

FINAL

**ENVIRONMENTAL CONDITION OF PROPERTY
REPORT**

**CHESTER MEMORIAL
U.S. ARMY RESERVE CENTER (VT002)
978 VT ROUTE 11 WEST
CHESTER, VT 05143**

Prepared For:

**U.S. Army Corps of Engineers – Louisville District
Engineering Division – Environmental Engineering Branch
600 Dr. Martin Luther King, Jr. Place
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MARCH 2007

Certification

All information/documentation provided accurately reflects the environmental condition of the property. This ECP Report is in general accordance with the U.S. Department of Defense (DOD) requirements for completion of an Environmental Condition of Property (ECP) Report.

GARY PURYEAR
Chief, Environmental Division
94th Regional Readiness Command

DATE

The undersigned certifies the contents of this report are in general accordance with DoD policies for the completion of an ECP.



LENARD GUNNELL, P.G.
Project Geologist
U.S. Army Corps of Engineers

DATE

Executive Summary

CH2M HILL, under contract to the U.S. Army Corps of Engineers, Louisville District, prepared this Environmental Condition of Property (ECP) report for the Chester Memorial U.S. Army Reserve (USAR) Center (Facility ID VT002), hereafter referred to as the "Property" or "USAR Center." The Property is located at 978 VT Route 11 West, Chester, Vermont 05143 and encompasses approximately 3 acres.

This ECP was conducted in conformance with the Department of Defense's Base Redevelopment and Realignment Manual, DoD 4146.77-M (BRRM), Army Regulation 200-1 and, the American Society for Testing and Materials (ASTM) Designation D6008-96 (2005), *Standard Practice for Conducting Environmental Baseline Surveys*.

This ECP report details the history of the Property, including the U.S. Army Reserve and any prior tenant uses of the Property and the resulting environmental condition of the property. In support of the ECP report, CH2M HILL inspected the Property and performed a reconnaissance of the surrounding area on September 6, 2006.

The USAR Center is located on a 3-acre parcel west of the town of Chester, Vermont. The USAR Center contains two permanent structures, a 14,900-square-foot main building and 1,100 square-foot organizational maintenance shop (OMS), and two parking lots. The current occupant is the 405th Combat Support Hospital, Detachment 2.

Although no aerial photographs are available for this part of the state, historical information sources suggest that the Property was formerly part of a residential and/or farming area. The Property has served as a reserve and mobilization center since the U.S. Government acquired the land in 1956. The USAR Center is now used primarily as a medical training facility for classroom training activities and training on drill weekends. Vehicle maintenance has not been conducted at the site since 1991.

Areas of potential environmental concern were reviewed, and CH2M HILL found unresolved issues with oil/water separator (OWS) decommissioning relating to the USAR use of this property. The OWS at the site was pumped out but never removed, and no investigation has been conducted near the OWS or the leach field to which it drained. Two former underground storage tanks (USTs) have received no further action (NFA) status. In accordance with Department of Defense policy defining the classifications (See Sherri Goodman Memorandum dated 21 October 1996), the Property has been classified as Type 7. This classification does not include categorizing the property based on *de minimis* conditions that generally do not present material risk of harm to the public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of the appropriate governmental agencies.

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Abbreviations and Acronyms

The following is a comprehensive list of abbreviations and acronyms that are used throughout this report.

ACM	asbestos-containing material
AMSA	Area Maintenance and Support Activity
AR	Army Regulation
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BMA	Branch Maintenance Activity
BRAC	Base Realignment and Closure
BRRM	Base Redevelopment and Realignment Manual
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
CFR	Code of Federal Regulations
CORRACTS	Resource Conservation and Recovery Act corrective action site
CSH	Combat Support Hospital
DEC	Department of Environmental Conservation
DoD	Department of Defense
ECP	Environmental Condition of Property
EDR	Environmental Data Resources, Inc.
ERNS	Emergency Response Notification System
FEMA	Federal Emergency Management Agency
kg	kilogram
LBP	lead-based paint
LUST	leaking underground storage tank
MEC	munitions and explosives of concern
MEK	methyl ethyl ketone

MEP	military equipment parking
msl	mean sea level
NBC	nuclear, biological, and/or chemical
NFA	no further action
NPL	National Priorities List
OMS	Organizational Maintenance Shop
OWS	oil/water separator
PCB	polychlorinated biphenyl
pCi/L	picoCuries per liter
POL	petroleum, oil, and lubricant
POV	privately owned vehicle
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Act Information System
RQ	reportable quantity
RRC	Regional Readiness Command
SMS	Sites Management Section
TSD	treatment, storage, or disposal
USACE	United States Army Corps of Engineers
USAR	United States Army Reserve
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank

1 Introduction

CH2M HILL, under contract to the U.S. Army Corps of Engineers (USACE) Louisville District Engineering Division was authorized to conduct an Environmental Condition of Property (ECP) report for the Chester Memorial U.S. Army Reserve (USAR) Center (VT002). The facility is located at 978 VT Route 11 West, Chester, Vermont 05143, and is hereafter referred to as the Property or USAR Center. CH2M HILL prepared this ECP report under Contract Number W912QR-04-D-0020, Task Order No. 0018, with the Louisville District USACE.

A visual non-intrusive reconnaissance of the Property was conducted on September 6, 2006, in support of the ECP. The reconnaissance purpose was to visually obtain information indicating the likelihood of recognized environmental conditions associated with the Property or adjacent properties.

In preparing this ECP report, CH2M HILL gathered information from the available records and previous work from others, interviews with individuals purporting to be familiar with the Property, and observations from a site reconnaissance. The accuracy of the information obtained from these sources was not verified by CH2M HILL. As such, CH2M HILL will make no warranty, expressed or implied, relative to the accuracy, completeness, or reliability of the information used to create the records and reports prepared by others.

1.1 Purpose of Environmental Condition of Property

The Military Department with real property accountability shall assess, determine and document the environmental condition of all transferable property in an ECP Report. This ECP Report is based on reasonably available information. Pursuant to the Department of Defense's policy, set forth in the Base Redevelopment and Realignment Manual (DoD 4165.66-M, March 1, 2006) Section C8.3 (BRRM), the primary purposes of the ECP Report include the following:

- Provide the Army with information it may use to make disposal decisions.
- Provide the public with information relative to the environmental condition of the property.
- Assist in community planning for the reuse of BRAC property.
- Assist Federal agencies during the property screening process.
- Provide information for prospective buyers.
- Assist prospective new owners in meeting the requirements under EPA's "All Appropriate Inquiry" regulations.
- Provide information about completed remedial and corrective actions at the property.

- Assist in determining appropriate responsibilities, asset valuation, and liabilities with other parties to a transaction.

The ECP Report contains the information required to comply with the provisions of 40 Code of Federal Regulations (CFR) Part 373, which require that a notice accompany contracts for the sale of, and deeds entered into, for the transfer of federal property on which any hazardous substance was stored, released or disposed of. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 120(h) stipulates that a notice is required if certain quantities of designated hazardous substances have been stored on the property for 1 year or more specifically, quantities exceeding 1,000 kilograms or the reportable quantity, whichever is greater, of the substances specified in 40 CFR 302.4 or 1 kilogram of acutely hazardous waste as defined in 40 CFR 261.30. A notice is also required if hazardous substances have been disposed of or released on the property in an amount greater than or equal to the reportable quantity. Army Regulation (AR) 200-1 requires that the ECP Report address asbestos, lead-based paint, radon and other substances potentially hazardous to human health.

This ECP Report used the American Society for Testing and materials (ASTM) Designation D 6008-96 (2005), *Standard Practice for Conducting Environmental Baseline Surveys*, the BRRM, CERCLA § 120, and Army Regulation 200-1.

1.2 Scope of Services

This ECP report covers the 3-acre USAR Center located at 978 VT Route 11 West, Chester, Vermont 05143. The Property is bounded by Route 11 to the south and various commercial developments to the east, west, and north. All site maps, figures, and aerial photographs referenced herein are provided in Appendix A, while Appendix B contains the photographs taken during the September 6, 2006, site reconnaissance. Appendix C contains the Property warranty deeds and chain of title information, and lease or permit agreements if applicable. Relevant historical environmental documents and reports are provided in Appendix D, while Appendix E contains the Environmental Data Resources, Inc. (EDR) radius search reports commissioned for this effort.

In accordance with Department of Defense policy defining the classifications (See Sherri Goodman Memorandum dated 21 October 1996), this ECP report classifies the Property into one of seven DoD Environmental ECP categories. The property classification categories are as follows:

- ECP Area Type 1 – An area or parcel of real property where no release or disposal of hazardous substances or petroleum products or their derivatives has occurred (including no migration of these substances from adjacent properties).
- ECP Area Type 2 – An area or parcel of real property where only the release or disposal of petroleum products or their derivatives has occurred.
- ECP Area Type 3 – An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.

- ECP Area Type 4 – An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred and all remedial actions necessary to protect human health and the environment have been taken.
- ECP Area Type 5 – An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred and removal or remedial actions, or both, are underway, but all required actions have not yet been taken.
- ECP Area Type 6 – An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, but required response actions have not yet been initiated.
- ECP Area Type 7 – An area or parcel of real property that is unevaluated or requires additional evaluation.

2 Site Location and Physical Description

2.1 Site Location

The USAR Center is located in Winsor County, west of the city of Chester, Vermont at 978 VT Route 11 West. The 3-acre parcel is situated on a main thoroughfare (VT Route 11 West), and is surrounded on the east by a small hotel, while farming and residential areas are located to the west, north, and south.

2.2 Asset Information

Facility Name and Address:	Chester Memorial USAR Center 978 VT Route 11 West Chester, Vermont 05143
Property Owner:	U.S. Government
Date of Ownership:	August 15, 1956
Current Occupant:	405th Combat Support Hospital, Detachment 2
Zoning:	R-1, Residential
County, State:	Windsor, Vermont
USGS Quadrangle(s):	Chester, Vermont
Latitude/longitude:	43°16'13"N; 72°37'40"W
Legal Description:	See Appendix C

2.3 Physical Description

The USAR Center is located on a 3-acre parcel west of the town of Chester, Vermont. The Property is located on the U.S. Geological Survey (USGS) 7.5-minute Chester quadrangle map, at an average elevation of 710 feet above mean sea level (msl). The topography is generally flat with a slight decrease in elevation toward the southeast corner of the parcel.

The USAR Center contains two permanent structures and two parking lots. Construction of the original structures, an 80-foot by 52-foot administrative and classroom building (main building) and a 48-foot by 28-foot Organizational Maintenance Shop (OMS) building located 30 feet northeast of the main building, was completed in 1960 and 1961. The main building was enlarged from a 100-person center to a 200-person center in 1980 and is now a 169-foot by 96-foot, L-shaped, one-story structure, with a drill hall located to the north of the expanded original building. All walls on the main building are cinder block with brick exterior veneer. The OMS building is a one-story, one-bay, brick vehicle garage with a slightly pitched, side-gabled, built-up roof.

Approximately two-thirds of the Property is covered by impervious surface features such as asphalt parking areas, driveways, concrete walkways, and building footprints. The Property is open at the front, and paved walks lead to the front entrance. The Property is fenced off beyond the front of the building, and a gated driveway leads to parking areas located at the east and west sides of the building, and to the maintenance shop. The remaining land is minimally landscaped with mowed lawns, trimmed yews, and small trees.

Main Building

The main building is a one-story administrative and classroom block, along with a drill hall and former rifle range attached to the rear. The main building is used primarily for offices, classrooms, and an assembly hall and contains 14,900 square feet of floor space. The main entrance to the building is a driveway at the east entrance. The original core building maintained its original doorways at the east and west ends after the expansion in 1980. Interior features in the original building include administrative offices and classrooms arranged along a double-loaded corridor. The large classroom at the east end is accessed by two doors and can be divided by a sliding, accordion-type wall. Interior features added to the building in 1980 include a kitchen, rifle range, arms vault, storage rooms, and a 72-foot by 52-foot drill hall.

The new drill hall and former rifle range are essentially windowless, and the tops of the brick walls are capped with wide metal coping. A large roll-type vehicle access door is located in the east wall of the drill hall, which has a thick concrete floor to support heavy military vehicles and equipment. The rifle range was closed in 2003.

OMS Building

The OMS building is a 48-foot by 28-foot building with 1,100 square feet of space. The building is a one-story, one-bay, brick vehicle garage with a slightly pitched, side-garbled, built-up roof. A large roll-type garage door fills the front (south) elevation, and personnel access doors are located in the east wall. A band of windows high on the rear (north) elevation lights the building.

2.4 Site Hydrology and Geology

The USAR Center and Chester are located within the narrow valley of the Middle Williams River in the Vermont Piedmont. The USAR Center is found on the USGS 7.5-minute Chester quadrangle map. The surface elevation at the site is relatively flat with an average 710 feet above msl.

2.4.1 Surface Water Characteristics

Figure 1 in Appendix A provides a portion of the 1971 Chester, Vermont USGS topographic map that includes the Property. In the immediate vicinity of the Property, the land surface rises to the north toward a peak at an elevation of 1,500 feet and is flat to the south toward the middle branch of the Williams River. An intermittent stream on the west side of the Property drains from the Chester Reservoir located northeast of the Property.

There is a drainage divide at the site located approximately 120 feet north of VT Route 11 West and running east-west across the site. North of this divide, stormwater flows north

and infiltrates the ground in an area that is unfenced facility property. During storms of high intensity or when the ground is frozen, groundwater travels northeast and enters one of two intermittent streams. These streams join and direct flow east, parallel to Reservoir Road, and then flow to the middle branch of the Williams River.

Stormwater south of the divide flows to a grass drainage swale that parallels Route 11. Stormwater in the drainage swale flows west and infiltrates the ground near the southwestern corner of the Property. A drywell near the eastern facility access road collects stormwater runoff from part of the paved area east of the USAR Center.

A pond was built by an adjacent property owner and is located to the northwest of the Property. The pond's outlet directs water onto the northern part of the Property. The middle branch of the Williams River, located approximately 350 feet south of the Property, is the closest major surface water feature.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Community Panel 3902530001C, the Property is not included in the 100-year floodplain elevation.

2.4.2 Hydrogeological Characteristics

According to soil data collected at the site during an underground storage tank (UST) removal action in 1992, the subsurface soils at the site are a mixture of sand and silty sand down to the top of water table at around 9 feet below ground surface.

During the same UST removal in 1992, the following subsurface soil stratigraphy was determined. The surface soils are generally silt with cobbles along with a layer of sand below it. In a typical profile, the surface layer is approximately a 1-foot topsoil layer, 1.5 feet of silt with cobbles, 1 foot of sand, a 3-inch layer of stone, a 6-inch layer of silt, 3 inches of stone, a 3-foot layer of silt and cobbles, and a 1.5-foot layer of stone. After this, groundwater is encountered at approximately 9 feet below ground surface. Groundwater flow is toward the southeast based on groundwater contour elevations (USAEHA, 1993).

2.5 Site Utilities

Water Service—The City of Chester provides potable water service to the Property.

Sanitary Sewer System—There is an onsite septic tank and leach field.

Gas and Electric—Young's Gas provides natural gas service to the Property, while Central Vermont Public Service provides electric service to the Property.

2.6 Water Supply Wells and Septic Systems

Based on a review of available historical site and agency records and interviews with site personnel, a water supply well is not located at the Property. Potable water is supplied by the City of Chester. A search of federal and state water well databases identified no water supply sources located within 0.5 mile of the Property.

The buildings are serviced with a septic tank system and leach field lines. The system was designed for a normal sewage load from the office and classroom restrooms, plus some oil and greases from the kitchenette. The kitchen at the Property has not been used since 1991; however, it is part of the original structure. The kitchen was not connected to the oil/water separator (OWS), but is located near the OMS building.

3 Site History

3.1 History of Ownership

Land titles for the Property, which are included in the chain of title report in Appendix C, were available back to 1916. The report did not identify any leases or environmental liens against the USAR Center property.

According to historical documentation, the U.S. Government purchased the USAR Center in August 1956 from the Vail family. The previous use of the property was residential.

3.2 Past Uses and Operations

In 1956, the U.S. Government purchased the 3.0 acres of land for construction of the USAR Center. Construction of the main building and OMS building occurred in 1960. Historical information sources suggest that the Property was formerly part of a residential and/or farming area. The Property has served as a reserve and mobilization center for USAR since the U.S. Government acquired the land in 1956.

The Property primarily functioned to provide classroom training to the 405th Combat Support Hospital (CSH), Detachment 2. The 405th CSH is based in West Hartford, Connecticut. Operator maintenance activities conducted onsite were limited to equipment (5-ton cargo units) fluid level checks. Refueling is done at nearby gas stations. Organizational and direct support maintenance on unit vehicles is conducted by Area Maintenance Support Activity (ASMA) 160(G), Branch Maintenance Activity (BMA) 2 in Rutland, Vermont.

The USAR Center is being used primarily as a medical training facility for classroom training activities and training on drill weekends. The activities result in minimal usage of hazardous materials. Vehicle maintenance has not been conducted at the site since 1991.

The OMS building was used to perform limited maintenance activities on military equipment, before these activities were discontinued in 1991. Activities inside the OMS building were limited to preventative maintenance checks, including checking vehicle fluids such as motor oil, water, and antifreeze, and light maintenance activities. Any equipment requiring heavier maintenance activities was sent to an AMSA shop located at Rutland, Vermont. At the time of the site reconnaissance, the OMS building was only being used for storage of nonhazardous materials.

No aerial photographs were available for this region of the state. Multiple companies that provide aerial photographs for the region were contacted, and none of them had aerial photographs available for the Property.

3.3 Past Use, Storage, Disposal, and Release of Hazardous Substances

3.3.1 Past Use and Storage of Hazardous Substances

Information related to the past use and storage of hazardous substances at the Property was compiled through review of available site records, search of federal and state environmental databases, and interviews with Army Reserve personnel. Chemicals formerly used and stored at the Property were associated with vehicle maintenance activities. Vehicle maintenance products and small amounts of petroleum, oil, and lubricant (POL) products were stored within designated areas within the OMS building. Other potentially hazardous materials and POL products would have been stored in the outdoor hazardous material storage shed located in the northern portion of the military equipment parking (MEP) area. The following hazardous materials have been stored at this facility: batteries, acids, adhesives, chloroform, solder, methyl ethyl ketone (MEK), lubricating oils, dry cleaning solvents, and methylene chloride. None of the materials is currently stored at the Property.

Certain types of chemical products used and stored at the Property would have contained hazardous substances pursuant to CERCLA §101 (14 U.S. Code [USC] 9601 (14)) and would have been stored on a rotational basis in amounts necessary to support the unit through direct support-level maintenance. There is no indication that hazardous substances pursuant to CERCLA §101 (14 USC 9601 (14)) were stored at the Property for 1 year or more in excess of corresponding RQs.

3.3.2 Past Disposal and Release of Hazardous Substances

Information related to past disposal and potential release of hazardous substances at the Property was compiled through review of available site records, search of federal and state environmental databases, and interviews with Army Reserve personnel. According to Army Reserve personnel and site records, onsite disposal of hazardous materials or wastes has not occurred at the Property. No stained soil or stressed vegetation was observed during the September 2006 site reconnaissance. Additionally, the MEP area and privately owned vehicle (POV) parking area did not show any signs of staining, and no noxious or foul odors were noted during the site reconnaissance.

3.4 Past Presence of Bulk Petroleum Storage Tanks

Based on a review of available site records, a search of federal and state environmental databases, and interviews with Army Reserve personnel, two USTs were previously located at this facility (UST-0126 and UST-0127); however, they were removed in 1992. Both the 1,000-gallon and 4,000-gallon tanks contained fuel oil. The Vermont Department of Environmental Conservation (DEC) has concurred that no further action is needed regarding these tank removals (State of Vermont, 1993).

3.5 Review of Previous Environmental Reports

A review of site records produced several reports pertaining to the Property. The following subsections provide a brief summary of these reports. Copies of the reports, unless otherwise specified, are provided in Appendix D.

3.5.1 1992 Damaged Oil Tank

The report's objective was to determine if one of the two USTs at the site had a leak in it. This was suspected because of a discrepancy between the amount of fuel being delivered and the amount being used. Based on this, it was determined that the tank had a failure of some sort that was causing the loss of fuel.

3.5.2 1993 Geohydrologic Study

Based on the investigation of the suspected leaking underground storage tank (LUST), six groundwater monitoring wells were installed and sampled around one of the USTs. The purpose of these wells was to determine if any soil or groundwater had been affected by this potential release from the UST. The results from the groundwater sampling showed no fuel-related contamination.

3.5.3 1993 UST Closure Report

This report documents the two USTs at the site were removed and closed. The tanks were removed in 1992. This report summarizes the corrective actions taken in 1992. During the removal of these USTs, it was found that the piping leading into the tanks were severely corroded. In addition to the removal of the tanks, 71.5 tons of petroleum-contaminated soil were removed and shipped offsite for treatment. Groundwater was not encountered during the removal of the soil.

3.5.4 1993 Vermont DEC Closure Letter

In November 1993, the Installation Environmental Management Officer, Ron Ostrowski, received a letter from the Vermont DEC Sites Management Section (SMS). This letter stated that based on both the geohydrologic study and the removal of the contaminated soil, that SMS was closing this site.

3.5.5 1994 Radon Testing Program

In 1994, several sites under the 94th Regional Readiness Command (RRC) were testing for radon. A site-specific radon survey was conducted at the USAR Center as part of the *1994 USARC Radon Reduction Program*. Passive detection equipment was installed throughout the main building to determine levels of radon gas. Based on the sampling results, the maximum radon level was 2.6 picoCuries per liter (pCi/L). This is below USEPA's recommended maximum allowable exposure level of 4 pCi/L.

3.5.6 1995 Historic Sites and Structures Survey

A summary of the Chester USAR Center history is presented in this report. The architectural description of the USAR Center is one of the sections of the report. The initial construction of the facility, along with various additions, is discussed. Also included are the dimensions

of the facility, construction materials used in the buildings, and layouts of the various structures are included in this section of the report. A section on historical significance is also included in the report, which includes what the uses of the USAR Center have been in the past, and the types of personnel and vehicles that have been there in the past.

3.5.7 1998 Asbestos Survey Report

A survey of asbestos-containing material (ACM) was conducted at the site in 1998. Both friable and nonfriable ACM were identified at the site. The only friable ACM identified was located in the main building and consisted of gray mudded pipe-fitting insulations on fiberglass insulated plumbing pipes in the boiler room and drill hall. Nonfriable ACM included floor tiles, mastic below floor tiles, white sealant on exposed fiberglass pipe insulations, perimeter flashings, flashing cements, and other asphaltic roofing materials. Nonfriable ACM identified in the OMS building included brown sealant on duct seams and gray exterior window putty.

3.5.8 2002 Wetlands Evaluation

In 2002, a wetlands evaluation was conducted at the Property. It was determined that the land bordering the northern edge of the Property is considered a wetland, according to U.S. Fish and Wildlife Service (USFWS) guidelines; however, these wetlands are not defined as a state-regulated wetlands under the Vermont Wetlands Rules.

3.5.9 2003 Range Cleanup Report

IT Corporation prepared a report describing the cleanup of the indoor range at the USAR Center. Potential types, quantities, locations, and conditions of lead-contaminated wastes, asbestos, recycled metal, nonhazardous waste, and lead shot were removed, characterized for disposal, and properly disposed of. Based on this cleanup effort, the firing range at the USAR Center was closed. The former range is now being used for limited storage, but is mostly empty.

4 Adjacent Properties

Adjacent property land uses are significant to the ECP process, as these current or past uses may have an environmental impact on the USAR Center. Adjacent properties were included in the EDR report review for this reason. Typically, adjacent properties within 0.25 mile of the USAR Center property boundaries are reviewed and visually surveyed. For the purposes of this ECP, the adjacent property reconnaissance was performed from the USAR Center property boundaries and from public access points. Topographic maps also were reviewed for conditions or activities that may have had an environmental impact on the Property.

4.1 Land Uses

Land use south of the USAR Center is county right-of-way for a major highway (Vermont Route 11 West). The USAR Center is surrounded on all other sides by residential areas.

4.2 Findings

The EDR database search results were reviewed for any evidence that adjacent properties may have past or present environmental issues that would impact the USAR Center. Results from this review identified no surrounding properties that showed up in any federal or state environmental databases.

Water well databases at the federal and state level were reviewed to identify any water supply source near the Property. No water supply sources are located within 1 mile of the Property.

Aerial photographs for this area of the state were not reasonably available, and therefore an assessment of land use changes over the years is not possible.

5 Review of Regulatory Information

An essential component of an ECP is the review of records and databases containing information on the Property and adjacent properties. The review includes reasonably obtainable federal, state, and local government records, and is intended to identify a release or likely release of any hazardous substance or any petroleum product, which is likely to cause or contribute to a release or threatened release of any hazardous substance or any petroleum product to the Property.

The majority of the regulatory information for this ECP was obtained from EDR on September 25, 2006. EDR provides a regulatory database summary that consolidates standard federal, state, local, and tribal environmental record sources based on ASTM-recommended minimum search distances from the Property.

All findings reported in Sections 5.1, 5.2, and 5.3 are from the EDR report unless otherwise noted. A copy of the complete EDR report is included in Appendix E.

5.1 Federal Environmental Records

5.1.1 Federal National Priorities List Sites within 1 Mile

USEPA maintains a record of the nation's worst uncontrolled or abandoned hazardous waste sites, known as the National Priorities List (NPL). Sites on the NPL undergo long-term remedial action under CERCLA.

The USAR Center is not an NPL site, nor were any such sites located within 1 mile of the Property.

5.1.2 Federal Comprehensive Environmental Response, Compensation and Liability Act Information Systems Sites within 0.5 Mile

The CERCLA Information System (CERCLIS) contains data on potentially hazardous waste sites that have been reported to USEPA by state, municipalities, private companies, and private persons, pursuant to Section 103 of the Act. CERCLIS contains sites that either are proposed to be or are on the NPL and sites that are in the screening and assessment phase for possible inclusion on the NPL.

The USAR Center is not a CERCLIS site, and there are no CERCLIS sites located within 0.5 mile of the USAR Center.

5.1.3 Resource Conservation and Recovery Act Corrective Action Sites within 1 Mile

Resource Conservation and Recovery Act (RCRA) corrective action sites (CORRACTS) represent facilities that have generated or managed hazardous wastes and require corrective action. The USAR Center is not a CORRACTS, nor were any such sites identified within 1 mile of the USAR Center.

5.1.4 RCRA Treatment, Storage, and/or Disposal Sites within 0.5 Mile

RCRA defines and regulates sites that generate, transport, store, treat, and/or dispose (TSD) of hazardous wastes. The RCRA Information System (RCRIS) includes selective information on these sites.

The USAR Center is not an RCRA TSD site, and there are no such sites located within 0.5 mile of the USAR Center.

5.1.5 Federal RCRA Small and Large Quantity Generators List within 0.25 Mile

Conditionally exempt small quantity generators are defined as facilities generating less than 100 kg of hazardous waste or less than 1 kg of acutely hazardous waste per month. RCRA small quantity generators are defined as facilities generating between 100 and 1,000 kg of hazardous waste per month. A facility generating more than 1,000 kg of hazardous waste or over 1 kg of acutely hazardous waste per month is defined as a large quantity generator.

The USAR Center is not listed as an RCRA-registered small or large quantity generator. No small or large quantity generators are located within 0.25 mile of the USAR Center.

5.1.6 Federal Emergency Response Notification System List

The Federal Emergency Response Notification System (ERNS) List maintains information on reported releases of oil and hazardous substances. The USAR Center is not on this notification list.

5.2 State and Local Environmental Records

Most of the information presented in this subsection was obtained from the EDR report. Additional information was obtained from online database searches of the State of Vermont's Web site (<http://www.anr.state.vt.us/dec>). Occasionally, state and local agency personnel were interviewed via telephone to answer questions about any database issues.

5.2.1 State Lists of Hazardous Waste Sites within 1 Mile

The USAR Center is not on the state list of hazardous waste sites. No adjacent properties within 1 mile of the USAR Center were listed as having a hazardous waste site.

5.2.2 State-Registered Landfills or Solid Waste Disposal Sites within 0.5 Mile

The USAR Center does not have a solid waste landfill, incinerator, or transfer station within the Property boundaries. No adjacent properties within 0.5 mile of the USAR Center have a solid waste landfill, incinerator, or transfer station.

5.2.3 State-Registered Leaking UST Sites within 0.5 Mile

In addition to information obtained from the EDR report, the Vermont Division of Underground Storage Tanks maintains a comprehensive database of LUST sites. The USAR Center is not listed in the state LUST database, and no adjacent properties within 0.5 mile of the USAR Center are in the LUST database.

5.2.4 State-Registered UST Sites within 0.5 Mile

After review of the EDR report and the state of Vermont's UST database, no UST sites were identified within 0.5 mile of the USAR Center. The Property itself was not listed in the state UST database.

5.2.5 State Spills Incidents

The USAR Center is not listed on the Vermont state petroleum spill list.

5.2.6 Records of Contaminated Public Wells

The EDR report identified no records of any water supply wells.

5.2.7 Voluntary Remediation Program Sites within 0.5 Mile

The USAR Center is not listed in Vermont's Brownfield Program (the successor to the Voluntary Cleanup Program). No sites located within 0.5 mile of the USAR Center are listed as being in the Brownfield Program.

5.2.8 State-Registered Bulk Fertilizer and Pesticide Storage Facilities within 0.25 Mile

The USAR Center is not registered with the state as a bulk fertilizer and pesticide storage facility. Additionally, no adjacent properties within 0.25 mile were registered as one of these facilities.

5.3 Unmapped Sites

Some sites within the databases EDR searches have the same zip code as the USAR Center, but no street address. These sites, known as unmapped or orphan sites, cannot be mapped from the EDR results alone. Additional efforts described herein were made to locate these sites and assess their environmental importance to the USAR Center.

Using the mapping utility provided at maps.google.com, the locations of the 36 orphan sites were identified and mapped. None of the sites were located within corresponding ASTM search radius distances.

5.4 Summary of Properties Evaluated to Determine Risk to the Property

To summarize Sections 5.1 through 5.3, numerous properties including the 36 orphan properties, near or adjacent to the USAR Center, were evaluated as potential risk properties to the Property. These adjacent properties evaluated were identified as a result of information obtained during area reconnaissance, interviews, and regulatory database searches. Based on this review, none of the surrounding properties pose any potential environmental risks.

6 Site Investigation and Review of Hazards

Findings documented in the following subsections are based on the September 6, 2006, site reconnaissance, a review of available site records, and information obtained from USAR personnel.

6.1 Underground Storage Tanks/Aboveground Storage Tanks

No USTs or aboveground storage tanks (ASTs) are currently present at the USAR Center. Two USTs (one 1,000-gallon tank and one 4,000-gallon tank) at the site were removed in 1992 and closed in 1993. Vermont DEC provided a no further action (NFA) letter on November 19, 1993, which is included in Appendix D.

6.2 Inventory of Chemicals/Hazardous Substances

Records pertaining to hazardous substances including hazardous materials, chemical bulk storage, petroleum products, hazardous waste, and petroleum waste were reviewed in addition to interviews and the site reconnaissance to develop the inventory for this Property

Available records indicate that hazardous materials and/or POL products have been stored at this facility. The storage of these materials related to vehicle maintenance would have stopped in 1991. During the site visit, no materials related to vehicle maintenance were observed. The materials include batteries, acids, adhesives, chloroform, solder, MEK, lubricating oils, dry cleaning solvents, and methylene chloride. There are currently no hazardous materials being stored at the Property.

6.3 Waste Disposal Sites

Available records and interviews did not indicate the practice of onsite waste disposal other than through managed storage and offsite disposal, except for the onsite septic system (refer to Sections 2.5 and 3.3). No waste disposal sites were observed during the site reconnaissance, nor were any signs of past onsite waste disposal (such as stressed vegetation or suspicious depressions in the landscape) observed.

6.4 Pits, Sumps, Drywells, and Catch Basins

An OWS is present outside the OMS building. According to site personnel, the OWS has not been used since 1991. The OWS is connected to the wash rack drain located outside the OMS building, and emptied to a leach field located to the east in a grassy area. It was noted by personnel that the OWS was pumped out in 1997, and no investigation was done at the site.

6.5 Asbestos-containing Material

A 1998 survey evaluation of ACM at this facility found that both friable and nonfriable ACM were identified at the site. The only friable ACM identified was located in the main building and consisted of gray-mudded pipe fitting insulations on fiberglass insulated plumbing pipes in the boiler room and drill hall. Nonfriable ACM included floor tiles, mastic below floor tiles, white sealant on exposed fiberglass pipe insulations, perimeter flashings, flashing cements, and other asphaltic roofing materials. Nonfriable ACM identified in the OMS building included brown sealant on duct seams and gray exterior window putty. The 1998 survey did not indicate the removal of pipe insulation or tiles; therefore, the ACM survey is assumed to represent current conditions. During the 2006 site visit, all areas with ACM were observed to be either removed or encapsulated. It should be noted that the CH2M HILL representative making the site visit was not qualified or contracted to make professional observations about ACM.

6.6 Polychlorinated Biphenyl-containing Equipment

There is no record of a polychlorinated biphenyl (PCB) survey at the site. There is no historical record of any activities or storage practices at the site which would suggest that PCBs were ever stored or used at the site. According to site personnel, no transformers have been present at the Property.

6.7 Lead-based Paint

There is no record for an LBP survey at this site. Because all buildings on the Property were constructed before 1978, there is potential for LBP. At the time of the site reconnaissance, the painted surfaces at this facility were in good condition. It was noted by site personnel that all surfaces at the USAR Center were repainted in 1998.

6.8 Radon

A site-specific radon survey was conducted at the USAR Center as part of the 1994 USAR Center Radon Reduction Program. Passive detection equipment was installed throughout the main building to determine levels of radon gas. Based on the sampling results, the maximum radon level was 2.6 pCi/L. This is below USEPA's recommended maximum allowable exposure level of 4 pCi/L.

6.9 Munitions and Explosives of Concern

Based on a review of available records, the site reconnaissance, and interviews with USAR Center personnel, there are no indications that munitions and explosives of concern (MEC) are present at the Property. There was an indoor firing range on the Property, but any small arms ammunition associated with it would not be considered MEC (Memorandum, Department of Army Office of Assistant Secretary (Installations and Environment), 21 Apr 2005, subj: Munitions Response Terminology). The range was cleaned up and closed in 2003. The cleanup consisted of removing the sand traps and bullet traps, and steam cleaning the

floors, ceilings, and range sidewalls. Confirmatory wipe samples were collected following the steam cleaning. All wipe sample results indicate that lead levels are below 200 micrograms per square foot, and that the range is safe for reoccupation (IT, 2003). The former range is now being used for limited storage, but is mostly empty.

6.10 Radioactive Materials

Based on a review of available records, the site reconnaissance, and interviews with USAR Center personnel, there is no indication that radioactive materials were stored or used at the USAR Center.

In the past, a possibility exists that small quantities of radioactive materials may have been stored at the Property, including compasses, night vision goggles, and nuclear, biological, and/or chemical (NBC) detection and calibration equipment. There are no known releases associated with these radioactive materials. The amount of radioactive materials present in these devices is expected to be minimal and therefore is not expected to present a threat of release to the environment.

7 Review of Special Resources

7.1 Land Use

The City of Chester's Planning and Zoning Department has designated this Property and surrounding properties as Light Commercial. The USAR Center is located in an area that is surrounded by residential land uses.

7.2 Coastal Zone Management

This Property is not in a coastal zone.

7.3 Wetlands

According to the 1988 USFWS National Wetlands Inventory maps, no wetlands are located on the Property or on adjacent properties. Based on a more focused wetland survey conducted at the site in 2002 (ENSR, 2002), however, it was determined that the land bordering the northern edge of the Property is considered a wetland, according to USFWS guidelines. Under the Vermont Wetlands Rules, these wetlands are not defined as state-regulated wetlands.

7.4 100-year Floodplain

A review of the FEMA digital flood hazard area map indicates that the Property lies outside the 100-year floodplain.

7.5 Natural Resources

No natural resources surveys or mapping have included this Property or adjacent properties. The developed nature of the area, the length of time this area has been developed, the small acreage involved, and the results of the site reconnaissance indicate that it is unlikely any threatened or endangered plant or animal species, or any habitat critical to their survival, would occur at this location.

7.6 Cultural Resources

A cultural resources survey has not been conducted at this site. Due to the small size of the Property along with the developed nature of the site, it is unlikely that any cultural resources are affected at the Property.

7.7 Other Special Resources

Eight designated wild and scenic rivers occur within the state of Vermont. None of these are located within 20 miles of the Property.

8 Conclusions

The following information was obtained after conducting an environmental record search including records for adjacent properties, reviewing available historical information, conducting interviews with knowledgeable parties connected with the Property or with state and local agencies, and conducting a reconnaissance of the Property and adjacent properties.

8.1 Review of Findings

Hazardous Substances. Hazardous substances pursuant to CERCLA §101 (14 USC 9601 (14)) were used and stored at the Property in amounts necessary to support unit-level vehicle and building maintenance activities. There is no evidence that the chemicals used or stored were released or disposed of at the Property.

USTs/ASTs. Available records do not indicate any ASTs currently or formerly located at this facility. Two USTs (USTs 0126 and 0127) containing fuel oil were located at this Property and removed in 1992. Soil contaminated with petroleum was removed and treated offsite. A closure letter with NFA status was provided from Vermont DEC regarding these tanks in November 1993.

Non-UST/AST Petroleum Storage. Petroleum storage other than in USTs or ASTs was not observed on the Property.

PCBs. No transformers are located on the Property.

ACM. A 1998 survey evaluation of ACM at this facility found that both friable and nonfriable ACM were identified at the site. The only friable ACM identified was located in the main building and consisted of gray-mudded pipe fitting insulations on fiberglass insulated plumbing pipes in the boiler room and drill hall. Nonfriable ACM included floor tiles, mastic below floor tiles, white sealant on exposed fiberglass pipe insulations, perimeter flashings, flashing cements, and other asphaltic roofing materials. Nonfriable ACM identified in the OMS building included brown sealant on duct seams and gray exterior window putty. The survey did not indicate the removal of pipe insulation or tiles; therefore, the ACM survey is assumed to represent current conditions.

LBP. No LBP surveys have been conducted at the Property. Facilities constructed before 1981 are likely to have been painted with lead-containing paint. All buildings on the property were constructed before 1981 and, therefore, have the potential to have LBP present. At the time of the site survey, painted surfaces were in good condition with no chipped or peeling paint. It also was reported that all surfaces were repainted at the site in 1998.

Radiological Materials. Based on available records review, interviews and a site reconnaissance, there is no evidence of any radiological materials storage or releases at the Property.

Radon. The 1994 radon survey results indicated that no sampling locations exhibited radon levels above USEPA's recommended maximum allowable exposure level of 4 pCi/L.

MEC. There is no evidence that MEC was used or stored at the Property. An indoor firing range at the site was cleaned up and closed in 2003, but small arms ammunition associated with the range is not considered MEC.

Surrounding Properties. Potential environmental sites of concern, located within the ASTM search radius distances from the Property, were evaluated through database review and site reconnaissance. None of the adjacent properties evaluated exhibited environmental conditions that had or have the potential to adversely affect environmental conditions at the Property.

Wetlands and Floodplain. It appears that there are wetlands located at the rear (northern) border of the Property; however, these wetlands are not defined as a state-regulated wetland under the Vermont Wetlands Rules. The Property is not located within a 100-year floodplain or within a coastal zone.

Threatened and Endangered Species. No natural resource surveys or mapping have been performed for the Property. The developed nature of the area, the length of time this area has been developed, the small acreage involved, and the results of the site reconnaissance indicate that it is unlikely any threatened or endangered plant or animal species, or any habitat critical to their survival, would occur at this location.

Archaeological and Historical Resources. Because the buildings were constructed in 1956, they may be eligible for listing on the National Register of Historic Places. Their potential Cold War era historic significance has not been evaluated.

8.2 Environmental Condition of Property

Findings of this ECP report were based on reasonably available environmental information, interviews with site and state and local personnel, review of previous environmental studies and federal and state database, and file information related to the storage, release, treatment or disposal of hazardous substances or petroleum products. Results also were based on visual observations of the Property and adjacent properties.

In accordance with Department of Defense policy defining the classifications (See Sherri Goodman Memorandum dated 21 October 1996), the Property has been classified into one of seven property types. Based on the results of this ECP study, the Property has been assigned an overall DoD Environmental Condition Type 7. The following major findings were noted:

- 4,000-gallon fuel oil UST (No. 0127) and 1,000-gallon fuel oil UST (No. 0126). Significant soil contamination was found and removed from the area of these tanks when they were removed. The soil was treated offsite.
- Soil contaminated from the removal of these two USTs at the site was removed and a closure report was submitted to Vermont DEC. This agency granted NFA status in November 1993.
- OWS at the site was pumped out but was never removed, and no investigation has been conducted near the OWS or the leach field to which it drained.

9 References

Persons Contacted

- Steve Lombardi, ENSR, CERCLA/RCRA Contract Employee, 978-596-2607, September 6, 2006
- Sherril Wade, 94th Regional Facility Manager, Environmental Planner, 978-580-0672, September 6, 2006

Resources Consulted

- National Wild and Scenic Rivers, <http://www.nps.gov/rivers/wildriverslist.html#ny>
- USEPA Map of Radon Zones, <http://www.epa.gov/radon/zonemap.html>
- FEMA Flood Hazard Insurance Map, <http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView>
- Federal Regulatory Databases
 - National Priorities List (NPL), April 20, 2006
 - Proposed NPL Sites, April 19, 2006
- State and Local Regulatory Databases
 - Division of Emergency Response Database, March 14, 2003
 - Underground Storage Tank File, March 12, 2003

Agencies Contacted

- City of Chester, Vermont
- Vermont Department of Environmental Conservation, Central District, Montpelier, VT

Works Cited

94th Regional Readiness Command (RRC). 1992. *Memorandum Concerning Suspected Leaking UST*. January.

94th Regional Readiness Command (RRC). 1993. *Geohydrogeologic Report*. May.

94th Regional Readiness Command (RRC). 1994. *USARC Radon Reduction Program*. November.

ATEC. 1994. *Technical Report: Underground Storage Tank Closures*. January.

HLA. 1998. *Asbestos Survey Report, Chester Memorial USAR*. June.

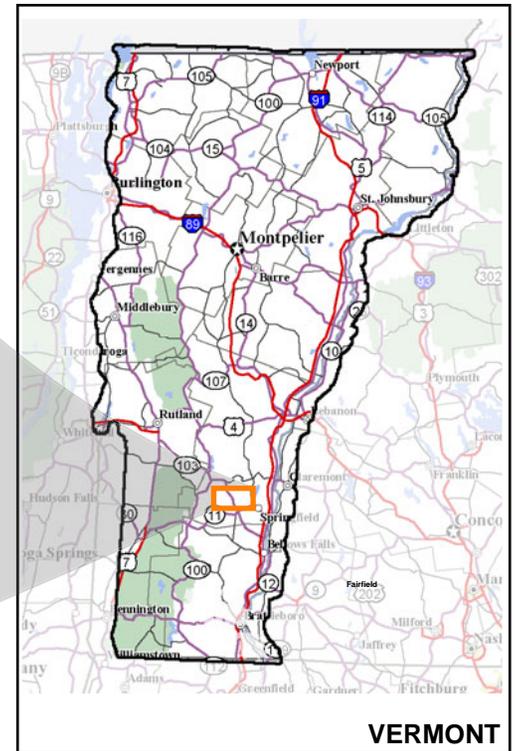
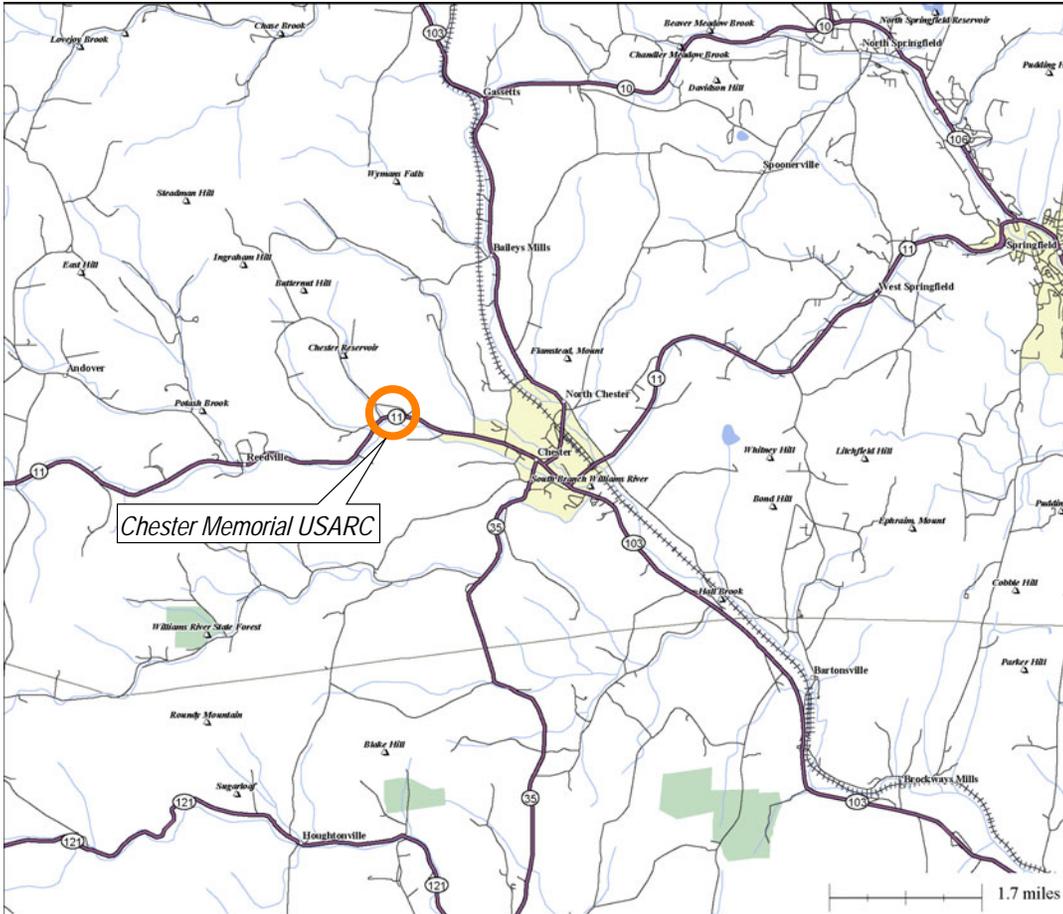
ENSR. 2002. *Wetlands Evaluation Chester Memorial USARC in Chester, Vermont and the Allen Street USARC in Rutland, Vermont*. October.

IT Corp. 2004. *Range Cleanup- VT005 94th RSC*. January.

Memorandum, Department of Army Office of Assistant Secretary (Installations and Environment), 21 Apr 2005, subj: Munitions Response Terminology

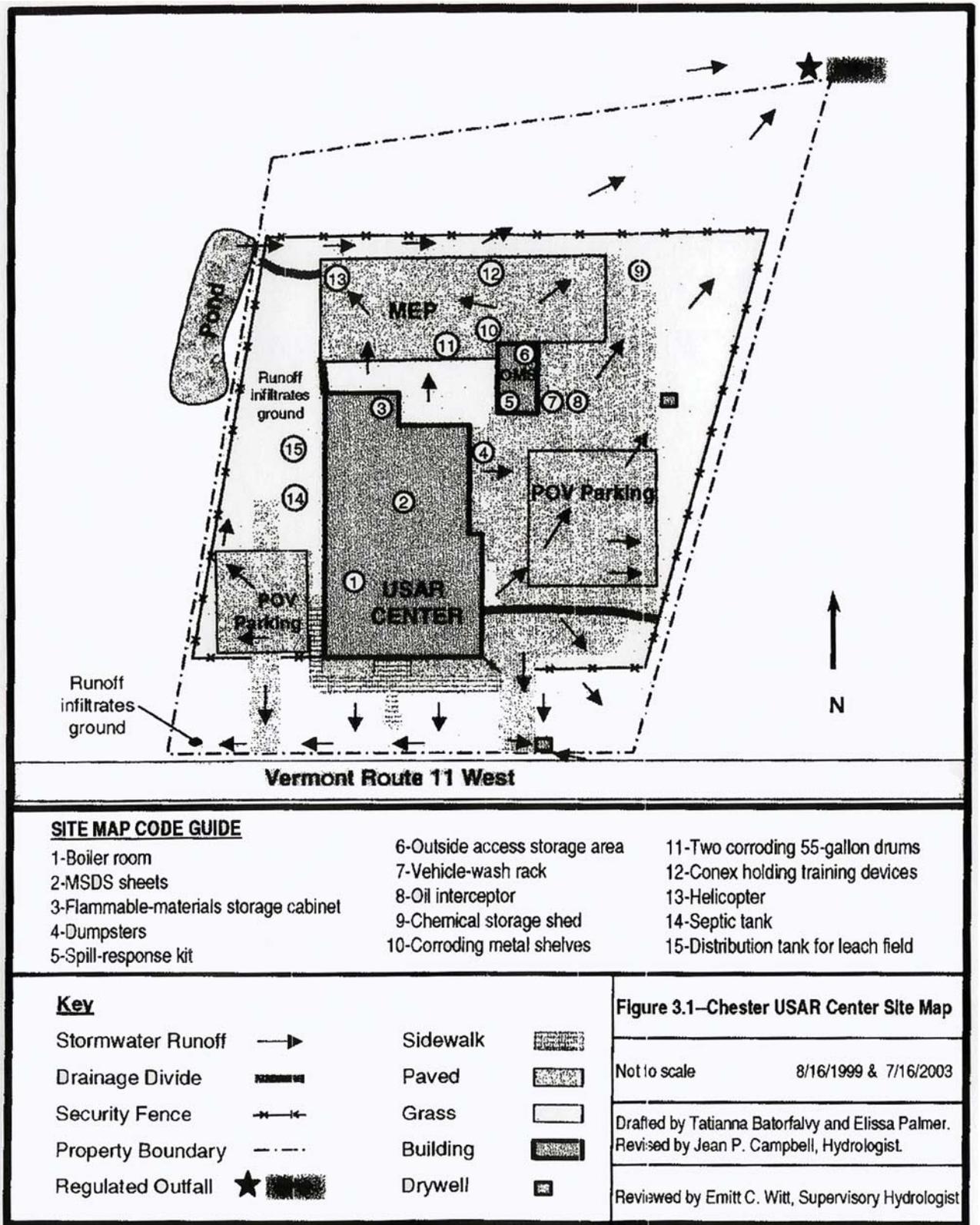
Vermont Department of Environmental Conservation (DEC). 1993. Letter from George Desch, Chief, Sites Management Section, to Ron Ostrowski, Installation Environmental Management Officer, re: *Chester Reserve Center in Chester, Vermont (Site #92-1287)*. November.

