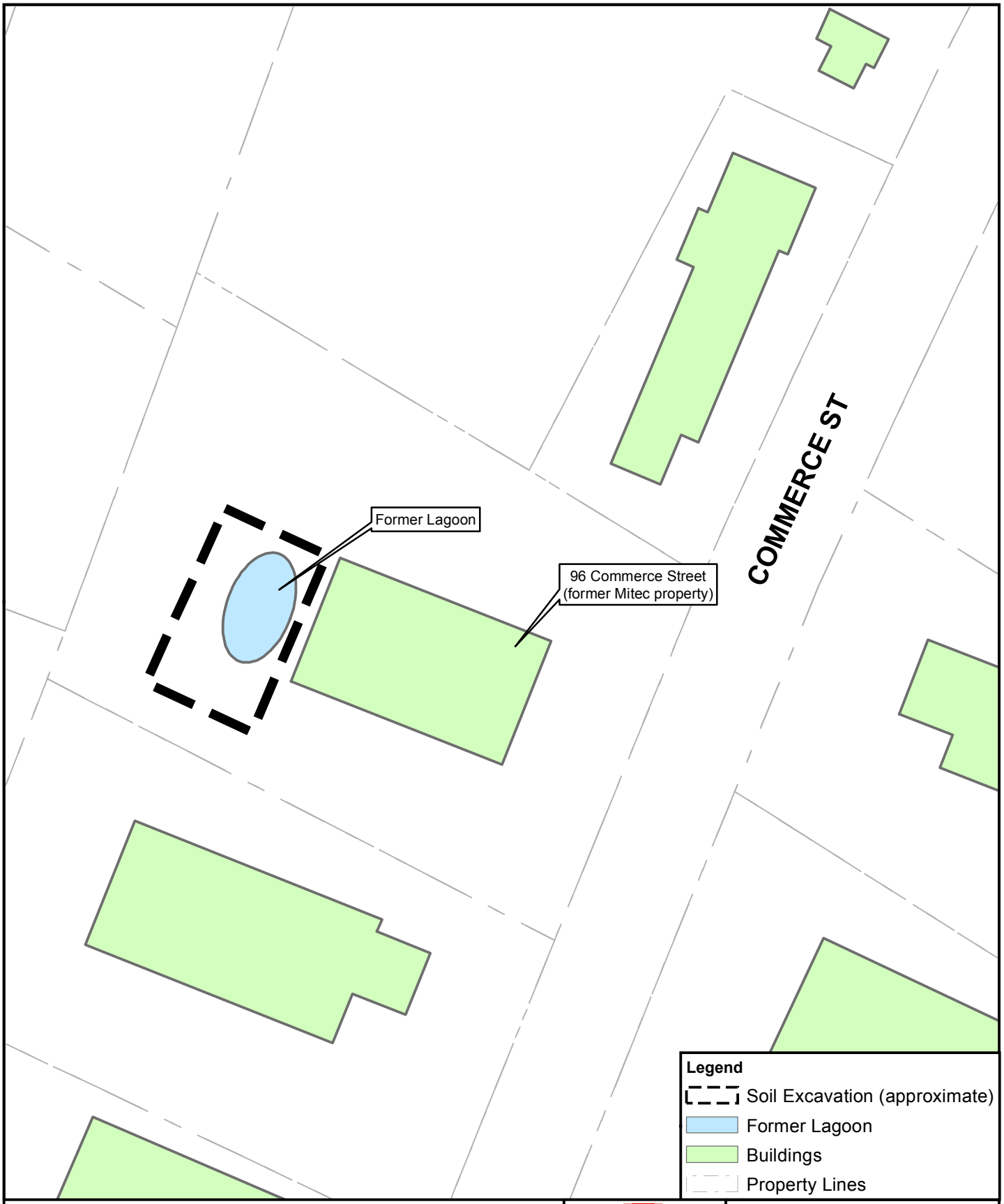
FIGURE 3

ALTERNATIVE GW5: IN SITU TREATMENT ZONES

COMMERCE STREET PLUME SUPERFUND SITE
WILLISTON, VERMONT



Notes:

1. Locations of site features are approximate and should be used for display purposes only.

0 30 60 120

Feet

1 inch = 60 feet

N

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FIGURE 4

ALTERNATIVE SO3: SOIL EXCAVATION AND OFF-SITE DISPOSAL

COMMERCE STREET PLUME
SUPERFUND SITE
WILLISTON, VERMONT