Appendix A
Figures



North

FIGURE 1
Site Location Map
Phase I ECP Report



Appendix B
Site Reconnaissance
Photographs

Site Reconnaissance Photographs



1. Plumbing pipes in ceiling of maintenance shop.



2. Plumbing pipes in ceiling and north wall of maintenance shop.



3. Plumbing pipes in south wall of boiler room.



4. Plumbing pipes in north wall of drill hall.



5. Storage area east side of administration building (note mold stains).



6. View looking east at oil/water separator to leach pit.



7. View looking east, wash rack to oil/water separator.



8. View looking north, wetlands at back fence line.



9. Grease trap in kitchen.

Appendix C
**Property Acquisition Documents
and Chain of Title Report**



2055 East Rio Salado Parkway, Suite 201
Tempe, Arizona 85281
Phone: (480) 967-6752
Fax Number: (480) 966-9422
Web Site: www.netronline.com

HISTORICAL CHAIN OF TITLE REPORT

**CHESTER MEMORIAL USARC, VT
978 VT RTE 11 WEST
CHESTER, VERMONT**

Submitted to:

**ENVIRONMENTAL DATA RESOURCES, INC.
C/O
CH2M HILL
1569 Stampmill Way
Lawrenceville, Georgia 30043
(770) 338-1589**

Attention: Mary Jacques

Project No. N06-5631

Friday, September 15, 2006

NETR- Real Estate Research & Information hereby submits the following ASTM historical chain-of-title to the land described below, subject to the leases/miscellaneous shown in Section 2. Title to the estate or interest covered by this report appears to be vested in:

UNITED STATES OF AMERICA

The following is the current property legal description:

Being that parcel or tract of land, consisting of 3.0 acres more or less, situated and lying along Route 11 in the City of Chester, Windham County, State of Vermont

Assessor's Parcel No: 382026

1. HISTORICAL CHAIN OF TITLE

1. WARRANTY DEED:

RECORDED: 07-04-1916
GRANTOR: Flora A. B. Orcutt
GRANTEE: Carroll W. Carlton & Florence Carlton, husband & wife
INSTRUMENT: Bk 29, Pg 535

2. WARRANTY DEED:

RECORDED: 08-06-1945
GRANTOR: Carroll W. Carlton & Florence Carlton, husband & wife
GRANTEE: Edward G. Vail & Ina C. Vail, husband & wife
INSTRUMENT: Bk 34, Pg 328

3. WARRANTY DEED:

RECORDED: 08-15-1956
GRANTOR: Edward G. Vail & Ina C. Vail, husband & wife
GRANTEE: United States of America
INSTRUMENT: Bk 38, Pg 143

2. LEASES AND MISCELLANEOUS

1. A Notification for Underground Storage Tanks was filed in Book 65, Page 268 on 06-12-1986. A total of two (2) tanks were reported at this location. (copy attached)
2. No environmental liens, institutional controls or engineering controls were found of record.

3. LIMITATION

This report was prepared for the use of Environmental Data Resources, Inc., and CH2M Hill, exclusively. This report is neither a guarantee of title, a commitment to insure, or a policy of title insurance. NETR- Real Estate Research & Information does not guarantee nor include any warranty of any kind whether expressed or implied, about the validity of all information included in this report since this information is retrieved as it is recorded from the various agencies that make it available. The total liability is limited to the fee paid for this report.

TRANSFER OF COMPLETION RECORDS; PROJECTS IN PROGRESS

NAME OF BUILDING OR STRUCTURE

DRAWING NO.

DATE DATA

1941 QUANTITY

REMARKS

PROJECT NO.

ACQUISITION AUTHORITY

100

REAL PROPERTY RECORDS

AMOUNT OF REAL PROPERTY ACQ. BY THE GOVERNMENT

GREEN \$2,000.

5-50) with description attached.

Property listed hereon has been posted to Real Property Records.

ACCEPTED BY:

POST ENGINEER

COMMANDING OFFICER

Transferred by U. S. Army Engineer Division, New England, Corps of Engineers

M. B. DEVLIN

Accountable Property Officer

VO 3490-0

REAL PROPERTY RECORD - LAND

(SR 735-7-3)

1. INSTALLATION Guster, Vermont		2. DESIGNATION LAND HELD FOR Army Reserve Training Center			
3. DATE 15 January 1960		4. MAP NO. NED PA 1308		5. <input checked="" type="checkbox"/> GOVERNMENT-OWNED <input type="checkbox"/> LEASED	6. LEASE NO.
DATE ACQUIRED	VECTORED NUMBER	DESCRIPTION OR NAME OF TRACT	BASE UNIT - AREA IN ACRES		
			IMPROVED GROUNDS	WASTE	UNIMPROVED OTHER
15 Aug '56		Tract A-100 3.00 F ac.			
		Edward C. Vail et ux			
		Cost: \$ 6,000.			
		See description attached.			
15 Jan 60 16 Mar 61	3400-0 4119-1	For transfer of property listed above			
		NOTE: SAVE FOR DESCRIPTION ON REVERSE			
		Dupl CARD IN REAL PROPERTY RECORDS			

(CONTINUE ON REVERSE SIDE)

DA FORM 5-50

1 JUN 53

REPLACES WD AGO FORM 5-50, 1 NOV 45, WHICH IS OBSOLETE.

VT 002

STATE OF VERMONT

HISTORIC SITES & STRUCTURES SURVEY

Individual Structure Survey Form

SURVEY NUMBER:

NEGATIVE FILE NUMBER: PAL 601-7-9,11

UTM REFERENCES:

Zone/Easting/Northing Z18 E692545 N4793380

U.S.G.S. QUAD. MAP: Andover, VT N4315-W7237.5/7.5

PRESENT FORMAL NAME: Chester Memorial USARC

ORIGINAL FORMAL NAME: Same

PRESENT USE: U.S. Army Reserve Center

ORIGINAL USE: U.S. Army Reserve center

ARCHITECT/ENGINEER: Urbahn, Brayton and Burrows

BUILDER/CONTRACTOR: U.S. Army Corps of Engineers with private contractors

PHYSICAL CONDITION OF STRUCTURE:

Excellent [] Good [X]

Fair [] Poor []

STYLE: Contemporary

DATE BUILT: 1960

COUNTY: Windsor

TOWN: Chester

LOCATION: West of Chester Center on Route 11, north of Williams River

COMMON NAME: Chester Memorial USARC

PROPERTY TYPE: military-defense

OWNER: 94th Regional Support Command
ADDRESS: 695 Sherman Ave, Fort Devens, MA 01433

ACCESSIBILITY TO PUBLIC:
Yes [] No [X] Restricted []

LEVEL OF SIGNIFICANCE:
Local [] State [] National []

GENERAL DESCRIPTION:

Structural System

1. Foundation: Stone [] Brick [] Concrete [X] Concrete Block []

2. Wall Structure

a. Wood Frame: Post & Beam [] Balloon []

b. Load Bearing Masonry: Brick [] Stone [] Concrete [X] Concrete Block []

c. Iron [] d. Steel [] e. Other:

3. Wall Covering: Clapboard [] Board & Batten [] Wood Shingle [] Shiplap [] Novelty []

Asbestos Shingle [] Sheet Metal [] Aluminum [] Asphalt siding [] Brick Veneer [X] Stone Veneer []

Bonding Pattern:

Other:

4. Roof Structure

a. Truss: Wood [] Iron [] Steel [X] Concrete []

b. Other:

5. Roof Covering: Slate [] Wood Shingle [] Asphalt Shingle [] Sheet Metal [] Built Up [X] Rolled [] Tile []

6. Engineering Structure:

7. Other:

Appendages: Porches [] Towers [] Cupolas [] Dormers [] Chimneys [] Sheds [] Ells [] Wings [] Bay Window

Roof Style: Gable [] Hip [] Shed [X] Flat [] Mansard [] Gambrel [] Jerkinhead [] Saw Tooth [] With Monitor []

With Bellcast [] With Parapet [] With False Front [] Other:

Number of Stories: one

Number of Bays: Entrance Location: front and side

Approximate Dimensions: 169' X 96'

SIGNIFICANCE: Architectural [] Historic [X] Archaeological []

Historic Contexts: Cold War

Level of Significance:

Local State National

ADDITIONAL ARCHITECTURAL OR STRUCTURAL DESCRIPTION:

See attached continuation sheets.

RELATED STRUCTURES: (Describe)

See attached continuation sheets.

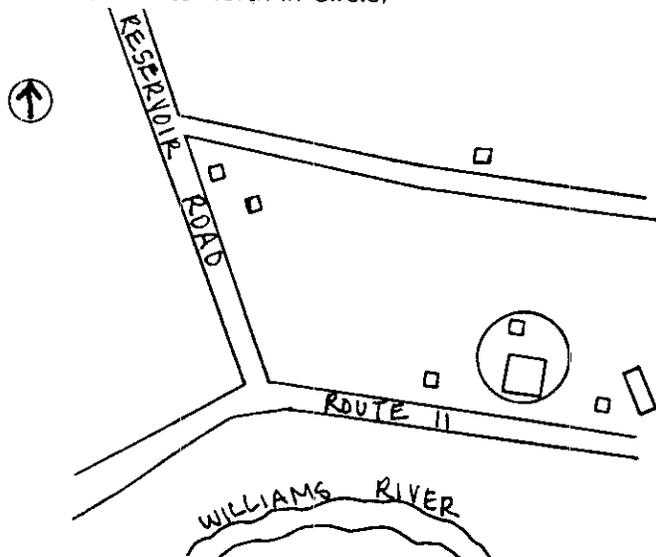
STATEMENT OF SIGNIFICANCE:

See attached continuation sheets.

REFERENCES:

See attached continuation sheets.

MAP: (Indicate North in Circle)



SURROUNDING ENVIRONMENT:

- Open Land Woodland
- Scattered buildings
- Moderately Built Up
- Densely Built Up
- Residential Commercial
- Agricultural Industrial
- Roadside Strip Development
- Other:

RECORDED BY: M Kierstead & K. Van Dyke

ORGANIZATION: PAL, Inc.

DATE RECORDED: May 2, 1995

INVENTORY FORM CONTINUATION SHEET
New England U.S. Army Reserve Centers
Vermont

Community: Chester

Property Address: Highway 11

ARCHITECTURAL DESCRIPTION *(continued)*

The Chester Memorial United States Army Reserve Center, designed by Reisner & Urbahn and built in 1960, was originally a small, rectangular, 80-foot by 52-foot, side-gabled, administrative and classroom building. Originally designed as a 100-man center, the building was substantially enlarged to a 200-man center in a 1980 remodeling by Wank, Adams & Slavin. The building is now a 169-foot by 96-foot, L-shaped, one-story structure, with a drill hall located to the north of the expanded original building. The original building was blended into the expansions by tilting the north plane of the original gable roof up to form a large shed-type roof, which blends in with the similar shed roofs of the drill hall, connecting corridor, and rifle range. All walls are cinder block, with brick exterior veneer. The front (south) elevation retains its original appearance, with overhanging eaves, an offset, projecting, intersecting-gable entrance, flanked by paired, full-height, single-pane window openings. These windows replace the original four-pane, metal-sash units. The double aluminum-frame and plate glass front doors are flanked by large, glazed, tan tiles. At the driveway (east) entrance, the glazed tile panel extends all the way up into the gable. The legend "UNITED STATES ARMY RESERVE CENTER" is located on the wall to the east of the entrance in metal letters. The original core building retains its fenestration and original doorways, at the east and west ends. The new drill hall and rifle range are essentially windowless, and the tops of the brick walls are capped with wide metal coping. A large roll-type vehicle access door is located in the east wall of the drill hall, which has a thick concrete slab floor to support heavy military vehicles and equipment. Interior features in the original building include administrative offices and classrooms arranged along a double-loaded corridor. The large classroom at the east end is accessed by two doors, and can be divided by a sliding, accordion-type wall. Interior features added to the building in 1980 include a kitchen, rifle range, arms vault, storage rooms, and a 72-foot by 52-foot drill hall.

One related outbuilding, the original Maintenance Shop (MS), is located approximately 30 feet to the northeast of the main building. The maintenance shop, designed by Bailey and Patton, and built in 1961, is a 48-foot by 28-foot, one-story, one-bay, brick vehicle garage, with a slightly pitched, side-gabled, built-up roof. A large roll-type garage door fills the front (south) elevation, and personnel access doors are located in the east wall. The maintenance shop is lit by a band of windows high on the rear (north) elevation.

The Chester Memorial Reserve Center is located within a three-acre graded parcel situated on the north side of Vermont State Route 11, west of Chester center. The property is open at the front, and paved walks lead to the front entrance. The property is fenced off beyond the front of the building, and a gated driveway leads to parking areas located at the east and west sides of the building, and to the maintenance shop. Landscaping is minimal, consisting of open, mowed lawns, trimmed yews and small trees.

The original component of the Chester Memorial Reserve Center is an altered example of the late design phase of a series of similar reserve centers constructed across the United States from the early 1950s to the early 1960s. These spartan buildings were designed according to an architectural program developed by the U.S. Army Corps of Engineers and the New York architectural firm of Reisner & Urbahn. A later incarnation of this firm, Urbahn, Brayton & Burrows, designed the late-phase buildings such as the Chester Memorial Reserve Center. The reserve centers were built from a set of master plans, which were adapted as necessary to conform to military capacity requirements, and modified to conform to specific site configurations. The reserve center design program combined the need for low cost, easy expansion, and uniformity with Contemporary, International Style-derived architectural features such as hard-edged rectangular massing, flat roofs, lack of ornamentation, and emphasis on simple materials and regular

INVENTORY FORM CONTINUATION SHEET

New England U.S. Army Reserve Centers

Vermont

rhythms of fenestration. The use of the Contemporary Style, combined with the function and interior layout of the reserve centers, resulted in a building type which resembles primary school architecture, as well as corporate and municipal buildings of the period. The altered Chester Memorial Reserve Center is typical of reserve center expansions, which exhibit continuity in the use of materials, and functional design. Although the street (south) elevation remains unaltered, the original appearance and architectural integrity of the building have been compromised by the addition and the alteration of the roof and end (east and west) walls.

HISTORICAL SIGNIFICANCE *(continued)*

The United States Army Reserve (USAR) is a Federal military organization distinct from the full-time, professional Regular Army and the state National Guard. The USAR is maintained as a source of personnel to rapidly support the Regular Army in the event of conflict. The USAR is composed of "citizen-soldiers," civilians committed to a period of duty in exchange for benefits and pay. The history of the USAR has been characterized by conflict between the Regular Army, U.S. Presidents, and Congress over the combat role and funding of the USAR. This conflict resulted in early difficulties in reaching projected goals for equipment, facilities, and utilization. The USAR has its origins in the Colonial state militia, informally trained citizens organized against the British Army during the Revolution. The modern USAR has its roots in the Medical Act of 1908, which started a reserve force of medical officers. Distinct organizations of reserve officers and regulars participated in World War I. During the 1930s, the Works Projects Administration provided reserve officers with the opportunity to run Civilian Conservation Corps camps.

The USAR also sent soldiers into combat during World War II. The postwar period was a time of change for the USAR, as emerging Cold War defense philosophy called for a larger reserve force to augment the Regular Army. Reliance on nuclear detente during the Cold War drew attention away from the development of the USAR, and reduced its effectiveness in the Korean War. The USAR was not a major participant in the Vietnam War, as President Lyndon Johnson anticipated the negative political implications of USAR mobilization for an unpopular war. Under Nixon's 1970 Total Force policy, the USAR was made an all-volunteer force with an increased combat role and increased benefits and pay. Overall, USAR equipment and facilities have been increased since World War II. These gains have been vital for USAR units in reaching unit size and readiness requirements.

The USAR remains an active element in the U.S. military establishment. In the event of mobilization, USAR units are assimilated into the Regular Army to provide service and support. Army reservists today are required to attend forty-eight 4-hour drills per year at a Reserve Center, where Army training staff instruct them in procedure and the use of equipment, and one 15-day intensive summer training camp. Military training personnel of the 98th Training Division are stationed at New England reserve centers to provide instruction. USAR activities in New England and New York are controlled by the 94th Regional Support Command (RSC) headquartered at Fort Devens, Massachusetts.

Prior to the end of World War II, defense policy makers were already planning for the Cold War. Defense plans called for an increased role for the Army Reserve, which was to augment the Regular Army in times of national emergency. The Army Reserve lacked proper facilities for training and equipment after World War II, and reserve units could not be activated without them. The War Department recommended that the Federal Government appropriate funds for armory (reserve center) land purchases and construction. This appropriation required Congressional approval, and in May 1946, H.R. 5762, a bill for armory construction funds was introduced into Congress. This bill failed due to disagreements over funding allocation and property ownership, as did six other pieces of legislation introduced over four years. On September 11, 1950, the 81st Congress passed H.R. 8594, the National Defense Facilities Act, which gave the reserve components \$250 million for construction over five years. This bill was amended in 1955,

INVENTORY FORM CONTINUATION SHEET

New England U.S. Army Reserve Centers

Vermont

allocating another \$25 million for reserve construction.

During this period the reserve components were developing the new reserve center concept. Proposed facility criteria and specifications were collected from numerous military agencies, and approved by the Secretary of Defense. From this information sketches and models were made by the Corps of Engineers, and reviewed by the parties involved. From the resulting comments the Corps of Engineers developed construction criteria, and finished drawings were made by selected outside architects and engineers such as Reisner & Urbahn. Reisner & Urbahn were known by the Corps of Engineers for successful work with National Guard armory design, and were awarded the commission for the New England reserve centers after funding was insured by passage of the National Defense Facilities Act. Due to similar facility needs the reserve center program was overseen by the National Guard Bureau. Designers recognized that due to changing military tactics and technology, instruction space would take precedence over the traditional drill hall in the new architectural environment they were designing. Other requirements included storage space and offices. The reserve centers were typically constructed using inexpensive materials, were devoid of ornamentation, and were designed to blend into their architectural surroundings. Standardization was important for construction efficiency and was key to facilitating the expansible nature of the design, which allowed for additional wings to be added to increase the capacity of the reserve center. The bulk of the Reisner & Urbahn reserve centers were constructed in the mid-1950s, particularly after the additional funds acquired by the amendment of the National Defense Facilities Act in 1955. The Reisner & Urbahn New England reserve center campaign ended in 1964, with 23 reserve centers constructed. After this large commission, reserve facility policy shifted to the utilization of existing defense facilities. This facility was built on 3.0 acres purchased from Edward C. Vail, et ux, for \$6,000 on August 15, 1956.

The function of this reserve center is to provide administrative, classroom, maintenance, and storage space to Army Reserve personnel and assigned Army Reserve units. The reserve center serves as a base of operations for specialized units that can be mobilized and assimilated into the Regular Army when required. At the reserve center, assigned Army Reserve units receive advanced individual training in the use of military equipment, weapons, tactics, and vehicles. In the event of mobilization with a draft, U.S. Army training instructors stationed at the reserve center are deployed to conduct basic training of draftees. Military instruction at the reserve center takes place in the classrooms and in the drill hall, which is used for general assemblies and drill practice and can accommodate large military vehicles. A kitchen is also associated with the drill hall. Administrative office space is provided for full-time unit support personnel, including the Facility Manager, who is responsible for the day-to-day operation and maintenance of the facility; and the Unit Administrator, who is responsible for unit personnel, pay, promotion, and supply. In the event that the assigned reserve units are mobilized, the reserve center also provides home support for the units. The reserve center also serves as an Army Reserve recruiting center.

This maintenance shop is a motor vehicle garage used by reserve center personnel for routine periodic maintenance and storage of smaller assigned unit vehicles. Tasks performed at the maintenance shop include oil changes, lubrication, battery filling, light running repairs, and minor maintenance such as tire changing, replacement of light bulbs, and minor painting, tuning and washing. Heavier repairs are performed at a centralized regional Area Maintenance Support Activity (AMSA) facility which is discussed on a separate form. The maintenance shop is now also used for unit equipment storage, with most assigned unit vehicles stored outdoors.

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INVENTORY FORM CONTINUATION SHEET

New England U.S. Army Reserve Centers

Vermont

Chester Memorial U.S. Army Reserve Center, Chester, Vermont.

1995 Facility Files

Fort Devens

1995 Real Property Files

National Archives and Records Administration, Washington, DC and College Park, MD

Record Groups 168, 319, and 407

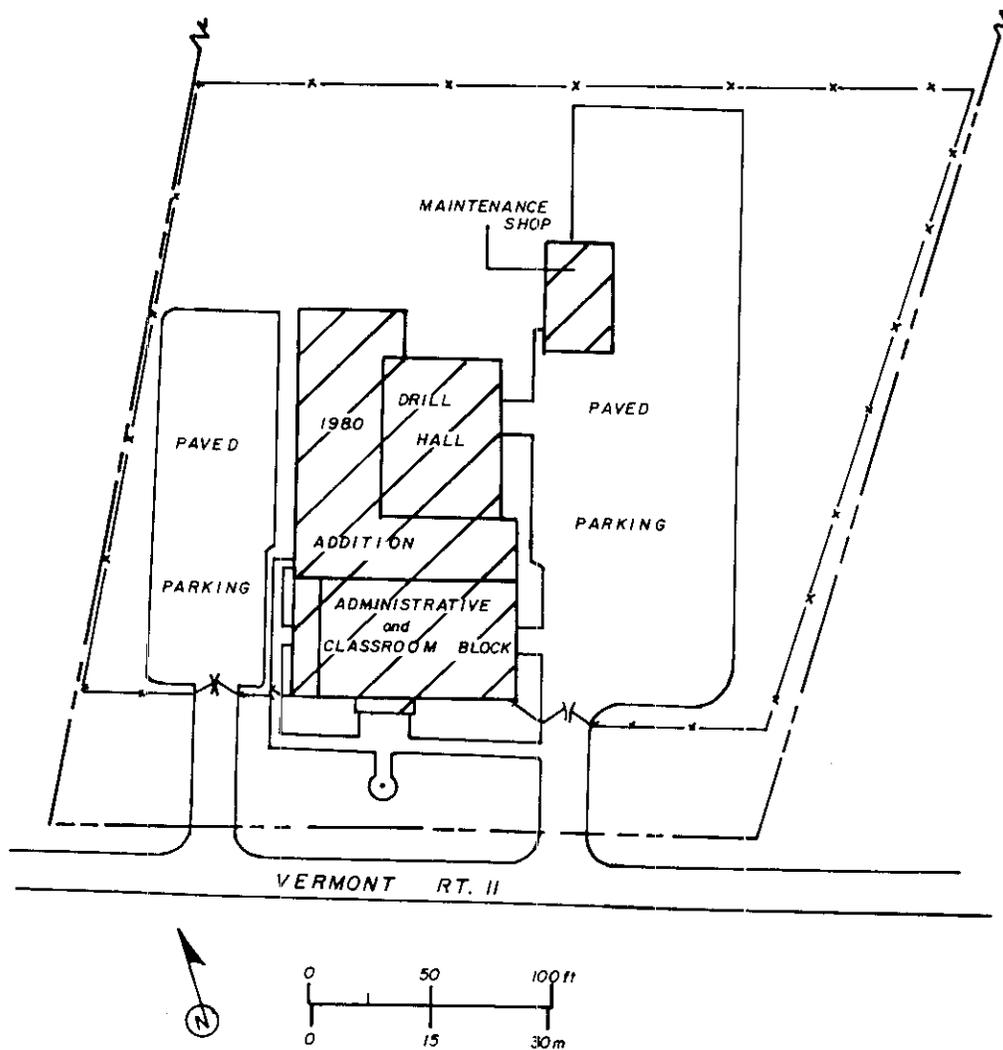
Sergeant Hoover, Facility Manager

1995 Interview with Matt Kierstead, Chester, Vermont, May 2, 1995.

Urbahn, Max

1995 Interview with Matt Kierstead, Pawtucket, Rhode Island, May 17, 1995.

SITE PLAN OF THE CHESTER MEMORIAL USARC



Appendix D
**Previous Environmental
Site Assessment Reports**

FINAL
ASBESTOS SURVEY REPORT
AND OPERATIONS AND MAINTENANCE PLAN
CHESTER MEMORIAL ARMY RESERVE CENTER
HIGHWAY #11, BOX 121Z
CHESTER, VERMONT

CONTRACT NO. DACA33-91-D-0006
DELIVERY ORDER NO. 42

JUNE 1998

ASBESTOS SURVEY REPORT

AND

OPERATIONS AND MAINTENANCE PLAN

CHESTER MEMORIAL ARMY RESERVE CENTER

HIGHWAY #11, BOX 121Z

CHESTER, VERMONT

CONTRACT NO. DACA33-91-D-0006

DELIVERY ORDER NO. 42

**ASBESTOS SURVEY REPORT
AND
OPERATIONS AND MAINTENANCE PLAN
CHESTER MEMORIAL ARMY RESERVE CENTER
HIGHWAY #11, BOX 121Z
CHESTER, VERMONT**

Conducted for:

**Harding Lawson Associates
(formerly ABB Environmental Services, Inc.)
Corporate Place 128
107 Audubon Road
Wakefield, Massachusetts 01880**

Surveys Performed by:

**Covino Environmental Consultants, Inc.
300 Wildwood Avenue
Woburn, Massachusetts 01801**

CEC Project 94.01163.32

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EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers retained ABB Environmental Services, Inc. (ABB-ES) of Wakefield, Massachusetts to perform asbestos surveys of 41 Army Reserve Centers (ARCs) throughout New England during September, October and November, 1994. ABB-ES subcontracted with Covino Environmental Consultants, Inc. (CEC) to accomplish this task.

The objective of this task is twofold. First, the site-specific surveys will provide the Army with information concerning the extent of asbestos-containing building materials (ACBM) at each facility, a hazard assessment, and an operations and maintenance (O&M) plan to properly address potential concerns. Secondly, the summary reports prepared for each facility will provide the information necessary to plan future remediation efforts at the facilities on a worst-first basis.

The facility surveyed for this report was the Chester Memorial ARC, Highway #11, Chester, Vermont. The facility consists of a Main Building and a Maintenance Building (OMS).

The Main Building at the site is used primarily for offices, classrooms, and an assembly hall. The heating system includes a combination of radiators and air handlers supplied by a propane fired boiler. The Main Building, which was constructed in the late 1950s, contains 14,900 square feet of floor space.

The OMS is used for maintenance of motor vehicles. The date of construction of the OMS is unknown. The OMS contains 1,100 square feet of space. The only HVAC element in the building is a propane-fired wall blower unit.

Timothy Downey of CEC conducted the survey on October 4, 1994. The CEC inspector performed visual inspections of all accessible interior areas, exterior areas, and rooftop areas. Observations were made for thermal system insulations, surfacing materials, and miscellaneous materials within mechanical spaces, office areas, classrooms, and maintenance areas. Whenever feasible, the spaces above suspended ceilings, within wall chases, high bay areas, etc., were also inspected. Because inspection was limited in such areas, assumptions above these areas were sometimes based on information contained in as-built drawings. No destructive sampling was conducted as part of this survey.

Representative bulk samples of each type of suspect ACBM observed were collected for laboratory analysis. To determine asbestos content, the samples were analyzed using Polarized Light Microscopy with Dispersion Staining (PLM/DS) in accordance with EPA protocol. Suspect materials were classified as ACBM if the analytical results indicated an asbestos content of greater than one percent.

EXECUTIVE SUMMARY (cont.)

Both friable ACBM (materials that, when dry, may be reduced to powder by hand pressure) and nonfriable ACBM were identified at the site. The only friable ACBM identified were located in the Main Building and consisted of gray mudded pipe-fitting insulations on fiberglass insulated plumbing pipes in the boiler room and drill hall. Nonfriable ACBM included floor tiles, mastic below floor tiles, white sealant on exposed fiberglass pipe insulations, perimeter flashings, flashing cements, and other asphaltic roofing materials. Nonfriable ACBM identified in the OMS included brown sealant on duct seams, and gray exterior window putty.

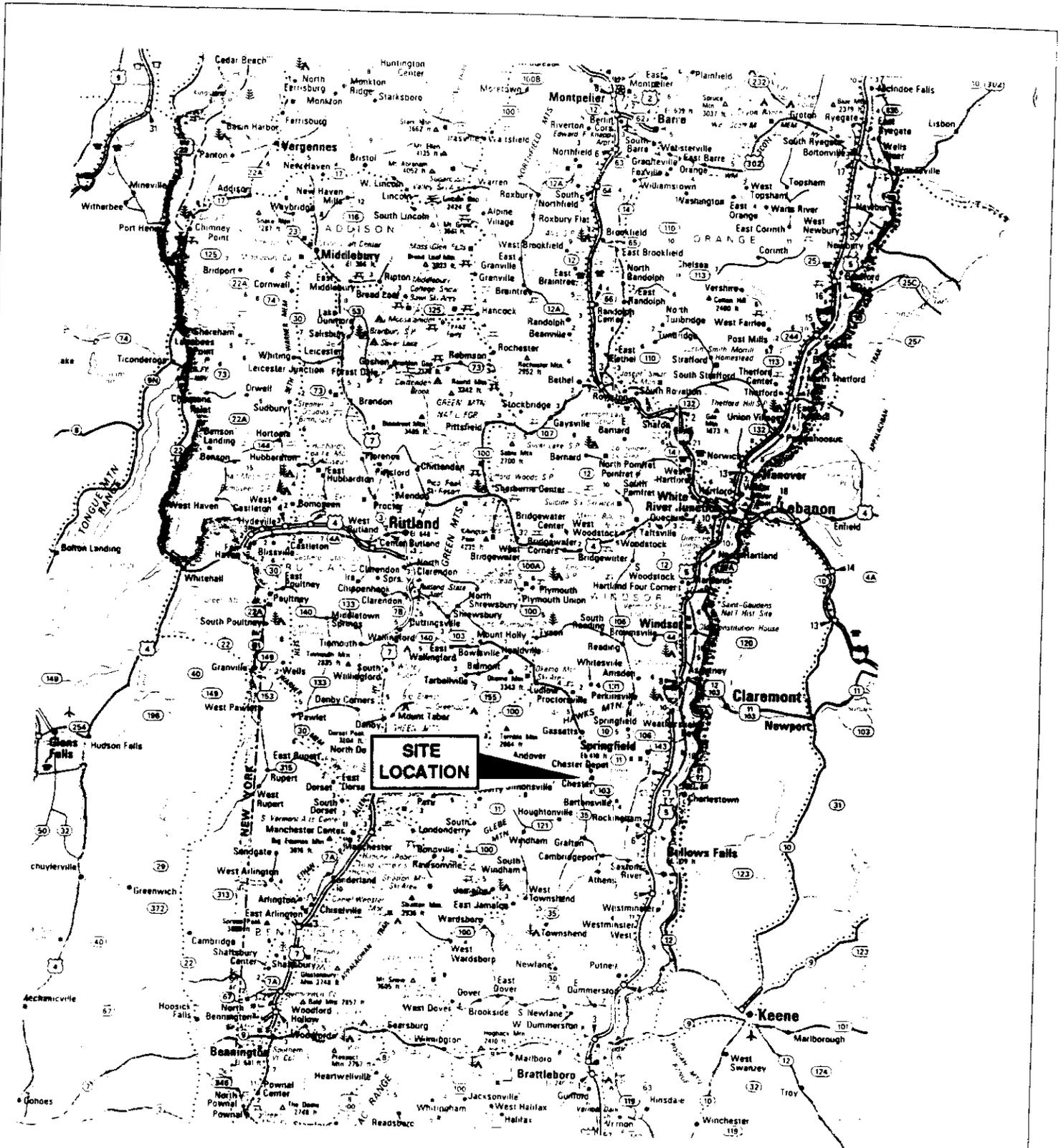
CEC's assessment of the Chester site indicated that the condition of most ACBM presents limited potential hazard. Friable mudded pipe-fitting insulations are in good condition and in low access areas, thus, they are not readily susceptible to disturbance and fiber release. Based on the results of the assessment, no remedial actions are recommended at this time. However, an O&M plan (Appendix F) should be implemented to minimize potential hazards.

For informational purposes only, cost estimates have been provided for removing and replacing ACBM (see Table 3). The total estimated cost for removing and replacing friable ACBM is \$1,750. The total estimated cost for removing and replacing nonfriable ACBM is \$143,600.

LIMITATIONS

Due to several limitations further survey work will be required if future renovation or maintenance activities occur which result in demolition of any part of the existing building structure. These limitations include:

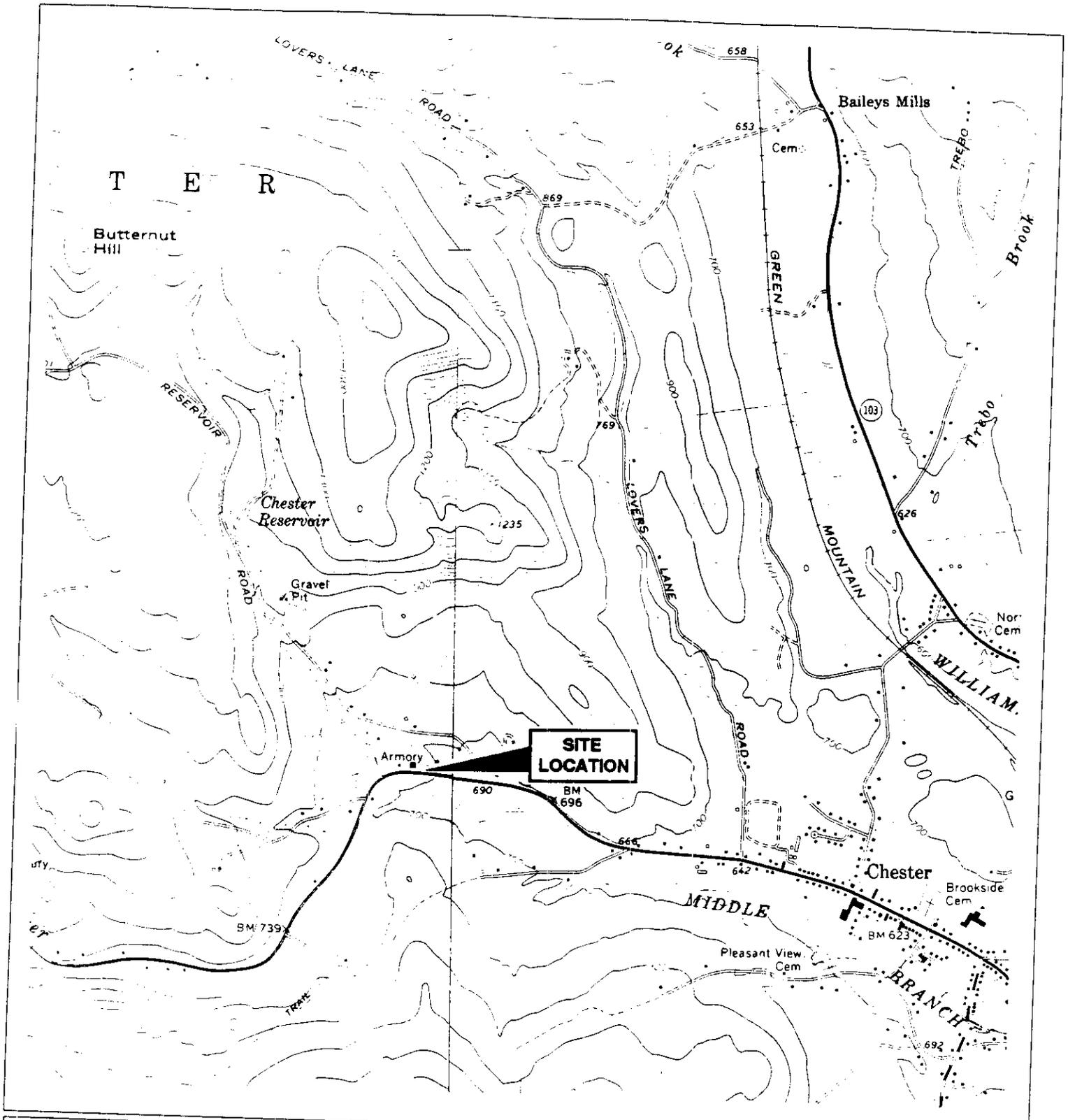
- A. Since no core samples of roofing material were collected, only exposed surfaces of the roof were inspected;
- B. Potentially hidden areas, such as wall cavities, the space between fixed ceilings and the ceiling deck, internal equipment and parts, etc. may contain ACBM that was not accessible during the survey; and,
- C. The inner cavity of fire doors, which sometimes contains ACBM insulation, were not inspected.



MAP DERIVED FROM RAND McNALLY.



FIGURE 1
VICINITY MAP
ASBESTOS SURVEY REPORT
CHESTER MEMORIAL USARC
CHESTER, VT




SOURCE: U.S.G.S. TOPOGRAPHIC 7.5 MINUTE SERIES:
 CHESTER, VT 1872
 ANDOVER, VT 1971

SCALE IN MILES 

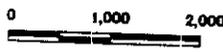
SCALE IN FEET 



ABB ABB Environmental Services, Inc.

FIGURE 2
SITE LOCATION MAP
ASBESTOS SURVEY REPORT
CHESTER MEMORIAL USARC
CHESTER, VT

GLOSSARY

1. Asbestos - Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that have been chemically treated and/or altered.
2. Asbestos-Containing Material (ACM) - material composed of asbestos of any type and in any amount greater than 1% by area, either alone or mixed with other fibrous or nonfibrous materials.
3. Asbestos-Containing Building Material (ACBM) - Surfacing ACM, thermal system insulation ACM or miscellaneous ACM that is observed in or on interior structural members or other parts of a building.
4. Asbestos-Contaminated Area - Any surface/area where visibly damaged friable asbestos material is present.
5. Bulk Sample - A small portion of suspect ACM collected and placed into an airtight container for microscopic analysis.
6. Cellulose - Vegetative, plant fibers; paper, cotton, etc.
7. Fibrous Glass - Man made; spun or extruded from a resin.
8. Friable Asbestos Material - Any ACM that can be crumbled, pulverized or reduced to powder when dry, by hand pressure, and which releases asbestos particles to the environment.
9. Homogenous Area - A material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material.
10. Miscellaneous ACM - Any ACM which is not categorized as thermal system insulation or surfacing insulation.
11. Nonfriable Asbestos Material - Any ACM that cannot be crumbled, pulverized or reduced to powder when dry, by hand pressure.
12. Point Counting - A microscopic method of bulk sample analysis using a systematic, statistical approach to determine the percentage concentration of asbestos in a friable suspect ACM.
13. Polarized Light Microscopy - An optical microscopic technique used to distinguish between different types of asbestos fibers by their shape and unique optical properties.

GLOSSARY (cont.)

14. Resinously Bound Material - A material which is held together in a resinous matrix (eg., mastic adhesive, roof flashing, etc.).
15. Surfacing ACM - An ACM which is spray or trowel-applied to a surface for acoustical, decorative or fireproofing purposes
16. Transmission Electron Microscopy (TEM) - A method of microscopic analysis which utilizes an electron beam that is focused onto a thin sample. As the beam penetrates (transmits) through the sample, the difference in densities produces an image on a fluorescent screen from which asbestos structures can be identified and quantified.
17. Thermal System Insulation ACM (TSI) - Any ACM which is applied to heating or mechanical equipment for the purpose of retaining heat or condensation.
18. Transite - An asbestos-cement board product. Typically applied in cooling towers, above heating elements, beneath wood floors, as wall board, etc.

INTRODUCTION

The U.S. Army Corps of Engineers retained ABB Environmental Services, Inc. (ABB-ES) of Wakefield, Massachusetts to perform asbestos surveys of 41 Army Reserve Centers (ARCs) throughout New England during September, October, and November 1994. ABB-ES subcontracted with Covino Environmental Consultants, Inc. (CEC) to accomplish this task.

The purpose of these surveys is to identify, quantify, and assess materials at each site that are suspected of containing asbestos fibers and, when asbestos-containing building materials (ACBM) are identified, to prioritize their need for removal.

On October 4, 1994, one inspector representing CEC performed an asbestos survey of the Chester Memorial ARC located at Highway #11, Chester, Vermont.

Timothy Downey (State of Vermont Certificate #15246) performed the survey. The certification of this CEC representative as an Asbestos Inspector is required and regulated in accordance with Vermont Department of Health V.S.A. Title 18, Chapter 26 Section 4.2.1. In addition, the inspector is appropriately accredited to perform building inspections through having successfully completed an EPA-approved asbestos inspection training course.

On the day of the inspection, the survey team met with the Facility Manager, William Gonyea, who provided information regarding the site as well as access to the buildings. A floor plan of the Main Building and a hand-drawn sketch of the OMS were used to depict the locations of samples and of ACBM.

This report contains a description of the site (section 1), a discussion of the sampling methods (section 2), a description of the laboratory analytical methods and results (section 3) and conclusions and recommendation (section 4).

The results of this survey are summarized in tabular form (section 3). Table 1, the Suspect Material Inventory, provides a list of all suspect ACBM encountered by the CEC inspectors during the survey, the locations in which the materials were observed, their sample number(s), the materials' friability, and the analytical results for each type of suspect material. A suspect material was classified as an ACBM if PLM/DS analysis of one or more samples indicated the presence of asbestos in quantities greater than one percent.

Table 2, the Inventory of ACBM, presents the list of positively identified ACBM, including material location, condition and accessibility. The assessment rating for exposure to each type of ACBM is based on the United States Army Environmental Center (USAEC) prioritization criteria.

INTRODUCTION

CEC's conclusions and recommendations are stated in section 4. Table 3 presents CEC's cost estimates for totally removing and replacing ACBM identified during the survey.

Appendices A through G present bulk sample analytical results, drawings depicting sample and ACBM locations, photographic documentation, asbestos prioritizations forms, personnel and laboratory certifications, the operations and maintenance plan, and the U.S. Army Corps of Engineers, Asbestos Survey, May 1990.

1. SITE DESCRIPTION

The Chester Memorial Army Reserve Center in Chester, Vermont consists of a Main Building and a Maintenance Building (OMS). Facility plans indicate that the Main Building was constructed in the late 1950s. No plans are available for the OMS.

The Main Building contains one floor. The Main Building is used primarily for offices, storage rooms, and classrooms; it also contains an assembly hall and armory. The building is a concrete structure of 14,900 square feet of floor space, with a brick exterior. The building construction materials observed included concrete block walls, a corrugated metal ceiling deck with metal joint supports and a concrete floor. Building finishes include wall board walls and ceilings in bathrooms and locker rooms and a suspended ceiling throughout most of the remaining areas. Floor finishes were vinyl and ceramic tile.

Heating is supplied in the Main Building by one boiler located in the boiler room and distributed through steam supply and return piping to perimeter radiators. Additional heating for the assembly hall was supplied by air handlers. Suspect ACBM were noted in association with the heating system. Materials included boiler breeching insulations, gray mudded fitting insulations, and valve skimcoat insulations.

Both friable and nonfriable ACBM were identified within the Main Building. Mudded fitting insulations on fiberglass insulated plumbing pipes were the only friable ACBM identified. These insulated pipes were observed only in the boiler room and assembly hall. Similar insulations may be located in wall cavities of bathrooms, locker rooms, and any other location where plumbing is supplied. Nonfriable ACBM included floor tiles and floor tile mastics located throughout the building, white sealant on exposed ends of fiberglass pipe insulation in the boiler room, and perimeter flashings, flashing cements, and other asphaltic roofing materials.

The OMS is a one-story structure used for maintenance of motor vehicles. The building is a wood-frame structure of 1,100 square feet of floor space, with concrete block walls and concrete floors. The building is heated by one wall blower unit.

Nonfriable ACBM observed in the OMS included brown sealant on metal ducts associated with the vehicle exhaust system and window putty. No friable ACBM were noted.

2. SAMPLING METHODS

The purpose of the survey was to identify both friable and nonfriable ACBM at the site. In the course of collecting random bulk samples for laboratory analysis, every effort was made to identify all locations and types of suspect ACBM. All building materials other than wood, plastic, metal, rubber, glass, and most masonry products were considered to be suspect ACBM. Sampling often included multiple samples of the same type of material because inconsistencies in manufacturing processes and installation practices may have resulted in materials of similar construction having varied asbestos content.

Both the interior and exterior of each building were inspected. The survey included observations for the following types of suspect ACBM:

- thermal system insulation on pipes, tanks, boilers, and similar items;
- surfacing materials such as acoustical and decorative plasters, fireproofing on beams, columns, and ceiling decks, and other coatings applied by spray or trowel;
- miscellaneous friable materials such as ceiling tiles, gypsum wallboards, joint compounds, cloth gaskets, blown-in insulations, etc.; and
- miscellaneous nonfriable materials such as floor tiles, adhesives, cementitious wallboards, asphaltic roofing materials, etc.

To prevent the potential for future water leaks, bulk samples of asphaltic roofing materials were collected in such a manner that the integrity of the roofing system was not compromised. This was conducted by only collecting samples of flashings, shingles or the surface layer. Core sampling through the entire thickness of roofing systems was not performed. Asphaltic roofing materials that were not sampled should be assumed to contain asbestos, unless bulk sampling and analysis indicate otherwise.

Some friable building materials, such as fireproofing and most thermal insulations installed in 1980 or later, were also not considered to be suspect ACBM. Stored materials (gaskets, brake pads, gloves, etc.) that may contain asbestos but are not building materials were not included in the survey.

Since asbestos content of building materials was to be determined by the laboratory analysis of random bulk samples (RBS), CEC used a sampling protocol based on the following requirements of the Asbestos Hazard Emergency Response Act (AHERA):

2. SAMPLING METHODS (cont.)

Bulk sampling of suspect building materials was performed by collecting a small but representative portion of material into plastic vials with tightly fitting caps that were sealed immediately after sample collection. Insulation and other friable samples were collected using a knife with a lockable blade or a single-use hollow metal coring device. After sample collection, sampling devices were immediately cleaned to prevent cross-contamination of samples. Each sample was assigned a unique number that was recorded on the sample container. The sample number and location were also recorded on field data sheets. The locations from which bulk samples were collected were sealed with duct tape, caulking compound, or other suitable materials. Sample locations were labeled with the date and unique sample number using indelible markers. Samples were then transported and submitted to IEA laboratory in North Billerica, Massachusetts for microscopic analysis. IEA is certified by the State of Vermont in accordance with V.S.A. Title 18, Chapter 26, Section 3 (Certificate # 13990).

3. LABORATORY ANALYTIC METHODS

Laboratory analyses were conducted by IEA of North Billerica, Massachusetts on October 23-24, 1994.

In order to identify asbestos content, samples were analyzed using Polarized Light Microscopy with Dispersion Staining (PLM/DS) in accordance with the United States Environmental Protection Agency's (EPA) Interim Method for the Determination of Asbestos in Bulk Insulation Samples (EPA 600/M4-82-020). A building material was classified as an ACBM if one or more samples indicated a result of greater than one percent (> 1%) asbestos.

In instances where multiple bulk samples were collected from the same homogeneous area, if the analytical result of the initial sample indicated the presence of asbestos at a concentration greater than one percent, subsequent bulk samples were not analyzed.

The EPA method is considered sensitive to the presence of asbestos at less than one percent of the overall sample composition for materials (a) that do not contain resinous matrices, and (b) that have asbestos fibers greater than one micrometer in diameter (> 1 μm).

For resinously bound materials, or for materials that may have very thin asbestos fibers (< 1 μm), PLM/DS analysis may yield false negative results due to difficulties in separating suspect fibers from the resins that bind them. False negative results may also occur when the analyst is unable to detect very fine fibers due to the limits of resolution of the microscope used for PLM/DS analysis. Samples of floor tiles and floor tile adhesives are particularly difficult to analyze using PLM/DS. These materials contain resinous matrices, and they also typically contain very thin fibers due to grinding and other shearing processes conducted during manufacture.

Because of the aforementioned limitations of PLM/DS, samples of floor tiles and floor tile mastics were analyzed by TEM if the initial analytical results indicated an asbestos content of one percent or less. IEA of North Billerica, Massachusetts conducted the TEM analysis using a semi-quantitative analysis. Results are reported as no asbestos detected, or as light, moderate or heavy concentration of asbestos. If any asbestos is detected using this method, the material in all probability contains greater than one percent asbestos and is therefore, classified as an ACBM.

The EPA requires that samples of friable materials having an asbestos content of ten percent or less, as determined by visual estimation, be verified by the point-counting technique. Otherwise, the building owner or operator should assume that such materials contain greater than one percent asbestos. Therefore, friable samples with analytical results containing one percent or less asbestos should be analyzed by point-counting before disturbing the material. Point-counting is a systematic technique for estimating asbestos concentrations using PLM/DS.

3. LABORATORY ANALYTIC METHODS (cont.)

A summary of the laboratory results are presented in Table 1, and the complete laboratory results are included in Appendix A.

In addition to identifying asbestos content, the survey quantified and assessed all ACBM identified at the site. Each type of ACBM was individually assessed using the United States Army Environmental Center (USAEC)-ACBM Assessment Checklist in order to determine priorities for remedial action. This checklist evaluates a suspect material based on damage factors and release factors. Damage factors include the physical condition of the materials, water damage, potential for human contact in terms of maintenance activity, type of material, and asbestos content. Release factors include friability, accessibility, activity, air movement, quantity, population potentially affected, and asbestos content. For each assessment factor, a numerical score is given. The numerical scores for both assessment categories have been totaled. In order to determine the Assessment Index (a letter designation from A to F) these totals are compared. "A" indicates a material with the highest priority for remedial action. "F" indicates a material with the lowest priority for remedial action. The results of this assessment/inventory are presented in Table 2.

TABLE 1

INVENTORY OF SUSPECT ACBM

Chester Memorial Army Reserve Center
Highway #11
Chester, Vermont

October 4, 1994

<u>Description of Suspect Material</u> MAIN BUILDING	<u>Material Location</u>	<u>Material Classification</u>	<u>Friability</u>	<u>Sample Number(s)</u>	<u>Asbestos Content and Type</u>
White 12" X 12" floor tile and underlying mastic adhesive	Classrooms, offices and hallways	M	Nonfriable	32-01-01(tile) 32-02-01(mastic)	07% Chrysotile 11% Chrysotile
White ceramic tile grout	Bathrooms	M	Nonfriable	32-03-01	None detected
White 2'x 4' ceiling tile	Front classrooms, offices, and hallways	M	Friable	32-04-01 32-04-02	None detected None detected
Brown sealant on air conditioning ducts	Above suspended ceilings throughout	M	Nonfriable	32-05-01	None detected
White ceiling board	Kitchen and bathroom	M	Nonfriable	32-06-01 32-06-02	None detected None detected

T = Thermal System Insulation
S = Surfacing Material
M = Miscellaneous Material

TABLE 1

INVENTORY OF SUSPECT ACBM

Chester Memorial Army Reserve Center
 Highway #11
 Chester, Vermont

October 4, 1994

<u>Description of Suspect Material</u> MAIN BUILDING	<u>Material Location</u>	<u>Material Classification</u>	<u>Friability</u>	<u>Sample Number(s)</u>	<u>Asbestos Content and Type</u>
Gray mudded fitting insulation on fiberglass-insulated pipes	Boiler Room and Assembly Hall	T	Friable	32-07-01 32-07-02	10% Chrysotile Not analyzed
White block boiler breaching insulation	Boiler Room	T	Friable	32-08-01 32-08-02 32-08-03	None detected None detected None detected
White sealant on exposed ends of fiberglass pipe insulation	Boiler Room	T	Nonfriable	32-09-01	10% Chrysotile
Gray mudded skimcoat insulation on fiberglass valve insulation	Boiler Room	T	Friable	32-10-01 32-10-02	None detected None detected

T = Thermal System Insulation
 S = Surfacing Material
 M = Miscellaneous Material

TABLE I

INVENTORY OF SUSPECT ACBM

Chester Memorial Army Reserve Center
Highway #11
Chester, Vermont

October 4, 1994

<u>Description of Suspect Material</u> MAIN BUILDING	<u>Material Location</u>	<u>Material Classification</u>	<u>Friability</u>	<u>Sample Number(s)</u>	<u>Asbestos Content and Type</u>
Gray exterior window putty	Throughout exterior	M	Nonfriable	32-11-01	None detected
White joint compound associated with gypsum wallboards	Classrooms and offices	M	Nonfriable	32-12-01	None detected
Gray perimeter flashing	Roof	M	Nonfriable	32-15-01	23% Chrysotile
Black flashing cement	Penetrations on roof	M	Nonfriable	32-16-01	10% Chrysotile
Black asphaltic roofing material	Roof	M	Nonfriable	32-17-01	31% Chrysotile
White 12"x 12" perforated ceiling tile and associated mastic adhesive	Firing Range	M	Friable Nonfriable	32-18-01 (ceiling tile) 32-19-01 (mastic)	None detected None detected

T = Thermal System Insulation
S = Surfacing Material
M = Miscellaneous Material

TABLE 1

INVENTORY OF SUSPECT ACBM

Chester Memorial Army Reserve Center
Highway #11
Chester, Vermont

October 4, 1994

<u>Description of Suspect Material</u> OMS	<u>Material Location</u>	<u>Material Classification</u>	<u>Friability</u>	<u>Sample Number(s)</u>	<u>Asbestos Content and Type</u>
Brown sealant on circular metal vehicle exhaust duct	Vehicle exhaust duct at left rear corner	M	Nonfriable	32-13-01	15% Chrysotile
Gray exterior window putty	Perimeter of building	M	Nonfriable	32-14-01	18% Chrysotile

T = Thermal System Insulation
S = Surfacing Material
M = Miscellaneous Material

TABLE 2

INVENTORY OF ACBM

Chester Memorial Army Reserve Center
Highway #11
Chester, Vermont

October 4, 1994

Description of ACBM	ACBM Location	Material Classification	Approximate Quantity	Condition	Accessibility	Material Exposure Assessment Rating*
White 12"x 12" floor tile and underlying mastic adhesive	Hallways, classrooms and offices	M	4,800 ft ²	Good	High	E
Gray mudded fitting insulation on fiberglass-insulated pipes	Boiler Room and Assembly Hall	T	35 fittings	Good	Moderate	D
White sealant on exposed ends of fiberglass pipe insulation	Boiler Room	T	35 ft ²	Good	Moderate	E
Gray perimeter flashing	Roof	M	500ft ²	Good	Low	F
Black flashing cement	Penetrations on roof	M	100ft ²	Good	Low	E
Black asphaltic roofing material	Roof	M	14,900ft ²	Good	Low	E

T = Thermal System Insulation
S = Surfacing Material
M = Miscellaneous Material

* Assessment Index: Materials assigned an alphabetical exposure assessment rating from A to F based on damage and fiber release factors, with A representing a material with the highest priority for remedial action and F representing a material with the lowest priority for remedial action (See Appendix D for additional details).

TABLE 2
INVENTORY OF ACBM

Chester Memorial Army Reserve Center
Highway #11
Chester, Vermont

October 4, 1994

<u>Description of ACBM OMS</u>	<u>ACBM Location</u>	<u>Material Classification</u>	<u>Approximate Quantity</u>	<u>Condition</u>	<u>Accessibility</u>	<u>Material Exposure Assessment Rating</u>
Brown sealant on metal vehicle exhaust duct	Left rear corner of OMS	M	15ft ²	Good	High	F
Gray exterior window putty	Perimeter of building	M	15ft ²	Good	High	E

T = Thermal System Insulation
S = Surfacing Material
M = Miscellaneous Material

4. CONCLUSIONS AND RECOMMENDATIONS

On the basis of CEC's inspection of the Main Building and the Maintenance Building of the Chester Memorial Army Reserve Center in Chester, Vermont, and of CEC's collection of random bulk samples of friable and nonfriable suspect asbestos-containing building materials and their analyses by IEA, CEC concludes that:

- (1) The gray mudded pipe fitting insulations on fiberglass insulated plumbing pipes located in the boiler room and the assembly hall of the Main Building were the only friable ACBM observed at the site. Because of their location, these friable materials are not readily susceptible to disturbance and fiber release.
- (2) Several nonfriable ACBM were identified at the site in various locations throughout the buildings and on the roof of the Main Building. These materials were observed to be in good condition.

Therefore, CEC recommends that no remedial actions are needed at this site at the present time. To minimize potential fiber release, all ACBM should be maintained in good condition. Nonfriable ACBM should not be cut, ground sanded, drilled, or otherwise subject to dust creating operations.

Although CEC finds it unnecessary to recommend any remedial actions at the site now, at the client's request we have prepared cost estimates (Table 3) for the total removal and replacement of ACBM identified during the survey. These estimates are for informational purposes only and are not intended to be compared to actual prices an abatement contractor might estimate for a specific project.

The estimated cost to remove all the ACBM is approximately \$52,800. The estimated cost to replace the ACBM with materials that do not contain asbestos is \$2,550. The estimated cost for total removal and replacement of ACBM is \$145,350.

Unit prices have been estimated based on typical 1994 costs for specific types of ACBM. These prices account for the labor, material, engineering controls, and expected transportation and disposal costs that would be incurred to remove and dispose of the ACBM.

TABLE 3. COST ESTIMATES FOR REMOVAL AND REPLACEMENT OF ACBM

**Chester Memorial Army Reserve Center
Highway #11
Chester, Vermont**

<u>TYPE OF ACBM Main Building</u>	<u>TOTAL QUANTITY</u>	<u>UNIT COST FOR REMOVAL</u>	<u>REMOVAL COST</u>	<u>UNIT COST FOR REPLACEMENT</u>	<u>REPLACEMENT COST</u>
White 12"x 12" floor tile and underlying mastic adhesive	4,800ft ²	\$3/ft ²	\$14,400	\$1.5/ft ²	\$ 7,200
Gray mudded fitting insulation on fiberglass insulated pipes	35 fittings	\$40/each	\$ 1,400	\$10/each	\$ 350
White sealant on exposed ends of fiberglass pipe insulation	35ft ²	\$40/each	\$ 1,400	\$10/each	\$ 350
Black asphaltic roofing material ¹	14,900ft ²	\$3/ft ²	\$44,700	\$5/ft ²	\$ 74,500
<u>OMS</u>					
Brown sealant on circular vehicle exhaust duct	15ft ²	\$50/ft ²	\$ 750	\$5/ft ²	\$ 75
Gray exterior window putty	15ft ²	\$10/ft	\$ 150	\$5/ft ²	\$ 75
		TOTAL	\$62,800	TOTAL	\$ 82,550
		TOTAL REMOVAL AND REPLACEMENT COST		\$145,350	

Note: ¹ Includes cost of removing and replacing perimeter flashing and flashing cement.



IEA

An Aquarion Company

PLM (EPA Method EPA-600/M4-82-020)

NVLAP #: 1005

IEA Job #: 21391

CLIENT: Covino Environmental Consultants PROJECT #: Location #32,
Chester, VT

CLIENT SAMPLE #	ASBESTOS TYPE	TOTAL ASBESTOS %
32-01-01	Chrysotile	7%
32-02-01	Chrysotile	11%
32-03-01	-	-
32-04-01	-	-
32-04-02	-	-
32-05-01	-	-
32-06-01	-	-
32-06-02	-	-
32-07-01	Chrysotile	10%
32-08-01	-	-
32-08-02	-	-
32-08-03	-	-
32-09-01	Chrysotile	10%
32-10-01	-	-
32-10-02	-	-
32-11-01	-	-
32-12-01	-	-
32-13-01	Chrysotile	15%
32-14-01	Chrysotile	18%
32-15-01	Chrysotile	23%
32-16-01	Chrysotile	10%
32-17-01	Chrysotile	31%
32-18-01	-	-
32-19-01	-	-

Date: 10/24/94

Ernest Dobi
Manager-Asbestos Services

ED/rg



BULK ASBESTOS ANALYSIS BY IEA, INC.
149 Rangeway Road, N. Billerica, MA 01862
PLM-DS (Polarized Light Microscopy with Dispersion Staining)
(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-01-01 LOCATION: ENTRANCE TO FIRING RANGE
SAMPLE GROSS APPEARANCE: NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE 12"x 12" FLOOR TILE

7 PERCENT TOTAL ASBESTOS
: 7 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.012
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.556
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

Sample ashed, percent asbestos reported based on original weight.

NO NON-ASBESTOS FIBER DETECTED

93 PERCENT TOTAL NON-FIBER MATTER
: MINERAL GRAINS RESINS/ASPHALT

DATE: 10-20-1994 SIGNED:



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Accreditation in no way constitutes or implies product certification, approval or endorsement by NIST. This report relates only to the specific sample tested herein.

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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-02-01 LOCATION: ADHESIVE BENEATH #32-01-01
SAMPLE GROSS APPEARANCE: NON-FIBROUS
COLOR, TEXTURE, ETC.: BLACK FLOOR TILE MASTIC

11 PERCENT TOTAL ASBESTOS
: 11 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.012
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.556
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

Sample ashed, percent asbestos reported based on original weight.

NO NON-ASBESTOS FIBER DETECTED
:

89 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-03-01 LOCATION: REAR WALL LADIES ROOM

SAMPLE GROSS APPEARANCE: NON-FIBROUS

COLOR, TEXTURE, ETC.: WHITE CERAMIC TILE GROUT

NO ASBESTOS DETECTED

1 PERCENT TOTAL NON-ASBESTOS FIBER

: CELLULOSE

99 PERCENT TOTAL NON-FIBER MATTER

: MINERAL GRAINS OPAQUES/PAINT CHIPS

DATE: 10-20-1994 SIGNED: 

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10-20-1994 IEA JOB# 21891 J. STEWART

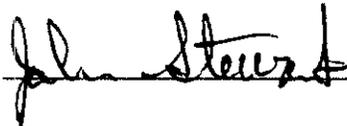
CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-04-01 LOCATION: RIGHT REAR CORNER, ROOM #159- 109
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE 2'x 4' CEILING TILE

NO ASBESTOS DETECTED

70 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE FIBERGLASS

30 PERCENT TOTAL NON-FIBER MATTER
: PERLITE OPAQUES/PAINT CHIPS

DATE: 10-20-1994 SIGNED:  _____

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10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-04-02 LOCATION: RIGHT WALL ROOM #112
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE 2'x 4' CEILING TILE

NO ASBESTOS DETECTED

70 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE FIBERGLASS

30 PERCENT TOTAL NON-FIBER MATTER
: LIME OPAQUES/PAINT CHIPS

DATE: 10-20-1994 SIGNED: 

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(EPA METHOD EPA-600/M4-82-020)
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10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-05-01 LOCATION: 8' TO LEFT OF DOOR ENTRANCE, BOILER ROOM
SAMPLE GROSS APPEARANCE: NON-FIBROUS
COLOR, TEXTURE, ETC.: BROWN SEALANT DUCT

NO ASBESTOS DETECTED

1 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS

99 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

DATE: 10-20-1994 SIGNED:



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10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-06-01 LOCATION: CEILING ABOVE SINK KITCHEN

SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS

COLOR, TEXTURE, ETC.: GYPSUM WALLBOARD

NO ASBESTOS DETECTED

5 PERCENT TOTAL NON-ASBESTOS FIBER

: CELLULOSE

FIBERGLASS

95 PERCENT TOTAL NON-FIBER MATTER

: MINERAL GRAINS

GLASS FRAGMENTS

DATE: 10-20-1994 SIGNED:



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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-06-02 LOCATION: CEILING ABOVE LAST STALL, MEN'S ROOM
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: GYPSUM WALLBOARD

NO ASBESTOS DETECTED

15 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE FIBERGLASS

85 PERCENT TOTAL NON-FIBER MATTER
: MINERAL GRAINS OPAQUES/PAINT CHIPS

DATE: 10-20-1994 SIGNED: 

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10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-07-01 LOCATION: 2' TO RIGHT, BOILER ROOM
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: GREY FITTING INSULATION

10 PERCENT TOTAL ASBESTOS
: 10 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.012
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.556
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

60 PERCENT TOTAL NON-ASBESTOS FIBER
: MINERAL WOOL CELLULOSE

30 PERCENT TOTAL NON-FIBER MATTER
: OPAQUES MINERAL GRAINS

DATE: 10-20-1994 SIGNED:  _____

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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

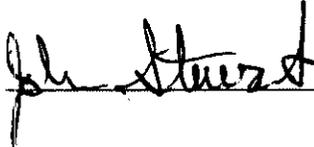
CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-08-01 LOCATION: ABOVE TOP OF BOILER, BOILER ROOM
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE BOILER BREECHING INSULATION

NO ASBESTOS DETECTED

60 PERCENT TOTAL NON-ASBESTOS FIBER
: MINERAL WOOL CELLULOSE

40 PERCENT TOTAL NON-FIBER MATTER
: OPAQUES MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-08-02 LOCATION:

HORIZONTAL SECTION AT REAR OF BOILER, BOILER RM.

SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS

COLOR, TEXTURE, ETC.: WHITE BOILER BREECHING INSULATION

NO ASBESTOS DETECTED

40 PERCENT TOTAL NON-ASBESTOS FIBER

: MINERAL WOOL CELLULOSE

60 PERCENT TOTAL NON-FIBER MATTER

: OPAQUES MINERAL GRAINS

DATE: 10-20-1994 SIGNED:



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10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-08-03 LOCATION: CHIMNEY STACK, RIGHT REAR CORNER, BOILER RM.
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE BOILER BREECHING INSULATION

NO ASBESTOS DETECTED

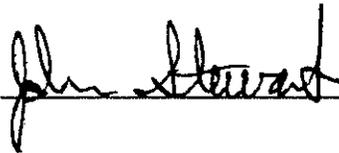
40 PERCENT TOTAL NON-ASBESTOS FIBER

: MINERAL WOOL CELLULOSE

60 PERCENT TOTAL NON-FIBER MATTER

: OPAQUES MINERAL GRAINS

DATE: 10-20-1994 SIGNED: _____



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BULK ASBESTOS ANALYSIS BY IEA, INC.
149 Rangeway Road, N. Billerica, MA 01862
PLM-DS (Polarized Light Microscopy with Dispersion Staining)
(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J.STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32,CHESTER, VT.

SAMPLE NO.: 32-09-01 LOCATION:
LEFT OF REAR OF ENTRANCE BY FAN UNIT,BOILER RM.
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE SEALANT ON EXPOSED FIBERGLASS PIPE INSULATION

10 PERCENT TOTAL ASBESTOS
: 10 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.012
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.556
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

40 PERCENT TOTAL NON-ASBESTOS FIBER
: MINERAL WOOL

50 PERCENT TOTAL NON-FIBER MATTER
: OPAQUES/PAINT CHIPS MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

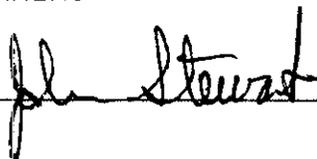
SAMPLE NO.: 32-10-01 LOCATION: WATER PUMP, 3" INSIDE BOILER ROOM
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: GREY SKIM COAT INSULATION ON VALVE

NO ASBESTOS DETECTED

60 PERCENT TOTAL NON-ASBESTOS FIBER
: MINERAL WOOL

40 PERCENT TOTAL NON-FIBER MATTER
: OPAQUES MINERAL GRAINS

DATE: 10-20-1994 SIGNED:



A handwritten signature in cursive script, appearing to read 'J. Stewart', is written over a horizontal line.

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VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-10-02 LOCATION: ON VALVE, ABOVE BOILER, BOILER ROOM

SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS

COLOR, TEXTURE, ETC.: GREY SKIM COAT INSULATION

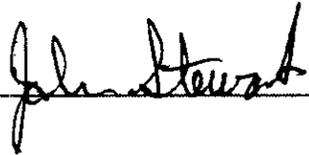
NO ASBESTOS DETECTED

70 PERCENT TOTAL NON-ASBESTOS FIBER

: FIBERGLASS

30 PERCENT TOTAL NON-FIBER MATTER

: OPAQUES MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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PLM-DS (Polarized Light Microscopy with Dispersion Staining)
(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-11-01 LOCATION: WINDOW OUTSIDE ROOM # 109
SAMPLE GROSS APPEARANCE: NON-FIBROUS
COLOR, TEXTURE, ETC.: GREY EXTERIOR WINDOW PUTTY

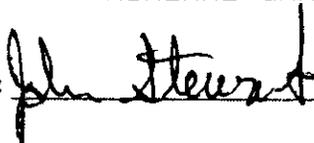
NO ASBESTOS DETECTED

NO NON-ASBESTOS FIBER DETECTED

:

100 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

DATE: 10-20-1994 SIGNED:



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PLM-DS (Polarized Light Microscopy with Dispersion Staining)
(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-12-01 LOCATION: GYPSUM WALLBOARD BY WINDOW ROOM #110
SAMPLE GROSS APPEARANCE: NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE JOINT COMPOUND

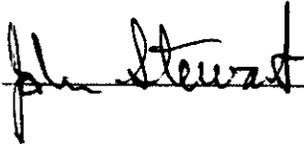
NO ASBESTOS DETECTED

NO NON-ASBESTOS FIBER DETECTED

:

100 PERCENT TOTAL NON-FIBER MATTER
: MINERAL GRAINS OPAQUES/PAINT CHIPS

DATE: 10-20-1994 SIGNED: _____



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PLM-DS (Polarized Light Microscopy with Dispersion Staining)
(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-13-01 LOCATION: EXHAUST DUCT ABOVE EMERGENCY SHOWER-OMS
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: BROWN SEALANT

15 PERCENT TOTAL ASBESTOS
: 15 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.009
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.553
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

NO NON-ASBESTOS FIBER DETECTED
:

85 PERCENT TOTAL NON-FIBER MATTER
: OPAQUES/PAINT CHIPS MINERAL GRAINS

DATE: 10-20-1994 SIGNED:  _____

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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-14-01 LOCATION: WINDOW NORTHSIDE-OMS
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: GREY EXTERIOR WINDOW PUTTY

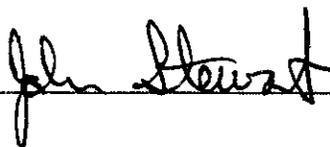
18 PERCENT TOTAL ASBESTOS
: 18 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.009
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.553
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

Sample ashed, percent asbestos reported based on original weight.

NO NON-ASBESTOS FIBER DETECTED

82 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-15-01 LOCATION: CENTER OF ROOF
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: BLACK PERIMETER FLASHING

23 PERCENT TOTAL ASBESTOS
: 23 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.012
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.556
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

Sample ashed, percent asbestos reported based on original weight.

NO NON-ASBESTOS FIBER DETECTED

77 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-16-01 LOCATION: AT VENT CENTER OF ROOF
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: BLACK FLASHING CEMENT

10 PERCENT TOTAL ASBESTOS
: 10 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.012
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.556
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

Sample ashed, percent asbestos reported based on original weight.

NO NON-ASBESTOS FIBER DETECTED

90 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-17-01 LOCATION: VENT CENTER OF FRONT ROOF
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: BLACK ASPHALTIC ROOFING MATERIAL

31 PERCENT TOTAL ASBESTOS
: 31 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	P
Birefringence:.....	.012
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.556
Index (Perpendicular):	1.544
Immersion Media:.....	1.550HD 1.680
Other Features:.....	

Sample ashed, percent asbestos reported based on original weight.

NO NON-ASBESTOS FIBER DETECTED

69 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

DATE: 10-20-1994 SIGNED: 

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VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994

IEA JOB# 21891

J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS.

PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-18-01 LOCATION: 3' INSIDE FIRING RANGE
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS
COLOR, TEXTURE, ETC.: WHITE 12"x 12" CEILING TILE

NO ASBESTOS DETECTED

70 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS

30 PERCENT TOTAL NON-FIBER MATTER
: OPAQUES/PAINT CHIPS

DATE: 10-20-1994 SIGNED: 

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BULK ASBESTOS ANALYSIS BY IEA, INC.
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(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1991 BY IEA

10-20-1994 IEA JOB# 21891 J. STEWART

CLIENT: COVINO ENVIRONMENTAL CONS. PROJECT: LOCATION #32, CHESTER, VT.

SAMPLE NO.: 32-19-01 LOCATION: 3' INSIDE FIRING RANGE
SAMPLE GROSS APPEARANCE: NON-FIBROUS
COLOR, TEXTURE, ETC.: BROWN CEILING TILE MASTIC

NO ASBESTOS DETECTED

1 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS

99 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT MINERAL GRAINS

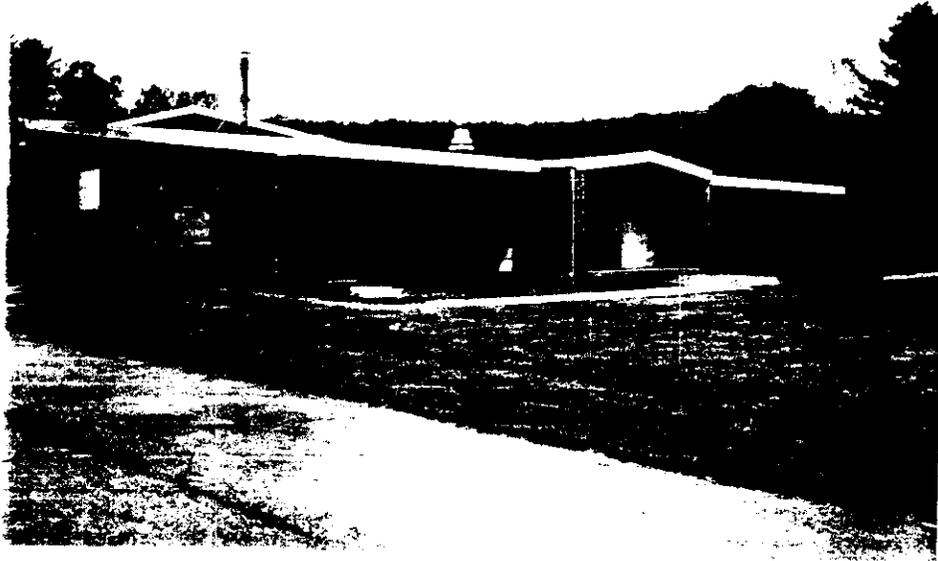
DATE: 10-20-1994 SIGNED:  _____

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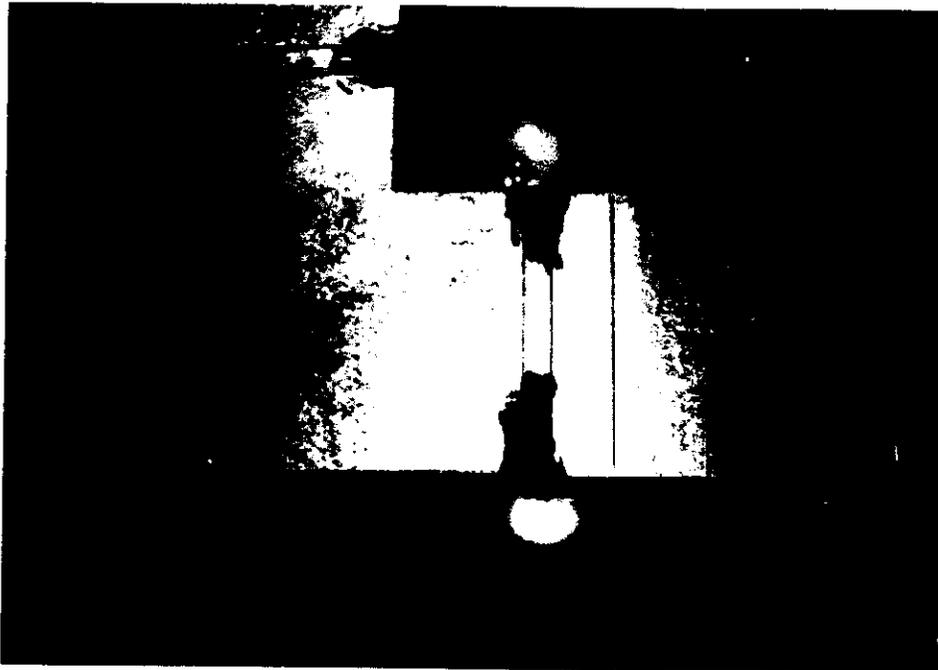
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APPENDIX B

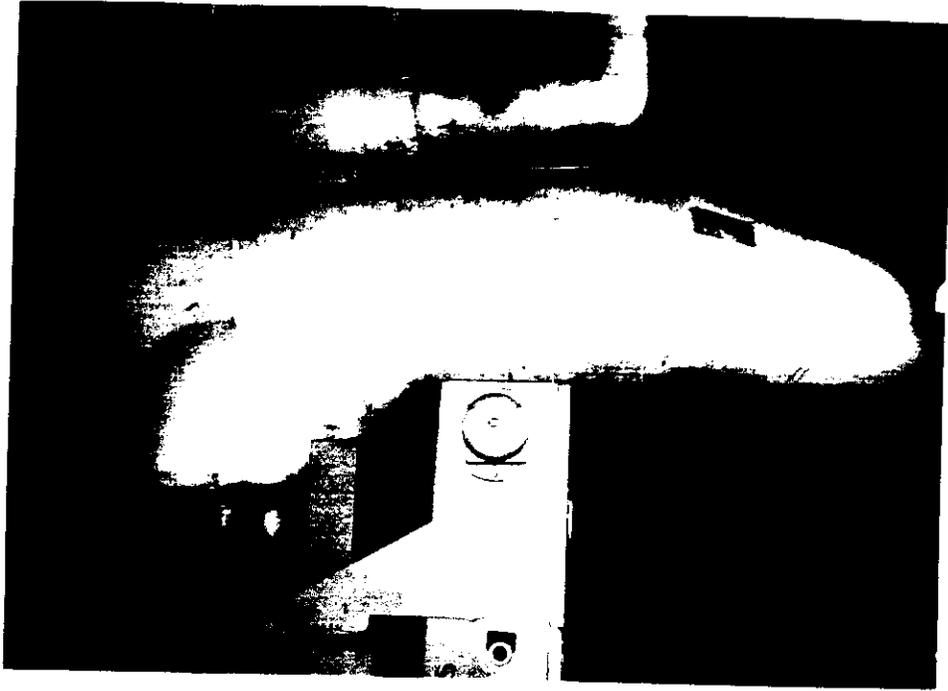
DRAWINGS DEPICTING SAMPLE AND ACBM LOCATIONS



Photograph 32-01: Front view of Chester U.S. Army Reserve Center.



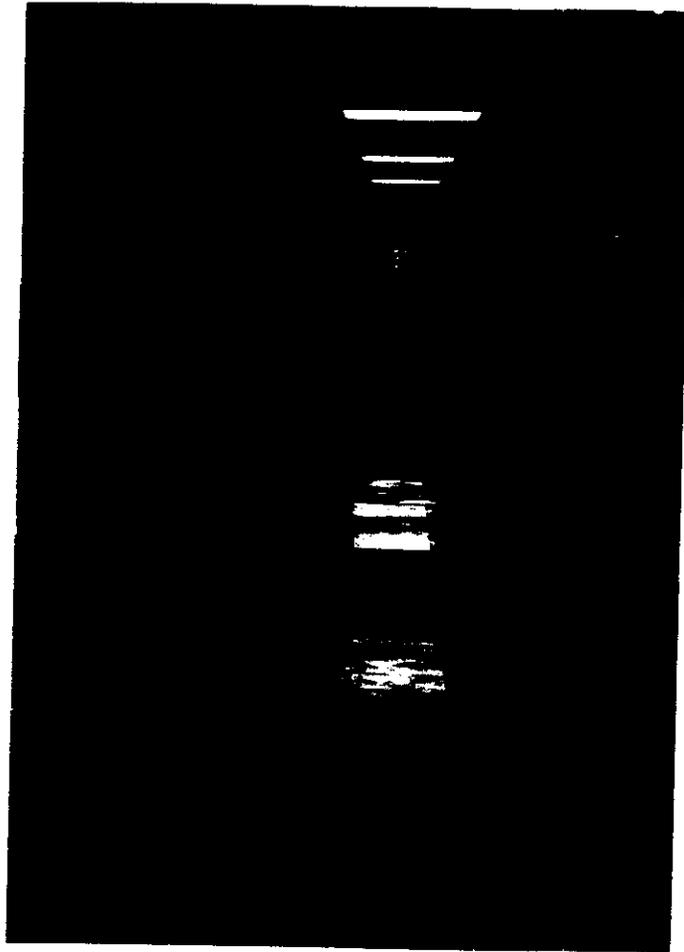
Photograph 32-02: Asbestos-containing duct sealant in OMS Building.



Photograph 32-03: Boiler breeching insulation determined not to contain asbestos.



Photograph 32-04: Asbestos-containing mudded fittings in Boiler Room.



Photograph 32-05: Asbestos-containing white 12" x 12" floor tile and underlying mastic adhesive in Main Building hallway.

INSTRUCTIONS FOR COMPLETING USAEL ACBM ASSESSMENT CHECKLIST

1. Complete a separate form for each suspect asbestos-containing building material (SACBM) in a building. If a building has no SACBM, insert "No SACBM Found" in the space labeled "SACBM I.D. No."
2. Complete all remaining items at the top of the form. If a SACBM exists essentially throughout a building, insert "Throughout Building" under "Room(s) or Area(s) Where Found." Otherwise, clearly list the rooms or areas where it was found (e.g., Entire Basement, Rooms 101-120, Attic Only, etc.)
3. To complete Parts I and II, circle the ratings which are appropriate for the particular SACBM. Use the largest circled ratings to calculate the Damage(D) Total and Exposure(E) Total when multiple ratings are circled. These totals represent the sum of the factor ratings for Parts I and II.
4. Note any other relevant observations in the space labeled at the bottom of the form, then determine the "Assessment Index" from the chart shown below.
5. The following provides further descriptions of the different possible scores for certain items. Refer to USAEC Figures 1a and 1b for further information about these items.

PART I: Damage Assessment Factors

- A. Physical Damage: Use "0" for non-ACBM, nonfriable ACBM, or ACBM with <1%. Use "1" for less than 10% damage, or controlled space accessed by maintenance personnel only, or uncontrolled/unoccupied space. "2" = 10-50% damage. "3" = >50-75% damage. "5" = >75% damage.
- B. Water Damage: Minor means <10%; major means >10%.
- C. Potential Damage due to Routine Maintenance Activities: For sprayed or trowelled-on materials, this means whether the friable ACBM could be damaged by routine maintenance activities occurring at the indicated distances from the ACBM. Assign "3" also when access is required above a lay-in ceiling where surfacing ACBM is located.
- D. Type of ACBM: Choose from list over.
- E. Percent asbestos.
- F. Damage(D) Total: Must be 0 if asbestos content is <1% or the material is nonfriable ACBM in good/fair condition; maximum score is 17.

PART II: Exposure Assessment Factors

- A. Material Friability: Defined by USEPA as crumbled, pulverized, or reduced to powder when dry under hand pressure.
- B. Occupant Accessibility to ACBM Fibers: Low: Isolated by barriers seldom breached; Moderate: barrier breached by routine maintenance activity; High: routinely accessible to other occupants.
- C. Activity/Use: Low = Infrequent maintenance activities only; Moderate = Frequent maintenance activities only; High = Normal occupant activities.
- D. Air Stream/Plenum: None means no perceptible air flow in the room or area; use 1 if an air flow is perceived but ACBM is not likely affected; use 2 if ACBM is exposed to perceptible or occasional air streams; use 3 if ACBM present in supply ducts/plenums or recirculated air, subjected to routine turbulence, or abrupt air movement.
- E. Area of visible surface or damaged ACBM.
- F. Population: Use the following formula to calculate for occupied building rooms/areas:

$$\text{Average Occupancy} = \text{Outside Visitors} \times \frac{\text{Ave. Hours Spent}}{8 \text{ Hrs.}} + \text{No. Full-time 8-Hr. Building Occupants}$$
 Unoccupied facilities capable of being used are given a worst-case scenario value of "5," plus additional value per the table over. Other unoccupied facilities (bunkers, sheds) will receive "Zero" population value.
- G. Exposure(E) Total: Sum maximum scores for about Part II items; maximum score is 26.
- H. Assessment Index: Enter the letter code determined from the following matrix:

Damage(D) Score	Exposure(E) Score				
	26-24	23-15	14-8	7-4	Zero
17-13	A	A	B	C	F
12-9	A	B	C	D	F
8-5	B	C	D	E	F
4-1	C	D	E	F	F
Zero	F	F	F	F	F

- I. Other Relevant Observations.

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: throughout front 42
 EVALUATORS: Donney
 MATERIAL QUANTITY: 4,500 ft²
 MATERIAL DESCRIPTION: 12"x12" white

Memorial Center
 Building Name: Chilton, VT USAEC
 SAMPLE NO(S): 32-01-01
 DATE: 10/4/94
 THICKNESS/SIZE & COLOR: 1/8" - white
floor tile

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACM Fibers Low = 0, Moderate = 1, High = 4	
C <u>1</u> Activity - None = 0, Low = 1, Moderate = 2, High = 3	
D <u>1</u> Air Movement/Plenum - None = 0, Low = 1, Moderate = 2, High = 3	
E <u>3</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	<u>1 weekdays</u> <u>13-25 weekends</u>
G <u>1</u> No ACM or < 1% ACM = 0, Non-friable ACM in good to fair condition = 1, Non-friable ACM in poor condition = 2, Friable ACM in good condition = 3, Friable ACM with damage = 5	
H <u>8</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = _____	

DAMAGE ASSESSMENT

A <u>1</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>0</u> Water: None = 0, Minor = 1, Major = 2	
C <u>2</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>4</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = _____	G ASSESSMENT INDEX (Priority Ranking Value) = <u>E</u>

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: throughout front 92
 EVALUATORS: Mooney
 MATERIAL QUANTITY: 4, sq ft
 MATERIAL DESCRIPTION: Black mastic adhesive beneath 12 in floor tiles

BUILDING NAME: Chester, VT
 SAMPLE NO(S):: 32-0201
 DATE: 10/4/94
 THICKNESS/SIZE & COLOR: 1/16" - black

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACM Fibers Low = 0, Moderate = 1, High = 4	
C <u>1</u> Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D <u>1</u> Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E <u>3</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G <u>1</u> No ACM or < 1% ACM = 0, Non-friable ACM in good to fair condition = 1, Non-friable ACM in poor condition = 2, Friable ACM in good condition = 3, Friable ACM with damage = 5	
H <u>8</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = <u>8</u>	

DAMAGE ASSESSMENT

A <u>0</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>0</u> Water: None = 0, Minor = 1, Major = 2	
C <u>0</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>0</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>1</u>	G ASSESSMENT INDEX (Priority Ranking Value) = <u>E</u>

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: Boiler Room
 EVALUATORS: Donney
 MATERIAL QUANTITY: 35 sq ft
 MATERIAL DESCRIPTION: pipe fitting insulation

BUILDING NAME: Chester, VT
 SAMPLE NO(S): 32-0701
 DATE: 10/4/94
 THICKNESS/SIZE & COLOR: 3/4" - grey

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>2</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACM Fibers Low = 0, Moderate = 1, High = 4	
C <u>1</u> Activity - None = 0, Low = 1, Moderate = 2, High = 3	
D <u>1</u> Air Movement/Plenum - None = 0, Low = 1, Moderate = 2, High = 3	
E <u>1</u> Amount of Visible Surface Area (ft ²): <10=0; 10 to <100=1; 100 to ≤1,000=2; >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1; 10 to 200 = 2; 201 to 500 = 3; 501 to 1,000 = 4; > 1,000 = 5	
G <u>3</u> No ACM or < 1% ACM = 0, Non-friable ACM in good to fair condition = 1, Non-friable ACM in poor condition = 2, Friable ACM in good condition = 3, Friable ACM with damage = 5	
H <u>10</u> Release Factor Total (R) Max = 26; Min = 1 TOTAL R FACTOR = <u>10</u>	

DAMAGE ASSESSMENT

A <u>1</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	3 severely damaged airflow to right of entrance to Boiler Room
B <u>1</u> Water: None = 0, Minor = 1, Major = 2	
C <u>2</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>5</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>5</u>	G ASSESSMENT INDEX (Priority Ranking Value) = <u>2</u>

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: Boiler Room
 EVALUATORS: Thomson
 MATERIAL QUANTITY: 1-35 ft²
 MATERIAL DESCRIPTION: white sealant on exposed Fib pipe insulation

BUILDING NAME: Chester VT
 SAMPLE NO(S): 32-09-01
 DATE: 10/7/94
 THICKNESS/SIZE & COLOR: 1/16" - white

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACMF Fibers Low = 0, Moderate = 1, High = 4	
C <u>0</u> Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D <u>1</u> Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E <u>1</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G <u>1</u> No ACMF or < 1% ACMF = 0, Non-friable ACMF in good to fair condition = 1, Non-friable ACMF in poor condition = 2, Friable ACMF in good condition = 3, Friable ACMF with damage = 5	
H <u>5</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = <u>5</u>	

DAMAGE ASSESSMENT

A <u>1</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>1</u> Water: None = 0, Minor = 1, Major = 2	
C <u>2</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>5</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>5</u>	G ASSESSMENT INDEX (Priority Ranking Value) = <u>5</u>

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: OMS
 EVALUATORS: J. Downey
 MATERIAL QUANTITY: 15 ft²
 MATERIAL DESCRIPTION: brown sealant on duct

BUILDING NAME: Chester, VT
 SAMPLE NO(S): 32-13-01
 DATE: 10/8/94
 THICKNESS/SIZE & COLOR: 1/16" - brown

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACM Fibers Low = 0, Moderate = 1, High = 4	
C <u>0</u> Activity - None = 0, Low = 1, Moderate = 2, High = 3	
D <u>2</u> Air Movement/Plenum - None = 0, Low = 1, Moderate = 2, High = 3	
E <u>1</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G <u>1</u> No ACM or < 1% ACM = 0, Non-friable ACM in good to fair condition = 1, Non-friable ACM in poor condition = 2, Friable ACM in good condition = 3, Friable ACM with damage = 5	
H <u>6</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = <u>6</u>	

DAMAGE ASSESSMENT

A <u>0</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>0</u> Water: None = 0, Minor = 1, Major = 2	
C <u>0</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>1</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>1</u>	G ASSESSMENT INDEX (Priority Ranking Value) = <u>E</u>

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: 015
 EVALUATORS: Thomas
 MATERIAL QUANTITY: 215 ft²
 MATERIAL DESCRIPTION: gray exterior window putty

BUILDING NAME: Chester, VT
 SAMPLE NO(S): 32-14-01
 DATE: 10/4/94
 THICKNESS/SIZE & COLOR: 1/4" - gray

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACM Fibers Low = 0, Moderate = 1, High = 4	
C <u>0</u> Activity - None = 0, Low = 1, Moderate = 2, High = 3	
D <u>3</u> Air Movement/Plenum - None = 0, Low = 1, Moderate = 2, High = 3	
E <u>1</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G <u>1</u> No ACM or < 1% ACM = 0, Non-friable ACM in good to fair condition = 1, Non-friable ACM in poor condition = 2, Friable ACM in good condition = 3, Friable ACM with damage = 5	
H <u>7</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = <u>7</u>	

DAMAGE ASSESSMENT

A <u>1</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>1</u> Water: None = 0, Minor = 1, Major = 2	
C <u>2</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>5</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>5</u>	
G ASSESSMENT INDEX (Priority Ranking Value) = <u>E</u>	

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: Roof
 EVALUATORS: T Downey
 MATERIAL QUANTITY: _____
 MATERIAL DESCRIPTION: gray penmeter flashing

BUILDING NAME: Cluster, VT
 SAMPLE NO(S): 32-15-01
 DATE: 10/1/94
 THICKNESS/SIZE & COLOR: 1/8"-1/4" - gray

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACM Fibers Low = 0, Moderate = 1, High = 4	
C <u>0</u> Activity - None = 0, Low = 1, Moderate = 2, High = 3	
D <u>3</u> Air Movement/Plenum - None = 0, Low = 1, Moderate = 2, High = 3	
E <u>2</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G <u>0</u> No ACM or < 1% ACM = 0, Non-friable ACM in good to fair condition = 1, Non-friable ACM in poor condition = 2, Friable ACM in good condition = 3, Friable ACM with damage = 5	
H <u>7</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = <u>7</u>	

DAMAGE ASSESSMENT

A <u>0</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>2</u> Water: None = 0, Minor = 1, Major = 2	
C <u>0</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>1</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>(</u>	
G ASSESSMENT INDEX (Priority Ranking Value) = <u>E</u>	

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: Roof
 EVALUATORS: Thomson
 MATERIAL QUANTITY: 100 ft²
 MATERIAL DESCRIPTION: black flashing cement

BUILDING NAME: Plaster, UT
 SAMPLE NO(S): 327601
 DATE: 10/9/94
 THICKNESS/SIZE & COLOR: _____

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C <u>0</u> Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D <u>3</u> Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E <u>2</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G <u>1</u> No ACBM or < 1% ACBM = 0, Non-friable ACBM in good to fair condition = 1, Non-friable ACBM in poor condition = 2, Friable ACBM in good condition = 3, Friable ACBM with damage = 5	
H <u>8</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = <u>8</u>	

DAMAGE ASSESSMENT

A <u>0</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>0</u> Water: None = 0, Minor = 1, Major = 2	
C <u>0</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>1</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>1</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>1</u>	
G ASSESSMENT INDEX (Priority Ranking Value) = <u>E</u>	

ASBESTOS PRIORITIZATION FORM

SITE CODE: 32
 AREA/ROOM: Room 3
 EVALUATORS: TD, mny
 MATERIAL QUANTITY: _____
 MATERIAL DESCRIPTION: asphalt roof material

BUILDING NAME: Chester, VT
 SAMPLE NO(S):: 32-17-01
 DATE: 10/4/94
 THICKNESS/SIZE & COLOR: 7/4-12" - black

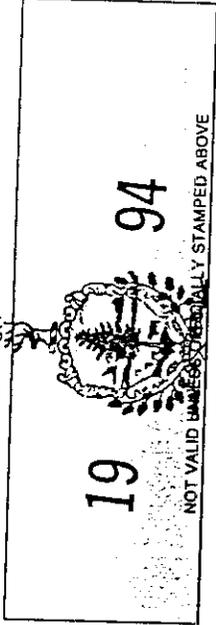
RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A <u>0</u> Friable: H=3, M=2, L=1 Non-friable=0	
B <u>0</u> Occupants Accessibility to ACM Fibers Low = 0, Moderate = 1, High = 4	
C <u>0</u> Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D <u>3</u> Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E <u>3</u> Amount of Visible Surface Area (ft ²): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F <u>2</u> Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G <u>1</u> No ACM or < 1% ACM = 0, Non-friable ACM in good to fair condition = 1, Non-friable ACM in poor condition = 2, Friable ACM in good condition = 3, Friable ACM with damage = 5	
H <u>9</u> Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = <u>9</u>	

DAMAGE ASSESSMENT

A <u>0</u> Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B <u>0</u> Water: None = 0, Minor = 1, Major = 2	
C <u>2</u> Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D <u>0</u> Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E <u>2</u> Asbestos Content (%): < 1% = 0, > 1 to < 30 = 1, > 30 to < 50 = 2, > 50 = 3	
F <u>2</u> Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = <u>2</u>	
G ASSESSMENT INDEX (Priority Ranking Value) = <u>E</u>	

**CERTIFICATE
PROGRAM FOR ASBESTOS CONTROL
AND LEAD CERTIFICATION
VERMONT DEPARTMENT OF HEALTH**



I.D. CODE IMP-3294 CERTIFICATE NO: 15246

THIS IS TO AFFIRM THAT
LOCATED AT

Timothy M. Downey
Covino Environmental Consult.
300 Wildwood Avenue
Woburn, MA 01810

IS CERTIFIED AS A(N) Inspector-Management Planner
UNDER TITLE 18, VSA

THIS CERTIFICATE SHALL BE IN FORCE FROM 08/25/94 TO 08/25/95 UNLESS REVOKED BEFORE THAT TIME.
SPECIAL PROVISIONS:

IDENTIFICATION INFORMATION:

BIRTH DATE : 10/27/64
SOC SEC # : 027-58-6940
HEIGHT : 5'05"
WEIGHT : 165
HAIR COLOR : Brown
EYES COLOR : Brown

THIS CERTIFICATE IS NOT TRANSFERABLE AND IS VALID ONLY FOR PARTY STATED ABOVE.



**INSTITUTE FOR
ENVIRONMENTAL EDUCATION**
Woburn, Massachusetts

This is to certify that

Timothy M. Downey

has successfully completed
the course

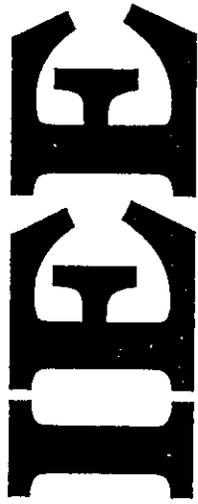
January 25, 1989
Date

89-007-02-105
Certificate Number

January 25, 1990
Expiration Date

**AHERA ASBESTOS INSPECTION
TRAINING**

Chris H. Starnes
Director



INSTITUTE FOR ENVIRONMENTAL EDUCATION, INC.
52B Cummings Park, Suite 315, Woburn, MA 01801
(617) 935-7370

Timothy M Downey

has successfully completed the 8 hour course

Asbestos Inspector/Management Planner Annual Refresher

February 24, 1994

Course Date

94-184-136-113

Certificate Number

027-58-6940

Social Security Number

February 24, 1994

Examination Date

February 24, 1995

Expiration Date

President / Director of Training

**CERTIFICATE
PROGRAM FOR ASBESTOS CONTROL
AND LEAD CERTIFICATION
VERMONT DEPARTMENT OF HEALTH**



I.D. CODE AAS-2094 CERTIFICATE NO: 13990

THIS IS TO AFFIRM THAT IEA-Mass, Inc.
LOCATED AT 149 Rangenway Road
 N. Billerica, MA 01862

IS CERTIFIED AS A(N) Asbestos Analytical Service
UNDER TITLE 18, VSA

THIS CERTIFICATE SHALL BE IN FORCE FROM 08/01/94 TO 08/01/95

UNLESS REVOKED BEFORE THAT TIME

SPECIAL PROVISIONS:
BULK SAMPLES TO BE ANALYZED BY METHOD(S) PLM, TEM.
AIR SAMPLES TO BE ANALYZED BY METHOD(S) PCM, TEM.

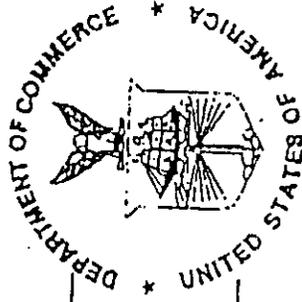
THIS CERTIFICATE IS NOT TRANSFERABLE AND IS VALID ONLY FOR PARTY STATED ABOVE.

United States Department of Commerce
National Institute of Standards and Technology

NVLAP[®]

ISO/IEC GUIDE 25:1990
ISO/IEC GUIDE 58:1993
ISO 9002:1994

Certificate of Accreditation



COVINO ENVIRONMENTAL CONSULTANTS, INC.
WOBURN, MA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

BULK ASBESTOS FIBER ANALYSIS

July 1, 1995

Effective until

For the National Institute of Standards and Technology

OPERATIONS AND MAINTENANCE PROGRAM
FOR
ASBESTOS-CONTAINING MATERIALS
AT
CHESTER MEMORIAL ARMY RESERVE CENTER
HIGHWAY #11
CHESTER, VERMONT

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1. INTRODUCTION

The purpose of the Operations and Maintenance (O & M) Program is to minimize the exposure of all building occupants and visitors to airborne asbestos fibers. To accomplish this goal, the O & M Program contains information for cleaning already released asbestos fibers from surfaces, preventing future release by minimizing disturbance of the damage to asbestos-containing building materials (ACBM), and monitoring ACBM conditions throughout the building. Important O & M Program elements include alerting building occupants about the locations of ACBM, training maintenance staff in special procedures for cleaning and handling ACBM, establishing a process that assures that ACBM are not disturbed during facility repairs and renovations, and periodically reinspecting areas containing ACBM. The O & M Program also establishes a recordkeeping system that documents employee training, O & M activities, abatement of ACBM, and the results of periodic reinspections. All records generated as a result of implementing this O & M Program, as well as this document, shall be kept by a designated Asbestos Program Manger.

This O & M Plan, to a large extent is modeled upon the requirements of 40 CFR Part 763, the Asbestos Hazard Emergency Response Act (AHERA). Although the requirements for implementing and O & M Plan is only required for schools under the AHERA regulation, the EPA recommends in their Green Book inclusion of the O & M requirements in any building that has ACBM. Also, OSHA's recently reissued asbestos standard (29 CFR 1926.1101) has several O & M related provisions, including housekeeping and labeling requirements.

LIMITATIONS

Due to several limitations further survey work will be required if future renovation or maintenance activities occur which result in demolition of any part of the existing building structure. These limitations include:

- A. Since no core samples of roofing material were collected, only exposed surfaces of the roof were inspected;
- B. Potentially hidden areas, such as wall cavities, the space between fixed ceilings and the ceiling deck, internal equipment and parts, etc. may contain ACBM that was not accessible during the survey; and,
- C. The inner cavity of fire doors, which sometimes contains ACBM insulation, were not inspected.

2. NOTIFICATION

The Asbestos Program Manager shall establish a procedure for labeling ACBM identified in the building survey. Accessible materials in service areas identified as ACBM shall be marked with the following label:

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD**

Labels shall be prominently displayed in readily visible locations in the service areas and shall remain posted until the labeled ACBM are removed.

Additionally, maintenance staff who may work closely with or otherwise encounter ACBM throughout the facility shall be notified of the locations of all ACBM. These employees shall be made aware of the results of the building survey so that they may be familiar with the types and locations of identified ACBM. These employees shall also be instructed to immediately report to the Asbestos Program Manager any evidence of disturbance or damage of ACBM, or any dust or debris that apparently originates from ACBM. All employees who may encounter ACBM as part of their work must have access to a list of "Emergency Contact Phone Numbers" (Fig. 2-1).

Figure 2 - 1

EMERGENCY CONTACT PHONE NUMBERS

Asbestos Program Manager _____

Office Phone # _____

Home Phone # _____

Beeper # _____

Asbestos Abatement Contractor _____

Phone # _____ Fax # _____

Contacts	Home Phone #	Beeper #
_____	_____	_____
_____	_____	_____

Industrial Hygiene Consultant _____

Phone # _____ Fax # _____

Contacts	Home Phone #	Beeper #
_____	_____	_____
_____	_____	_____

Building Security _____

Police _____

Fire _____

Medical Emergency _____

3. EMPLOYEE TRAINING

A. Training of Workers in the Trades (16 hours)

All staff members who work in the skilled trades (carpenters, electricians, plumbers, etc.) and who conduct activities that will result in the disturbance of ACBM shall receive training. Activities that have a high likelihood of disturbing ACBM include routine cleaning in areas where friable ACBM are located; small-scale projects of short duration (i.e., repair or removal of less than three (3) linear or square feet of ACBM); and plumbing, heating and air conditioning, electrical, and other maintenance activities in locations adjacent to ACBM. Training shall be provided before workers are assigned to activities that may disturb ACBM. The training course shall be a minimum of sixteen (16) hours in duration. The content of the training course shall include, but not be limited to, the following elements:

1. Information regarding types of ACBM and its various uses and forms.
2. Information on the health effects associated with asbestos exposure.
3. Descriptions of the proper methods of handling ACBM and activities that could result in exposure of the employee to asbestos.
4. Information on the use of High Efficiency Particulate Air (HEPA) filter-equipped dual-cartridge respirators and other personal protection during maintenance activities.
5. Hands-on training in the use of respiratory protection, other personal protective measures, good work practices, and engineering controls.
6. Information on the asbestos program requirements for medical surveillance.
7. Recognition of damage, deterioration, and delamination of asbestos materials.
8. Relevant federal, state, and local requirements.

B. Awareness Training for Custodial Workers (2 hours)

All employees who perform custodial or maintenance tasks that may involve the accidental disturbance of ACBM, and all persons who perform work in the immediate vicinity of ACBM, shall receive awareness training. This awareness training course shall be a minimum of two (2) hours in duration. The content of the awareness training course shall include, but not be limited to, the following elements:

1. Background information on asbestos, including its uses and forms.
2. Health effects of exposure to asbestos.
3. Worker protection programs, including the use of respirators and other personal protective equipment.
4. How to recognize ACBM and how to avoid disturbing it.
5. Recognition of ACBM damage and deterioration.
6. Proper response to fiber-release episodes.

3. EMPLOYEE TRAINING (cont.)

C. Training Concerning Prohibited Activities

All facility employees shall be made familiar with the locations of all ACBM identified at the facility. Certain routine maintenance activities shall be prohibited when ACBM are involved. Specifically, they shall also be instructed that:

1. No holes shall be drilled in ACBM.
2. No plants or pictures shall be hung on structures covered with ACBM.
3. No ACBM floor tile shall be sanded or buffed using high-speed (≥ 300 rpm) equipment in accordance with 29 CFR 1926.1101 (L) (3)(ii).
4. While moving furniture or other objects, employees shall not damage ACBM.
5. No curtains, drapes, or other dividers shall be installed in such a way that they damage ACBM.
6. Floors, ceilings, moldings or other surfaces in asbestos-contaminated environments shall not be dusted with a dry brush or swept with a dry broom.
7. No ordinary vacuuming equipment shall be used to clean up asbestos-containing debris.
8. Ceiling tiles below ACBM shall not be removed unless the employee wears the proper respirator protection, clears the area of other people, and observes proper disposal procedures for removing asbestos waste.
9. No ventilation system filters shall be removed unless the filters are wetted.
10. No ventilation system filters shall be shaken out.

D. Refresher Training

A refresher training course shall be required every two years for all employees who are involved in Operations and Maintenance activities and who have completed the 16-hour training. The refresher training course shall be a minimum of one day (8 hours) in duration and shall include:

1. Review and discussion of changes in and interpretation of applicable state and federal laws, regulations, policies, and guidelines.
2. A discussion of developments or changes in state-of-the-art procedures and equipment.
3. Review of key areas of initial training specific to Operations and Maintenance workers.

3. EMPLOYEE TRAINING (cont.)

E. Verifying Competence of Outside Contractors

The Asbestos Program Manager shall be required to verify that all outside contractors performing work in the facility that may involve disturbance or damage of ACBM have received the training appropriate to the work they are to perform (as outlined in Parts 3(A), (B), (C), and (D) above). The Asbestos Program Manager shall also require all outside contractors to sign a certificate of acknowledgment (fig. 3-1) that they have been informed about the location of all ACBM in the facility. All outside contractors must have access to the list of "Emergency Contact Phone Numbers" shown in Figure 2-1.

CONTRACTOR'S ASBESTOS NOTIFICATION AND ACKNOWLEDGMENT FORM

for _____ (Project)

On behalf of _____, the undersigned hereby acknowledges the presence and location of asbestos-containing material (ACM) within the buildings located at the Chester Memorial Army Reserve Center located in Chester, Vermont as further described herein. The undersigned agrees to avoid any contact with, or disturbance, of ACM and to inform, and require, the same of all employees of the above-named company accordingly before they start any work at the building.

Based on sample testing conducted by the Army Corps of Engineers, ACM have been found in the building as described below:

A. Main Building

1. Mudded fitting insulations on plumbing pipes insulated with fiberglass located in the Boiler Room and Assembly Hall.
2. White 12"x12" floor tile and underlying adhesive throughout building.
3. White sealant on exposed fiberglass pipe ends in the Boiler Room.
4. Black asphaltic roofing material, perimeter flashing and flashing cement.

B. OMS

1. Gray exterior window putty.
2. Brown sealant on seams of circular metal exhaust duct.

Any activities that could potentially disturb these materials, including but not necessarily limited to sanding, scraping, coring, drilling, hammering, removal, or anchoring are prohibited.

If you encounter any material that you suspect is ACM, or if you disturb any ACM in the course of your work, you agree to immediately stop all work and contact the project superintendent and the Asbestos Program Manager.

If you have any questions concerning this notice or the presence of ACM in the building, you shall contact the Asbestos Program Manager.

The return of one signed copy of this Notice constitutes your receipt of the above information and your agreement with the requirements contained herein.

Receipt Acknowledged by (Type or Print Name) _____

Signature _____ Date: _____

Title (Type or Print) _____

Company Name (Type or Print) _____

Company Address (Type or Print) _____

Company Telephone Number (Type or Print) _____

4. OPERATIONS AND MAINTENANCE ACTIVITIES

The O & M activities to be conducted at the facility shall include routine and emergency cleaning of areas and surfaces that are potentially asbestos-contaminated (i.e., areas where visibly damaged friable ACBM exists on floors, on equipment, or on other surfaces), small-scale projects of short duration for removal or repair of ACBM, and periodic reinspection of locations within the facility where ACBM have been identified. Employees involved in O & M activities shall be required to complete the O & M training specified in Part 3 of this O & M Program.

The following O & M activities are to be carried out only by employees with appropriate training:

1. Specific work practices for spot repairs of ACBM, and routine cleaning of visibly asbestos-contaminated areas or surfaces.
 - a. All persons other than those involved in the O & M activity shall be restricted from entry to the area by physically isolating the area. For spot repairs, airtight barriers shall be constructed to insure that asbestos fibers released during abatement activities are contained within the work area. The use of glovebags will be permitted in place of a barrier for repair of ACBM located on pipes.
 - b. Warning signs shall be posted at the entrance to each work area. The warning sign shall read as follows:

**DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA**

- c. Air handling systems shall be shut off or temporarily modified to prevent entry of air from the work area into other parts of the building and to restrict other sources of air movement.
- d. All personnel within work areas shall be required to wear personal protective equipment. Full-body disposable fiber-resistant suits with foot coverings and hoods shall be worn over clothing while personnel remain within work areas. In addition, respirators shall be worn in accordance with the OSHA requirements for respiratory protection. At a minimum, half-mask dual-cartridge respirators equipped with HEPA filters shall be worn while remaining in the work area.

4. OPERATIONS AND MAINTENANCE ACTIVITIES (cont.)

- e. When cleaning asbestos-contaminated floors or surfaces, personnel shall use proper work practices. Floor shall be cleaned by wet mopping, steam cleaning, and/or HEPA vacuuming. Other surfaces shall be cleaned by wet cleaning/wiping or by HEPA vacuuming. Vacuums without HEPA filtration shall not be used to clean asbestos-contaminated surfaces. Creating dust shall be avoided. All wet cloths, rags, or mops used to clean asbestos-contaminated surfaces shall be disposed of as described in Part 4.(4) below.
 - f. Spot repair shall be performed only on less than 3 linear feet or 3 square feet of insulation, and shall be conducted only in instances where asbestos abatement is not the principal purpose of the operation. Spot repairs of pipe, tank, or other thermal system insulation shall be conducted by patching sections of insulation using patching compounds of nonasbestos cement to fill in large gouges or missing sections of insulation. The insulation surfaces thus patched shall then be covered with fiberglass cloth impregnated with plaster. The fiberglass cloth shall be applied as follows:
 - i. Cut a sufficiently large section of fiberglass cloth to cover the affected areas of insulation. This cloth shall be wrapped around the entire diameter of the affected pipe.
 - ii. The fiberglass cloth shall be dipped in a bucket of water and carefully placed over the damaged section of insulation without creating dust or debris. The cloth shall be smoothed by hand so that the cloth remains firmly attached to the insulation.
 - iii. Any dust or debris created by this operation shall be cleaned by wet cleaning or HEPA vacuuming.
 - g. Documentation of all spot repairs shall be maintained with the permanent building records. This documentation shall include, as a minimum, the identity of the skilled trades worker performing the spot repair, the date the spot repair was performed, the specific location of the repair, the methods used, the quantity of the asbestos involved, and receipts for the disposal of any asbestos waste.
2. Specific work practices for spot removal of ACBM by glovebag technique.
- a. Glovebag operations shall be conducted in conformance with the work practices set forth in the Occupational Safety and Health Administration (OSHA) Asbestos Regulation for Construction (29 CFR 1926.58 and 1926.1101). A glovebag is a single-use device that shall be disposed of after removal of a single section of ACBM pipe insulation.

4. OPERATIONS AND MAINTENANCE ACTIVITIES (cont.)

- b. Glovebag operations shall be allowed only for removing less than three (3) linear feet of pipe insulation for operations where the principal purpose is not asbestos abatement. No ACBM insulation shall be removed without prior approval of the Asbestos Program Manager.
 - c. All requirements outlined in this Part 4 (1) (a), (b), (c), and (d) shall be adhered to when performing glovebag operations.
 - d. Glovebags shall be installed so that they completely cover the pipe in such a manner as to prevent leakage of air or asbestos fibers. The arms, open edges, and other openings in the glovebag shall be sealed with duct tape.
 - e. The ACBM shall be wetted before its removal and shall be maintained in a wet condition inside the glovebag.
 - f. The upper portion of the glovebag and surfaces from which asbestos has been removed shall be cleaned by wet wiping until no visible material remains.
 - g. Removed ACBM shall be deposited in the bottom of the glovebag. A HEPA vacuum shall be employed to exhaust air from the bag. NOTE: Do not use vacuum without HEPA filtration to exhaust excess air from the glovebag. The glovebag and its contents shall be removed from the pipe and immediately containerized in a second, labeled, 6-mil thick polyethylene bag before disposal.
3. Maintenance activities other than small-scale projects of short duration. NOTE: All fiber release episodes, major or minor, shall be immediately reported to the Asbestos Program Manager.
 - a. Minor fiber-release episode (i.e., the falling or dislodging of three (3) square or linear feet or less of friable ACBM).
 - i. Thoroughly saturate the debris using wet methods in such a manner as to minimize disturbance of fibers.
 - ii. Place the asbestos debris in a sealed, leak-proof container.
 - iii. Clean the area by HEPA vacuuming and wet wiping/mopping of all visible debris in the area. NOTE: Do not use vacuums without HEPA filtration to clean asbestos-contaminated surfaces. All wet cloths, rags, or mops used to clean asbestos debris shall be disposed of as described in Part 4.(4) below.
 - iv. Repair the area of damaged ACBM with materials such as asbestos-free spackling, plaster, cement, or insulation, or seal with latex paint or an encapsulant.

4. OPERATIONS AND MAINTENANCE ACTIVITIES (cont.)

- v. Only employees who have received appropriate O & M training shall perform this work.
- b. Major fiber-release episode (i.e., the falling or dislodging of more than three (3) square or linear feet of friable ACBM).
 - i. Immediately restrict entry into the area and post signs to prevent entry into the area by persons other than those necessary to perform the response action.
 - ii. Shut off or temporarily modify the air handling system to prevent the distribution of fibers to other areas in the building.
 - iii. Contact the area supervisor.
 - iv. Only a licensed Asbestos Abatement Contractor shall conduct the response action for any major fiber-release episode and only after the appropriate regulatory agencies are notified.
- 4. Waste disposal procedures
 - a. Wastes include process wastes, housekeeping wastes, removal job wastes, contaminated disposable protective clothing, and filters.
 - b. Vacuum bags and filters shall not be cleaned. Instead, they shall be sprayed with a fine water mist and placed into a labeled waste container.
 - c. Process and housekeeping wastes shall be wetted with water or a mixture of water and wetting agent (penetrating-type fluid) before packaging them in disposable containers.
 - d. ACBM from removal jobs shall be disposed of in leak-proof, double 6-mil thickness plastic bags, plastic-lined cardboard containers, or plastic-lined metal containers. These wastes, which shall be wet when removed, shall be sealed in containers before they dry out in order to minimize fiber release during handling.
 - e. All asbestos generated at the facility shall be placed in a designated storage area(s). The asbestos waste shall be labeled, transported, and disposed of according to the United States Environmental Protection Agency (U.S. EPA) regulation Title 40 CFR Part 61.

5. PERIODIC REINSPECTION

At least once every six months, each building that contains ACBM or is assumed to contain ACBM shall be reinspected. The inspection shall be conducted by individuals familiar with the building and the locations of ACBM. Those individuals shall have been trained to perform O & M tasks or trained as Asbestos Inspectors. The findings of the reinspections shall be reported to the Asbestos Program Manager, and they shall be kept on file.

At a minimum, the following activities shall be performed during the reinspection:

1. Visually inspect all areas that are identified in the survey report as containing ACBM or as assumed to contain ACBM.
2. Record the date of the reinspection, name of the inspector, and changes in the condition of the materials, including damage due to water, contact, and other damage. Changes in building use that may have an impact on ACBM, such as installation of new equipment, shall be recorded.
3. Submit the information identified in the reinspection for inclusion in the survey report.

A checklist similar to the one in Figure 5-1 shall be used for the periodic reinspections.

In addition, air monitoring to detect airborne asbestos fibers in the building may be used to provide supplemental information during the physical and visual reinspection. Increases in airborne fiber concentrations from earlier levels may indicate unseen damage or disturbance to ACBM and may provide early warning of a potential problem to the Asbestos Program Manager.

Figure 5-1

**CHECKLIST FOR
PERIODIC REINSPECTION
OF
ASBESTOS-CONTAINING BUILDING MATERIALS (ACBM)**

**Chester Memorial Army Reserve Center
Highway #11
Chester, Vermont**

Checklist

Name of Inspector : _____

Date of Inspection : _____

ACBM	Location	Change	No Change	Comments
<u>Main Building</u>				
Mudded fittings	Boiler room and Assembly hall			
White 12"x12" floor tile and mastic adhesive	Throughout			
White sealant on fiberglass pipe ends	Boiler room			
Black asphaltic roof material, flashing and flashing cement				
<u>OMS</u>				
Gray exterior window putty				
Brown sealant on vehicle exhaust duct				

6. RECORDKEEPING

The facility shall maintain records on employee training, personal air monitoring, medical surveillance, reinspection results, cleaning and other Operations and Maintenance activities, and asbestos abatement performed at the facility. In addition, minor and major fiber-release episodes shall be recorded and kept with this O & M Program.

Employee records concerning personal air monitoring and medical surveillance shall be maintained as outlined in the OSHA Regulation 1910.1001. This regulation requires that these records be kept on file for at least thirty (30) years.

For each preventive measure and response action taken for ACBM, the facility shall keep records of the following:

1. A detailed written description of the measure or action, including methods used, the location where the measure or action was taken, reasons for selecting the measure or action, starting and completion dates of the work, names and addresses of all contractors involved, and, if ACBM are removed, the name and location of the storage or disposal site of the ACBM. Refer to Appendix M for detailed procedures for each type of response action.
2. The name and signature of any person collecting any air sample, the locations where samples were collected, date of collection, the name and address of the laboratory analyzing the samples, the date of analysis, and the method of analysis.
3. A record of the periodic reinspection required every six (6) months; the name of the inspector, the date, and changes in the conditions of materials noted during the periodic inspection.
4. A description of Operations and Maintenance activities, the name of each person performing these activities, the start and completion dates of the activities, the locations where such activities occurred, a description of the activities used, including preventive measures, and if ACBM are removed, the name and location of the storage or disposal site of the ACBM.
5. A description of each fiber-release episode, the date and location of the episode, the method of repair, preventive measures or response action taken, the name of each person performing the work, and, if the ACBM are removed, the name and location of the storage or disposal site of the ACBM.

APPENDIX G

**U.S. ARMY CORPS OF ENGINEERS,
ASBESTOS ABATEMENT SURVEY REPORT, MAY 1990**

ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
CHESTER, VERMONT

Submitted to:

Directorate of Engineering and Housing
Fort Devens, Massachusetts

Prepared by:

United States Army Corps of Engineers
New England Division
424 Trapelo Road
Waltham, MA 02254

May 1990

ASBESTOS ABATEMENT SURVEY
 UNITED STATES ARMY RESERVE CENTER
 CHESTER, VERMONT

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ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
CHESTER, VERMONT

PROJECT SCOPE:

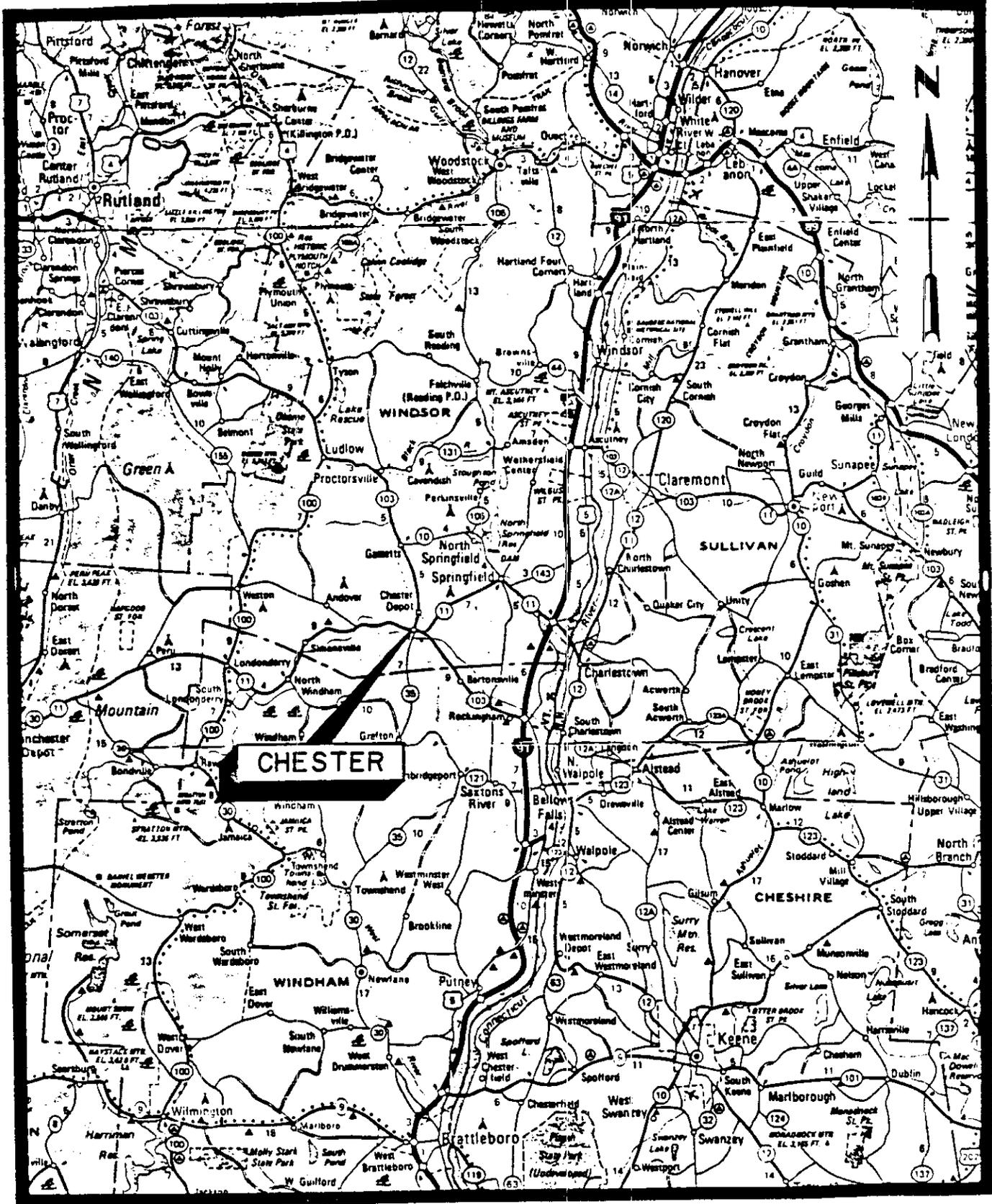
This survey report presents the results of the site inspection, sampling, analysis, and assessment of asbestos-containing materials (ACMs) at the United States Army Reserve Center (USARC) in Chester, Vermont, conducted under the Installation Support Program of Fort Devens.

On 8 February 1990, sampling was performed by Nancy Amidon and David Leclair of the Water Quality and Environmental Laboratory, USACE, New England Division (NED). Site inspections were conducted on 15 February 1990 by William Kavanaugh and Mark DeSouza of Civil Engineering Branch, NED.

SITE DESCRIPTION:

The USARC in Chester, Vermont consists of two buildings, constructed in the late 1950's. (See Plate 1 - Location Map, and Plate 2, Vicinity Map.) The main building is used primarily as an administration and training building. A separate one-bay maintenance garage is located to the rear of the main building. An extensive addition to the main building, encompassing Rooms 103, 115-127 (approximately 10,400 SF), was built in 1978.

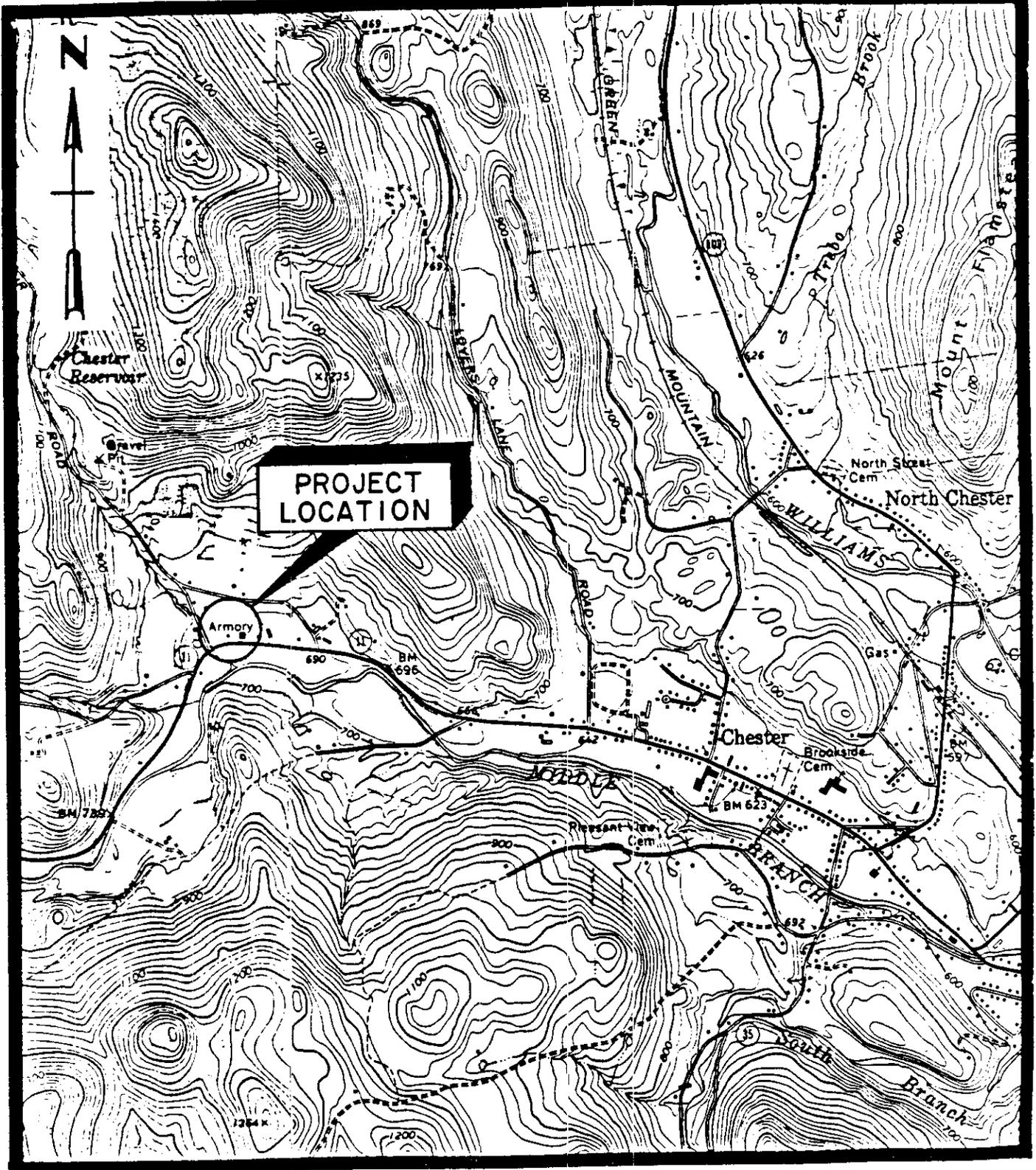
The total floor area of the complex is approximately 16,000 square feet, divided as follows: Main Building - 14,900 SF and Maint. Garage - 1100 SF. (See Plate 3 - Floor Plan.) As-built drawings of the complex are available at the Directorate of Engineering and Housing, Ft. Devens.



LOCATION MAP

DEPARTMENT OF THE ARMY
 NEW ENGLAND DIVISION
 CORPS OF ENGINEERS
 WALTHAM, MASS.

ASBESTOS ABATEMENT SURVEY
 UNITED STATES ARMY
 RESERVE CENTER
 CHESTER, VERMONT



VICINITY MAP

DEPARTMENT OF THE ARMY
 NEW ENGLAND DIVISION
 CORPS OF ENGINEERS

ASBESTOS ABATEMENT SURVEY
 UNITED STATES ARMY
 RESERVE CENTER

ASBESTOS ABATEMENT SURVEY PROCEDURES:

The following survey procedures describe how the USARC was inspected, sampled and analyzed to detect the presence of asbestos-containing building material (ACBM).

1. Site Inspection

Each room of the Reserve Center was examined thoroughly to locate and quantify all suspect ACBM. The condition and accessibility of the suspect material was assessed at each location. The condition of the material was evaluated as having either no significant damage, moderate damage or significant damage. Accessibility was defined as low, medium, or high, based on the degree of difficulty of access to the material.

The suspect material was categorized into homogeneous groups, each group defined as an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture. A particular homogenous group was often represented at many different locations throughout the building. The results of the site inspection, listed by homogeneous group, are presented in Appendix A: SITE INSPECTION DATA.

2. Sampling and Testing

Bulk samples of each homogeneous group were collected and analyzed for the presence of asbestos. The samples were analyzed by Eastern Analytical Laboratories, Inc. which is accredited by the National Bureau of Standards, NVLAP (Lab 1005) for asbestos analysis of bulk samples using Polarized Light Microscopy with optional Dispersion Staining (PLM/DS).

Using these procedures, the laboratory determined the amount of asbestos as a percentage of the total composition of the material. The laboratory also classified the asbestos material into one of two categories, friable and non-friable. Friable materials can be crumbled, pulverized or reduced to powder by hand pressure. Non-friable is the opposite of friable. The sample numbers, locations, and test results are given in Appendix B: LABORATORY TEST RESULTS.

3. Analysis

The asbestos abatement survey results were determined by analyzing the inspection data and the results of sampling and testing. The survey results are based on the assumption that if one sample from any homogeneous group was found to contain asbestos then the entire homogeneous group was considered to be ACM. If all samples from a homogeneous group did not contain asbestos, then the entire homogeneous group was considered to be free of asbestos.

ASBESTOS ABATEMENT SURVEY RESULTS:

Of the eight homogeneous groups (Groups 1 through 8, as described in Appendix A) of suspect material present in the building, one was found to contain asbestos, four were classified as asbestos free and the remaining three were not sampled. Results of the survey are as follows:

Asbestos Detected:

Group 4 - 12" X 12" Vinyl Floor Tiles

Asbestos was detected in samples taken from the homogeneous group identified above. The results, describing the integrity of this ACM, are presented in Table 1 on the following page.

Asbestos Not Detected:

Group 1 - Suspended Ceiling Panels

Group 5 - Thermal Systems Insulation - Pipe Covering

Group 6 - Thermal Systems Insulation - Pipe Fittings

Group 8 - Acoustical Wallboard

Asbestos was not detected in any of the samples taken from the above homogeneous groups so they are considered to be free of asbestos.

Groups Not Sampled:

Group 2 - Composite Wall and Ceiling Material: Composite wallboard (including sheetrock) often contains trace amounts of asbestos. The joint compound used to seal the seams between the panels may also contain asbestos.

A sample of the wall and ceiling material was not taken so the material remains suspect. As a result, this material is considered to contain asbestos until it is sampled, tested and proven otherwise.

However, abatement action is questionable. The composite walls and ceilings are in good condition, and demolition of these materials produces large amounts of dust, thus creating the potential for high fiber releases which would be unlikely to occur should the materials in question be left in place.

Group 3 - Ceramic Floor Tile: A sample of the ceramic floor tile was not taken because asbestos has not generally been used in the manufacture of ceramic material.

Group 7 - Flexible Joint Material: A sample of the flexible joint material was not taken due to its inaccessible location, on HVAC ducts approximately 20 feet above the floor of the Drill Hall. To sample this material, platform equipment would be necessary. Since a sample was not taken, the material remains suspect and as a result is considered to contain asbestos. Further action is not recommended, however, because the potential for disturbance is very low and the material is in good condition.

ASBESTOS ABATEMENT SURVEY
 UNITED STATES ARMY RESERVE CENTER
 CHESTER, VERMONT

TABLE 1: ASBESTOS-CONTAINING MATERIAL

HOMOGENEOUS GROUP	LOCATION		QUANTITY	CONDITION	ACCESSIBILITY		SAMPLE NO.	ASBESTOS CONTENT(%) TYPE	FRIABILITY
	Rm #	Name			Damage Potent'l	Hgt. above Floor			
1. 12"x12" Floor Tile	102	Front Corridor	1075 SF	NSD	high	0'	7905	5% Chrysotile	Non-friable
	103		210 SF	NSD	high	0'			
	104		190 SF	NSD	high	0'			
	105		240 SF	NSD	high	0'			
	107	Recruiting	95 SF	NSD	high	0'			
	109		265 SF	NSD	high	0'			
	110		285 SF	NSD	high	0'			
	111	Admin.	265 SF	NSD	high	0'			
	112	Library	265 SF	NSD	high	0'			
	113	Classroom	500 SF	NSD	high	0'			
	114	Classroom	500 SF	NSD	high	0'			
	115	Rear Corridor	770 SF	NSD	high	0'			
	119	Supply	20 SF	NSD	high	0'			
133	Supply	10 SF	NSD	high	0'				

Note: Condition: NSD - No Significant Damage
 MD - Moderate Damage
 SD - Significant Damage

APPENDIX A

SITE INSPECTION DATA (By Homogeneous Group)

The eight homogeneous groups identified at the Chester USARC and their corresponding locations are listed below. The condition and accessibility of the material, as well as the bulk sample numbers, are also recorded for each homogeneous group. See the Floor Plan (Plate 2) for locations.

USARC, Chester, VT:

- GROUP 1. SUSPENDED CEILING PANELS:
Location: Rooms 102-105, 107-115, 119, 133.
Condition: No Significant Damage.
Accessibility: High.
Sample No.: 7906.
- GROUP 2. COMPOSITE WALL AND CEILING MATERIAL:
Location: Rooms 103-105, 109, 110, 112-114, 120-123, 125.
Condition: No Significant Damage.
Accessibility: High.
Sample No.: no sample.
- GROUP 3. CERAMIC TILE FLOOR:
Location: Rooms 120-123, 125.
Condition: No Significant Damage.
Accessibility: High.
Sample No.: no sample.
- GROUP 4. 12" X 12" VINYL FLOOR TILE:
Location: Rooms 102-105, 107-115, 119, 133.
Condition: No Significant Damage.
Accessibility: High.
Sample No.: 7905.
- GROUP 5. THERMAL SYSTEMS INSULATION - PIPE COVERING:
Location: Room 106(Boiler Room), 124, 126, 127.
Condition: No Significant Damage.
Accessibility: High.
Sample No.: 7911.
- GROUP 6. THERMAL SYSTEMS INSULATION - PIPE FITTINGS:
Location: Room 106(Boiler Room), 124, 126, 127.
Condition: No Significant Damage.
Accessibility: High.
Sample No.: 7908, 7909, 7910.

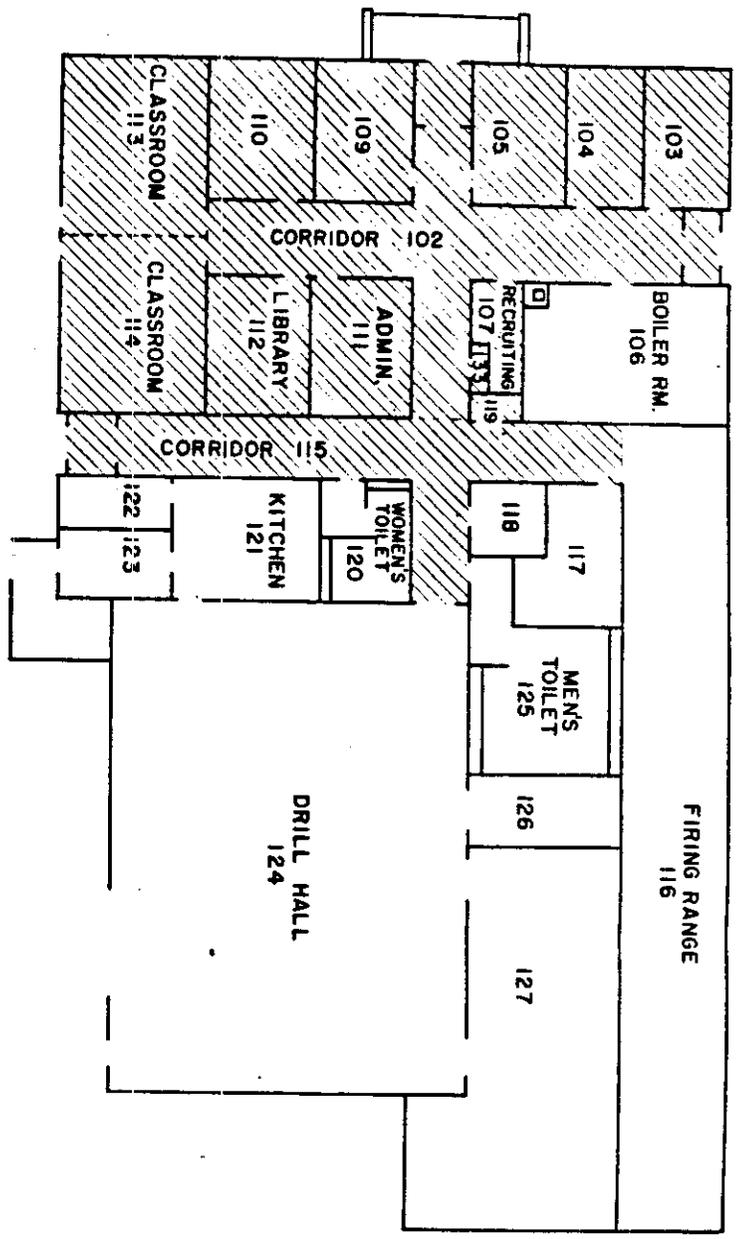
- GROUP 7. FLEXIBLE JOINT MATERIAL:
Location: Drill Hall (Room 124).
Condition: No Significant Damage.
Accessibility: Low.
Sample No.: no sample.
- GROUP 8. ACOUSTICAL WALLBOARD:
Location: Firing Range (Room 116).
Condition: Moderate Damage.
Accessibility: High.
Sample No.: 7907.

APPENDIX B

LABORATORY TEST RESULTS

<u>SAMPLE NO.</u>	<u>MATERIAL</u>	<u>LOCATION</u>	<u>TEST RESULTS</u>
7905	12" x 12" floor tile	KC-1, corridor	POSITIVE
7906	susp. ceiling panel	KC-2, corridor	negative
7907	acoustical wallboard	KC-4, firing range	negative
7908	elbow insulation	KC-3, boiler room	negative
7909	fitting insulation	KC-5, boiler room	negative
7910	elbow insulation	KC-6, boiler room	negative
7911	pipe insulation	KC-9, boiler room	negative

Following are the complete laboratory results for the above-listed samples.



FLOOR PLAN
N.T.S.



LEGEND	
SYMBOL	DESCRIPTION
	12' x 12' FLOOR TILES

DEPARTMENT OF THE ARMY
 NEW ENGLAND DIVISION
 CORPS OF ENGINEERS
 WALTHAM, MASS.
 ASBESTOS ABATEMENT SURVEY
 UNITED STATES ARMY RESERVE CENTER
 CHESTER, VERMONT
FLOOR PLAN
 DATE: MAY 1990 PLATE 3

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES, INC.
149 Rangeway Road, N. Billerica, MA 01862
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
(EPA METHOD EPA-600/M4-82-020)
VERSION 3.2 COPYRIGHT (c) 1989 BY EAL

02-23-1990

EAL JOB# 11378

W K BARNETT

CLIENT: ARMY CORPS, HUBBARDSTON, MA; PO# DACW3390M0434

SAMPLE NO.: 7905 LOCATION: KC-1, ALL 12" FLOOR TILES, CHESTER
SAMPLE GROSS APPEARANCE: NON-FIBROUS. NON-FRIABLE
COLOR, TEXTURE, ETC.: WHITE VINYL TILE

5 PERCENT TOTAL ASBESTOS
: 5 PERCENT CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	0
Birefringence:.....	0.01
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.55
Index (Perpendicular):	1.554
Dispersion Staining:..	NO
Other Features:.....	
Immersion Media:.....	1.590HD

NO NON-ASBESTOS FIBER DETECTED

:

95 PERCENT TOTAL NON-FIBER MATTER
: LIME RESINS/ASPHALT

DATE: 02-23-1990 SIGNED: _____



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02-23-1990

EAL JOB# 11378

W K BARNETT

CLIENT: ARMY CORPS, HUBBARDSTON, MA; PD# DACW3390M0434

SAMPLE NO.: 7906 LOCATION: KC-2, ALL CEILING TILE, CHESTER
SAMPLE GROSS APPEARANCE: FIBROUS. FRIABLE
COLOR, TEXTURE, ETC.: TAN LAYERED BOARD

NO ASBESTOS DETECTED

Immersion Media:..... 1.590HD

50 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS CELLULOSE

50 PERCENT TOTAL NON-FIBER MATTER
: FERLITE LIME

DATE: 02-23-1990 SIGNED: _____

W K Barnett

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02-23-1990 EAL JOB# 11378 W K BARNETT

CLIENT: ARMY CORPS, HUBBARDSTON, MA; PO# DACW3390M0434

SAMPLE NO.: 7907 LOCATION: KC-4, FIRING RANGE ACOUSTIC WALL, CHESTER
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS. FRIABLE
COLOR, TEXTURE, ETC.: WHITE FOAMY BOARD

NO ASBESTOS DETECTED

Immersion Media:..... 1.590HD

60 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS CELLULOSE

40 PERCENT TOTAL NON-FIBER MATTER
: LIME MINERAL GRAINS

DATE: 02-23-1990 SIGNED: _____



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EAL JOB# 11378

W K BARNETT

CLIENT: ARMY CORPS, HUBBARDSTON, MA; PO# DACW3390M0434

SAMPLE NO.: 7908 LOCATION: KC-3, BOILER ROOM ELBOW, CHESTER
SAMPLE GROSS APPEARANCE: NON-FIBROUS. FRIABLE
COLOR, TEXTURE, ETC.: WHITE PLASTER

NO ASBESTOS DETECTED

Immersion Media:..... 1.590HD

20 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS CELLULOSE

80 PERCENT TOTAL NON-FIBER MATTER
: LIME

DATE: 02-23-1990 SIGNED: _____

W. K. Barnett

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02-23-1990 EAL JOB# 11378 W K BARNETT

CLIENT: ARMY CORPS, HUBBARDSTON, MA; PO# DACW3390M0434

SAMPLE NO.: 7909 LOCATION: KC-5, BOILER ROOM TEE NEAR ENTRY, CHESTER
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS, FRIABLE
COLOR, TEXTURE, ETC.: GRAY LAGGING

TRACE (LESS THAN ONE PERCENT) ASBESTOS DETECTED
: CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	0
Birefringence:.....	0.01
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.55
Index (Perpendicular):	1.54
Dispersion Staining:..	NO
Other Features:.....	

Immersion Media:..... 1.590HD

50 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS CELLULOSE

50 PERCENT TOTAL NON-FIBER MATTER
: LIME MINERAL GRAINS

DATE: 02-23-1990 SIGNED: _____

W K Barnett

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EAL JOB# 11378

W K BARNETT

CLIENT: ARMY CORPS, HUBBARDSTON, MA; PO# DACU3390M0434

SAMPLE NO.: 7910 LOCATION: KC-6, BOILER ROOM ELBOW NEAR ENTRY, CHESTER
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS. FRIABLE
COLOR, TEXTURE, ETC.: GRAY LAGGING

TRACE (LESS THAN ONE PERCENT) ASBESTOS DETECTED
: CHRYSOTILE

ASBESTOS LAB DATA	CHRYSOTILE
Morphology:.....	WAVY
Color:.....	NONE
Pleochroism:.....	NON-PLEOCHROIC
Extinction Angle.....	0
Birefringence:.....	0.01
Sign of Elongation:...	POSITIVE
Index (Parallel):.....	1.55
Index (Perpendicular):	1.54
Dispersion Staining:..	NO
Other Features:.....	

Immersion Media:..... 1.590HD

50 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS CELLULOSE

50 PERCENT TOTAL NON-FIBER MATTER
: LIME MINERAL GRAINS

DATE: 02-23-1990 SIGNED: _____

W K Barnett

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EAL JOB# 11378

W K BARNETT

CLIENT: ARMY CORPS, HUBBARDSTON, MA; PO# DACW3390M0434

SAMPLE NO.: 7911 LOCATION: KC-9, BOILER ROOM RUN, CHESTER
SAMPLE GROSS APPEARANCE: FIBROUS, FRIABLE
COLOR, TEXTURE, ETC.: YELLOW GLASSY MATTING

NO ASBESTOS DETECTED

Immersion Media:..... 1.590HD

95 PERCENT TOTAL NON-ASBESTOS FIBER
: FIBERGLASS CELLULOSE

5 PERCENT TOTAL NON-FIBER MATTER
: LIME OPAQUES/PAINT CHIPS

DATE: 02-23-1990 SIGNED: _____



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State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
Department of Health
Department of Natural Resources Conservation Council

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street / West Building
Waterbury, VT 05671-0404
802-244-8702

July 2, 1992

Mr. Larry Mango
United States Army
AFZD-EM HQ Fort Devens
Fort Devens, MA 01433

RE: Damaged Oil Tank, Chester Army Reserve Center, Chester, VT.

Dear Mr. Mango:

The Management and Prevention Section of the Hazardous Materials Management Division has received inconsistent and contradictory information regarding the compromised heating oil tank located at the Chester Army Reserve Center located in Chester, Vermont.

At approximately 1:30p.m. (13:30) on 17 June 1992, Robert Haslam of the Hazardous Materials Management Division received a phone call from Ron Defilippo reporting a suspected leak in the above-mentioned tank. Mr. Haslam requested that your personnel or a contractor immediately pump the tank empty, expose the piping, place monitoring wells in the vicinity to determine the degree and extent of environmental contamination, and fax to this office a workplan outlining corrective actions. Mr. Haslam's written notes indicate that Mr. Defilippo agreed to these requests. Shortly after this conversation, Mr Haslam spoke with you and repeated the requests he had made to Mr. Defilippo.

At approximately 8:15 a.m. on 2 July 1992, Marc Coleman of the Hazardous Materials Management Division received a phone call from you reporting that the top of the tank had been exposed and that a crack in the fiberglass tank had been found. You reported that the tank would be pumped empty by 7 July 1992.

Why was the tank not emptied when promised, immediately after the report of a suspected leak on 17 June? If the fiberglass has been compromised and there is a crack in the top of the tank, it is entirely possible that there is also a breach elsewhere on the tank -- a breach which could be below the level of the product inside the tank.

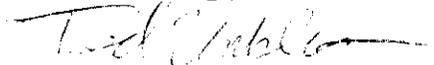
Mr. Larry Mango
United States Army
July 2, 1992
Page 2

Also, the "work plan" which was faxed to Mr. Haslam on 19 June was a general outline of a site assessment planned for the entire Reserve Center, written in February 1992 -- long before the problem with this tank was discovered. There is no mention of what work will be done to assess the degree and extent of contamination resulting from this specific leaking tank. I respectfully repeat Mr. Haslam's request of 17 June and ask that you promptly submit to this office a workplan outlining exactly how your office intends to investigate this now-confirmed problem.

Vermont's Underground Storage Tank Regulations require that suspected releases be investigated within 72 hours of discovery; in this case that would be some time on 20 June 1992. Clearly, we are well past this deadline. Violations of the Underground Storage Tank Regulations are subject to administrative penalties, so I urge you to act immediately in this matter.

Please feel free to call me at 802/244-8702, or contact me by fax at 802/244-5141.

Sincerely,



Ted Unkles
Hazardous Materials Specialist
Management and Prevention Section

TU/chester.ltr



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS FORT DEVENS
FORT DEVENS, MASSACHUSETTS

01433-5190



Environmental Management Office

SUBJECT: Geohydrologic Study No. 38-26-KL45-93 U.S. Army Reserve
Center-Chester, Vermont 26-29 April 1993

Mr. Robert B. Finucane
Vermont Department of Environmental Conservation
Hazardous Materials Management Division
Site Management Section
103 South Main Street/West Building
Waterbury, Vermont 05671-0404

Dear Mr. Finucane:

References:

- a. Memorandum, Vermont Department of Environmental Conservation, Site Management Section, January 14, 1993, subject: Site Investigation Report for the U.S. Army Reserve Center in Chester, Vermont (Site #92-1287).
- b. Memorandum, Headquarters Fort Devens, Environmental Management Office, March 1, 1993, subject: Site Investigation Report, U.S. Army Reserve Center Chester, Vermont (Vermont Site #92-1287).

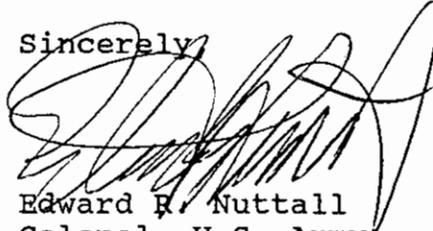
The U.S. Army Environmental Hygiene Agency has completed the enclosed supplemental Geohydrological Study as requested in reference a.

The report concludes that the site does not contain levels of contamination that present a risk or hazard to human health or the environment.

Based on this recommendation we plan no further action at this site.

If you have questions or comments regarding this report please contact Mr. Joseph Pierce, Chief, Installation Restoration Division at (508) 796-3846.

Sincerely,



Edward R. Nuttall
Colonel, U.S. Army
Commanding

Enclosure

Copies Furnished:

76th Division, LTC Diehl (w/enclosure)
94th ARCOM, Mr. Puryear (w/enclosure)
USARC Chester, Vermont, Mr. Gonyea (w/enclosure)

U.S. Army Environmental Hygiene Agency



GEOHYDROLOGIC STUDY NO. 38-26-KL45-93
U.S. ARMY RESERVE CENTER-CHESTER
CHESTER, VERMONT
26-29 APRIL 1993

Distribution limited to U.S. Government agencies only; protection of privileged information evaluating another command; Jul 93. Requests for this document must be referred to Commander, Fort Devens, ATTN: AFZD-EM, Fort Devens, MA 01433-5190.

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422



EXECUTIVE SUMMARY
GEOHYDROLOGIC STUDY NO. 38-26-KL45-93
U.S. ARMY RESERVE CENTER-CHESTER
CHESTER, VERMONT
26-29 APRIL 1993

1. PURPOSE. The purpose of this geohydrologic study was to install three additional ground-water monitoring wells, collect soil samples from these wells, and ground-water samples from these three wells and the six existing wells. This study will identify the presence or absence of any release of fuel oil constituents which may be hazardous to human health and the environment from two previously leaking underground storage tanks (USTs) and/or their associated pipelines.

2. CONCLUSIONS.

a. Three additional ground-water monitoring wells were installed at the Chester Memorial U.S. Army Reserve Center. Ground water flows toward the southeast.

b. The chemical analyses from the ground-water and soil samples confirmed that a release of fuel oil had occurred from the leak at the 4,000-gallon UST and from a spill of fuel oil within the boiler room.

c. Neither the volatile nor semivolatile organic compounds detected in the ground-water exceeded the National Primary Drinking Water Regulation.

d. Both USTs have been removed by a private contractor, and the bulk of the contaminated soil surrounding these USTs has also been removed. Therefore, the source of the fuel oil leaks no longer exists. The soil and ground water near one of these USTs indicate that a leak had occurred; however, the contamination is relatively small, has been undergoing weathering, and poses no hazard to human health or to the environment.

3. RECOMMENDATION. Coordinate the data and interpretations presented in this report with the Sites Management Section, Hazardous Materials Management Division of the State of Vermont's Department of Environmental Conservation.

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-6422



HSHB-ME-SG

GEOHYDROLOGIC STUDY NO. 38-26-KL45-93
U.S. ARMY RESERVE CENTER-CHESTER
CHESTER, VERMONT
26-29 APRIL 1993

I. REFERENCES. See Appendix A for a list of references.

II. AUTHORITY.

A. AEHA Form 250-R, FORSCOM, 5 March 1993.

B. Memorandum, USAEHA, HSHB-ZA, 18 March 1993, subject: USAEHA Schedule of Field Services, FY 93.

C. Memorandum, FORSCOM, FCEN-CED-E, 10 March 1993 (AFZD-EM/23 Feb 93), 1st End, subject: U.S. Army Environmental Hygiene Agency (AEHA) Mission Services to Fort Devens.

III. PURPOSE. The purpose of this geohydrologic study was to install three additional ground-water monitoring wells, collect soil samples from these wells, and ground-water samples from these three wells and the six existing wells. This study will identify the presence or absence of any release of fuel oil constituents which may be hazardous to human health and the environment from two previously leaking underground storage tanks (USTs) and/or their associated pipelines.

IV. GENERAL.

A. Personnel Contacted.

1. Mr. William Gonyea, Building Technician, Chester Memorial U.S. Army Reserve Center (USARC), Chester, Vermont.

Use of company names does not imply endorsement by the U.S. Army but is intended only to assist in identification of a specific product.

2. Mr. Greg Cravedi, Environmental Protection Specialist, Installation Restoration Division, DEH Environmental Management Office, Fort Devens, Massachusetts.

3. Mr. Joseph Pierce, Chief, Installation Restoration Division, DEH Environmental Management Office, Fort Devens, Massachusetts.

B. U.S. Army Environmental Hygiene Agency Personnel Conducting the Study. The following personnel conducted the installation of ground-water monitoring wells and the ground-water sampling:

1. Mr. David C. Bayha, Hydrologist, Project Manager, U.S. Army Environmental Hygiene Agency (USAEHA), Waste Disposal Engineering Division (WDED);

2. Mr. I. Richard Kestner, Senior Engineering Technician, Driller, USAEHA, WDED;

3. Mr. Rocky W. Hoover, Engineering Technician, Driller's Assistant, USAEHA, WDED.

V. BACKGROUND.

A. Location. The Chester Memorial USARC is located on a 3-acre site, part of which is known as Hall Meadows. The USARC is in south-central Windsor County, Vermont, and is on the north side of Vermont Route 11, 2 miles west of the village of Chester, Vermont. The Chester Memorial USARC is located about 350 feet north of the Middle Branch of the Williams River (Figure 1). Immediately adjacent to the USARC on the east is a small motel, and farming and residential areas are located to the west, north, and south (reference 1).

B. Study Background.

1. In 1991, Fort Devens requested the USAEHA to conduct a site investigation/geohydrologic study to examine the soils and ground water for potential contamination from a heating oil spill, within the boiler room, that supposedly entered a drain connected to the septic tank and the associated drain field sometime in 1988. Previous environmental investigations or remediation had not been performed at the Chester USARC; however, in 1978, two USTs containing heating oil were replaced and the septic tank drainage field was extended. There were no reports of any leaks from the USTs at the time of the UST replacements in 1978. Three potential sources of ground-water contamination were found during a preliminary site visit performed 31 March - 2 April 1992, and also during a geohydrologic study performed 15-20 June 1992 (reference 1).

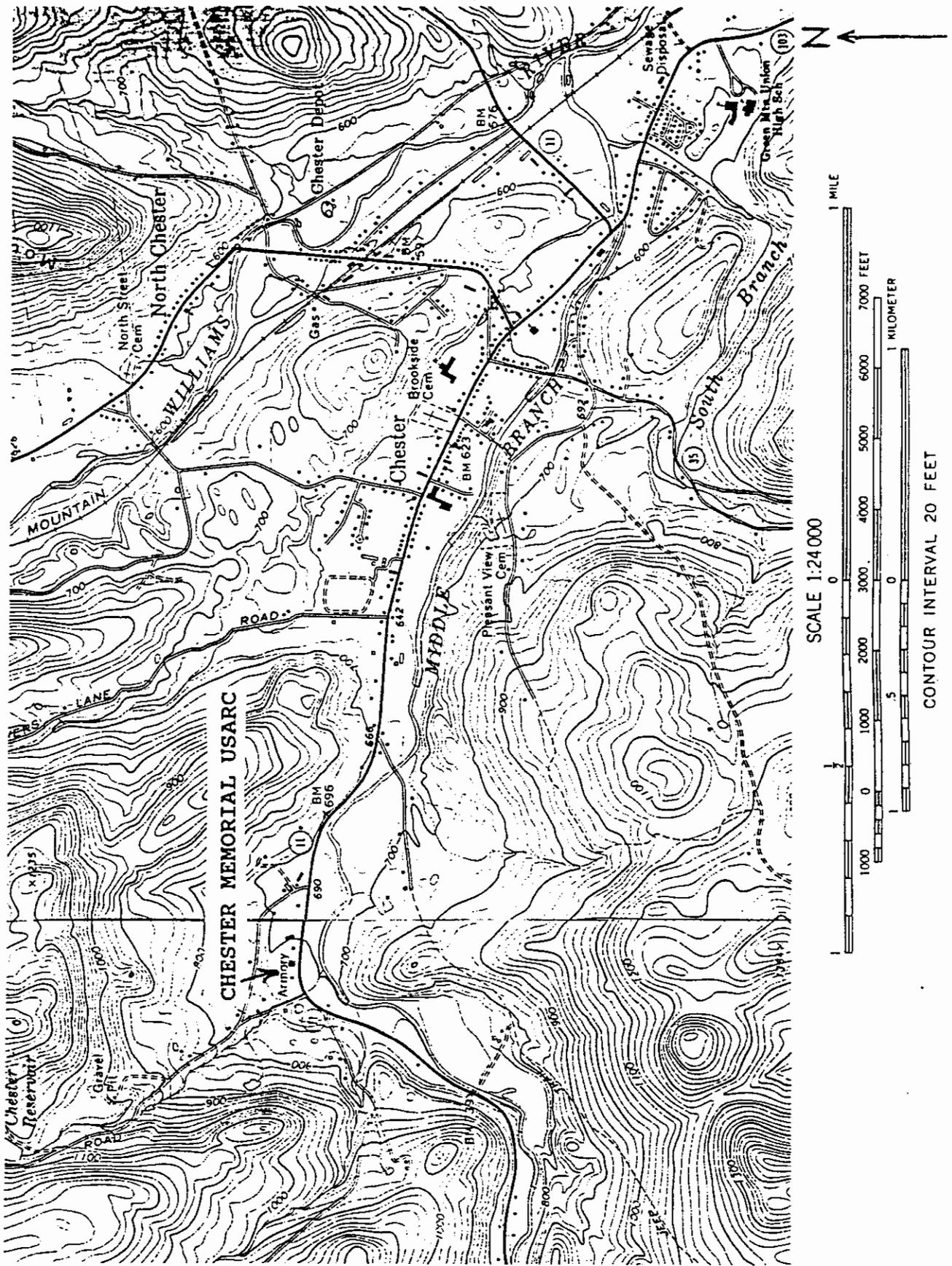


FIGURE 1. LOCATION OF THE CHESTER MEMORIAL USARC

2. The three potential sources of ground-water contamination found in 1992 were: two USTs (installed in 1978) with their associated pipelines which later were found to have leaked; a septic tank and its associated drainage field which may have contained heating oil residue from a 1988 heating oil spill; and a vehicle wash area drain with its associated oil/water separator and a dry well, which may have allowed petroleum, oil, and/or lubricants (POL) or solvents to enter the ground water.

a. In July 1992, two USTs (a 4,000-gallon single-walled fiberglass UST and a 1,000-gallon single-walled steel UST) containing heating oil were removed by a private contractor, because the UST and the associated pipe lines and/or the improperly-installed vent line were found to be leaking fuel oil (Figure 2). Both USTs were replaced with aboveground storage tanks. The contaminated soils around these leaking USTs were removed and replaced with clean soils (references 2, 3, and 4).

(1) The 4,000-gallon single-walled fiberglass UST located west of the main building was excavated and removed from the site during 27-28 July 1992. The State of Vermont Department of Environmental Conservation (DEC) was notified. Reportedly, this UST was covered with about 2 feet of sand. Soil excavated to free the tank reportedly was visibly contaminated from fuel oil, and a strong petroleum odor was evident within the excavation. Soil vertically encountered within the excavation reportedly consists of 1 to 1.5 feet of topsoil; 1.5 to 2 feet of silt with cobbles; 1 foot of very loose, light brown fine sand; 0.25 foot of pebbles and small cobbles; 0.5 foot of silt; 0.25 foot of pebbles and small cobbles; followed by 3 feet of silt with cobbles; and 0.25 foot of pebbles and small cobbles. The bottom of the initial excavation was about 9 feet below the surface. Ground water was encountered at a depth of 8.5 feet, and the private contractor observed a POL sheen on the ground-water surface. The associated piping was drained and tank connections were removed. After this UST was removed, the contractor noticed two cracks in the tank. One crack was in the fill line support and the other crack was in the bottom of the tank. Additional excavation was conducted to reach background levels [less than 1 part per million (< 1.0 ppm)] using a photoionizing detector (PID) to field screen the collected soil samples for total organic vapors (TOVs). About 12 additional tons of soil were reportedly removed from the sides and the bottom of the pit (to the level of ground water) for remediation. In the process of removing contaminated soil, an 8-foot section of sewage pipe was dislodged near the northwest corner. Inspection of the area reportedly revealed that the line had been leaking for some time; however, no additional damage to the septic tank had occurred. The final excavation was approximately 12 feet deep, 12 feet wide, and 15 feet long; it was backfilled and compacted with 150 tons of clean fill on 29 July 1992 (references 2 and 3).

(2) The contractor collected eight soil samples from the original excavation walls at a depth of about 5 to 6 feet below the surface (two samples per side). The eight soil samples were analyzed (field screened) with a PID for TOV and with a nondispersive infrared

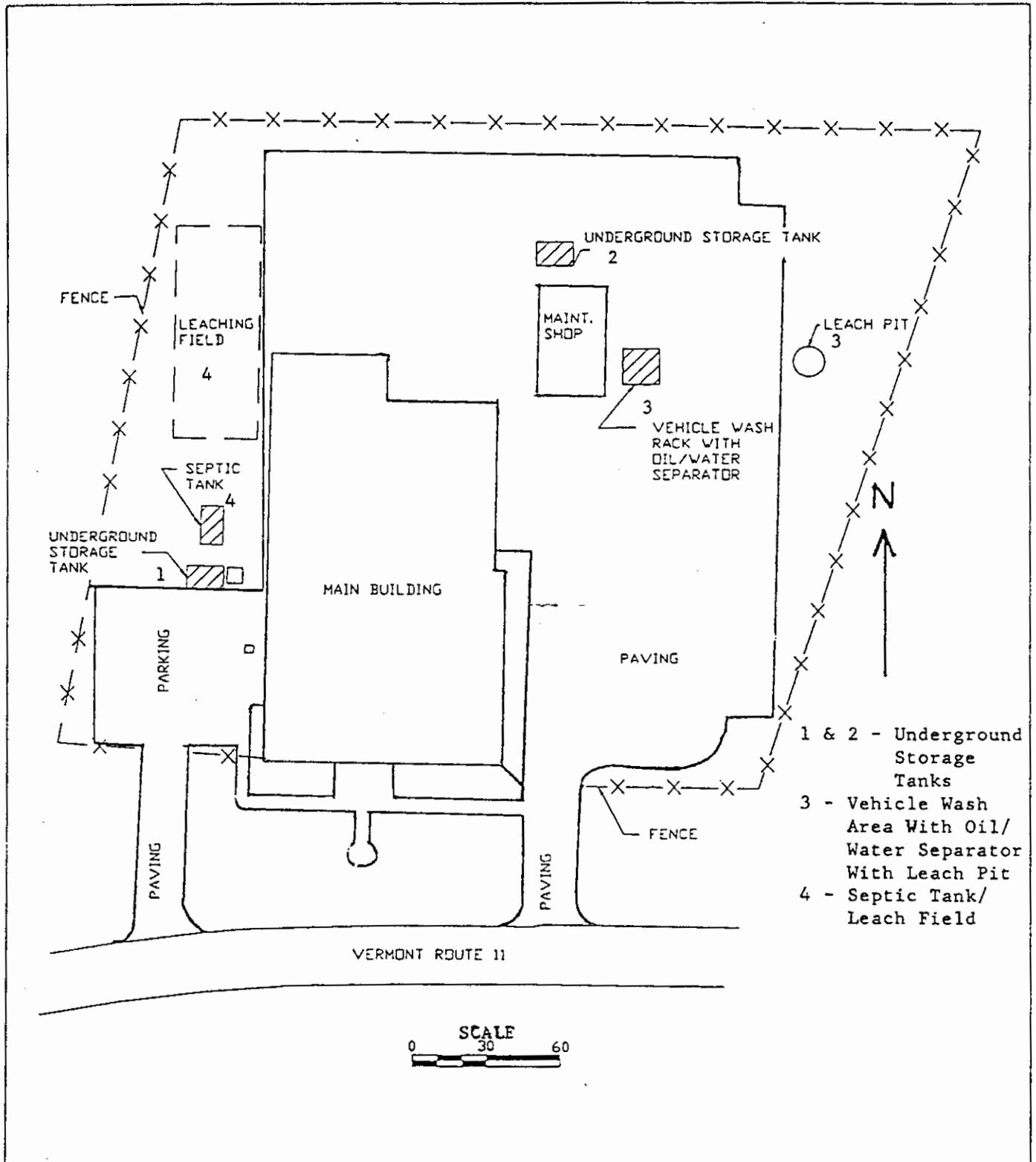


FIGURE 2. CHESTER MEMORIAL U.S. ARMY RESERVE CENTER, CHESTER, VT. SHOWING WASTE SITE LOCATIONS

(NDIR) analyzer for total petroleum hydrocarbons (TPH). The excavation wall samples were numbered consecutively in a clock-wise direction beginning near the west end of the north side. In six of the eight samples, collected on the north, south, and west sides of the pit, the PID results were all 0.0 ppm for TOVs and the NDIR results were 15.1, 30.4, 6.6, 44.4, 28.8 and 17.4 ppm of TPH, respectively. In two of the eight samples, collected on the eastern side of the pit, the PID results were 25 and 0.2 ppm for TOV and the NDIR results were 13,121.7 and 14.4 ppm of TPH, respectively. The contractor collected two soil samples from the bottom of the original excavation about 9 feet below the surface near the western and eastern sides of the pit. The PID results of these two soil samples were 1.5 and 25 ppm of TOV and the NDIR results were 22.8 and 102.5 ppm of TPH, respectively, with the higher values on the eastern side of the pit. The contractor collected a composite soil sample from the stockpiled soils and analyzed it with the PID and the NDIR. The results were 25 ppm of TOV and 23.5 ppm of TPH, respectively. The contractor collected two other soil samples from the north wall (near the northeast side), and from the bottom (east of the center of the original excavation). The laboratory analyzed the two samples for TPH and the results were 23,100 and 39 ppm, respectively. The contractor collected a ground-water sample near the center of the original excavation and the laboratory analysis for TPH was 146 ppm. Following initial PID screening, the contractor collected three additional soil samples from the post-remediated excavation for final PID field screening. One of these samples, collected from the east wall near the northeast corner, at a depth of about 5 feet below the surface, had 25 ppm of TOV. Two samples collected from the bottom of the pit near the west center, and near the east center had PID results of 1.5 and 25 ppm of TOV, respectively (references 2 and 3).

(3) The 1,000-gallon single-walled steel UST was excavated and removed from the site on 28 July 1992. Surface cover at the site consists of about 2 inches of asphalt (blacktop). Reportedly, the top of the tank was covered by 1 foot of sand and silt. Underlying the blacktop was 5 feet of fine sand and silt on top of a concrete pad. The bottom of the tank was about 5 feet below the surface; however, ground water was not encountered. Soil excavated to remove the tank was reportedly visibly contaminated, and a strong petroleum odor was evident within the excavation. The associated piping was drained and tank connections were removed. The contractor reported that the tank was in good condition without any holes, perforations, or severe corrosion; however, the vent line which had initially been improperly installed resulted in a release of fuel oil whenever the tank was filled. More excavation was required to reach background levels of less than 1.0 ppm using a PID to field screen soil samples for TOVs. About 28 additional tons of soil were removed from the west and south walls of the pit; however, further excavation could not be conducted along the south wall due to safety and potential damage to the OMS building. The excavation was backfilled and compacted with clean fill (references 2 and 4).

(4) The contractor collected eight soil samples from the original excavation walls (two samples per side) at a depth of about 3 to 4 feet below the surface for field screening with the PID and field analysis with an NDIR analyzer. The excavation wall samples were numbered consecutively in a clock-wise direction beginning near the west end of the north side. The PID and NDIR results of soil samples collected from the north and east walls were 0.2 ppm of TOVs and 20.5 ppm of TPH, 0.0 ppm of TOVs and 25.2 ppm of TPH, 0.2 ppm of TOVs and 22.8 ppm of TPH, and 0.0 ppm of TOVs and 20.2 ppm of TPH, respectively. The two samples collected from the south wall had 0.4 and 6.0 ppm of TOV and 34.8 and 64.5 ppm of TPH, respectively. The two samples collected from the west wall had 1.5 and 18.0 ppm of TOV and 14.9 and 51.3 ppm of TPH, respectively. The highest PID results were found on the western side and the higher NDIR results were found near the southwest and northwest corners. Two soil samples were collected for field screening with the PID and field analyses with an NDIR analyzer from the bottom of the original excavation in the center of the western and eastern sides of the pit about 5 feet below the surface. The PID results were 10 and 2 ppm of TOV and the NDIR results were 33.6 and 80.5 ppm of TPH, respectively. Two composite soil samples were collected from stockpiled soils for PID and NDIR screening. The PID results were 20 and 2 ppm of TOV, and the NDIR results were 3169.3 and 168.8 ppm of TPH. Two other soil samples, collected from the south wall and from the bottom near the center of the original excavation, were analyzed for TPH. The laboratory results were 653 and 22 ppm of TPH, respectively. Following initial PID screening, two additional soil samples were collected from the post-remediated excavation from the western walls of the enlarged pit for PID and TPH laboratory analyses. The PID results for both samples were 0.0 ppm of TOV, one sample was field screened for NDIR and the result was 10.8 ppm of TPH and the laboratory results for TPH for the other sample was <1.0 ppm (reference 4).

b. The septic tank is located west of the main building, and the associated drainage field is located north of the septic tank (Figure 2). In 1988, an unknown quantity of heating oil from the boiler room leaked and supposedly migrated via a floor drain connection to the septic tank, and thence to the drain field.

c. The vehicle wash area drain is located about 12 feet north and 12 feet east from the southeast corner of the OMS building. An associated oil/water separator, empties into a dry well and/or leaching pit (Figure 2). A possibility exists that oil or solvents and other fluids used in vehicle maintenance may have bypassed the oil/water separator and entered the dry well leach field, and possibly entered the ground water.

VI. FINDINGS AND DISCUSSION.

A. Ground-Water Monitoring Well Installation.

1. Three additional ground-water monitoring wells (Nos. 7, 8, and 9) were drilled from 26-27 April 1993 (Figure 3) using a Mobile B-80[®], which was equipped to drill with either the hollow-stem auger or air rotary methods; however, only the hollow-stem auger method was used. No soil discoloration or petroleum odors were noticed during the drilling of wells Nos. 7 and 8; however, there were soil discolorations and/or petroleum odors noticed while drilling well No. 9. Appendix B describes the field methods used to drill these three wells, Appendix C contains the drilling logs, Appendix D contains the Field Data Log Sheets, and Appendix E contains the Ground-Water Monitoring Well Summary.

2. Wells Nos. 7, 8, and 9 were drilled to a depth of 21.03, 14.58, and 13.22 feet below ground surface, respectively. The polyvinyl chloride (PVC) riser pipes on wells Nos. 7 and 9 were 1.45 and 2.21 feet above the ground surface, respectively. The PVC riser pipe on well No. 8 was 0.15 foot below the ground surface, as this well was fitted with a flush-mount top to allow vehicles to pass over this well.

B. Direction of Ground-Water Flow. Because no topographic benchmarks were found, relative elevations of the tops of the nine PVC well casings were determined to the nearest 0.01 foot. The height of the PVC well casings above and below the ground surface were measured to the nearest 0.01 foot. Table 1 shows the relative elevations of the top of the riser pipes of wells Nos. 1-6 which were surveyed by Messrs. Kestner and Hoover on 17 June 1992, wells Nos. 7-9 which were surveyed by Messrs. Kestner and Hoover on 28 April 1993, and the relative elevations of the water surfaces which were measured on 28 April 1993. Figure 4 is a map showing approximate contour lines of the water table surface with arrows showing the direction of ground-water flow. Ground water flows towards the southeast.

C. Developing and/or Purging the Ground-Water Monitoring Wells. Wells Nos. 1-7 and 9 were developed and/or purged prior to sampling on 28 April 1993 using 2-inch diameter stainless steel bailers, and well No. 8 was developed and/or purged prior to sampling using a 2-inch diameter Teflon[®] bailer. During the developing and/or purging phase, 10 gallons of ground water were removed (or purged) from wells Nos. 1, 2, 4, 5, 6, and 8. None of these

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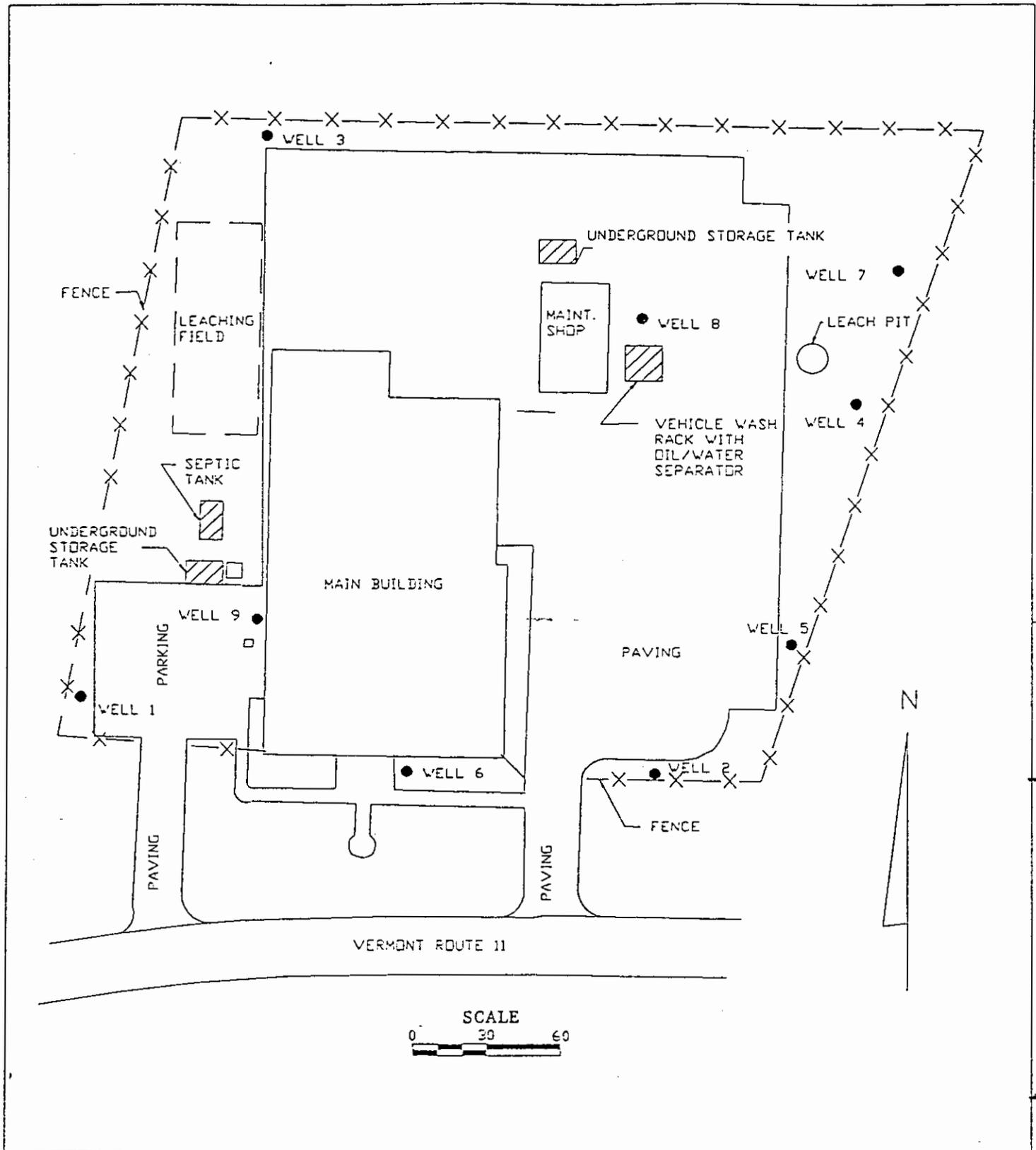


FIGURE 3. CHESTER MEMORIAL U.S. ARMY RESERVE CENTER, CHESTER, VT. SHOWING WASTE SITE LOCATIONS AND LOCATIONS OF NINE GROUND-WATER MONITORING WELLS

TABLE 1. RELATIVE ELEVATIONS IN FEET OF THE RISER PIPES AND THE TOP OF THE GROUND-WATER SURFACE OF THE SIX GROUND-WATER MONITORING WELLS AT THE CHESTER MEMORIAL USARC

Well Number	Relative Elevation of Top of Well Riser Pipe	Distance From Water Surface	Relative Elevation of Water Surface
1	51.22	8.39	42.83
2	50.35	12.38	37.97
3	49.56	3.56	46.00
4	47.84	9.13	38.71
5	48.38	10.13	38.25
6	49.52	9.10	40.42
7	46.09	6.27	39.82
8	46.62	5.93	40.69
9	51.34	8.70	42.64

six wells were bailed dry. Twenty-five gallons of ground water were purged from well No. 7 and it did not bail dry. More than nine times the standing water volume in this particular well was removed prior to collecting the ground-water sample. Only about 2.5 gallons of ground water were purged from well No. 3 before it went dry. Well No. 3 was bailed twice to purge 5 gallons of water prior to collecting a ground-water sample. Only about 1.25 gallons of ground water were purged from well No. 9 before it went dry. This well was bailed twice to purge 2.5 gallons of water prior to collecting a ground-water sample. See Appendix B for a description of the well developing method.

D. Sampling the Ground-Water Monitoring Wells. All nine ground-water wells were considered sufficiently purged prior to collecting ground-water samples for volatile organic compounds (VOCs) and acid and base/neutral semivolatiles organic compounds (SVOCs). More than three times the standing water volume in wells Nos. 1, 2, 4 through 8, and 9 were removed prior to sampling. See Appendix B for a description of the well sampling method.

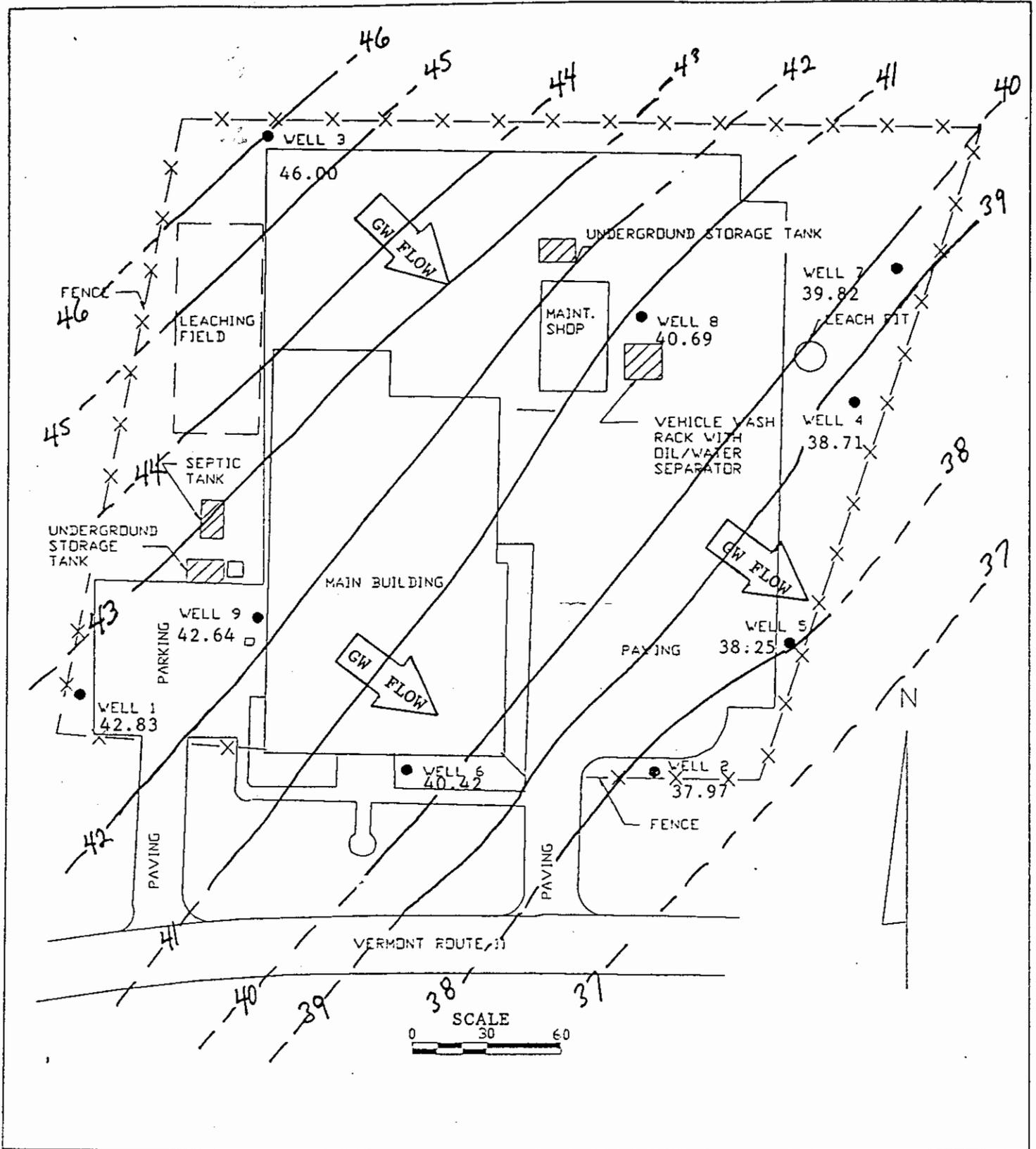


FIGURE 4. APPROXIMATE CONTOUR LINES OF THE GROUND-WATER TABLE WITH ARROWS SHOWING DIRECTION OF GROUND-WATER FLOW

E. Chemical Analyses of Soil and Ground Water.

1. General. No soil staining or odor of fuel oil were noticed during the drilling of well No. 7; therefore, no soil samples were collected from this particular well for VOC scans or TPH. However, because wells Nos. 8 and 9 were located near and downgradient from the two removed USTs, soil samples for VOC scans and TPH were collected in glass jars with Teflon-lined lids during the drilling of these two particular wells. Three soil samples for VOC and TPH were collected from well No. 8 at depths of 5 to 7, 8 to 10, and 10 to 12 feet, respectively, from well No. 9 at depths of 0 to 4, 7.5 to 9, and at 12 feet, respectively. These six soil samples were collected on 27 April 1993, received in the USAEHA Organic Environmental Chemistry Division (OECD) laboratory on 3 May 1993, and analyzed on 10 May 1993. The sample holding time of 14 days for all soil samples was met. See Appendix B for a description of the soil sampling method.

2. Volatile Organic Analyses of Soil Samples.

a. A relatively small amount [i.e., 26 micrograms per kilogram ($\mu\text{g}/\text{kg}$) or parts per billion (ppb)] of p-isopropyltoluene was detected in one of the six soil samples collected from the newly-installed ground-water monitoring wells (i.e., well No. 9 at the 12-foot depth). In addition, the chromatogram of that particular sample showed a large hump which contained a variety of unknown and possibly weathered hydrocarbons. These possibly weathered hydrocarbons were not identified; however, the concentration inside the hump was estimated at 13,000 $\mu\text{g}/\text{kg}$. There were no other significant target compounds (less than 15 $\mu\text{g}/\text{kg}$ based on fluorobenzene) present in any other soil sample. No tentatively identified volatile compounds (TICs) were detected. There are no pertinent standards for organics in soil. A list of the VOCs analyzed and their respective detection limits are shown in Appendix F.

b. Volatile organic compounds normally will eventually escape to the atmosphere through the porous soils within the vadose zone. One surrogate recovery failed the imposed acceptable limits in the soil sample collected at the 12-foot depth from well No. 9. Retention times and internal standard area counts complied with the method quality control (QC) requirements. A matrix spike was performed on the soil sample from well No. 8 at the 5- to 7-foot depth with acceptable recoveries for every compound spiked.

3. Analyses of Soil Samples for TPH.

a. Eight soil samples (six samples from wells Nos. 8 and 9 and two samples from below the concrete floor of the boiler room) were extracted on 6 May 1993 and analyzed for TPH content (measured as diesel range organics). The analytical results are contained in

Table 2, which shows the presence of TPH at 66 micrograms per gram ($\mu\text{g/g}$) or parts per million (ppm) from well No. 9 at the 12-foot depth. None of the remaining five soil samples from wells Nos. 8 or 9 indicated any TPH above the analytical detection limit of $4 \mu\text{g/g}$.

TABLE 2. ANALYTICAL RESULTS FOR TOTAL PETROLEUM HYDROCARBON (DIESEL RANGE ORGANICS) OF SOIL SAMPLES COLLECTED DURING DRILLING AND ALSO FROM SMALL DIAMETER HOLES DRILLED IN THE BOILER ROOM

Sample Description	Date Collected	Percent of Terphenyl Recovered	Amount of TPH in $\mu\text{g/g}$
Well No. 8 (5-7')	27 Apr 93	109 Percent	< 4.0
Well No. 8 (8-10')	27 Apr 93	65 Percent	< 4.0
Well No. 8 (10-12')	27 Apr 93	83 Percent	< 4.0
Well No. 9 (0-4')	27 Apr 93	90 Percent	< 4.0
Well No. 9 (7.5-9')	27 Apr 93	67 Percent	< 4.0
Well No. 9 (at 12')	27 Apr 93	41 Percent	66.0
Hole No. 1 (Boiler Room)	29 Apr 93	31 Percent	53.0
Hole No. 2 (Boiler Room)	Sample Lost During Concentration Process		

b. Because of the reported 1988 heating oil spill in the boiler room, six 1-inch diameter holes were drilled on 27 April 1993 into the floor of the boiler room to check on the occurrence of No. 2 fuel oil underneath the building (Figure 5). These holes were drilled to a depth of about 1 foot with an electric hammer drill. Four of the six holes did not show any PID indication of No. 2 fuel oil; however, a PID indication and an oil odor were present in the other two holes. Following initial PID screening, two soil samples were collected for TPH analyses from the two holes which indicated the presence of fuel. Table 2 shows the analytical result (i.e., $53 \mu\text{g/g}$ of TPH) from one of these two drilled holes; however, the soil sample from the other hole was lost during the concentration process.

c. The soil samples were extracted with methylene chloride using a U.S. Environmental Protection Agency approved sonication procedure (EPA Method 3550) and quantitatively analyzed by a gas chromatographic method of analysis [OECD standard operating procedure (SOP) 132.1]. This method is based on reference 5. Sonication is the process of using high frequency sound waves to disrupt and extract analytes of interest from a matrix.

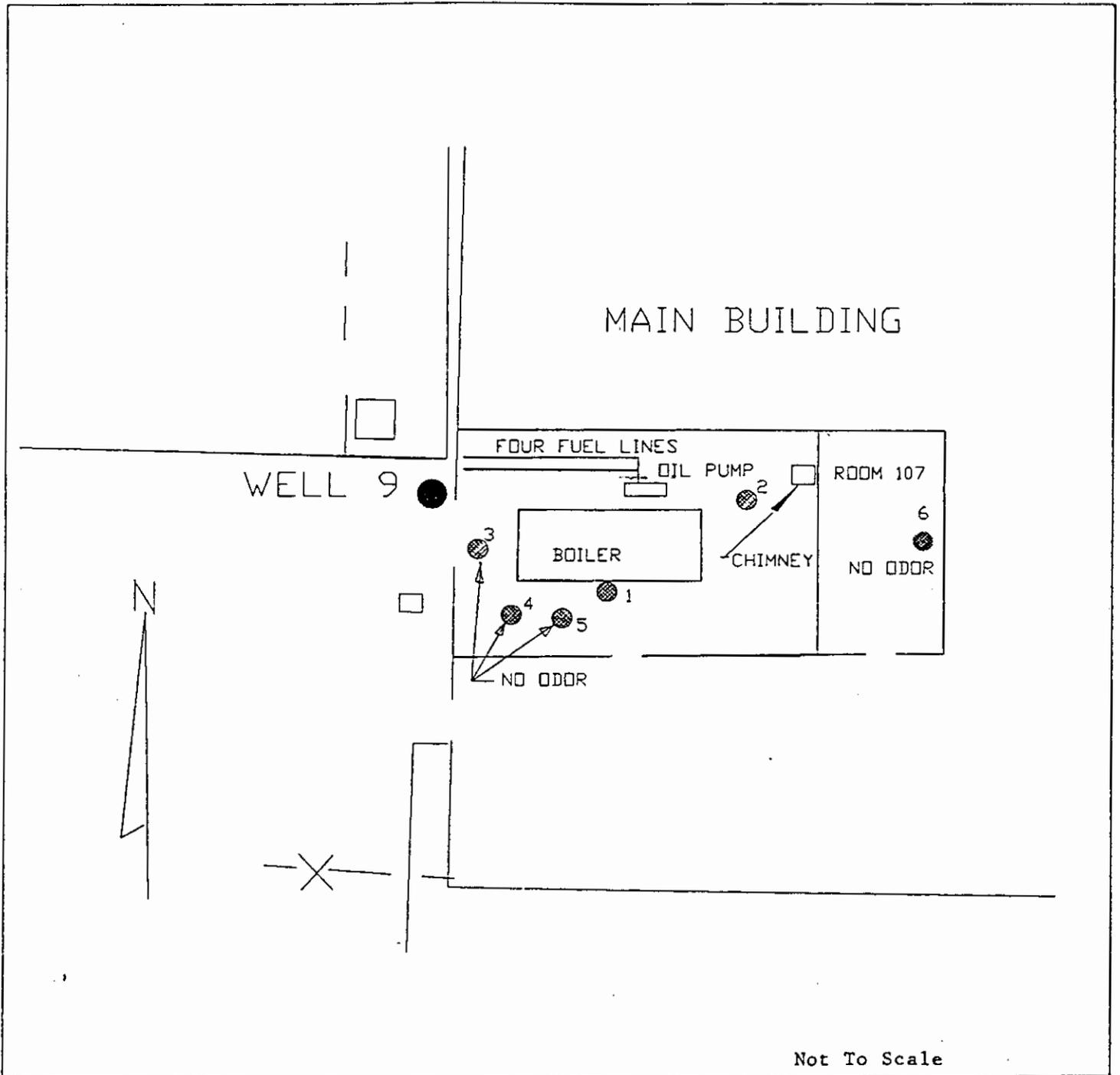


FIGURE 5. MAP SHOWING LOCATIONS OF SIX 1-INCH DIAMETER HOLES DRILLED INTO THE BOILER ROOM FLOOR

d. Two soil samples were spiked with No. 2 fuel oil at a level of 83 $\mu\text{g/g}$ and recovered at levels 72 percent and 94 percent. Extraction efficiencies of the samples were monitored by the percent recovery of the terphenyl surrogate and are listed in Table 2. Personnel in the OECD laboratory believe that the low recoveries of the surrogate compound in the two soil samples, which were collected from well No. 9 at the 12-foot depth and the small diameter drilled hole in the boiler room, were due to co-eluting compounds found in the samples.

4. Volatile Organic Analyses of Ground-Water Samples.

a. Ground-water samples from wells Nos. 1-9 were collected on 28 April 1993, received in the laboratory on 3 May 1993, and analyzed on 11 May 1993. The holding time of 14 days for all the ground-water samples was met. See Appendix B for a description of the ground-water sampling method. A list of the VOCs analyzed and their respective detection limits are shown in Appendix F. Four target and seven nontarget compounds were detected in the ground-water sample from well No. 9. The analytical results are shown in Table 3. There were no target nor substantial nontarget compounds detected in any other ground-water sample. None of the VOCs present in the ground-water samples at the Chester Memorial USARC exceeded the National Primary Drinking Water Regulations (NPDWR).

TABLE 3. VOLATILE ORGANIC COMPOUNDS DETECTED IN GROUND-WATER SAMPLES COLLECTED FROM WELL NO. 9 AT THE CHESTER MEMORIAL USARC

Organic Compound	CAS Number*		Amount in micrograms per liter ($\mu\text{g/L}$)
Benzene	71-43-2		3.0
p-Isopropyltoluene	99-87-6		5.0
1,2,4-Trimethylbenzene	95-63-6		3.0
1,3,5-Trimethylbenzene	108-67-8		5.0
Benzene, 1Meth-3-(1 Methethyl)	535733	estimated value	15.0
Unknown		estimated value	10.0
Benzene, 1,2,3,4-Tetramethyl	488233	estimated value	10.0
1H-Indene, 2,3-Dihyd-5-Methyl	874351	estimated value	15.0
1H-Indene, 2,3-Dihyd-2-Methyl	824635	estimated value	25.0
Naphtalene, 1,2,3,4-Tetrahyd	119642	estimated value	10.0
1H-Indene, 2,3-Dihyd-4,7-Dime	6682719	estimated value	20.0

* CAS Number is derived from the Chemical Abstract Service.

b. The surrogate recoveries for all the ground-water samples were acceptable with all the values meeting the QC limits imposed. A matrix spike was performed on the ground-water sample from well No. 1 with acceptable recoveries for all the spiked compounds. All internal standard area counts and retention times complied with the method QC requirements.

5. Acid and Base/Neutral Semivolatile Organic Analyses of Ground-Water Samples. These ground-water samples were analyzed by EPA Method 8270. No problems were encountered during the extraction of these samples. All samples were analyzed for the target compound list. A list of the SVOCs analyzed and their respective detection limits are shown in Appendix F. In the sample collected from well No. 3, the surrogate recovery of 2-fluorophenol was outside the QC limits. The recovery was, however, greater than 10 percent. All other QC was within specifications.

a. There were no detections of SVOCs or TICs in the ground-water sample collected from well No. 1; however, there was one TIC (a trace of less than 10 $\mu\text{g/L}$) of unknown SVOCs detected in the samples collected from wells Nos. 2, 5, and 8. There were traces of two TICs in the sample collected from well No. 3. Larger amounts of unknown SVOCs and unknown alkanes were detected in ground-water samples collected from wells Nos. 4, 6, and 7. However, much larger amounts and more unknown SVOCs including more unknown alkanes, were detected in ground-water samples collected from well No. 9.

b. Alkanes are hydrocarbons containing no unsaturation (double bonds). Alkanes can be straight or branched chained bonds. The only known TIC detected without having an estimated concentration was 2-methylnaphthalene at 29.0 $\mu\text{g/L}$ in well No. 9. The analytical results showing the SVOCs and TICs detected in the wells at Chester Memorial USARC are shown in Table 4.

c. None of the SVOCs present in the ground-water samples at the Chester Memorial USARC exceeded the NPDWR.

VII. CONCLUSIONS.

A. Three additional ground-water monitoring wells were installed at the Chester Memorial USARC. Ground-water and soil samples for VOCs and TPH were collected and analyzed. Water levels were measured, and relative ground surface elevations at each well were determined. Ground water flows toward the southeast.

B. The chemical analyses from the ground-water and soil samples confirmed that a leak of fuel oil had occurred from the previous 4,000-gallon UST and/or from a spill of fuel oil within the boiler room.

TABLE 4. SEMIVOLATILE ORGANIC COMPOUNDS AND TENTATIVELY IDENTIFIED COMPOUNDS DETECTED IN GROUND-WATER SAMPLES COLLECTED FROM GROUND-WATER MONITORING WELLS AT THE CHESTER MEMORIAL USARC

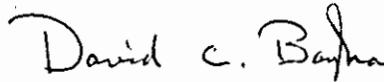
Well Number	Organic Compound		Amount in micrograms per liter ($\mu\text{g/L}$)
2	Unknown	estimated value	6.0
3	Unknown	estimated value	9.0
3	Unknown	estimated value	7.0
4	Unknown	estimated value	4.0
4	Unknown	estimated value	36.0
5	Unknown	estimated value	5.0
6	Unknown	estimated value	54.0
7	Unknown	estimated value	36.0
8	Unknown	estimated value	7.0
9	2-methylnaphthalene		29.0
9	Unknown alkane	estimated value	45.0
9	Unknown	estimated value	33.0
9	Unknown	estimated value	37.0
9	Benzene, 1,2,3,4-tetramethyl	estimated value	36.0 X
9	Unknown alkane	estimated value	38.0
9	Unknown aromatic	estimated value	33.0
9	Unknown alkane	estimated value	89.0
9	Naphthalene, 1-methyl-	estimated value	32.0
9	Unknown alkane	estimated value	32.0
9	Unknown alkane	estimated value	87.0
9	Naphthalene, 1,2,3,4-tetrahy	estimated value	30.0 X
9	Naphthalene, 1,3-dimethyl-	estimated value	88.0 X
9	Unknown alkane	estimated value	32.0
9	Unknown alkane	estimated value	73.0
9	Unknown alkane	estimated value	79.0
9	Unknown alkane	estimated value	44.0
9	Unknown alkane	estimated value	120.0
9	Unknown alkane	estimated value	75.0
9	Unknown	estimated value	58.0
9	Unknown alkane	estimated value	72.0
9	Unknown alkane	estimated value	40.0
9	Unknown alkane	estimated value	56.0
9	Unknown alkane	estimated value	41.0
9	Unknown alkane	estimated value	35.0
9	Unknown	estimated value	100.0

The X denotes an Isomer of the listed compound.

C. None of the VOCs nor SVOCs detected in the ground water exceeded the NPDWR.

D. Both USTs have been removed by a private contractor, and the bulk of the contaminated soil surrounding these USTs has also been removed. Therefore, the source of the fuel oil leaks no longer exists. The soil and ground water near one of these USTs indicate that a leak had occurred; however, the contamination is relatively small, has been undergoing weathering, and poses no hazard to human health or to the environment.

VIII. RECOMMENDATION. Coordinate the data and interpretations presented in this report with the Sites Management Section, Hazardous Materials Management Division of the State of Vermont's Department of Environmental Conservation.



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APPROVED:



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Ground Water and Solid Waste

APPENDIX A

REFERENCES

1. Memorandum, USAEHA, HSHB-ME-SG, 7 October 1992, subject: Geohydrologic Study No. 38-26-KL45-92, U.S. Army Reserve Center-Chester, Chester, Vermont, 15-20 June 1992.
2. Memorandum For Record, AFZD-EM, 30 July 1992, subject: Trip Report, Underground Storage Tank Removal, U.S. Army Reserve Center, Chester, Vermont.
3. Post-Removal Report, Underground Storage Tank Closure, 4,000 Gallon, No. 2 Fuel Oil, UST No. 0127, U.S. Army Reserve Center, Building P-1, State Route 11, Chester, Vermont, prepared by ATEC Environmental Consultants, 19 August 1992.
4. Post-Removal Report, Underground Storage Tank Closure, 1,000 Gallon, No. 2 Fuel Oil, UST No. 0126, U.S. Army Reserve Center, Building P-2, State Route 11, Chester, Vermont, prepared by ATEC Environmental Consultants, 19 August 1992.
5. "Method for the Determination of Diesel Range Organics," Revision 3, 8 May 1992, prepared by the American Petroleum Institute.

APPENDIX B

DESCRIPTION OF FIELD METHODS

1. DRILLING EQUIPMENT AND DRILLING METHODS.

a. The air rotary method uses an air percussion/rotary drill bit and hollow steel rods to carry the pressured air down and out the drill bit. The pressured air blows the rock cuttings from the hole. No drilling fluids other than natural ground water are utilized during the drilling. However, all of these three newly installed wells were drilled using the auger method.

b. The auger method uses a cutterhead and continuous spiraling flights around a hollow core. The continuous spiraling flights act as a screw conveyer and allow continuous cleaning of the cuttings from the hole during drilling. The auger has a 6.25-inch outside diameter (OD) and the hollow core has a 3.25-inch inside diameter (ID). Each auger is 5 feet in length, and they are joined together using two opposite-facing screws at the base of each auger. A center steel stem (rod) is normally inserted through the hollow auger core with its own drill bit for drilling through indurated soil, silt, clay, and shale. During the drilling of softer material, a plastic basket is mounted between the leading auger flight and the cutterhead to prevent soil from entering the core of the auger when the center steel rod is not used. The wells were completed at a depth from about 10 to 15 feet below the water table. No drilling fluids other than natural ground water were utilized during the drilling.

2. CLEANING METHODS. The drilling rig, auger flights, and other associated equipment and tools were cleaned with high pressure water or the hot water supplied by the Chester Memorial USARC.

3. WELL INSTALLATION MATERIALS AND METHODS. The monitoring wells were completed using 2-inch ID PVC well casing and preslotted well screen (0.01-inch slot size) with flush-threaded joints (Figure B-1). Clean, bagged, dry medium to coarse quartz (silica) sand (white swimming pool filter sand) was slowly poured down the outside of each well and around the annular space surrounding the well screen. The sand level was measured in each well and brought up above the top of the well screen. A seal of bentonite was placed above the sand pack. The bentonite used was in 1/4-inch pellets in 5-gallon buckets. Bentonite is a clay, formed from the decomposition of volcanic ash, which has the capacity to adsorb or absorb water which causes it to swell when wet to about five times its dry volume; therefore, it is used to seal the sand pack from percolating water. Concrete was mixed with water and used to fill the remaining annular space to the surface. A steel protective casing with a hinged locking cap was installed around the PVC riser pipe and pushed into the wet concrete.

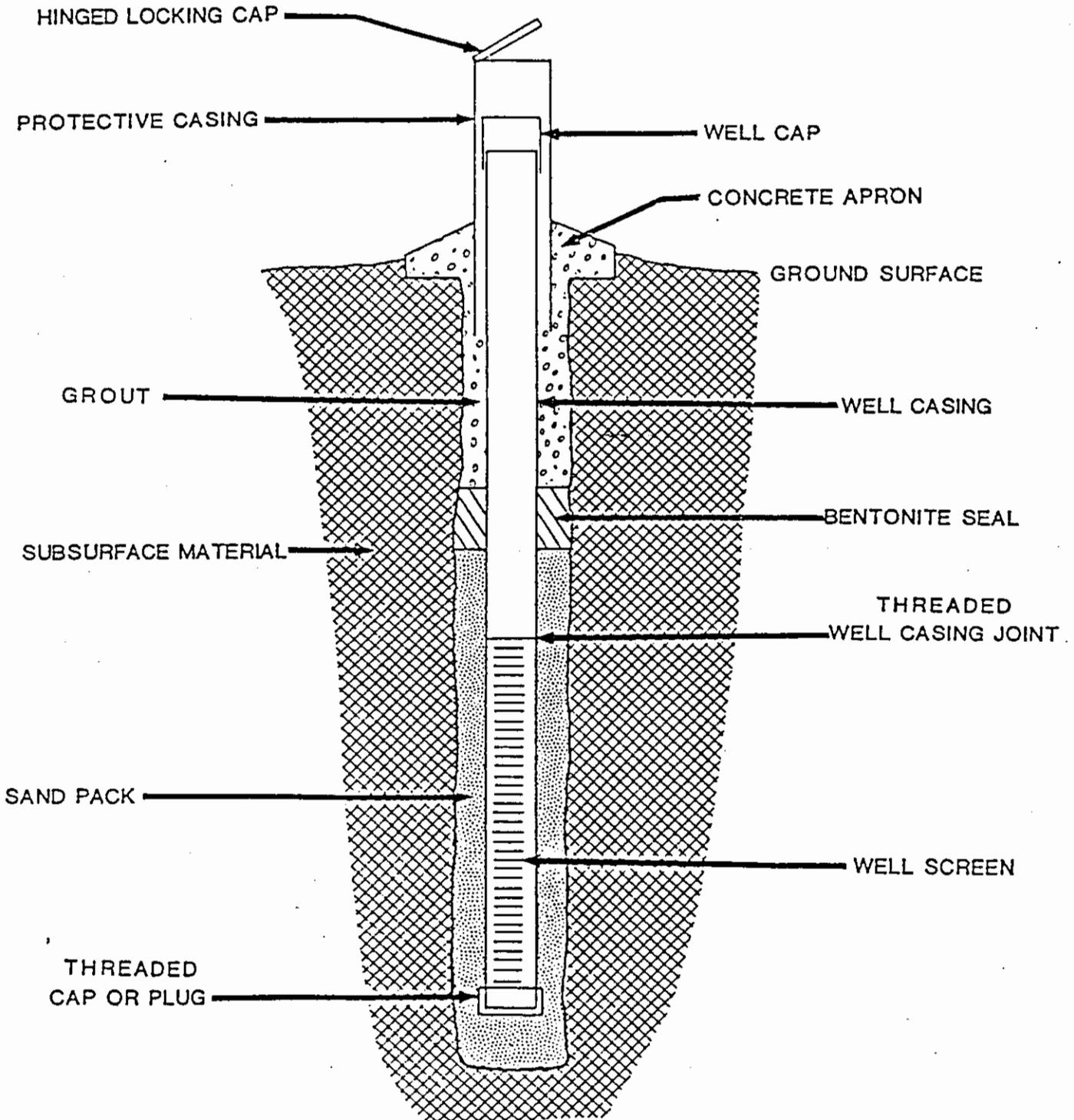


FIGURE B-1

GENERALIZED MONITORING WELL CONSTRUCTION

4. **MONITORING WELL DEVELOPMENT.** Monitoring well development was accomplished by bailing and surging. The bailers used were either made from stainless steel, Teflon, or a Singlesample® disposable bailer. In order to eliminate cross-contamination from well to well, the stainless steel or Teflon bailers were washed with Alconox®, rinsed with tap water, and rinsed again with distilled water prior to their being used again. For each monitoring well, the water level was determined using an electric (battery-operated) water level indicator. The volume of standing water in each well was calculated from this measurement. Development is considered sufficient when the well was bailed dry two or more times or when relatively clean water was retrieved from the well during development. However, the water did not become relatively clear during the bailing from these nine wells. There was always fine micaceous silt and sand in the bailer even after bailing as much as 25 gallons (about 9 volumes) from well No. 7 and 10 gallons from most of these wells. Wells Nos. 3 and 9 were bailed dry and recharged slowly; however, they were bailed dry two times. The other seven wells did not go dry during bailing. No additional water or air was introduced into the monitoring well during development.

5. **DETERMINING THE RELATIVE ELEVATIONS.** Relative elevations of the top of the PVC riser pipe and the ground level adjacent to the well were surveyed by USAEHA personnel on 17 June 1992 (wells Nos. 1-6) and on 28 April 1993 (wells Nos. 7-9). The relative elevations of the tops of the PVC riser pipe for wells Nos. 1-9 are: 51.22, 50.35, 49.56, 47.84, 48.38, 49.52, 46.09, 46.62, and 51.34 feet, respectively. The elevations were needed to determine the direction of ground-water movement following the measurements of the top of the water surface in each well. Ground water moves toward the southeast.

6. **GROUND-WATER MONITORING WELL SAMPLING METHODS.** For each monitoring well, the water level was determined using an electric (battery-operated) water level indicator. The volume of standing water in each well was calculated from this measurement. Prior to sampling, the wells had at least three well volumes of water removed or they were bailed dry using a stainless steel or a Singlesample disposable bailer. Water samples were collected as soon as the well recovered or immediately after purging. The ground-water samples were placed in containers supplied by the USAEHA laboratories and preserved as specified by the laboratories.

7. **SOIL SAMPLING.** Soil samples for chemical analyses were randomly collected in glass jars with a Teflon-lined cap, during the drilling of two of three ground-water monitoring wells, on a grab-sample basis. Clean, rubber surgical gloves were worn whenever soil was hand-collected and placed into these jars. These gloves were changed for each sample. Soil samples were collected and analyzed for VOC scans, and TPH.

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Geohydrologic Study No. 38-26-KL45-93, 26-29 Apr 93

APPENDIX C
DRILLING LOGS

US ARMY ENVIRONMENTAL HYGIENE AGENCY
DRILLING LOG

(The proponent of this form is HSHB-ES)

INSTALLATION Chester Memorial USARC, Chester, Vermont
 PROJECT NUMBER 38-26-KL45-93 DATE 26 April 1993
 LOCATION Northeast corner of site. About 67 ft S from north fence and about 8.8 feet W from east fence. GEOLOGIST David C. Bayha
 DRILLER AND HELPER I. Richard Kestner, Senior Engineering Technician and Rocky W. Hoover, Engineering Technician
 DRILL RIG Mobile B-80 W/6-in. hollow-stem auger BORE HOLE Well 7 (Downgradient)

DEPTH	SAMPLE TYPE	DESCRIPTION	REMARKS
		Medium brown sandy, silty, micaceous clay with some small pebbles.	Light rain this morning. Soil is moist to almost wet. Somewhat plastic
4.8'		Top of Water Table	Easy drilling.
5'			
6'			
6.5'		<u>Encountered gravel layer.</u>	
		Medium brown sandy, silty, micaceous clay with small pebbles and cobbles.	Saturated. Somewhat stiff to easy drilling
10'			
15'			

AEHA Form 130, 1 Nov 82
Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

INSTALLATION Chester Memorial USARC, Chester, Vermont
 PROJECT NUMBER 38-26-KL45-93 DATE 26 April 1993
 LOCATION Northeast corner of site. About 67 ft S from north fence and about 8.8 feet W from east fence. GEOLOGIST David C. Bayha
 DRILLER AND HELPER I. Richard Kestner, Senior Engineering Technician and Rocky W. Hoover, Engineering Technician
 DRILL RIG Mobile B-80 W/6-in. hollow-stem auger BORE HOLE Well 7 (Downgradient)

DEPTH	SAMPLE TYPE	DESCRIPTION	REMARKS
15'		Same as above.	
20'			
21'		Bottom of Hole	
		Added 15 feet of 0.01 inch slot-sized PVC screen with well point and 10 feet of solid PVC casing. Total amount of PVC casing and screen in hole was 25.43 feet; however, 2.95 feet was cut off. The total amount of PVC pipe in hole is 22.48 feet. The top of the PVC riser pipe is 1.45 feet above ground surface.	
		Added 4 each 50-lb bags of swimming pool filter sand. Top of the sand is at 2.6 feet below the ground surface.	
		Added 0.5 bucket of bentonite pellets. Top of dry bentonite at 0.9 feet below the ground surface.	

AEHA Form 130, 1 Nov 82
 Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

INSTALLATION Chester Memorial USARC, Chester, Vermont
 PROJECT NUMBER 38-26-KL45-93 DATE 27 April 1993
 LOCATION About 7.3 feet east from the east side of the maintenance Bldg. & 16.5 feet south from NE corner of Bldg. GEOLOGIST David C. Bayha
 DRILLER AND HELPER I. Richard Kestner and Rocky W. Hoover
 DRILL RIG Mobile B-80 W/6-in. hollow-stem auger BORE HOLE Well 8 (Downgradient)

DEPTH	SAMPLE TYPE	DESCRIPTION	REMARKS
0.33'		Asphalt cover over parking lot--- Gravel and small to large cobbles and medium brown sandy, silty micaceous clay.	----- Dry to damp. Not plastic. Medium to hard drilling.
5'	Soil Sample 5-7 ft	Medium brown sandy, silty, clay with mica flakes. Some gravel & small cobbles. Mostly gravel.	----- Hard drilling. Dry to moist Not too plastic.
7'		Same as above.	-----
8'	Soil Sample 8-10'	Medium brown sandy, silty, clay with mica flakes. Some gravel & very few small cobbles.	----- Very moist to almost wet. Hit water at 8 or 9'
10'	Soil Sample 10-12'	Medium brown sandy, silty, clay with mica flakes. No fuel oil odor.	----- Wet, plastic.
12'		Medium brown sandy, silty, micaceous clay.	-----
14.6		Bottom of Hole-----	-----

AEHA Form 130, 1 Nov 82
 Replaces HSHB Form 78, 1 Jun 80, which will be used.

US ARMY ENVIRONMENTAL HYGIENE AGENCY

DRILLING LOG

(The proponent of this form is HSHB-ES)

INSTALLATION Chester Memorial USARC, Chester, Vermont
 PROJECT NUMBER 38-26-KL45-93 DATE 27 April 1993
 LOCATION 5.6 feet west from GEOLOGIST David C. Bayha
the west wall of main Bldg. and DRILLER AND HELPER I. Richard
about 57 feet north from the Kestner and Rocky W. Hoover
southwest corner of main Bldg.
 DRILL RIG Mobile B-80 W/6-in. BORE HOLE Well 9 (Downgradient)
hollow-stem auger

DEPTH	SAMPLE TYPE	DESCRIPTION	REMARKS
	Soil Sample 0-4' for VO & TPH	Medium brown sandy, silty, clay with some mica flakes.	Dry to moist, somewhat plastic. Easy drilling. No fuel oil odor.
4'	-----	-----	-----
4.5'	-----	--Same as above--	-----
5'	-----	Encountered gravel and boulders.	<u>Very</u> hard drilling. No returns.
6.4'	-----	-----	-----
7.5'	-----	Light greenish-gray sandy, silty clay with mica flakes	Easier drilling. Dry to slightly moist. Somewhat plastic.
	Soil sample	Same as above.	
9'	-----	-----	-----
9.5'	-----	--Same as above.--	-----
10'	-----	Encountered gravel and boulders.	<u>Very</u> hard drilling. No returns.
12'	-----	-----	-----
	Soil sample	Fuel oil in soil.	
	12-13'		
13.2'	for VO & TPH	Bottom of Hole	

AEHA Form 130, 1 Nov 82
 Replaces HSHB Form 78, 1 Jun 80, which will be used.

Geohydrologic Study No. 38-26-KL45-93, 26-29 Apr 93

APPENDIX D

GROUND-WATER SAMPLING FIELD DATA LOGSHEETS

GROUND-WATER SAMPLING FIELD DATA LOGSHEET

WELL ID: WELL No. 1 INSTALLATION: CHESTER ARC, CHESTER, VT

WATER LEVEL MEASUREMENTS (before developing)

Date: 28 APRIL 93 Time: _____
 a. Depth to water from top of casing: 8.39 feet
 b. Height of PVC casing above ground surface: 2.78 feet
 c. Depth to water from ground surface: (a-b) 5.61 feet

Measuring method: electric meter

PURGING

Date: 28 APRIL 93 Time: _____

Equipment (bailer or pump): STAINLESS STEEL BAILER

Inside diameter of well: 2 inches

Conversion factors (CF): 2-inch well = 0.5

$$3\text{-well volumes} = \left(\frac{\text{22.1 feet}}{\text{total well depth}} - \frac{\text{5.61 feet}}{\text{depth to water}} \right) \times \frac{\text{0.50}}{\text{CF}}$$

$$= \text{8.2 gallons}$$

Amount actually purged: 10.0

Well pumped/bailed dry? yes no

SAMPLING

Date: 28 APRIL 93 Time: _____

Equipment (bailer or pump): SINGLE SAMPLE BAILER

FIELD MEASUREMENTS

Temperature: 6.0 °C

pH: _____

Conductivity: 0.052 mmhos/cm X 1000 = 52 μmhos/cm

Dissolved Oxygen: _____ ppm

COMMENTS:

GROUND-WATER SAMPLING FIELD DATA LOGSHEET

WELL ID: WELL No. 2 INSTALLATION: CHESTER ARC, CHESTER, VT

WATER LEVEL MEASUREMENTS (before developing)

Date: 28 APRIL 93 Time: 0900
 a. Depth to water from top of casing: 12.38 feet
 b. Height of PVC casing above ground surface: 2.87 feet
 c. Depth to water from ground surface: (a-b) 9.51 feet

Measuring method: electric meter

PURGING

Date: 28 APRIL 93 Time: 0955

Equipment (bailer or pump): STAINLESS STEEL BAILER

Inside diameter of well: 2 inches

Conversion factors (CF): 2-inch well = 0.5

$$3\text{-well volumes} = (\underline{24.56} \text{ feet}) - \underline{9.51} \text{ feet}) \times \frac{\underline{0.50}}{\text{(total well depth)} \quad \text{(depth to water)} \quad \text{(CF)}}$$

$$= \underline{7.5} \text{ gallons}$$

Amount actually purged: 10.0

Well pumped/bailed dry? yes no

SAMPLING

Date: 28 APRIL 93 Time: _____

Equipment (bailer or pump): SINGLE SAMPLE BAILER

FIELD MEASUREMENTS

Temperature: 9.0 °C

pH: _____

Conductivity: 0.065 mmhos/cm X 1000 = 65 μmhos/cm

Dissolved Oxygen: _____ ppm

COMMENTS:

GROUND-WATER SAMPLING FIELD DATA LOGSHEET

WELL ID: WELL No. 3 INSTALLATION: CHESTER ARC, CHESTER, VT

WATER LEVEL MEASUREMENTS (before developing)

Date: 28 APRIL 93 Time: 1125a. Depth to water from top of casing: 3.56 feetb. Height of PVC casing above ground surface: 2.79 feetc. Depth to water from ground surface: (a-b) 0.77 feetMeasuring method: electric meter

PURGING

Date: 28 APRIL 93 Time: 1405Equipment (bailer or pump): STAINLESS STEEL BAILERInside diameter of well: 2 inches

Conversion factors (CF): 2-inch well=0.5, 4-inch well=2.0

3-well volumes = (14.44 feet) - (0.77 feet) X 0.50
{total well depth} {depth to water} {CF}= 6.8 gallonsAmount actually purged: 5.0Well pumped/bailed dry? yes no (DRY TWO TIMES)

SAMPLING

Date: 28 APRIL 93 Time: _____Equipment (bailer or pump): SINGLE SAMPLE BAILER

FIELD MEASUREMENTS

Temperature: 8.0 °C

pH: _____

Conductivity: 0.082 mmhos/cm X 1000 = 82 μmhos/cm

Dissolved Oxygen: _____ ppm

COMMENTS:

GROUND-WATER SAMPLING FIELD DATA LOGSHEET

WELL ID: WELL No. 4 INSTALLATION: CHESTER ARC, CHESTER, VT

WATER LEVEL MEASUREMENTS (before developing)

Date: 28 APRIL 93 Time: 1045
 a. Depth to water from top of casing: 9.13 feet
 b. Height of PVC casing above ground surface: 2.52 feet
 c. Depth to water from ground surface: (a-b) 6.61 feet

Measuring method: electric meter

PURGING

Date: 28 APRIL 93 Time: 1105

Equipment (bailer or pump): STAINLESS STEEL BAILER

Inside diameter of well: 2 inches

Conversion factors (CF): 2-inch well = 0.5

3-well volumes = (23.9 feet) - (6.61 feet) X 0.50
 (total well depth) (depth to water) (CF)
 = 8.6 gallons

Amount actually purged: 10.0

Well pumped/bailed dry? yes no, BUT WATER LEVEL FELL

SAMPLING

Date: 28 APRIL 93 Time: _____

Equipment (bailer or pump): SINGLE SAMPLE BAILER

FIELD MEASUREMENTS

Temperature: 5.0 °C

pH: _____

Conductivity: 0.055 mmhos/cm X 1000 = 55 μmhos/cm

Dissolved Oxygen: _____ ppm

COMMENTS:

GROUND-WATER SAMPLING FIELD DATA LOGSHEET

WELL ID: WELL No. 5 INSTALLATION: CHESTER ARC, CHESTER, VT

WATER LEVEL MEASUREMENTS (before developing)

Date: 28 APRIL 93 Time: 1005a. Depth to water from top of casing: 10.13 feetb. Height of PVC casing above ground surface: 2.92 feetc. Depth to water from ground surface: (a-b) 7.21 feetMeasuring method: electric meter

PURGING

Date: 28 APRIL 93 Time: 1025Equipment (bailer or pump): STAINLESS STEEL BAILERInside diameter of well: 2 inches

Conversion factors (CF): 2-inch well = 0.5

$$3\text{-well volumes} = (\underline{24.0} \text{ feet}) - (\underline{7.21} \text{ feet}) \times \frac{\underline{0.50}}{\text{(total well depth)} \quad \text{(depth to water)} \quad \text{(CF)}}$$
$$= \underline{8.4} \text{ gallons}$$
Amount actually purged: 10.0Well pumped/bailed dry? yes no

SAMPLING

Date: 28 APRIL 93 Time: _____Equipment (bailer or pump): SINGLE SAMPLE BAILER

FIELD MEASUREMENTS

Temperature: 7.0 °C

pH: _____

Conductivity: 0.045 mmhos/cm X 1000 = 45 μmhos/cm

Dissolved Oxygen: _____ ppm

COMMENTS:

GROUND-WATER SAMPLING FIELD DATA LOGSHEET

WELL ID: WELL No. 6 INSTALLATION: CHESTER ARC, CHESTER, VT

WATER LEVEL MEASUREMENTS (before developing)

Date: 28 APRIL 93 Time: 1350
 a. Depth to water from top of casing: 9.10 feet
 b. Height of PVC casing above ground surface: 0.38 feet
 c. Depth to water from ground surface: (a-b) 8.72 feet

Measuring method: electric meter

PURGING

Date: 28 APRIL 93 Time: 1420

Equipment (bailer or pump): STAINLESS STEEL BAILER

Inside diameter of well: 2 inches

Conversion factors (CF): 2-inch well = 0.5

3-well volumes = (25.05 feet) - (8.72 feet) X 0.50
 (total well depth) (depth to water) (CF)
 = 8.2 gallons

Amount actually purged: 10.0

Well pumped/bailed dry? yes no

SAMPLING

Date: 28 APRIL 93 Time: _____

Equipment (bailer or pump): SINGLE SAMPLE BAILER

FIELD MEASUREMENTS

Temperature: 11.0 °C

pH: _____

Conductivity: 0.051 mmhos/cm X 1000 = 51 μmhos/cm

Dissolved Oxygen: _____ ppm

COMMENTS:

GROUND-WATER SAMPLING FIELD DATA LOGSHEET

WELL ID: WELL No. 9 INSTALLATION: CHESTER ARC, CHESTER, VT

WATER LEVEL MEASUREMENTS (before developing)

Date: 28 APRIL 93 Time: _____
 a. Depth to water from top of casing: 8.70 feet
 b. Height of PVC casing above ground surface: 2.21 feet
 c. Depth to water from ground surface: (a-b) 6.49 feet

Measuring method: electric meter

PURGING

Date: 28 APRIL 93 Time: 1330

Equipment (bailer or pump): STAINLESS STEEL BAILER

Inside diameter of well: 2 inches

Conversion factors (CF): 2-inch well = 0.5

$$3\text{-well volumes} = (\underline{13.22} \text{ feet}) - (\underline{6.49} \text{ feet}) \times \frac{0.50}{\text{(CF)}}$$

$$= \underline{3.4} \text{ gallons}$$

Amount actually purged: 2.5

Well pumped/bailed dry? yes no (BAILED DRY TWICE)

SAMPLING

Date: 28 APRIL 93 Time: _____

Equipment (bailer or pump): SINGLE SAMPLE BAILER

FIELD MEASUREMENTS

Temperature: 7.0 °C

pH: _____

Conductivity: 0.121 mmhos/cm X 1000 = 121 μmhos/cm

Dissolved Oxygen: _____ ppm

COMMENTS:

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APPENDIX E

GROUND-WATER MONITORING WELL SUMMARY

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
GROUND-WATER MONITORING WELL SUMMARY

INSTALLATION CHESTER USARC, CHESTER, VT PROJECT NO. 38-26-KL45-93

WELL NUMBER	Well No. 1	Well No. 2	Well No. 3	Well No. 4	Well No. 5
1. Height of Monitoring Well Casing above ground level	2.78 Feet	2.87 Feet	2.79 Feet	2.52 Feet	2.92 Feet
2. Total Depth of Well below ground level	22.09 Feet	24.56 Feet	14.44 Feet	23.91 Feet	24.01 Feet
3. Depth to Top of Well Screen below ground level	6.66 Feet	9.13 Feet	4.01 Feet	8.48 Feet	8.58 Feet
4. Well Screen Length	15.43 Feet	15.43 Feet	10.43 Feet	15.43 Feet	15.43 Feet
5. Well Screen Slot Size	0.01 Inch				
6. Well Diameter	2.0 Inches				
7. Monitoring Well Casing Material	PVC	PVC	PVC	PVC	PVC
8. Monitoring Well Screen Material	PVC	PVC	PVC	PVC	PVC
9. Grout Thickness below ground level	5.7 Feet	3.3 Feet	1.65 Feet	4.0 Feet	5.5 Feet
10. Depth to Top of Bentonite Seal below ground level	5.7 Feet	3.3 Feet	1.65 feet	4.0 Feet	5.5 Feet
11. Bentonite Seal Thickness	0.3 Feet	3.2 Feet	1.55 Feet	3.2 Feet	1.8 Feet
12. Depth to top of Sand Pack	6.0 Feet	6.5 Feet	3.2 Feet	7.2 Feet	7.3 Feet
13. Depth to Static Water Level at completion	10.74 Feet	15.41 Feet	4.94 Feet	12.41 Feet	13.38 Feet
Date Measured	20 June 1992				
14. Depth to Static Water Level from top of monitoring well casing	8.39 Feet	12.38 Feet	3.56 Feet	9.13 Feet	10.13 Feet
Date Measured	28 April 1993				
15. Elevation - Top of monitoring well casing	51.22 Feet	50.35 Feet	49.56 Feet	47.84 Feet	48.38 Feet
16. Elevation at ground level	48.44 Feet	47.48 Feet	46.77 Feet	45.32 Feet	45.46 feet
17. Depth to Static Water, from ground level	5.61 feet	9.51 Feet	0.77 Feet	6.61 Feet	7.21 Feet
Date Measured	28 April 1993				
18. Ground-water elevation	42.83 Feet	37.97 Feet	46.00 Feet	38.71 Feet	38.25 feet
Date Measured	28 April 1993				
Comments					

U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
GROUND-WATER MONITORING WELL SUMMARY

INSTALLATION CHESTER USARC, CHESTER, VT PROJECT NO. 38-26-KL45-93

WELL NUMBER	Well No. 6	Well No. 7	Well No. 8	Well No. 9	
1. Height of Monitoring Well Casing above ground level	0.38 Feet	1.45 Feet	- 0.15 Feet	2.21 Feet	
2. Total Depth of Well below ground level	25.05 Feet	21.03 Feet	14.58 Feet	13.22 Feet	
3. Depth to Top of Well Screen below ground level	9.62 Feet	5.60 Feet	4.15 Feet	2.79 Feet	
4. Well Screen Length	15.43 Feet	15.43 Feet	10.43 Feet	10.43 Feet	
5. Well Screen Slot Size	0.01 Inch	0.01 Inch	0.01 Inch	0.01 Inch	
6. Well Diameter	2.0 Inches	2.0 Inches	2.0 Inches	2.0 Inches	
7. Monitoring Well Casing Material	PVC	PVC	PVC	PVC	
8. Monitoring Well Screen Material	PVC	PVC	PVC	PVC	
9. Grout Thickness below ground level	4.1 Feet	0.9 Feet	2.5 Feet	0.0 Feet	
10. Depth to Top of Bentonite Seal below ground level	4.1 Feet	0.9 Feet	2.5 Feet	0.0 Feet	
11. Bentonite Seal Thickness	3.0 Feet	1.7 Feet	0.7 Feet	2.8 Feet	
12. Depth to top of Sand Pack	7.1 Feet	2.6 Feet	3.2 Feet	2.8 Feet	
13. Depth to Static Water Level at completion	10.10 Feet	6.27 Feet	5.93 Feet	8.70 Feet	
----- Date Measured	20 June 1992	28 April 1993	28 April 1993	28 April 1993	
14. Depth to Static Water Level from top of monitoring well casing	9.10 Feet	6.27 Feet	5.93 Feet	8.70 Feet	
----- Date Measured	28 April 1993	28 April 1993	28 April 1993	28 April 1993	
15. Elevation - Top of monitoring well casing	49.52 Feet	46.09 Feet	46.62 Feet	51.34 Feet	
16. Elevation at ground level	49.14 Feet	44.64 Feet	46.77 Feet	49.13 Feet	
17. Depth to Static Water from ground level	8.72 feet	4.82 Feet	6.08 Feet	6.49 Feet	
----- Date Measured	28 April 1993	28 April 1993	28 April 1993	28 April 1993	
18. Ground-water elevation	40.42 Feet	39.82 Feet	40.69 Feet	42.64 Feet	
----- Date Measured	28 April 1993	28 April 1993	28 April 1993	28 April 1993	
Comments					

APPENDIX F

ORGANIC COMPOUNDS ANALYZED AND
THEIR RESPECTIVE DETECTION LIMITS

Installation: Chester USARC

Matrix: Ground Water

Number of Samples: 9 and a Field Blank

Analyzed for: Volatile Organic Compounds (Method: 8260) and Semivolatile
Organic Compounds (Method: 8270)

Matrix: Soil

Number of Samples: 6

Analyzed for: Volatile Organic Compounds

Method: 8260 Heating Purge

Matrix: Soil

Number of Samples: 8

Analyzed for: Total Petroleum Hydrocarbon Content

Detection limit for water is one milligrams per liter (1.0 mg/L) and for soil is
10 micrograms per gram (10 $\mu\text{g/g}$)

Purgeable (Volatile) Organic Compounds: Detection Limit for water is in micrograms per
liter ($\mu\text{g/L}$) and for soil in micrograms per kilogram ($\mu\text{g/Kg}$)

	<u>Water</u> <u>in $\mu\text{g/L}$</u>	<u>Soil</u> <u>in $\mu\text{g/Kg}$</u>
Benzene	2.0	5.0
Bromobenzene	2.0	5.0
Bromochloromethane	2.0	5.0
Bromodichloromethane	2.0	5.0
Bromoform	2.0	5.0
Bromomethane	2.0	5.0
n-Butylbenzene	2.0	5.0
sec-butylbenzene	2.0	5.0
tert-butylbenzene	2.0	5.0
Carbon tetrachloride	2.0	5.0
Chlorobenzene	2.0	5.0

	<u>Water</u>	<u>Soil</u>
	<u>in $\mu\text{g/L}$</u>	<u>in $\mu\text{g/Kg}$</u>
Chloroethane	2.0	5.0
Chloroform	2.0	5.0
Chloromethane	2.0	5.0
2-Chlorotoluene	2.0	5.0
4-Chlorotoluene	2.0	5.0
Dibromochloromethane	2.0	5.0
1,2-Dibromo-3-chloropropane	2.0	5.0
1,2-Dibromoethane	2.0	5.0
Dibromomethane	2.0	5.0
1,2-Dichlorobenzene	2.0	5.0
1,3-Dichlorobenzene	2.0	5.0
1,4-Dichlorobenzene	2.0	5.0
Dichlorodifluoromethane	2.0	5.0
1,1-Dichloroethane	2.0	5.0
1,2-Dichloroethane	2.0	5.0
1,1-Dichloroethene	2.0	5.0
cis-1,2-Dichloroethene	2.0	5.0
trans-1,2-Dichloroethene	2.0	5.0
1,2-Dichloropropane	2.0	5.0
1,3-Dichloropropane	2.0	5.0
2,2-Dichloropropane	2.0	5.0
1,1-Dichloropropene	2.0	5.0
cis-1,3-Dichloropropene	2.0	5.0
trans-1,3-Dichloropropene	2.0	5.0
Ethylbenzene	2.0	5.0
Hexachlorobutadiene	2.0	5.0
Isopropylbenzene	2.0	5.0
p-Isopropyltoluene	2.0	5.0
Methylene chloride	2.0	5.0
Naphthalene	2.0	5.0
n-Propylbenzene	2.0	5.0
Styrene	2.0	5.0
1,1,1,2-Tetrachloroethane	2.0	5.0
1,1,2,2-Tetrachloroethane	2.0	5.0
Tetrachloroethene	2.0	5.0
Toluene	2.0	5.0
1,2,3-Trichlorobenzene	2.0	5.0
1,2,4-Trichlorobenzene	2.0	5.0

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	<u>Water</u>	<u>Soil</u>
	<u>in $\mu\text{g/L}$</u>	<u>in $\mu\text{g/Kg}$</u>
1,1,1-Trichloroethane	2.0	5.0
1,1,2-Trichloroethane	2.0	5.0
Trichloroethene	2.0	5.0
Trichlorofluoromethane	2.0	5.0
1,2,3-Trichloropropane	2.0	5.0
1,2,4-Trimethylbenzene	2.0	5.0
1,3,5-Trimethylbenzene	2.0	5.0
Vinyl chloride	2.0	5.0
o-Xylene	2.0	5.0
m & p-Xylene	2.0	5.0

Semivolatile (Acid and Base/Neutral) Organic Compounds: Detection Limit for water is in micrograms per liter ($\mu\text{g/L}$)

<u>Acid Extractable Organics</u>	<u>$\mu\text{g/L}$</u>
phenol	10.0
2-chlorophenol	10.0
2-methylphenol	10.0
4-methylphenol	10.0
2-nitrophenol	10.0
2,4-dimethylphenol	10.0
2,4-dichlorophenol	10.0
4-chloro-3-methylphenol	10.0
2,4,6-trichlorophenol	10.0
2,4,5-trichlorophenol	50.0
2,4-dinitrophenol	50.0
4-nitrophenol	50.0
4,6-dinitro-2-methylphenol	50.0
pentachlorophenol	50.0

<u>Base Neutral Extractable Organics</u>	<u>Detection Limit in micrograms per liter ($\mu\text{g/L}$)</u>
bis (2-chloroethyl) ether	10.0
1,3-dichlorobenzene	10.0
1,4-dichlorobenzene	10.0
1,2-dichlorobenzene	10.0
bis (2-chloroisopropyl) ether	10.0
N-nitrosodi-n-propylamine	10.0
hexachloroethane	10.0
nitrobenzene	10.0
isophorone	10.0
bis (2-chloroethoxy) methane	10.0
1,2,4-trichlorobenzene	10.0
naphthalene	10.0
4-chloroaniline	10.0
hexachlorobutadiene	10.0
2-methylnaphthalene	10.0
2-chloronaphthalene	10.0
hexachlorocyclopentadiene	10.0

Base Neutral
Extractable Organics

Detection Limit in
micrograms per liter ($\mu\text{g/L}$)

2-nitroaniline	50.0
3-nitroaniline	50.0
4-nitroaniline	50.0
dimethyl phthalate	10.0
acenaphthylene	10.0
2,6-dinitrotoluene	10.0
acenaphthene	10.0
dibenzofuran	10.0
2,4-dinitrotoluene	10.0
diethyl phthalate	10.0
4-chlorophenyl phenyl ether	10.0
fluorene	10.0
N-nitrosodiphenylamine	10.0
4-bromophenyl phenyl ether	10.0
hexachlorobenzene	10.0
phenanthrene	10.0
anthracene	10.0
di-n-butyl phthalate	10.0
fluoranthene	10.0
pyrene	10.0
butyl benzyl phthalate	10.0
3,3'-dichlorobenzidine	20.0
benzo (a) anthracene	10.0
chrysene	10.0
bis (2-ethylhexyl phthalate	10.0
di-n-octyl phthalate	10.0
benzo (b) fluoranthene	10.0
benzo (k) fluoranthene	10.0
benzo (a) pyrene	10.0
indeno (1,2,3-cd) pyrene	10.0
dibenz (a,h) anthracene	10.0
benzo (ghi) perylene	10.0
benzyl alcohol	20.0
benzoic acid	50.0

Geohydrologic Study No. 38-26-KL45-93, 26-29 Apr 93

APPENDIX G

TECHNICAL ASSISTANCE

1. Requests for services should be directed through appropriate command channels of the requesting activity to Commander, U.S. Army Environmental Hygiene Agency, ATTN: HSHB-ME-SG, Aberdeen Proving Ground, MD 21010-5422, with an information copy furnished the Commander, U.S. Army Health Services Command, ATTN: HSCL-P, Fort Sam Houston, TX 78234-6000.

2. The numbered programs, and the program managers and their telephone numbers [DSN 584-XXXX or Commercial (410) 671-XXXX] are listed below for general support.

Program Number	Program Title	Program Manager	Telephone Number
11	Occupational Medicine Residency	LTC Deeter	4312
16	Pest Management	Mr. Wells	3613
17	Pesticide Risk Management	Dr. Evans	4131
24	Radio Frequency Radiation/Ultrasound	Mr. Hicks	4834
25	Laser/Optical Radiation	Dr. Sliney	3932
27	Industrial Health Physics	Mr. Edge	3526
28	Medical Health Physics	CPT Bower	3548
31	Water Supply Management	MAJ Rudolph	3919
32	Wastewater Management	Mr. Fifty	3816
37	Hazardous and Medical Waste	Mr. Resta	3651
38	Ground Water and Solid Waste	Mr. Bauer	2025
39	Health Risk Assessment	MAJ Legg	2953
42	Air Pollution Source Management	Mr. Daughdrill	3500
43	Ambient Air Quality Management	Mr. Guinivan	3500
51	Hearing Conservation	Dr. Ohlin	3797
52	Environmental Noise	Dr. Luz	3829
54	Special Industrial Hygiene Services	Ms. Doganiero	3928
55	Industrial Hygiene	MAJ Sheaffer	2559
56	Healthcare Hazards	CPT McKee	3040
57	Sanitation and Hygiene	MAJ McDevitt	2488
59	Industrial Hygiene Management	Ms. Monk	2439
63	Vision Conservation	LTC Thompson	2714
64	Occupational and Environmental Medicine	MAJ Gum	2714
65	Occupational Health Nursing	Dr. Dash	2714
66	Special Document Development	Ms. Kestler	3254
69	Health Hazard Assessment	LTC Murnyak	2925
74	Analytical Quality Assurance	CPT Lukey	3269
75	Toxicology Assessment	Mr. Weeks	3627
76	Organic Environmental Chemistry	Mr. Belkin	3739
78	Radiological/Inorganic Chemistry	Dr. Boldt	2619

3. Direct support is provided by:

USAEHA Activity - North, Fort George G. Meade, MD	LTC Phull, DSN 923-7403
USAEHA Activity - South, Fort McPherson, GA	LTC Broadwater, DSN 572-3332
USAEHA Activity - West, Fitzsimons AMC, CO	LTC Aiken, DSN 943-3737



DEPARTMENT OF THE ARMY
HEADQUARTERS FORT DEVENS
FORT DEVENS, MASSACHUSETTS



REPLY TO
ATTENTION OF

01433-5190

AFZD-EM (200-1)

15 November 1994

MEMORANDUM FOR Commander, 94th ARCOM, ATTN: Mr. Puryear, Box 74,
Fort Devens, MA 01433-5740

SUBJECT: USARC Army Radon Reduction Program (ARRP)

1. The status of the USARC radon testing program is summarized below:
 - a. 21 Centers participated in 1st round (92-93).
 - b. 12 Centers participated in 2nd round (93-94).
 - c. 8 Centers participated in 3rd round (Fall 94).
 - d. 7 Centers were given charcoal cannister monitors for 3rd round testing and results are pending.
 - e. Upon completion of item 1.d. above, the testing program will be complete.
 - f. Two Centers (CPT J.H. Harwood, Providence, RI and Craft Bros., Manchester, NH) recorded radon values above the action level of 4.0 pico-curries per liter (pCi/l).

2. Below are the reported results from all the radon testing conducted through calendar year 1994.

Courcelle Brothers USARC, Rutland, VT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1529518	0.5	Front Hallway

CPT J.H. Harwood USARC, Providence, RI

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532929	0.8	Top, Supply Cages
1532967	1.4	1031 st Cage
1529542	1.7	Tel Center (#2)
1529536	4.1	HHD S4
1532895	2.6	BDE S4 Cage
1532872	3.7	Classroom
1532873	6.9	COMSEC
1529553	2.4	Fac. Man. Cage
1529510	4.0	Center Storage
1532893	42.7	Tel Center (#1)

AFZD-EM

SUBJECT: USARC Army Radon Reduction Program (ARRP)

**** The following results are short term charcoal cannister monitors deployed to verify high value in the Tel Center.

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417802	2.5	Firing Range
1417818	5.5	Center Storage
1417820	28.1	Tel Center (#2)
1417941	2.4	B-2
1417962	2.4	Firing Range
1417973	29.8	Tel Center (#1)
1417987	5.9	COMSEC
1417993	0.6	Boiler Room

AMSA 68, Lincoln, RI

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532945	0.8	Gen. Room Bay
1532934	0.4	Main Office
1528883	0.6	Rear Shop Office
1532969	0.4	Supply Room

PVT Lloyd S. Cooper III USARC, Warwick, RI

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1529524	1.0	Foyer
1532975	0.7	Classroom #1
1532918	1.1	Room #12
1532868	3.6	Classroom #5

1LT John S. Turner USARC, Fairfield, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1529546	0.2	Room #200
1532973	0.2	Room #203
1530419	0.2	Room #205
1532960	0.9	Supply Room
1532899	0.3	Supply Office

Paul A. Doble USARC, Portsmouth, NH

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1526688	2.2	Room S-1
1528358	2.3	Room S-3

Guy Cardillo USARC, Roslindale, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528863	2.0	Office

Attleboro USARC, Attleboro, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532892	0.4	Room #130
1528359	0.7	Hallway

AFZD-EM

SUBJECT: USARC Army Radon Reduction Program (ARRP)

MG Oliver Otis Howard USARC, Auburn, ME

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532930	0.8	Office

Keene USARC, Keene, NH

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1529522	1.0	Room #107
1529514	0.9	Room #107
1528840	1.1	Room #107
1529507	0.9	Room #107
1530446	0.7	Room #107
1532953	0.6	Room #107

AMSA 66, Brockton, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528379	0.9	Office

Grenier USARC, Grenier Field, NH

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532866	1.0	Room #42
1528835	1.0	Room #17

AMSA 63 Rutland, VT (1992 - 1993)

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528887	0.8	East Wall #4 Bay
1528851	0.8	West Wall #1 Bay

AMSA 63 Rutland, VT (1993 - 1994)

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528873	1.0	East Wall #4 Bay
1530450	1.2	West Wall #1 Bay

Fort Greene USARC, Narragansett, RI

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528338	1.8	Admin S-3 Section

Scarborough USARC, Scarborough, ME

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528326	1.3	S-3 Office
1532927	1.2	SSA Office

Arthur MacArthur USARC, Springfield, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528862	1.3	Supply Room
1532883	1.2	Supply Room
1528355	0.8	OMS Office

AFZD-EM

SUBJECT: USARC Army Radon Reduction Program (ARRP)

Conti Tracy USARC, Montpelier, VT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528861	0.6	S-1 Orderly Room

Lewiston USARC, Lewiston, ME

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528853	0.6	SSA Office

LT John Fera USARC, Danvers, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1529549	1.3	C-59, Admin Office
1532911	1.8	C-59, Supply Room
1528357	1.3	C-52, Elec Box
1528346	0.8	C-61, Entrance
1528368	0.9	C-60, Bathroom
1528356	0.7	C-60, Hallway
1529516	0.5	C-70, Boiler Room
1528330	0.9	C-62, Main Doorway
1528847	1.5	C-76, Elec Box

124 Manley Street USARC, Brockton, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528857	0.6	Room #102
1528837	1.4	OMS Shop

Berry-Rosenblatt, West Hartford, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532871	0.3	HHC Orderly Room
1528383	0.4	Command Room #170

SGT George D. Libbey USARC, New Haven, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532908	*LOST*	Room #10 N. Wall
1532941	1.5	Firing Range

George Crossman USARC, Taunton, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528858	2.8	Room #102

Westbrook USARC, Westbrook, ME

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532879	1.3	FTM

Grenier Field USARC, Manchester, NH

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528836	0.3	P-3 Bay
1528328	0.4	P-2 BreakRoom

AFZD-EM
SUBJECT: USARC Army Radon Reduction Program (ARRP)

Rockland USARC, Rockland, ME

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528878	0.3	Room #1

Paul J. Sutcovey USARC, Waterbury, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528363	2.6	Retention Office
1528342	1.0	OMS Shop

Westover USAFRC, Chicopee, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532965	1.3	5551, M-4-1
1528885	0.7	5550, Basement

AMSA 69, Milford, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532938	0.3	Main Office
1532971	0.6	Supply Room

AMSA 72, Windsor Locks, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528875	0.4	Automotive Bay
1528329	1.0	Automotive Bay

Lawrence USAFRC, Lawrence, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1528327	1.5	Room #101

AMSA 62 USARC, Lawrence, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532958	1.0	Cage #1

C.W. Whittlesey USARC, Pittsfield, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532915	3.6	Back Vault
1532956	1.5	Room #12

Charles L. Butler USARC, Saco, ME

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532931	0.9	Room #24
1532920	1.2	Room #3A

Moore AAF, Fort Devens, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1529536	0.3	Avionics
1532898	0.4	Battery Room
1532947	0.3	Breakroom

AFZD-EM

SUBJECT: USARC Army Radon Reduction Program (ARRP)

Chester Memorial USARC, Chester, VT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417935	2.6	Other

Middletown USARC, Middletown, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417945	0.8	1st Floor
1417969	0.7	1st Floor

CPT Justin Sosa USARC, Providence, RI

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417951	1.2	1st Floor
1417964	0.6	1st Floor

Capitol Park USAFRC, Augusta, ME

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417806	1.1	2nd Floor
1417931	1.0	1st Floor

Lincoln D. Stoddard USARC, Worcester, MA

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417797	3.5	Basement
1417809	0.9	1st Floor

Craft Brothers USARC, Manchester, NH

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417819	4.9	1st Floor
1417958	5.6	1st Floor

Smith-Goldburg USARC, Colchester, VT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417990	1.1	1st Floor Back
1417995	1.5	1st Floor Front

Cranston USARC, Cranston, RI

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417808	0.9	1st Floor West
1417976	0.4	1st Floor East

Danbury USARC, Danbury, CT

<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1417946	Over exposed	In place too long
1417971	Over exposed	In place too long

Bridgeton Memorial USARC, Bridgeton, ME

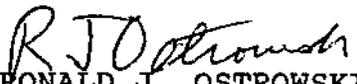
<u>SERIAL NUMBER</u>	<u>CONC. (pCi/l)</u>	<u>LOCATION</u>
1532957	2.0	Depot

AFZD-EM

SUBJECT: USARC Army Radon Reduction Program (ARRP)

3. Point of contact is Mr. Dave Barney at DSN 256-6169 or commercial (508) 796-6169.

FOR THE COMMANDER:


RONALD J. OSTROWSKI
Installation Environmental
Management Officer

CF:

EMO, ATTN: Mr. John Delcore, Box 19, Fort Devens, MA 01433-5190
Cdr, 94th ARCOM, ATTN: COL Jones, Box 74, Fort Devens, MA 01433-5740
Cdr, 94th ARCOM, ATTN: LTC Pelto, Box 74, Fort Devens, MA 01433-5740

Technical Report
Underground Storage Tanks Closure
1,000 Gallon No. 2 Fuel Oil-UST No.0126
4,000 Gallon No. 2 Fuel Oil-UST No.0127
United States Army Reserve Center
State Route 11
Chester, Vermont

ATEC File: 37.07.91.00451
Contract No. DAK31-91-D-0015

Prepared for:

United States Army
Directorate of Contracting
Building 227
Fort Devens, Massachusetts

Attn: Mr. James Dijack,
Contracting Officer

January 17, 1994

January 17, 1994

Mr. James Dijack, Contracting Officer
United States Army
Directorate of Contracting
Building 227
Fort Devens, Massachusetts 01433-5340

RE: Technical Report
Underground Storage Tanks Closures
1,000 Gallon #2 Fuel Oil - UST No. 0126
4,000 Gallon #2 Fuel Oil - UST No. 0127
United States Army Reserve Center
State Route 11, Chester, Vermont
ATEC File: 37.07.91.00451

Mr. Dijack:

Attached is a report by ATEC Associates, Inc. (ATEC), detailing the closures of one 1,000 gallon Underground Storage Tank (UST) referenced as UST No. 0126, and one 4,000 gallon Underground Storage Tank referenced as UST No. 0127, located at property known as United States Army Reserve Center, State Route 11, Chester, Vermont (the site). This Technical Report covers work conducted under Contract No. DAKF31-91-D-0015 as part of Removal of Underground Storage Tanks in the New England Area, United States Army Project No. EQ-19027-9P.

ATEC appreciates the opportunity to be of service in this matter. If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

ATEC Associates, Inc.


James M. Regan
Project Engineer


James B. O'Brien
Division Manager


Ronald Lawson
Assistant Vice President

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TECHNICAL REPORT

UST No. 0126 and UST No. 0127

United States Army Reserve Center

State Route 11

Chester, Vermont

ATEC Project No. 37.07.91.00451

1.0 INTRODUCTION

This Technical Report details the closures of one 1,000-gallon Underground Storage Tank (UST) referenced as UST No. 0126, and one 4,000 gallon Underground Storage Tank referenced as UST No. 0127, located at property known as United States Army Reserve Center, State Route 11, Chester, Vermont (the site). This Technical Report covers work conducted under Contract No. DAKF31-91-D-0015 as part of Removal of Underground Storage Tanks in the New England Area, United States Army Project No. EQ-19027-9P.

- Excavation and removal of sixty-nine USTs at various buildings located at Fort Devens, Massachusetts and at several off-post reserve centers throughout New England.
- Remedial excavation and disposal of contaminated soil, if required.
- Hydrogeological services to include installation of monitoring wells, sampling and analysis of soil/groundwater, and determination of groundwater flow direction, if required.
- Backfilling and surface restoration of excavations.
- Preparation of a Technical Report, to include assimilation of information gathered, major findings and conclusions.

2.0 UST No. 0126

2.1 POST REMOVAL REPORT

2.1.1 Introduction

This Post-Removal Report details the results of the closure of one 1,000-gallon, single wall, steel, underground storage tank (UST) referenced as UST No. 00126, located at property known as United States Army Reserve Center, State Route 11, Chester, Vermont (the site). The purpose of the closure was to excavate the UST and evaluate the potential for the presence of oil and hazardous material at the site. The closure of this UST was conducted on July 28, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.
- Excavating, venting, cleaning, transporting, and disposing of one 1,000-gallon UST by appropriately licensed contractors/facilities.
- Disposal of residual UST materials at a licensed facility.
- Field screening and analysis of soil from the excavation by Photoionization Detector (PID) and field analyzed with a portable Non-Dispersive Infrared (NDIR) Analyzer, to identify a potential release of oil and hazardous materials from the UST, if any.
- Laboratory Analysis of soil sampled from the UST excavation by a USEPA certified laboratory for Total Petroleum Hydrocarbons.
- Preparation of a Post-Removal Report, to include assimilation of information gathered, major findings and conclusions.

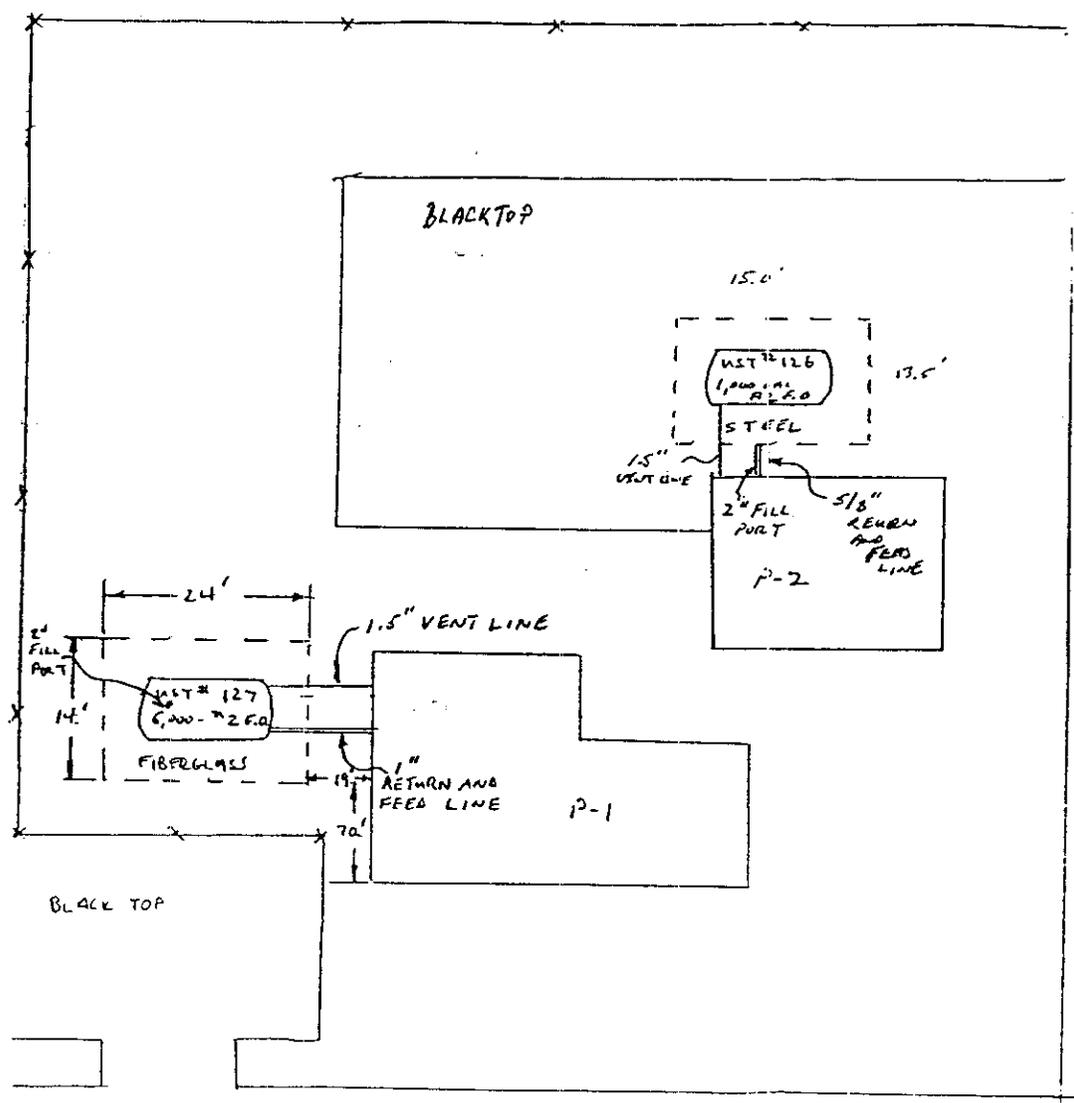
2.1.2 Subsurface Storage Tank Excavation and Removal

On July 28, 1992, one 1,000-gallon, No. 2 fuel oil underground storage tank (UST No. 0126) was excavated and removed from the site. The UST was located adjacent to the north side of Building P-2. A Site Plan has been provided as Figure 2.1. Site topography is level. Surface cover at the site consists of asphalt. Staining was observed on the adjacent building wall and asphalt in the vicinity of the vent pipe.

The tank was covered by approximately 1 foot of soil. Soil excavated to free the tank was visibly contaminated. Soil in the excavation consisted primarily of fine sand and silt. The bottom of the excavation was approximately 5.0 feet below grade. Soil within the excavation was visibly contaminated. A petroleum odor was evident within the excavation. Groundwater was not encountered.

Associated piping was drained, and tank connections were removed. Inspection revealed piping to be corroded. Staining and petroleum odor was noted in the vicinity of the UST piping. Prior to removal, UST No. 0126 was estimated to contain 10 gallons of No. 2 fuel oil. Tank openings were capped, and the tank was removed from the excavation.

Upon excavation and removal, the tank was observed to be in good condition without holes, perforations, or severe corrosion. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. It was then entered and vacuumed/wiped clean of any residual materials. Approximately 10 gallons of No. 2 fuel oil sludges were removed and drummed on July 28, 1992.



RT. 11

NOTE: NOT DRAWN TO SCALE

DIMENSIONS SHOWN ARE APPROXIMATE AND SHOULD NOT BE CONSIDERED ACTUAL MEASUREMENTS

SITE PLAN

1,000 gallon UST relative to:
Building P-2
Chester Memorial Reserve Center, Chester, Vermont

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2.1



The drummed material was transported on August 28, 1992 by Lincoln Environmental, Inc. to Pollution Solutions of Williston, Vermont. A copy of the appropriate hazardous waste manifest is included in Section 2.10.

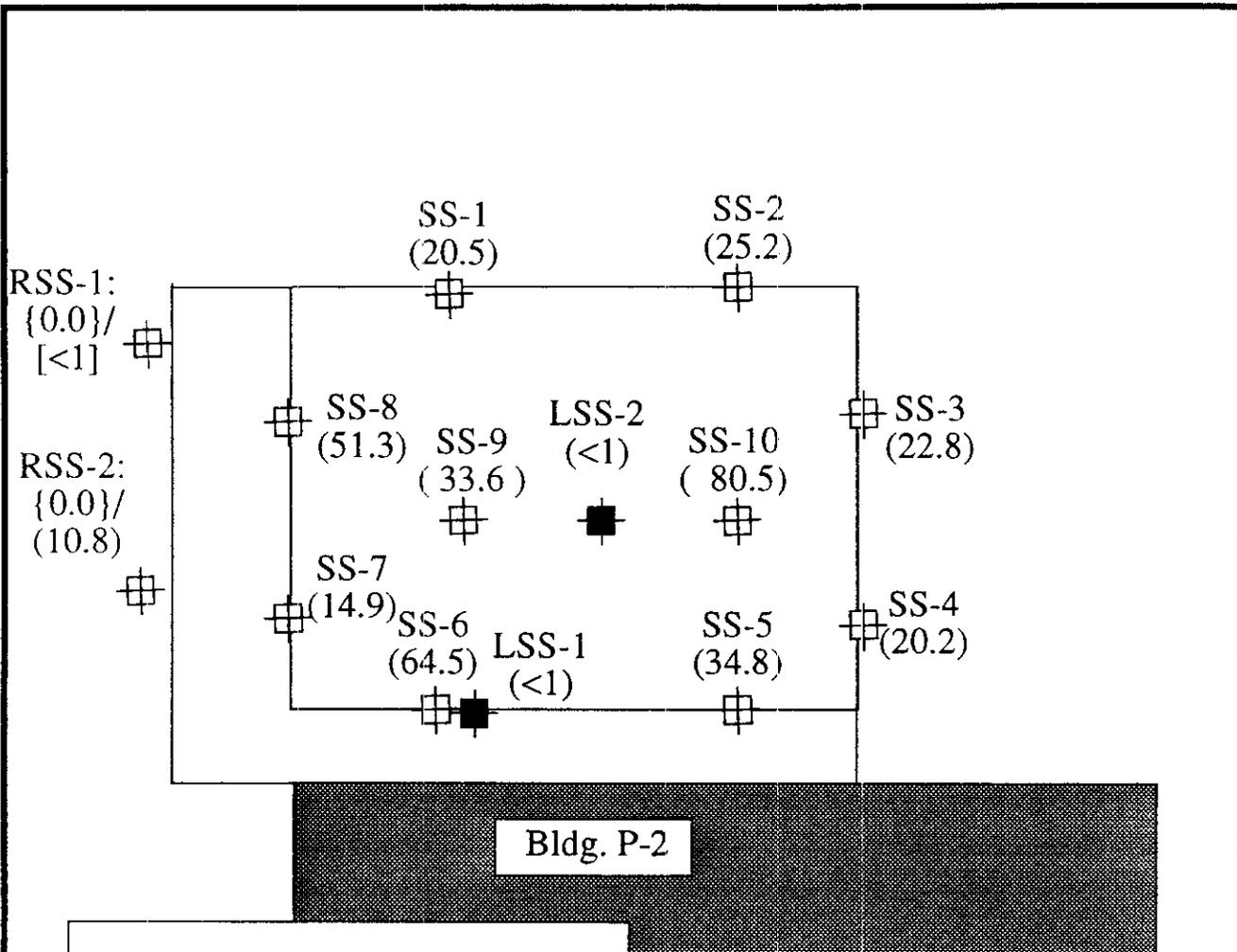
2.1.3 Sampling and Analysis Plan

Ten soil samples were obtained from the excavation for field screening with a Photoionizing Detector (PID) and field analyzed with a Non-Dispersive Infrared (NDIR) Analyzer. The PID field screening for Total Organic Vapors (TOVs) was conducted with an HNu photoionizer utilizing the jar headspace screening protocol outlined in the Hazardous Materials Containment Plan. The NDIR field screening for Total Petroleum Hydrocarbons (TPH) was conducted with a Horiba OCMA 220, utilizing the procedures outlined in the Hazardous Materials Containment Plan.

Eight of the samples (SS-1 to SS-8) were obtained from the excavation walls at a depth of approximately 3.0 to 4.0 feet below grade. Two of the samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately 5.0 feet below grade.

Two composite soil samples (Stock-1 and Stock-2) were obtained from stockpiled soils for PID and NDIR screening.

Two soil samples (LSS-1 and LSS-2) were obtained from the excavation for laboratory analysis for TPH. Soil sample LSS-1 was obtained from the south wall of the excavation at a depth of approximately three to four feet below grade. Soil sample LSS-2 was obtained from the bottom of the excavation. Sampling locations are depicted on the attached Sampling Schematic - Figure 2.2.



LEGEND:

- ⊠ Field Screened Soil Sample
- Lab Analyzed Soil Sample
- { } PID results in ppm
- () NDIR Results in ppm
- [] Lab Analysis Results in ppm

Results in bold denote levels in excess of Remedial Goal Level (100 ppm)

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
 Building P-2
 US Army Reserve Center/ Chester, Vermont

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2,2



One composite soil sample (STKPL-1) was obtained from stockpiled soil associated with the removal of the UST Nos. 0126 and 0127, and the additional excavation conducted at the site. STKPL-126/127 was laboratory analyzed for TPH, VOCs, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP), semi-volatiles organic compounds, Polychlorinated Biphenyls (PCBs), sulfide/cyanide reactivity, flashpoint, and corrosivity for characterization and disposal purposes.

2.1.4 Analytical Results

Field screening results with the Photoionization Detector (PID) and the Non-Dispersive Infrared (NDIR) Analyzer of the ten soil samples obtained from the excavation and two composite soil samples (Stock-1,2) obtained from stockpiled soil are listed as follows in Table 1:

Table 1
PID AND NDIR RESULTS

Sample Number	TOV (ppm)	TPH (ppm)
SS-1	0.2	20.5
SS-2	ND	25.2
SS-3	0.2	22.8
SS-4	ND	20.2
SS-5	0.4	34.8
SS-6	6.0	64.5
SS-7	1.5	14.9
SS-8	18.0	51.3
SS-9	10.0	33.6
SS-10	2.0	80.5
Stock-1	20.0	3,169.3
Stock-2	2.0	168.8
ND - None Detected: ppm - parts per million		

Laboratory analytical results for LSS-1 obtained from the south wall of the excavation revealed 653 ppm TPH. Laboratory analytical results for LSS-2 obtained from the bottom of the excavation revealed 22 ppm TPH.

Laboratory analysis of STKPL-126/127 obtained from the stockpiled soil associated with the removal of UST Nos. 0126 and 0127 and the additional excavation at the site revealed 650 ppm TPH. Laboratory analysis revealed 0.13 ppm Copper and 0.88 ppm Zinc. All other analytical results were below the Method Reporting Limits.

A copy of the laboratory analytical report on soil samples obtained from the excavation of UST No. 0126 has been included in Section 2.8.

2.1.5 Conclusions and Recommendations

A TEC's conclusions were as follows:

Upon excavation and removal, the tank was observed to be in good condition without holes, perforations, or severe corrosion. Soil within the excavation was visibly contaminated. A petroleum odor was evident within the excavation. Groundwater was not encountered.

Ten soil samples were obtained from the excavation for field screening and field analysis utilizing a PID and NDIR Analysis respectively. PID readings ranged from non-detectable to 20.0 ppm. NDIR results ranged from 14.9 ppm to 80.5 ppm TPH.

Two composite samples (Stock-1 and Stock-2) were obtained from excavated, stockpiled soils required to free the tank for PID and NDIR screening. PID screening of Stock-1 and Stock-2 revealed TOV concentrations of 20.0 ppm and 2.0 ppm, respectively. NDIR screening of Stock-1 and Stock-2 revealed 3,169.3 ppm and 168.8 ppm TPH, respectively.

Two soil samples (LSS-1 and LSS-2) were obtained from the original excavation for laboratory analysis for TPH. Laboratory analytical results for LSS-1 obtained from the south wall of the excavation revealed 653 ppm TPH. Laboratory analytical results for LSS-2 obtained from the bottom of the excavation revealed 22 ppm TPH.

Based on these findings, ATEC recommended further excavation to remediate the site according to contract specifications.

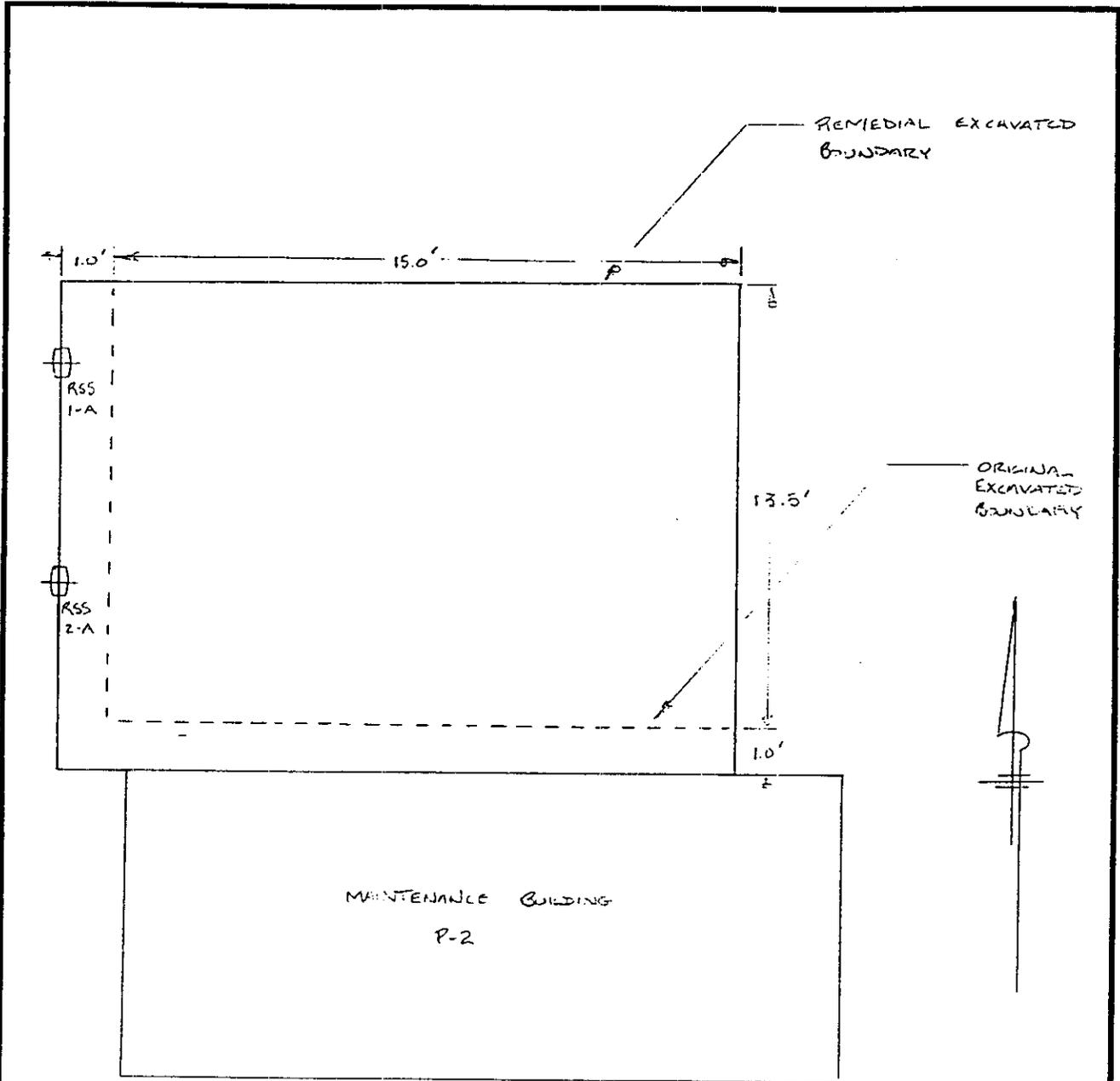
2.2 SITE REMEDIATION AND CONTAMINATED SOIL DISPOSAL

2.2.1 Site Remediation

Following initial field screening, additional excavation was conducted to reach background levels (<1 ppm) utilizing a PID to field screen soil samples. Approximately 20 additional tons of soil was excavated from the west and south walls of the excavation per order of the Contracting Officer's Representative. Soils were removed along the south wall to the physical limits imposed by Building P-2. Due to safety concerns and the potential for structural damage to the building, further excavation could not be conducted along the south wall. A Remedial Excavation Plan is attached as Figure 2.3.

Two soil samples (RSS-1 and RSS-2) were obtained from the post-remedial excavation for PID field screening. Samples RSS-1 and RSS-2 were obtained from the west sidewall of the excavation at a depth of approximately three to four feet below grade. RSS-1 was also laboratory analyzed for TPH by USEPA Method 418.1.

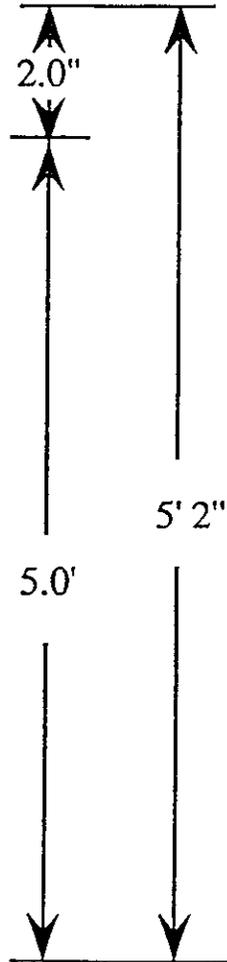
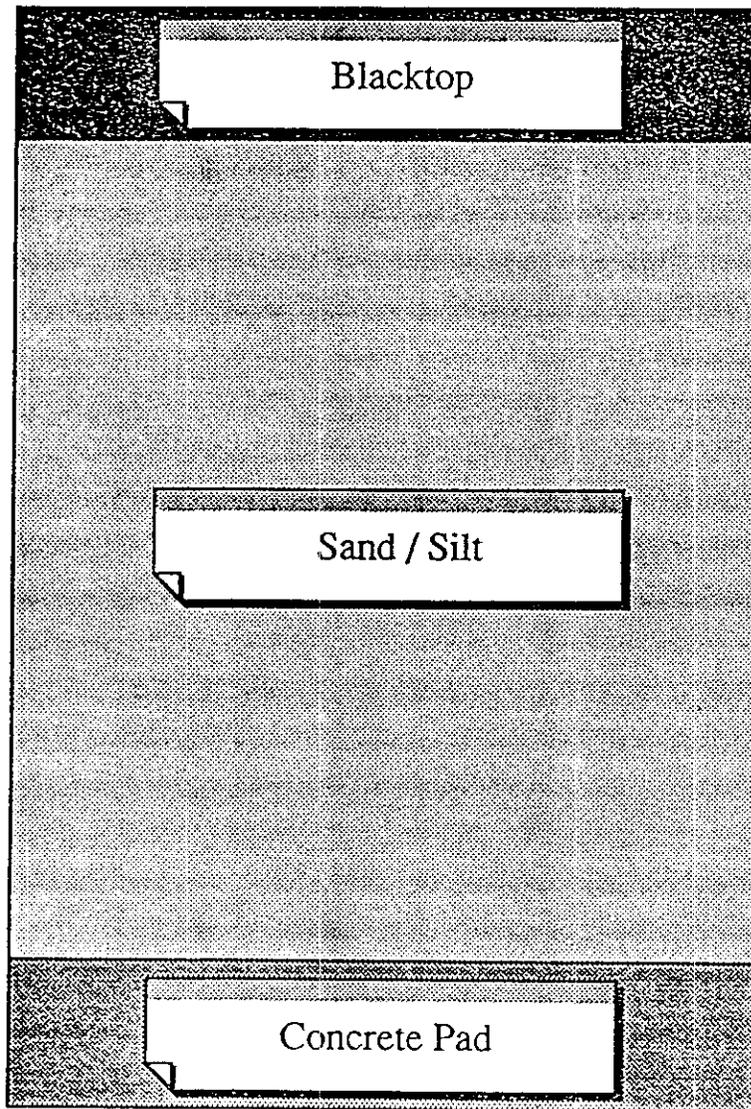
PID results did not reveal detectable TOV concentrations in RSS-1 or RSS-2. Laboratory analysis of RSS-1 did not reveal a TPH concentration above the 11 ppm TPH concentration Method Reporting Limit.



DEPTH OF EXCAVATION: 5.0'

DIMENSIONS SHOWN ARE APPROXIMATE AND SHOULD NOT BE CONSIDERED ACTUAL DIMENSIONS

REMEDIAL EXCAVATION PLAN 1,000 gallon UST Building P-2 US Army Reserve Center Chester Memorial Reserve Center, Chester, Vermont	PROJECT: 37.07.91.00451	
	NOT TO SCALE	
	FIGURE: 2.3	



SOIL STRATIGRAPHY

1,000 gallon UST relative to:
Building P-2

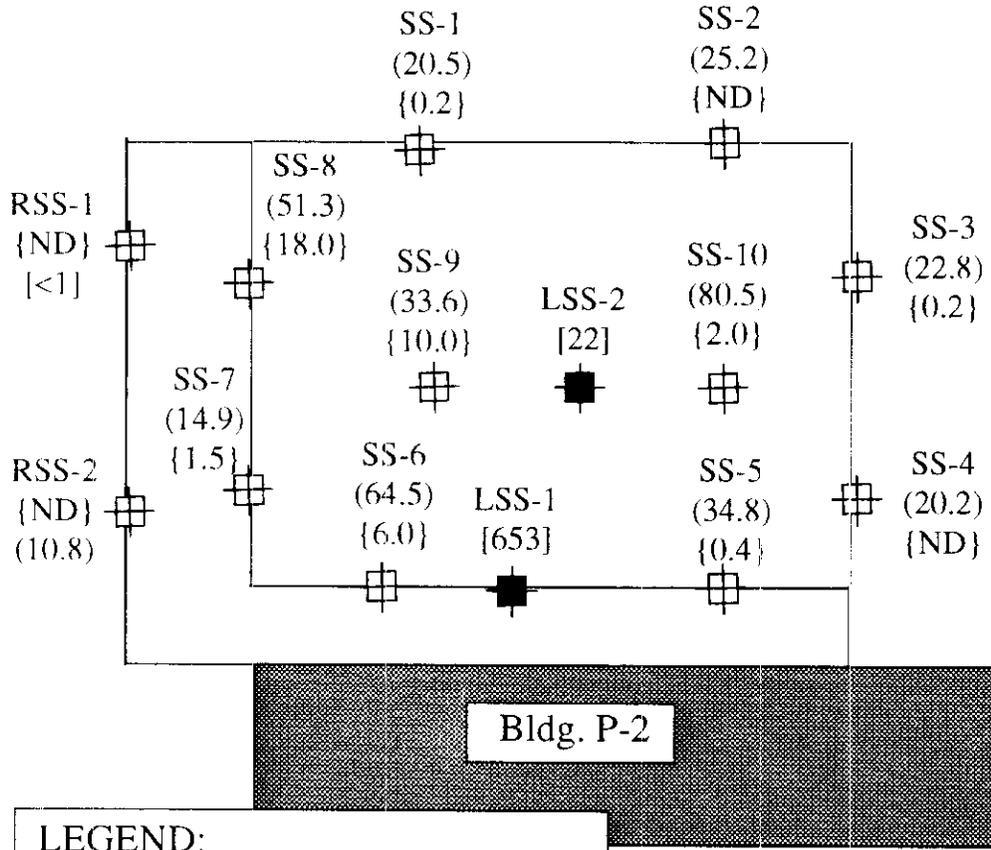
Chester Memorial Reserve Center, Chester, Vermont

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2.4





LEGEND:

- ⊠ Field Screened Soil Sample
- Lab Analyzed Soil Sample
- { } PID results in ppm
- () NDIR Results in ppm
- [] Lab Analysis Results in ppm
- ND None Detected

Results in bold denote levels in excess of Remedial Goal Level (100 ppm)

SAMPLING SCHEMATIC

1,000 gallon UST excavation at:
Building P-2
US Army Reserve Center/ Chester, Vermont

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 2.5



2.2.2 Soil Stratigraphy

Soil stratigraphy in the vicinity of UST 0126 includes a 2 inch blacktop layer at grade level, a 5.0 foot layer of silty sand, and the concrete UST hold-down pad located at 5 feet 2 inches below grade. A Soil Stratigraphy diagram is attached as Figure 2.4.

2.2.3 Contaminated Soil Disposal

A total of 71.5 tons of No. 2 fuel oil contaminated soil generated during the removal and follow-up remediation of USTs 0126 and 0127 were removed and disposed for recycling at Bardon Trimount Bituminous Products Company, Shrewsbury, Massachusetts. Copies of Weight Receipts and Bills of Lading are included in Section 2.11.

2.3 HYDROGEOLOGICAL SERVICES

Hydrogeological services were not performed relative to UST 0126.

2.4 BACKFILL

The excavation was lined with polyethylene plastic sheeting prior to backfilling. Approximately 44.3 cubic yards of soil was used to fill the excavation associated with the removal of UST No. 0126. Backfill material consisted of 39.3 cubic yards of clean, borrow material. Backfill material was placed and compacted to subgrade level prior to site restoration with the approval of the Contracting Officer's Representative according to contract specifications.

2.5 SITE RESTORATION

Following backfill of the excavation, 272 square feet of bituminous concrete was used to resurface the area.

2.6 PHOTOGRAPHIC DOCUMENTATION

The following photographs are of the UST removed and the excavation.

A-1 One side of removed tank.

A-2 Opposite view of removed tank.

A-3 Excavation as viewed from east, facing west.

A-4 Excavation as viewed from south, facing north.

A-1



A-2

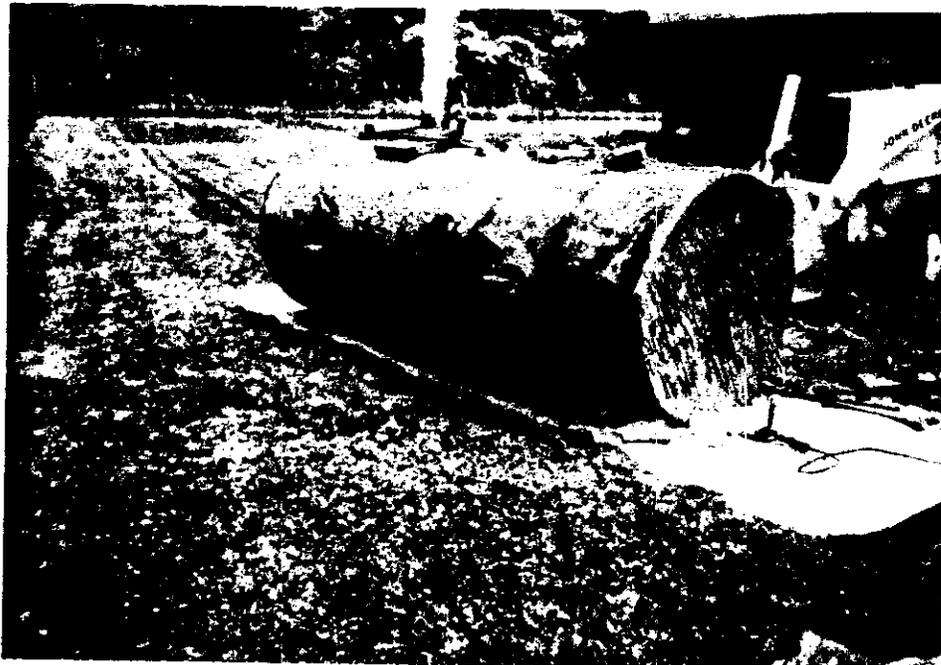


PHOTO DOCUMENTATION

1,000 gallon UST removal at:
Building P-2
Chester Memorial Reserve Center,
Chester, Vermont

PROJECT: 37.07.91.07451



A-3



A-4



PHOTO DOCUMENTATION

1,000 gallon UST removal at:
Building P-2
Chester Memorial Reserve Center,
Chester, Vermont

PROJECT: 37.07.91.07451



2.7 OCMA 220 DATA SHEETS

The following information was organized from the data collected from the Non-Dispersive Infrared Analyzer.

SS-1 to SS-10: Soil samples obtained from original excavation.

Stock-1 and Stock-2: Composite soil samples collected from the stockpile.

RSS-2: Soil sample collected from the post-remedial excavation.

IPH SOIL ANALYSES BY NON-DISPERSIVE INFRARED ANALYZER - MODIFIED EPA STANDARD TEST METHOD 418.1

PROJECT NAME, NUMBER, TANK: U.S. ARMY - FORT DEVENS 37.07.91.451.UST.0126.

DATE: Jul 30, 1992

OPERATOR: Charles Langenhagen

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING		SECOND READING		THIRD READING		SPAN CHECK
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	
ZERO:	1.8	0.0	0.5	0.0	-0.7	0.0	27.3
SPAN:	34.0	40.0	47.0	40.0	40.5	40.0	
ZERO:	6.2	0.0	-5.8	0.0	-0.6	0.0	

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g)		1st DILUTION RATIO (ml)		2nd DILUTION RATIO (ml)		INSTRUMENT RESULTS (ppm)			CONCENTRATION mg/l
	GROSS	TARE	F-113	SAMPLE	F-113	SAMPLE	1st	2nd	3rd	
STOCK-1	80.0	74.4	25.0	0.5	--	--	13.2	11.6	--	3169.3
STOCK-2	79.7	74.6	17.5	3.0	--	--	4.2	4.2	--	168.8
SS-1	80.6	74.6	17.5	3.0	--	--	0.5	0.6	--	20.5
SS-2	80.9	74.4	17.5	3.0	----	----	0.9	0.8	--	25.2
SS-3	80.0	74.6	17.5	3.0	--	--	0.4	0.6	--	22.8
SS-4	80.5	74.4	17.5	3.0	--	--	0.7	0.6	--	20.2
SS-5	80.1	74.8	17.5	3.0	--	--	0.8	0.9	--	34.8
SS-6	79.8	74.4	17.5	3.0	--	--	2.1	1.7	--	64.5
SS-7	79.9	74.4	17.5	3.0	--	--	0.5	0.4	--	14.9
SS-8	80.4	74.4	17.5	3.0	----	----	1.3	1.5	--	51.3
SS-9	80.6	74.5	17.5	3.0	--	--	1.1	1.0	--	33.6
SS-10	80.2	74.6	17.5	3.0	--	--	2.6	2.2	--	80.5

TPH SOIL ANALYSES BY NON-DISPERSIVE INFRARED ANALYZER - MODIFIED EPA STANDARD TEST METHOD 418.1

PROJECT NAME, NUMBER, TANK: U.S. ARMY - FORT DEVENS 37,07,91,451 UST 0126

DATE: Aug 3, 1992

OPERATOR: Charles Langenhagen

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING		SECOND READING		THIRD READING		SPAN CHECK
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	
ZERO:	1.8	0.0	0.5	0.0	-0.7	0.0	27.3
SPAN:	34.0	40.0	47.0	40.0	40.5	40.0	
ZERO:	6.2	0.0	-5.8	0.0	-0.6	0.0	

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g)		1st DILUTION RATIO (ml)		2nd DILUTION RATIO (ml)		INSTRUMENT RESULTS (ppm)		CONCENTRATION mg/l	
	GROSS	TARE	F-113	SAMPLE	F-113	SAMPLE	1st	2nd		3rd
RSS-2	80.7	75.0	17.5	3.0	--	--	0.3	0.3	--	10.8

2.8 LABORATORY ANALYTICAL REPORTS

The following laboratory analytical reports were organized and provided by Environmental Science Services Inc.

- LSS-1, and LSS-2: Soil samples obtained from original excavation. Laboratory analyzed for TPH.
- RSS-1: Soil sample obtained from Post-remedial excavation. Laboratory analyzed for TPH.
- Stkpl-1: Soil sample obtained from stockpiled soil associated with USTs 0126 and 0127 for disposal classification. Laboratory analyzed for VOCs, SemiVOCs, Flashpoint, Reactive Cyanide/Sulfide, Polychlorinated Biphenyls, TPH, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP).



125

In Response To The Future

August 13, 1992

Mr. Craig Trombly
ATEC Environmental Consultants
62 Accord Park Drive
Norwell, MA 02061

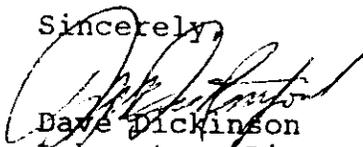
RECEIVED AUG 17 1992

Dear Mr. Trombly:

Enclosed is the data report of laboratory test results for the analyses of the samples which were received at ESS on July 30, 1992 as part of your Fort Devens UST# 126, 127-Chester, VT Project 37.07.451. Also enclosed with the data report is the project invoice for your P.O.# 72461.

If you have any questions please feel free to call.

Sincerely,


Dave Dickinson
Laboratory Director

enc.





In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-1/UST# 126

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-01

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	653	mg/Kg	11	418.1

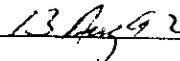
MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=89%

Approved by:


David Dickinson
Laboratory Director

Date:


13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-2/UST# 126

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-02

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	22	mg/Kg	11	418.1

MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=89%

Approved by: _____


David Dickinson
Laboratory Director

Date: _____

13 Aug 92

003





In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-1/UST# 127

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-03

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	23,100	mg/Kg	118	418.1

MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=85%

Approved by:


David Dickinson
Laboratory Director

Date:

13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-2/UST# 127

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-04

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	39	mg/Kg	14	418.1

MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=72%

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

004





In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LWS-1/UST# 127

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-05

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	146	mg/L	10	418.1

MRL = Method Reporting Limit

Approved by: _____

David Dickinson
David Dickinson
Laboratory Director

Date: _____

13 Aug 92

005





In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: RSS-1/UST# 126

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-06

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	11	418.1

ND = Not Detected above Method Reporting Limit (MRL)

Results reported on a dry weight basis, % solids=89%

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

13 Aug 92

008





In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

ESS Project ID: 921975

Client Sample ID: Stkpl-1

ESS Sample ID: 921975-07

Date Sample Received: 7/30/92

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Corrosivity (pH)	7.4	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Percent Solids	90	% w/w	1	160.3
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Paint Filter Liquid Test	ND	mls/5 min	0.5	9095
Total Petroleum Hydrocarbon-IR	650	mg/Kg	11	418.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Copper	0.13	mg/L	Attached	6010
Zinc	0.88	mg/L	Attached	6010

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


 David Dickinson
 Laboratory Director

Date:

13 Aug 92





In Response To The Future

CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS Method 8080

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

ESS Project ID: 921975

Client Sample ID: Stkpl-1

ESS Sample ID: 921975-07

Date Sample Received: 7/30/92

Date Reported: 8/13/92

Parameter	Result (mg/Kg)	MRL
Arochlor 1016	ND	1
Arochlor 1221	ND	1
Arochlor 1232	ND	1
Arochlor 1242	ND	1
Arochlor 1248	ND	1
Arochlor 1254	ND	1
Arochlor 1260	ND	1

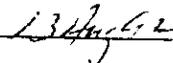
ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchloroendate	129%	50 - 150%

Approved by:


David Dickinson
Laboratory Director

Date:



008

01



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Stkpl-1

ESS Sample ID: 921975-07

Date Sample Received: 7/30/92

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL *
2-Chlorophenol	ND	1650
2-Nitrophenol	ND	1650
Phenol	ND	1650
2,4-Dimethylphenol	ND	1650
2,4-Dichlorophenol	ND	1650
2,4-Dinitrophenol	ND	8250
Pentachlorophenol	ND	8250
4-Nitrophenol	ND	8250
2,4,6-Trichlorophenol	ND	1650
2,4,5-Trichlorophenol	ND	8250
2-Methylphenol	ND	1650
4-Methylphenol	ND	1650
4-Chloro-3-Methylphenol	ND	1650
4,6-Dinitro-2-Methylphenol	ND	8250

ND = Not Detected above Method Reporting Limit (MRL)

*Sample diluted due to hydrocarbon interference

Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

13 Aug 92

009





In Response To The Future

CERTIFICATE OF ANALYSIS **BASE NEUTRAL EXTRACTABLES**
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Stkpl-1

ESS Sample ID: 921975-07

Date Sample Received: 7/30/92

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL *
Acenaphthylene	ND	1650
1,2,4-Trichlorobenzene	ND	1650
Hexachlorobenzene	ND	1650
Bis(2-chloroethyl) ether	ND	1650
2-Chloronaphthalene	ND	1650
1,2-Dichlorobenzene	ND	1650
1,3-Dichlorobenzene	ND	1650
1,4-Dichlorobenzene	ND	1650
3,3-Dichlorobenzidine	ND	3300
2,4-Dinitrotoluene	ND	1650
2,6-Dinitrotoluene	ND	1650
Fluoranthene	ND	1650
4-Chlorophenyl phenyl ether	ND	1650
Bis(2-chloroisopropyl) ether	ND	1650
Bis(2-chloroethoxy) methane	ND	1650
Hexachlorobutadiene	ND	1650
Hexachlorocyclopentadiene	ND	1650
Isophorone	ND	1650
Naphthalene	ND	1650
Nitrobenzene	ND	1650
N-nitrosodiphenylamine	ND	1650
N-nitrosodi-n-propylamine	ND	1650
Bis(2-ethylhexyl)phthalate	ND	1650
Di-n-butylphthalate	ND	1650
Di-n-octylphthalate	ND	1650
Diethyl phthalate	ND	1650
Dimethyl phthalate	ND	1650
Benzo(a)anthracene	ND	1650

ND = Not Detected above Method Reporting Limit (MRL)

*Sample diluted due to hydrocarbon interference

Approved by: David Dickison
David Dickison
Laboratory Director

Date: 13 Aug 92

010



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont. EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Stkpl-1

ESS Sample ID: 921975-07

Date Sample Received: 7/30/92

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL *
Benzo(a)pyrene	ND	1650
Benzo(b)fluoranthene	ND	1650
Benzo(k)fluoranthene	ND	1650
Chrysene	ND	1650
Acenaphthene	ND	1650
Anthracene	ND	1650
Benzo(ghi)perylene	ND	1650
Fluorene	ND	1650
Phenanthrene	ND	1650
Dibenzo(a,h)anthracene	ND	1650
Indeno(1,2,3-cd)pyrene	ND	1650
Pyrene	ND	1650
Hexachloroethane	ND	1650
4-Bromophenyl-phenylether	ND	1650
Benzyl Alcohol	ND	1650
Benzoic Acid	ND	8250
Bis(2-Chloroethoxy)methane	ND	1650
4-Chloroaniline	ND	1650
2-Methylnaphthalene	ND	1650
2-Nitroaniline	ND	8250
3-Nitroaniline	ND	1650
Dibenzofuran	ND	1650
4-Nitroaniline	ND	8250
Butylbenzylphthalate	ND	1650

ND = Not Detected above Method Reporting Limit (MRL)

* Sample diluted due to hydrocarbon interference

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

G11



In Response To The Future

CERTIFICATE OF ANALYSIS **TCL VOLATILE ORGANICS**
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

Client Sample ID: Stkpl-1

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-07

Date Reported: 8/13/92

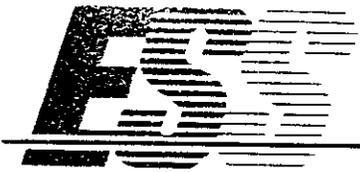
Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1000
1,1-Dichloroethane	ND	1000
Chloroform	ND	1000
Carbon Tetrachloride	ND	1000
1,2-Dichloropropane	ND	1000
Dibromochloromethane	ND	1000
1,1,2-Trichloroethane	ND	1000
Tetrachloroethene	ND	1000
Chlorobenzene	ND	1000
1,2-Dichloroethane	ND	1000
1,1,1-Trichloroethane	ND	1000
Bromodichloromethane	ND	1000
Trans-1,3-Dichloropropene	ND	1000
Bromoform	ND	1000
1,1,2,2-Tetrachloroethane	ND	1000
Benzene	ND	1000
Toluene	ND	1000
Ethyl Benzene	ND	1000
Chloromethane	ND	1000
Bromomethane	ND	1000
Vinyl Chloride	ND	1000
Chloroethane	ND	1000
1,1-Dichloroethene	ND	1000
1,2-Dichloroethene (Total)	ND	1000
Trichloroethene	ND	1000
Acetone	ND	1000
Carbon Disulfide	ND	1000
2-Butanone	ND	1000
Cis-1,3-Dichloropropene	ND	1000
4-Methyl-2-Pentanone	ND	1000
2-Hexanone	ND	1000
Styrene	ND	1000
Xylenes (Total)	ND	1000

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: 
David Dickinson
Laboratory Director

Date: 13 Aug 92

012



In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Date Sampled: 7/29/92
 Client Project ID: UST# 126, 127 Date TCLP Performed: 8/6/92
 Client Sample ID: Stkpl-1 Date Leachate Extracted: 8/7/92
 ESS Sample ID: 921975-07 Date Extract Analyzed: 8/10/92

Target Analyte	Actual		Adjusted*	
	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.4
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.03
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	0.13	0.02	0.13	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.88	0.02	0.88	0.02
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.3	ND	0.4

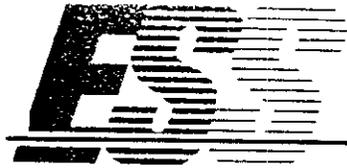
* Actual sample result adjusted for matrix bias. Refer to matrix spike analysis summary form.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
 David Dickinson
 Laboratory Director

Date: 23 Aug 92

013



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client
Project ID: UST 126, 127

Date Sample Analyzed: 8/6/92

ESS
Project ID: 921975

SAMPLE ID	PHENOL-D5 (10-94%)*	2-FLUOROPHENOL (21-100%)*	2,4,6 TRIBROMOPHENOL (10-123%)*
SV0717B2 921957-07	52% 32	75% 30	35% 30

* Acceptance criteria.

Approved by: *David Dickinson*
David Dickinson
Laboratory Director

Date: 13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE-NEUTRAL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client
Project ID: UST 126, 127

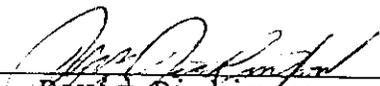
Date Sample Analyzed: 8/6/92

ESS
Project ID: 921975

SAMPLE ID	NITROBENZENE-D5 (35-115%)*	2-FLUOROBIPHENYL (43-115%)*	P-TERPHENYL-D14 (33-141%)*
SV0717B2	65%	104%	50%
921975-07	60	51	75

* Acceptance criteria.

Approved by:


David Dickinson
Laboratory Director

Date:

13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Method Blank

ESS Sample ID: SV0717B2

Date Sample Received: N/A

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	ND	330
2-Nitrophenol	ND	330
Phenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dinitrophenol	ND	1,650
Pentachlorophenol	ND	1,650
4-Nitrophenol	ND	1,650
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	1,650
2-Methylphenol	ND	330
4-Methylphenol	ND	330
4-Chloro-3-Methylphenol	ND	330
4,6-Dinitro-2-Methylphenol	ND	1,650

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

017



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Method Blank

ESS Sample ID: SV0717B2

Date Sample Received: N/A

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	330
1,2,4-Trichlorobenzene	ND	330
Hexachlorobenzene	ND	330
Bis(2-chloroethyl) ether	ND	330
2-Chloronaphthalene	ND	330
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3-Dichlorobenzidine	ND	660
2,4-Dinitrotoluene	ND	330
2,6-Dinitrotoluene	ND	330
Fluoranthene	ND	330
4-Chlorophenyl phenyl ether	ND	330
Bis(2-chloroisopropyl) ether	ND	330
Bis(2-chloroethoxy) methane	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Isophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-nitrosodiphenylamine	ND	330
N-nitrosodi-n-propylamine	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Di-n-butylphthalate	ND	330
Di-n-octylphthalate	ND	330
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Benzo(a)anthracene	ND	330

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

018





In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont. EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Method Blank

ESS Sample ID: SV0717B2

Date Sample Received: N/A

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Chrysene	ND	330
Acenaphthene	ND	330
Anthracene	ND	330
Benzo(ghi)perylene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Pyrene	ND	330
Hexachloroethane	ND	330
4-Bromophenyl-phenylether	ND	330
Benzyl Alcohol	ND	330
Benzoic Acid	ND	1,650
Bis(2-Chloroethoxy)methane	ND	330
4-Chloroaniline	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	1,650
3-Nitroaniline	ND	330
Dibenzofuran	ND	330
4-Nitroaniline	ND	1,650
Butylbenzylphthalate	ND	330

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
Laboratory Director

Date: 13 Aug 92

010



In Response To The Future

CERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants Client
 Project ID: UST# 126, 127
 Date Sample Analyzed: 8/5/92 ESS
 Project ID: 921975

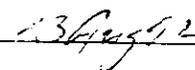
SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0805B2	104%	100%	90%
921975-07	96	102	91

* Acceptance criteria

Approved by:


 David Dickinson
 Laboratory Director

Date:


 13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

Client Sample ID: Method Blank

Date Sample Received: NA

ESS Project ID: 921975

ESS Sample ID: VS0805B2

Date Reported: 8/13/92

Parameter	Result (ug/L)	MRL
Methylene Chloride	ND	5
1,1-Dichloroethane	ND	5
Chloroform	ND	5
Carbon Tetrachloride	ND	5
1,2-Dichloropropane	ND	5
Dibromochloromethane	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
Chlorobenzene	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Bromodichloromethane	ND	5
Trans-1,3-Dichloropropene	ND	5
Bromoform	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	ND	5
Chloromethane	ND	5
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
1,1-Dichloroethene	ND	10
1,2-Dichloroethene (Total)	ND	5
Trichloroethene	ND	5
Acetone	ND	5
Carbon Disulfide	ND	10
2-Butanone	ND	5
Cis-1,3-Dichloropropene	ND	10
4-Methyl-2-Pentanone	ND	5
2-Hexanone	ND	10
Styrene	ND	10
Xylenes (Total)	ND	5
		10

ND = Not Detected above Method Reporting Limit (MRL)

NA = Not Applicable

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

021



In Response To The Future

CERTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 202301

Concentration in: mg/L

Target Analyte	Result	Spike Added	Spiked Result	Percent Recovery
Antimony	ND	*	ND	76%
Arsenic	ND	2.00	2.26	113
Cadmium	ND	0.5	0.39	78
Chromium	ND	1.0	1.22	122
Lead	ND	1.0	1.12	112
Mercury	ND	0.02	0.020	100
Selenium	ND	2.00	2.13	107
Silver	ND	1.0	0.76	76
Copper	ND	1.0	1.14	114
Nickel	ND	1.0	1.07	107
Zinc	ND	1.0	1.09	109
Beryllium	ND	*	ND	76
Thallium	ND	*	ND	76

This matrix spike analysis summary applies to the following samples:
921975-07

ND = Not Detected above Method Reporting Limit (MRL)

* Matrix spike recovery is based on the lowest spike recovery of the spiked analytes.

Approved by:


David Dickinson
Laboratory Director

Date:

13 Aug 92

022



2.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were completed and submitted to ESS with the laboratory samples.

CHAIN OF CUSTODY RECORD

PROJ. NO. 3707-451	PROJECT NAME FT. DEVENS - CHESTER, VT	LAB PROJ. NO.															
SAMPLERS: (Signature) <i>Angie D. Family</i>	CLIENT WST # 126, 127																
SAMPLING METHOD	COMPOSITE	GRAB	WATER	SOIL	FILTERED	ACIDIFIED	ICED	NUMBER OF CONTAINERS	LAB ID NUMBER	VOLATILE ORGANICS	TOTAL HYDROCARBONS	PCBS	EP-TOXIC METALS (3728)	TOTAL METALS (3)	IGNITABILITY	CYANIDE SULFIDE	SAMPLE LOCATION / REMARKS
	DATE																
LSS-1										X							WST# 126 P-2
LSS-2										X							WST# 126 P-2
LSS-1										X							WST# 127 A-1
LSS-2										X							WST# 127 A-1
LWS-1										X							WST# 127 P-1
RSS-1										X							WST# 126
STRAP-1										X	X	X	X	X			WST# 126 127



Relinquished by: (Signature) <i>Angie D. Family</i>	Date / Time 7-24-92 5:00	Received by: (Signature) <i>Deek C. Soud</i>	Date / Time
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
		Project Manager / Phone #:	

2.10 HAZARDOUS WASTE MANIFESTS

UST No. 0126 contained 10 gallons of fuel oil sludge. The drummed material was transported on August 28, 1992 by Lincoln Environmental, Inc. to Pollution Solutions of Williston, Vermont. A copy of the appropriate hazardous waste manifest follows.



Environmental Consultants

Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, Massachusetts 02061-1606
(617)878-6200 FAX (617)871-6781

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

September 2, 1992

Ms. Beth Castriotta, Contract Specialist
U.S. Army
Directorate of Contracting
Building 227
Fort Devens, MA 01433-5340

RE: Drum Disposal
USARC Chester, Vermont
Contract No. DAKF31-91-D-0015
ATEC File No. 37.04.91.00451

Ms. Castriotta:

Please find attached a Hazardous Waste Manifest for the disposal of one 55-gallon drum of No. 2 Fuel Oil sludges associated with the removal of two underground storage tanks (USTs) located at the United States Army Reserve Center (USARC), Chester, Vermont. The associated USTs are referenced by ATEC Associates, Inc. (ATEC) as UST Nos. 126 and 127. These drums were removed from the USARC on August 26, 1992 for disposal at Pollution Solutions of Williston, Vermont.

ATEC appreciates the opportunity to be of service in this manner. If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

ATEC Associates, Inc.

Mark E. Baldi
Project Manager



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Division of Air and Hazardous Materials
291 Promenade Street, Providence RI 02908-5767

HQ1)277-2787

Form Approved OMB No. 2060-0039 Expires 9-30-91

Please print or type. (Form designed for use on elite/12 pitch typewriter)

UNIFORM HAZARDOUS WASTE MANIFEST		Generator's EPA ID No. VT000003848		Manifest No. 100001		Page 1 of 1				
3 Generator's Name and Mailing Address Chester Memorial Reserve Center Rte. 11 Chester, VT 05143 802/675-2413				A. State Manifest Document Number RI C 0023371						
4 Generator's Phone ()				B. Generator/Site Address Same						
5 Transporter 1 Company Name Lincoln Environmental, Inc.		6 US EPA ID Number RI D 9 8 2 1 9 2 6 2 7		C. State Transporter ID/License Plate RI 40-15642160						
7 Transporter 2 Company Name		8 US EPA ID Number		D. Transporter's Phone 401/232-3353						
9 Designated Facility Name and Site Address Pollution Solutions of VT, Inc. 2 Avenue D Williston, VT 05495		10 US EPA ID Number VT D 9 8 2 7 6 6 5 3 7		E. State Transporter ID/License Plate						
				F. Transporter's Phone						
				G. Facility Mailing Address						
				H. Facility's Phone 802/560-1200						
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12 Containers	13 Total Quantity	14 Unit	1. Waste No.	
a. Waste fuel oil, No. 2, Combustible Liquid, NA 1993, VT09						No. XXI	Type DR	XXX55	G	VT09
b.										
c.										
d.										
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above				
a. WIP#14737						Interim	Final	Interim	Final	
b. L,SG.6 F= >1601						a.		c.		
c.						b.		d.		
d.										
15. Special Handling Instructions and Additional Information ERC#27 In case of emergency call 401/232-3353 (Lincoln) or 800/424-9300 (Chemtrac)										
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this manifest are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment, or, if I am a small quantity generator, I have taken good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.										
Printed/Typed Name William R. Conyer				Signature <i>William R. Conyer</i>		Date 10/8/92				
17. Transporter 1 Acknowledgement of Receipt of Materials										
Printed/Typed Name Donald L. Conway				Signature <i>Donald L. Conway</i>		Date 10/28/92				
18. Transporter 2 Acknowledgement of Receipt of Materials										
Printed/Typed Name				Signature		Date				
19. Discrepancy Indication Space Small amount of waste not listed										
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19										
Printed/Typed Name				Signature		Date 10/8/92				

For sale within Rhode Island contact the RI Department of Environmental Management (401) 277-2787. For sale within Rhode Island contact the RI Department of Environmental Management (401) 277-2787.

ALL 8 COPIES MUST BE LEGIBLE!!!

2.11 WEIGHT RECEIPTS AND BILLS OF LADING

The following Weight Receipts and Bills of Lading document the disposal of contaminated soil generated during the removal and follow-up remediation of UST No. 0126 and 0127.

Bardon Trimount

RECEIVED SEP 30 1992

TK 126

September 28, 1992

Mr. Dick Laubinger
ATEC Associates
62 Accord Park Drive
Norwell, MA 02061

Re: Soil, Route 11
Chester, VT
P.O. #076115

Dear Mr. Laubinger:

The recyclable soil from the above address was received at our facility on September 24, 1992. Attached are the shipper's log of soil receipts which total 71.05 tons along with bills of lading.

We will issue a "Certificate of Recycling" shortly upon processing.

Thank you for recycling soil at our Shrewsbury facility.

Yours truly,

David M. Peter

David M. Peter, Manager *man*
Environmental Engineering

DP/203

SON
RIMOUNT, INC.
liary of
d Bardon USA, Inc.

ATES:
rimount Bituminous
P ducts Company
nt International
rminal Systems, Inc.
e Guyott Company
and & Stone Co.
one Corporation
rdon Trimount
E ironmental Services

planchar Road
O. Box 39
gton
chusetts
15-0039

le onis:
1-6400

x.
7-221-8452

Shippers Log 3:29:01 pm Sep 24, 1992
 Product #76
 Plant 360
 Customer ATE001
 ATEC ASSOC.
 62 ACCORD PARK DRIVE
 DORWELL, MA 02061
 517-878-6200
 Job CHSTRVT
 11
 WHESTER, VT

PO# 076115

Shippers Log 3:29:01 pm Sep 24, 1992

Truck	Ticket#	Tons	Acc/Tons	Time & Date	Fob/Del
	00076681	15.080	15.080	14:27:17 09/24/92	F
	00076682	17.220	32.300	14:29:26 09/24/92	F
9	00076683	23.580	55.880	14:30:56 09/24/92	F
	00076685	15.170	71.050	14:32:58 09/24/92	F

INCIDENT #

DATE

DEQ #

CASTVT

GENERATOR NAME/ADDRESS:
FT. DEVENS
MASSACHUSETTS
01433-5340

ACT TEL #:

SITE OF GENERATION: CHESTER MEMORIAL RESERVE CENTER
 STREET RT. 11
 TOWN CHESTER
 STATE VERMONT
 TRANSPORTATION ACCIDENT? Y X N

L. DESCRIPTION (TOTAL PROJECTED QUANTITY):
 CONTAMINATED SOIL: 100 65
 wt (tons) vol (cu yds)
 CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____
 vol (cu yds) specialty debris _____ other (specify) _____

CONTAMINATION: X #1 oil #4 oil #6 oil other (specify) _____
 ANALYSES ATTACHED? Volatiles Y X N TPH: Y X N

ORIGINATOR NAME/ADDRESS:

 TEL #:

DESTINATION FACILITY NAME/ADDRESS:
Bardon Trimount, Inc.
651 Lake Street
Shrewsbury, MA 01545
 TYPE OF FACILITY: X Recycling Landfill Incinerator

ORIGINATOR'S SIGNATURE: [Signature] DATE: 8/20/92
 COMMENTS MUST BE COMPLETED PRIOR TO DEQ AUTHORIZATION

AUTHORIZATION: DEQ SIGNATURE (originating region): _____ DATE: _____
 DEQ SIGNATURE (destination region): _____ DATE: _____

ORIGINATOR REGISTRATION: 913 380 MA.
 REGISTRATION: 39415 MA.
 TIME AT: 10:30 DATE: 9/24
 OR OR RECEIVING FACILITY REPRESENTATIVES
 NAME: _____

QUANTITY SHIPPED: wt (tons) vol (cu yds)
 TOTAL PROJECTED _____
 SHIPPED TO DATE _____
 THIS LOAD (at time) 15.08
 REMAINING TO BE SHIPPED _____
Ticket R 76681

ORIGINATOR'S SIGNATURE: [Signature] DATE: 9-24-92
 RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: [Signature] DATE: 9/24/92 ARR TIME: 2:27

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 BHS EMERGENCY RESPONSE BRANCH
 ONE WINTER STREET, 5th FLOOR
 BOSTON, MA 02108
 AND
 THE ORIGINATING REGIONAL OFFICE

VIOLATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 10A CMR 1.00 AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY PENALTIES.

2

CHESTRVT

LOADING DATE: _____ DEC 15 1992

SHIPPER NAME/ADDRESS:
 FT. DEVENS
 MASSACHUSETTS
 01433-5340

TITLE: _____

SITE OF GENERATION: CHESTER MEMORIAL RESERVE CENTER
 STREET RT. 11
 TOWN CHESTER
 STATE VERMONT
 TRANSPORTATION ACCIDENT? Y N

ALL DESCRIPTION (TOTAL PROJECTED QUANTITY):
 CONTAMINATED SOIL: wt (tons) 100 vol (cu yds) 65
 CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____
 vol (cu yds) specialty det _____ other (specify) _____

CONTAMINATION: oil #4 oil #5 oil other (specify) _____
 ANALYSES ATTACHED? Volatiles Y N TPH: Y N

REPORTER NAME/ADDRESS: _____

DESTINATION FACILITY NAME/ADDRESS:
 Bardon Trimount, Inc.
 651 Lake Street
 Shrewsbury, MA 01545

TITLE: _____

TYPE OF FACILITY: Recycling Landfill Incinerator

SHIPPER'S SIGNATURE: [Signature] DATE: 8/20/92
 (ALL ITEMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION)

ORIGINATING REGION: DEQE SIGNATURE (originating region): _____ DATE: _____
 (If applicable) DEQE SIGNATURE (destination region): _____ DATE: _____

MANUFACTURER REGISTRATION: 952329 MA
 REGISTRATION: 29733
 SHIPPED AT: 12:45 DATE: 9/29/92
 ORIGINATOR OR RECEIVING FACILITY REPRESENTATIVE'S NAME: [Signature]

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	_____	_____
SHIPPED TO DATE	_____	_____
THIS LOAD (as loaded)	17.22	_____
REMAINING TO BE SHIPPED	_____	_____

SHIPPER'S SIGNATURE: [Signature] DATE: 9/29/92
 RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: [Signature] DATE: 9/24/92 ARR TIME: 2:29

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 BWS/EMERGENCY RESPONSE BRANCH
 ONE WINTER STREET, 5th FLOOR
 BOSTON, MA 02108
 AND
 THE ORIGINATING REGIONAL OFFICE

DECLARATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 310 CMR AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY



TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY HILL DRIVE
P.O. BOX 109
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

T F.M.N. CASH C.O.D. Charge
M ARRIVED JOB CHECKED BY _____
E LEFT JOB CHECK # _____
CARRIER _____

TICKET # R 76682

Customer # ATE001
ATEE ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-974-6200

Job # CHSTRVT
RT 11
CHESTER, VT
PO# 076115

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time 2:29:24 Tare 27960 Net 34440 Gross 62400 Total 17.22

Cost/Ton Percent Tax Load Cost Amount Tax Dest Charge Total Cost
Load# 2 Job Total 32.30 Time & Date 2:29:24 pm Sep 24, 1992 F Job/Del

RECEIVED BY

[Signature]

2

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

ADDITIONAL 3 DATE: DECEMBER 6 1992 CHESTER VT

GENERATOR NAME/ADDRESS:
FT. DEVENS
MASSACHUSETTS
01433-5340
ACT/TEL #:

SITE OF GENERATION: CHESTER MEMORIAL RELEVE CENTER
STREET RT. 11
TOWN CHESTER
STATE VERMONT
TRANSPORTATION ACCIDENT? Y N

L DESCRIPTION (TOTAL PROJECTED QUANTITY):
CONTAMINATED SOIL: 100 wt (tons) 65 vol (cu yds)
CONTAMINATED DEBRIS: # absorbent pads # absorbent booms
vol (cu yds) specify dtd other (specify)

CONTAMINATION: Volatile #2 oil #4 oil #5 oil other (specify)
ANALYSES ATTACHED? Volatiles Y N TPH: Y N

RECEIVER NAME/ADDRESS:

TEL #:

DESTINATION FACILITY NAME/ADDRESS:
Bardon Trimount, Inc.
651 Lake Street
Shrewsbury, MA 01545
TYPE OF FACILITY: Recycling Landfill Incinerator

GENERATOR'S SIGNATURE: [Signature] DATE: 9/24/92
EMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION

AUTHORIZATION: DEQE SIGNATURE (originating region): DATE:
DEQE SIGNATURE (destination region): DATE:

GENERATOR REGISTRATION: 674837
REGISTRATION: 84842
SITE AT: 10730 DATE: 9/24
FOR OR RECEIVING FACILITY REPRESENTATIVES:
RE: [Signature]
RECEIVER'S SIGNATURE: [Signature] DATE: 9/24/92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: [Signature] DATE: 9/24/92 ARR TIME: 2:30

QUANTITY SHIPPED: wt (tons) vol (cu yds)
TOTAL PROJECTED
SHIPPED TO DATE
THIS LOAD (checked) 3.58
REMAINING TO BE SHIPPED
Ticket # R76683

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
BWS/Emergency Response Branch
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

VIOLATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 21C AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY P.S.



TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY HILL DRIVE
P.O. BOX 19
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

T	FMN	Cash <input type="checkbox"/>	C.O.D. <input type="checkbox"/>	Charge <input checked="" type="checkbox"/>
I	ARRIVED JOB	CHECKED BY _____		
M	LEFT JOB	CHECK # _____		
E		CARRIER _____		

TICKET # R 76683

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
6-7-878-6200

Job # CHESTRVT
PT 11
CHESTER, VT
PO# 076115

MIX # 476

MIX NAME OIL SOIL

TRUCK# 9

Time	Tare	Net	Gross	Total
2:30:53	27000	47160	74160	23.58

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost
----------	-------------	-----------	------------	-------------	------------

Load#	Job Total	Time & Date	Fob/Del
3	\$5.88	2:30:54 pm Sep 24, 1992	F

RECEIVED BY _____

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

[Signature]

4
DEQ# _____ DATE _____ DEQE# CHSTRT

GENERATOR NAME/ADDRESS:
FT. DEVENS
MASSACHUSETTS
01433-5340
TEL# _____

SITE OF GENERATION: CHESTER MEMORIAL RESERVE CENTER
STREET RT. 11
TOWN CHESTER
STATE VERMONT
TRANSPORTATION ACCIDENT? Y X N

DESCRIPTION (TOTAL PROJECTED QUANTITY):
CONTAMINATED SOIL: 100 65
wt (tons) vol (cu yds)
CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____
vol (cu yds) specialty dsl _____ other (specify) _____

CONTAMINATION: X #1 oil _____ #4 oil _____ #6 oil _____ other (specify) _____
ANALYSES ATTACHED? Volatiles Y X N TPH: Y X N

RECEIVER NAME/ADDRESS:
TEL# _____

DESTINATION FACILITY NAME/ADDRESS:
Bardon Trimount, Inc.
651 Lake Street
Shrewsbury, MA 01545
TYPE OF FACILITY: X Recycling _____ Landfill _____ Incinerator

GENERATOR'S SIGNATURE: [Signature] DATE: 8/20/92
FORMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION

ORIGINATOR'S SIGNATURE (originating region): _____ DATE: _____
RECEIVER'S SIGNATURE (destination region): _____ DATE: _____

GENERATOR REGISTRATION A3816 MA
REGISTRATION 25747 MA
DATE 9/04
FOR OR RECEIVING FACILITY REPRESENTATIVES
[Signature]

QUANTITY SHIPPED:	wt (tons)	vol (cu yds)
TOTAL PROJECTED	_____	_____
SHIPPED TO DATE	_____	_____
THIS LOAD (estimated)	<u>15.17</u>	_____
REMAINING TO BE SHIPPED	_____	_____

GENERATOR'S SIGNATURE [Signature] DATE 9/04/92
RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE _____ DATE 9/24/92 ARR TIME 232

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
BWS/EMERGENCY RESPONSE BRANCH
ONE WINTER STREET, 5th FLOOR
BOSTON, MA 02108
AND
THE ORIGINATING REGIONAL OFFICE

NON COMPLIANCE OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY



TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY DRIVE
P.O. BOX 89
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

T	FMN	<input type="checkbox"/>	Cash	<input type="checkbox"/>	C.O.D.	<input type="checkbox"/>	Charge	<input checked="" type="checkbox"/>
M	ARRIVED JOB		CHECKED BY					
E	LEFT JOB		CHECK #					
			CARRIER					

TICKET # R 76605

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
ROSEL, MA 02061
617-878-6200

Job # CHESTRVT
RT 11
CHESTER, VT
PO# 076115

MIX # 176
MIX NAME OIL SOIL
TRUCK # 9

Time	Tare	Net	Gross	Total
2:32:56	28700	30340	59060	15.17
Crut/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge
				Total Cost

Load# 4 Job Total 71.05 Time & Date 2:32:56 pm Sep 24, 1992 Fob/Del

RECEIVED BY

[Signature]

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

2.12 PERMITS AND CERTIFICATIONS

The following permit was obtained for the proper closure of an underground storage tank. Following the permit there is a disposal receipt for the steel underground storage tank.

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 UNDERGROUND STORAGE TANK PROGRAM
 103 SOUTH MAIN STREET
 WATERBURY, VERMONT 05671-0404
 (802) 244-8702

Date of Removal: ~~7-28-92~~ 7-27-92 Date of Assessment: 7-28-92
 Person & Company Doing Assessment: ATEC ASSOCIATES
 Telephone Number: (617) 878-6200

Business Name Where Tank(s) Located: USARC CHESTER, VT.
 Number of Employees:
 Street Address & Town/City:

Owner of Tank(s): US GOVERNMENT
 Address: Chester Memorial Reserve Center Contact Person: MRS. GONYEA
 Town/City: STATE ROUTE 11 Phone Number: (802) 875-2991
CHESTER, VT. 05142-9999
 UST Facility ID Number: VT000003896

Tank #	Product	Size	Condition
1	<u>#2 FUEL OIL</u>	<u>4,000</u>	<u>FIBER GLASS</u>
2	<u>#2 FUEL OIL</u>	<u>1,000</u>	<u>STEEL - ASPHALT COATED</u>
3			
4			

Reason for Tank Removal (check one): abandoned routine replacement
 tank or piping leaking liability

Replacement Tank(s)? yes no Number of Replacement Tanks: _____
 DEC UST Permit(s) Obtained? yes no
 DEC-Permitted Tank(s) Still On-Site? yes no Number of Tanks: _____
 Out of Service Tank(s) On-Site? yes no Number of Tanks: _____
 Heating Oil Tank(s) On-Site? yes no No. of Tanks: _____ Size(s): _____

Any Waste Pumpage? yes no Estimated Volume: ~~30 gals~~ NO
 Transported By: _____

Size of Excavation (ft²): #1 202.5 SF #2 336 SF Depth: #1 8.5 FT #2 5 FT Soil Type: SAND/SILT
 Concentrations Detected with PID: Peak = #2 18 PPM Average = 3.83 PPM - #2
 Type of PID: H-NU #1 25 PPM 5.17 PPM - #1
 Number of Readings (please put locations on attached drawing): 10/Exc
 Calibration Info. (date, time, type of gas): 7-28-92, 9:00 - H-NU SPAN GAS

Free Phase Product Encountered? yes no Approx. Amount: _____
 Cont. Soils Stockpiled? yes no Amount (yd³): #2 - 360 Y
 Cont. Soils Backfilled? yes no Amount (yd³): #1 - 112 CY

Groundwater Encountered? yes no Depth to Groundwater: 9.0 FEET TANK #1

Monitoring Wells Installed? yes no Number: _____ Screen Depth: _____
scheduled to be installed

On-Site Drinking Well? yes no [if yes: rock gravel spring]

Public Water Supply Well(s) Within 1/4 Mile? yes no
 Distance to nearest: _____

Private Water Supply Well(s) Within 1/4 Mile? yes no How Many? _____

Samples Collected for Laboratory Analysis? yes no How Many? 2/Exc - soils
1-1720-TANK #1
 [check all that apply: soil groundwater drinking water]

Receptors Affected (check all that apply):
 soil residential; # of houses/people: for Mrs. Gonyea
 groundwater surface water; name/type of water body: Lisa An Delato

Signature of Owner or Authorized Representative: William J. Gonyea
 Date: _____
 Signature of Person Performing Site Assessment: Cheryl D. Fennell
 Date: 7-28-92

*** ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE ***

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 UNDERGROUND STORAGE TANK PROGRAM
 TANK PULL FORM

RECEIVED JUL 24 1992

TODAY'S DATE: 7-29-92

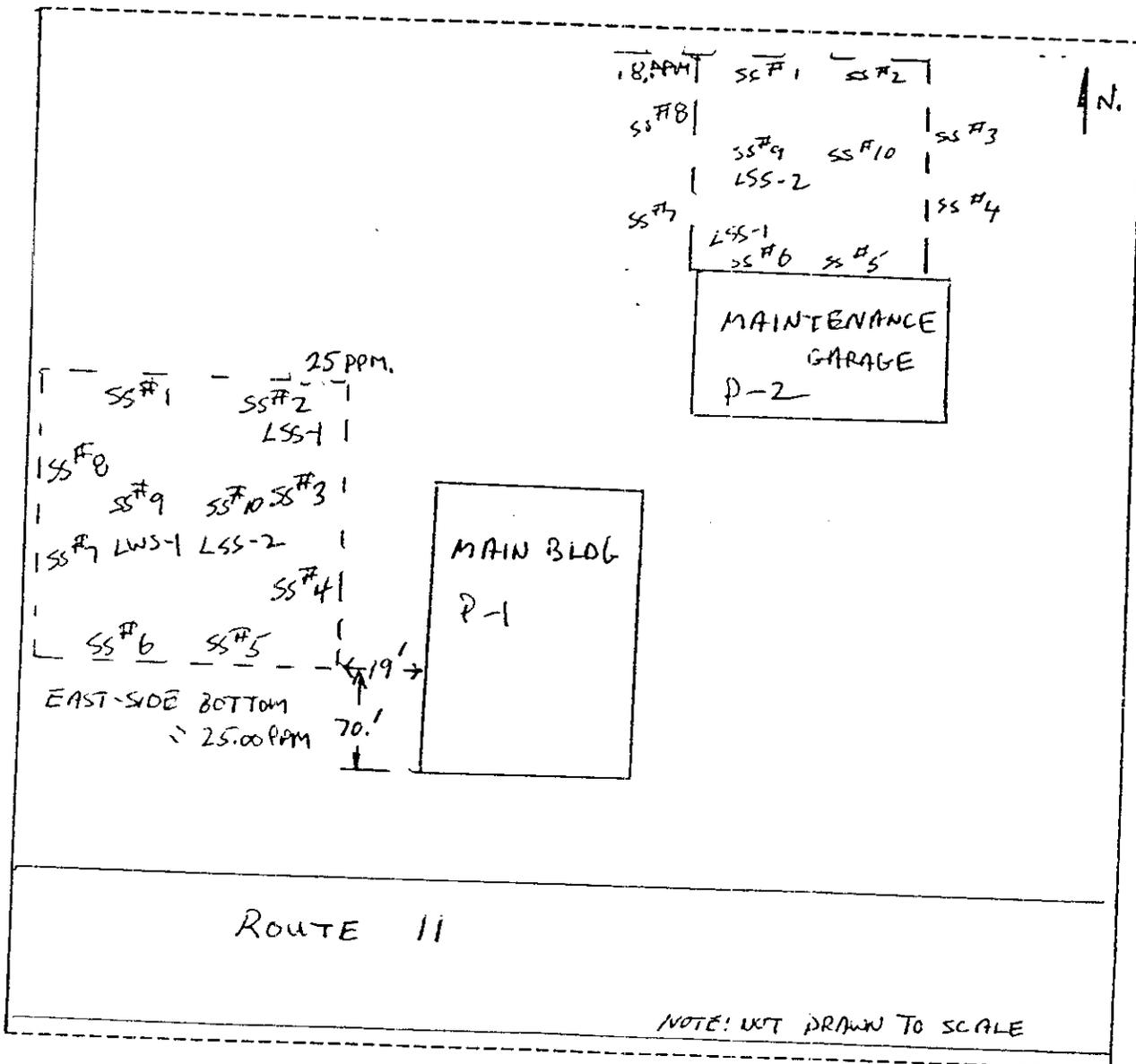
INSPECTOR: CRAIG D. TROMBLY

DATE OF REMOVAL: 7-27-92
 AND
 7-28-92

BUSINESS NAME: ATEC ASSOCIATES

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination and any pertinent site information. Indicate North arrow and major street names or route number.



SS = SOIL SAMPLE
 LSS = LAB SOIL SAMPLE - TPH (IR)
 LWS - GROUNDWATER SAMPLE

All parts must be returned within ten (10) days. No parts ACCEPTED for credit if returned after ten (10) days. 15% restocking charge.

UST# 126
UST# 127



WRECKING & SALVAGE YARD
HODGDON BROTHERS, INC.

NEW & USED AUTO PARTS
24 Hour Wrecker Service

Box 136
ASCUTNEY, VT. 05030
Telephone (802) 674-6202

MOBILE AUTO CRUSHER SERVICE
Repair Service

NOTE → Parts Line (802) 674-6368

Customer's Order No. _____ Phone No. _____ Date 7-29-92
Name ATEC ASSOCIATES
Address ACCORD PARK NORWELL MASS.

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MOSE.RETD.	PAID OUT	
Quantity	DESCRIPTION				PRICE	AMOUNT	
1	1,000 GAL ASPHALT COATED TANK				200.00	200.00	
1	4,000 GAL FIREWALLLESS TANK				400.00	400.00	
	- TOTAL					600.00	
	pd 7-29-92					300.00	
USED PARTS ARE SOLD ON AN "AS IS CONDITION" NO WARRANTY IS IMPLIED OR EXPRESSED TERMS OF SALE: ALL BILLS ARE DUE AND PAYABLE THE 10th OF EACH MONTH. IN THE EVENT LEGAL ACTION IS NECESSARY I WILL PAY REASONABLE ATTORNEY'S FEES & COURT COSTS FINANCE CHARGE OF 1 1/2% per month on unpaid balance with minimum finance charge of 50¢ computed AT ANNUAL RATE OF 18% 5% Vermont Sales Tax							
	500 Reserve				TOTAL	300.00	

All claims and returned goods MUST be accompanied by this bill

Rec'd by George S. Hodson

2.13 UST CLOSURE CHECKLIST

The following UST closure checklist was produced by ATEC Associates Inc., for quality control purposes.

USP CLOSURE O/C CHECK LIST			
DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS
Calibrate PID & LEL/O2 meters	7-28-92	9:00	
Drain & flush piping & pumps	7-28-92	9:50	
Excavate to top of tank	7-28-92	10:00	
Vent tank note LEL/O2 levels & times			
	7-28-92	T1: 2:00	LEL O2
		T2:	0.0 20.9
		T3:	0.0 20.9
		T4:	0.0 20.9
		T5:	
		T6:	
		T7:	
		T8:	
		T9:	
		T10:	
		T11:	
		T12:	
Pump & clean tank	7-29-92	2:30	
Note quantities liquid (gal) & sludge (lbs)			gal liquid 10 lbs sludge drummed
Remove all tank connections, and cap openings			
Excavate soils to free tank			
Segregate stained soils: Note PID readings (if >10 ppm NDIR also)			PID (ppm) NDIR (ppm)
Stock - 1	7-28-92	1:00	20.0
Stock - 2	"	1:30	2.0

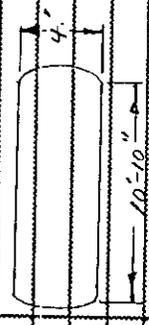
Site Topography: FLAT TOP
RELATIVELY LEVEL

Depth to tank: 1.0

STAINING WAS OBSERVED ON BUILDING AND IN PLACE FOR MAINTENANCE WEAT LINE

-STAINING AND PETROLEUM OILS WAS OBSERVED ALONG PIPING TO TANK

Tank Dimensions/Conditions:



ADDITIONALS - STEEL ASPHALT COATING STILL IN CONTACT - NO NOISE APPARENT TO THIS CORROSION

UST CLOSURE O/C CHECK LIST

DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Remove tank, piping, pumps, and hardware.				
Photograph excavation; note descriptions.	7-28-92	2:00	Photographic Descriptions: Photo 1: ONE SIDE OF REMOVED UST	Soil Description: FINE SAND/SILT
Sketch Schematic	"	2:00	Photo 2: OPPOSITE SIDE OF REMOVED UST	
	"	"	Photo 3: EX AS VIEWED FROM THE N.	
	"	"	Photo 4: " S,	
			Photo 5:	Depth to Groundwater/Conditions: N/A
			Photo 6:	
Se tank at safe distance from excavation	7-28-92	2:00		Depth of Excavation/Conditions: 5.0'
Secure tanks transport off-site	7-29-92			
Obtain 10 soil samples from excavation walls/bottom: Note PID/NDIR readings and sample locations.	7-28-92	12:00	PID (ppm) NDIR (ppm) SS1: 0.2	Sample Locations: W. SIDE WALL (3.4')
	"	12:05	SS2: 0.0	" "
	"	12:05	SS3: 0.2	E SIDE WALL "
	"	12:10	SS4: 0.0	" "
	"	12:10	SS5: 0.4	S. SIDE WALL "
	"	12:15	SS6: 6.0	" "
	"	12:15	SS7: 1.5	W. SIDE WALL "
	"	12:15	SS8: 18.0	" "
	"	12:20	SS9: 10.0	BOTTOM OF EXC
	"	12:20	SS10: 2.0	BOTTOM OF EXC.
Obtain 2 soil samples & 1 water samples for laboratory analysis. Note sample locations.	7-28-92	1:30		Sample Locations: LSS1: S. SIDE WALL (3.4') SS#6
	7-28-92	1:30		LSS2: BOTTOM OF EXC SS#9
				LWS1: N/A

3.0 UST No. 0127

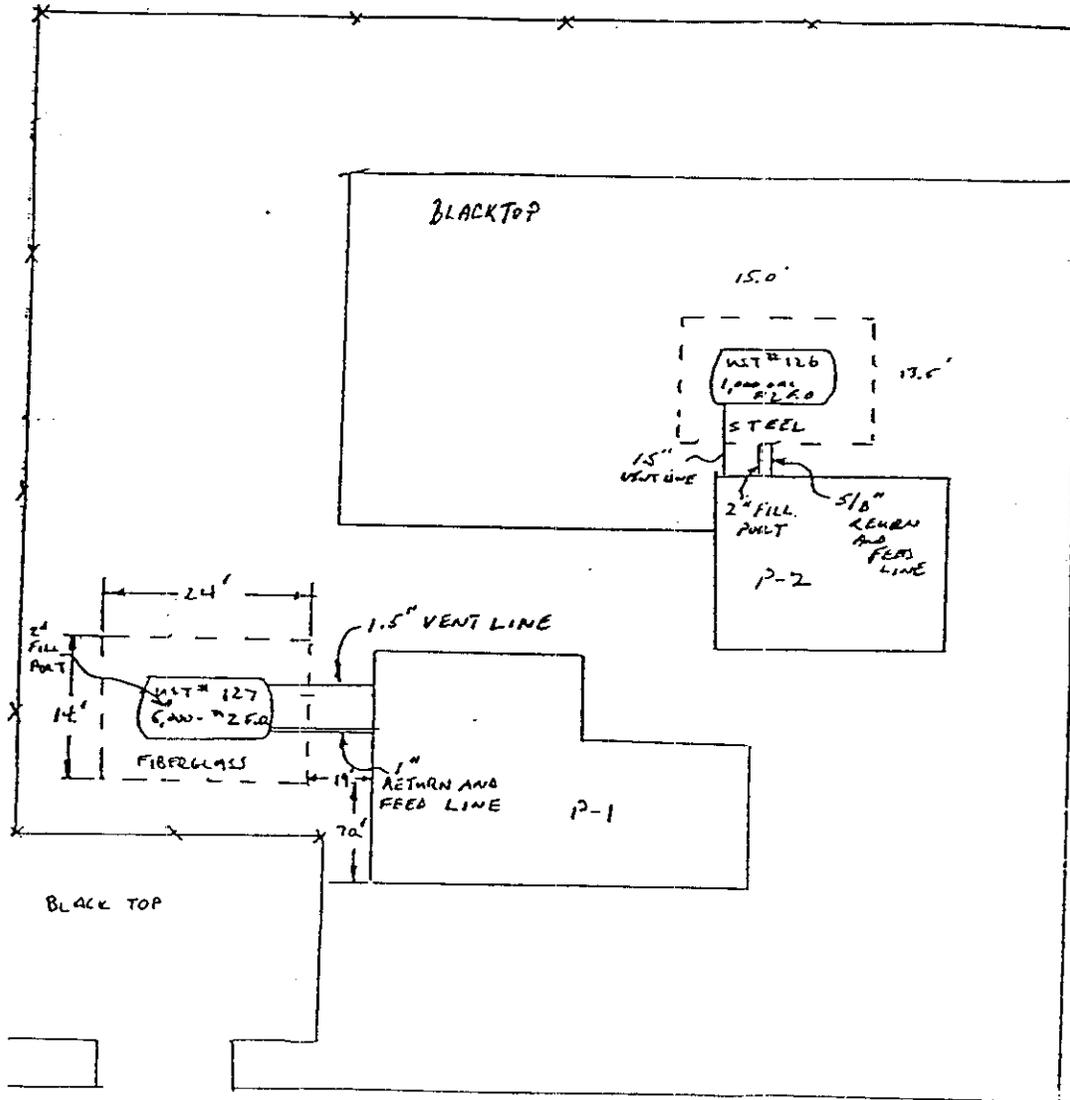
3.1 POST REMOVAL REPORT

3.1.1 Introduction

This Post-Removal Report details the results of the closure of one 4,000-gallon, single wall, FRP, underground storage tank (UST) referenced as UST No. 00127, located at property known as United States Army Reserve Center, State Route 11, Chester, Vermont (the site). The purpose of the closure was to excavate the UST and evaluate the potential for the presence of oil and hazardous material at the site. The closure of this UST was conducted on July 27 and 28, 1992.

The basic Project Work Scope included:

- Procurement/administration of all federal, state and local permits, manifests, regulations, etc., associated with UST system closure.
- Excavating, venting, cleaning, transporting, and disposing of one 4,000-gallon UST by appropriately licensed contractors/facilities.
- Disposal of residual UST materials at a licensed facility.
- Field screening and analysis of soil from the excavation by Photoionization Detector (PID) and field analyzed with a portable Non-Dispersive Infrared (NDIR) Analyzer, to identify a potential release of oil and hazardous materials from the UST, if any.
- Laboratory Analysis of soil sampled from the UST excavation by a USEPA certified laboratory for Total Petroleum Hydrocarbons.
- Preparation of a Post-Removal Report, to include assimilation of information gathered, major findings and conclusions.



RT. 11
DIMENSIONS SHOWN ARE APPROXIMATE AND SHOULD NOT BE CONSIDERED ACTUAL MEASUREMENTS

NOTE: NOT DRAWN TO SCALE

SITE PLAN

4,000 gallon UST relative to:
Building P-1
Chester Memorial Reserve Center, Chester, Vermont

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 3.1



3.1.1 Subsurface Storage Tank Excavation and Removal

On July 27 and 28, 1992, one 4,000-gallon No. 2 fuel oil, fiberglass underground storage tank (UST) was excavated and removed from the site. The UST was located adjacent to the west side of Building P-1. A Site Plan has been included as Figure 3.1. Site topography is level. Surface cover at the site consists of turf.

The tank was covered by approximately 2.0 feet of sand. Soil excavated to free the tank was visibly contaminated. Soil in the excavation consisted primarily of very loose, light brown, fine sand. The bottom of the excavation was approximately 9.0 feet below grade. Soil within the excavation was visibly contaminated. A petroleum odor was evident within the excavation. Groundwater was encountered within the excavation at a depth of 8.5 feet. A sheen was observed on groundwater within the excavation.

Associated piping was drained, and tank connections were removed. Inspection revealed piping to be corroded. Prior to removal, UST No. 0127 was estimated to contain 20 gallons of No. 2 fuel oil. Tank openings were capped, and the tank was removed from the excavation.

Upon excavation and removal, the tank was observed to contain two stress cracks, approximately one foot in length, near the center on both sides of tank. Following venting of the tank, an access way was cut in the end of the tank to allow entry for cleaning. It was then entered and vacuumed/wiped clean of any residual materials. Approximately 20 gallons of No. 2 fuel oil sludges were removed and drummed on July 28, 1992. The drummed material was transported on August 28, 1992 by Lincoln Environmental, Inc. to Pollution Solutions of Williston, Vermont. The scrap tank was disposed at Hodgdon Brothers, Inc. on July 29, 1992.

3.1.2 Sampling and Analysis

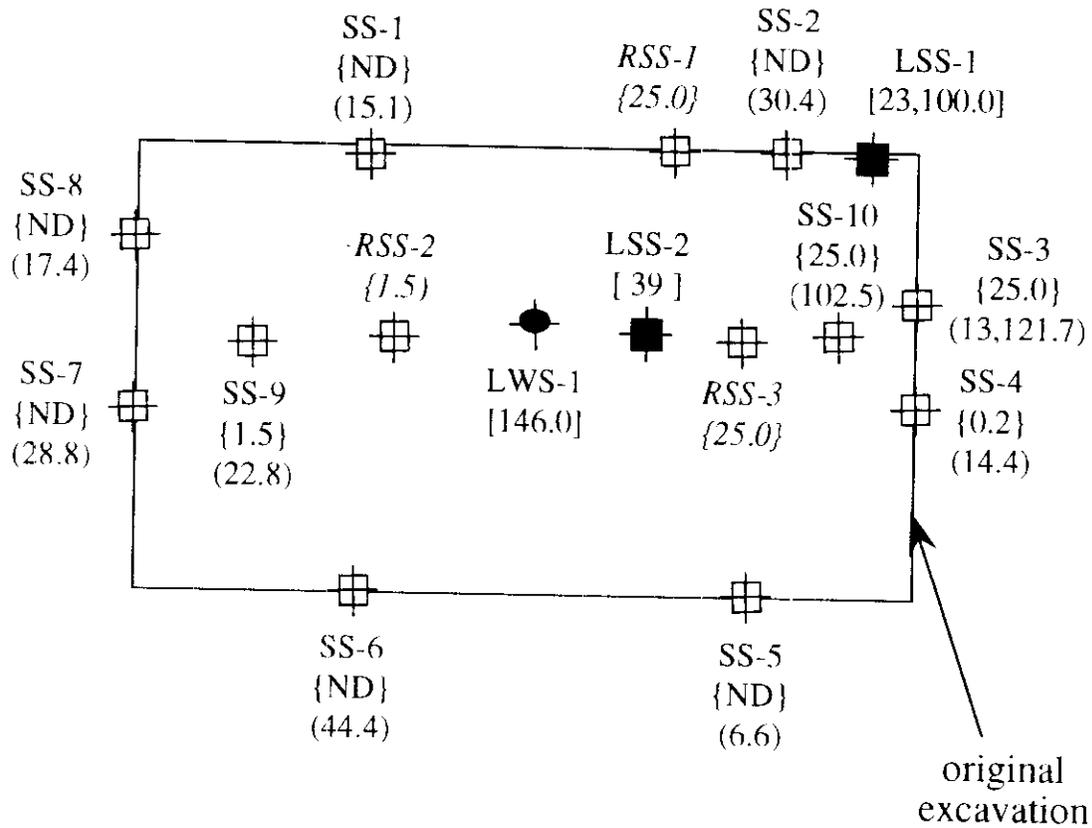
Ten soil samples were obtained from the excavation for field screening with a Photoionizing Detector (PID) and field analyzed with a Non-Dispersive Infrared (NDIR) Analyzer. The PID field screening for Total Organic Vapors (TOVs) was conducted with an HNu photoionizer utilizing the jar headspace screening protocol outlined in the Hazardous Materials Containment Plan. The NDIR field screening for Total Petroleum Hydrocarbons (TPH) was conducted with a Horiba OCMA 220, utilizing the procedures outlined in the Hazardous Materials Containment Plan.

Eight of the samples (SS-1 to SS-8) were obtained from the original excavation walls at a depth of approximately 5.0 - 6.0 feet below grade. Two of the soil samples (SS-9 and SS-10) were obtained from the bottom of the excavation at a depth of approximately 9.0 feet below grade. One composite soil sample (Stock-1) was obtained from stockpiled soils for PID and NDIR screening.

Two soil samples (LSS-1 and LSS-2) were obtained from the east wall and the bottom of the original excavation, respectively, for TPH laboratory analysis. One groundwater sample (LWS-1) was obtained from the bottom of the excavation for laboratory analysis for TPH.

Sampling locations are depicted on the attached Sampling Schematic - Figure 3.2.

One composite soil sample (STKPL-1) was obtained from stockpiled soil associated with the removal of the UST Nos. 0126 and 0127, and the additional excavation conducted at the site. STKPL-126/127 was laboratory analyzed for TPH, VOCs, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP), semi-volatiles organic compounds, Polychlorinated Biphenyls (PCBs), sulfide/cyanide reactivity, flashpoint, and corrosivity for characterization and disposal purposes.



LEGEND:

- ⊠ Field Screened Soil Sample
- Lab Analyzed Soil Sample
- Lab Analyzed Water Sample
- { } PID Results (TOVs) in ppm
- () NDIR Results (TPH) in ppm
- [] Lab Analysis Results (TPH) in ppm
- ND None Detected

SAMPLING SCHEMATIC

4,000 gallon UST excavation at:
 Building P-1
 Chester, Vermont

PROJECT: 37.07.91.00451

NOT TO SCALE

FIGURE: 3.2



3.1.3 Analytical Results

Field screening results with the Photoionization Detector (PID) and the Non-Dispersive Infrared (NDIR) Analyzer of the ten soil samples obtained from the excavation and one composite sample obtained from stockpiled soil are listed in Table 2 as follows:

Table 2
PID AND NDIR RESULTS

Sample Number	TOVs (ppm)	TPH (ppm)
SS-1	ND	15.1
SS-2	ND	30.4
SS-3	25.0	13,121.7
SS-4	0.2	14.4
SS-5	ND	6.6
SS-6	ND	44.4
SS-7	ND	28.8
SS-8	ND	17.4
SS-9	1.5	22.8
SS-10	25.0	102.5
Stock-1	25.0	23.5
ND - None Detected: ppm - parts per million		

Laboratory analysis of LSS-1 obtained from the east wall of the original excavation revealed 23,100.0 ppm TPH. Laboratory analytical results of LSS-2 obtained from the bottom of the original excavation revealed 39.0 ppm TPH.

Laboratory analytical results of the groundwater sample (LWS-1) obtained from the bottom of the excavation revealed 146 ppm TPH.

Laboratory analysis of STKPL-126/127 obtained from the stockpiled soil associated with the removal of UST Nos. 0126 and 0127 and the additional excavation at the site revealed 650 ppm TPH. Laboratory analysis revealed 0.13 ppm Copper and 0.88 ppm Zinc. All other analytical results were below the Method Reporting Limits.

A copy of the laboratory analytical report of soil samples obtained during the excavation of UST No. 0127 has been included in Section 2.8.

2.1.5 Conclusions and Recommendations

ATEC's conclusions were as follows:

Upon excavation and removal, the UST was observed to contain two stress cracks, approximately one foot in length, near the center of the tank. Soil excavated to free the tank was visibly contaminated and a sheen was observed on groundwater within the excavation. A strong petroleum odor was evident within the excavation.

Ten soil samples (SS-1 to SS-10) were obtained from the excavation for field screening and field analysis utilizing a photoionization detector (PID) and Non-Dispersive Infrared (NDIR) Analyzer, respectively. PID readings ranged from non-detectable to 25.0 ppm. NDIR results ranged from 6.6 ppm to 13,121.7 ppm Total Petroleum Hydrocarbons (TPH).

Two soil samples (LSS-1 and LSS-2) were obtained from the original excavation for laboratory TPH analysis. Laboratory analysis of LSS-1 obtained from the east wall of the excavation revealed 23,100 ppm TPH. Laboratory analytical results for LSS-2 obtained from the bottom of the excavation revealed 39 ppm TPH.

Based on these findings, ATEC recommended further excavation to remediate the site according to contract specifications.

3.2 SITE REMEDIATION

3.2.1 Site Remediation

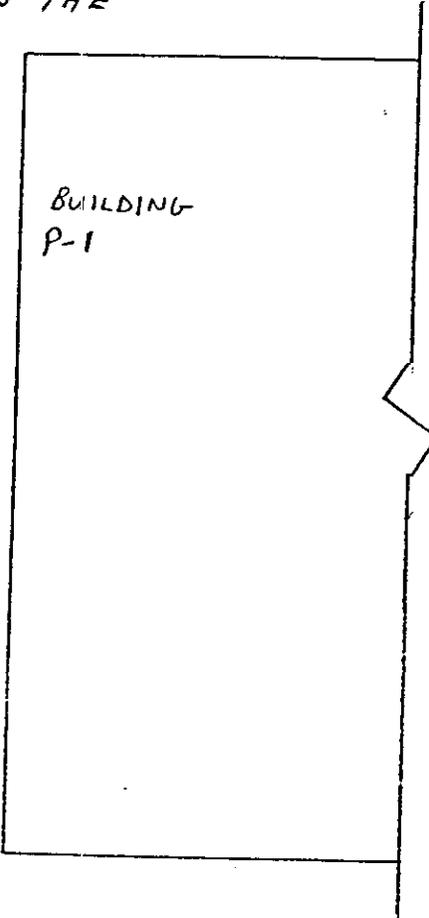
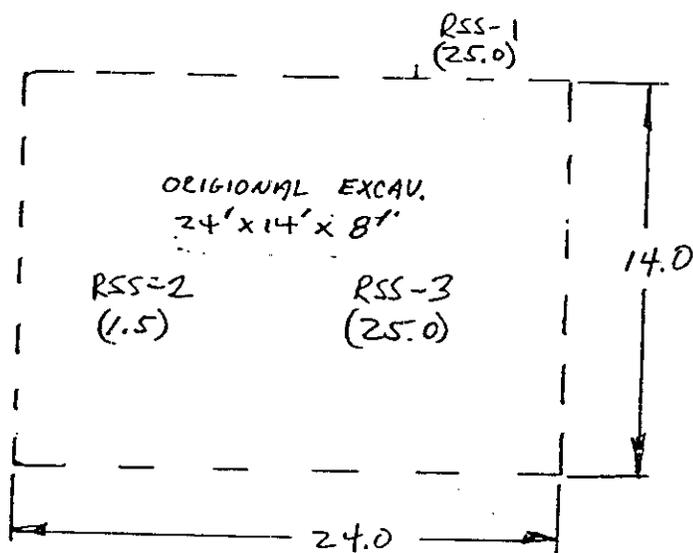
Following initial PID screening, additional excavation to remove contaminated soil and reach background levels by PID (<1 ppm) was conducted per order the Contracting Officer's Representative. Additional soil was removed from the bottom of the excavation on July 28, 1992. Further excavation could not be conducted along the northeast corner of the excavation due to a potential structural impairment to a sewer line and septic tank. Soil in this vicinity was severely stained due to a fracture in the sewer line. Soil was not excavated below the groundwater table. A Remedial Excavation Plan is attached as Figure 3.3.

Three soil samples (RSS-1, RSS-2, and RSS-3) were obtained from the post-remedial excavation for PID field screening. Sample RSS-1 was obtained from the northeast sidewall of the excavation, in the vicinity of the stained soil caused by the fractured sewer line. Samples RSS-2 and RSS-3 were obtained from the bottom of the excavation. PID results ranged from 1.5 ppm to 25.0 ppm.

3.2.2 Soil Stratigraphy

Soil stratigraphy in the vicinity of UST No. 0127 includes a 1 foot topsoil layer, 1.5 feet of silt and cobbles, a 1 foot layer of sand, a 3 inch layer of stone, a 6 inch layer of silt, three inches of stone, a 3 feet layer of silt and cobbles, and a 1.5 feet layer of stone. Groundwater was encountered at nine feet below grade. A Soil Stratigraphy diagram is attached as Figure 3.4.

NOTE: CONTAMINATION AT
NORTHEAST CORNER OF EXCAV.
WAS DUE TO A LEAK IN THE
SEWER LINE.



BLACKTOP

NOTE: DIMENSIONS SHOWN ARE APPROX.
AND SHOULD NOT BE CONSIDERED
ACTUAL DIMENSIONS

NOTE: NOT DRAWN
TO SCALE

ROUTE 11

REMEDIAL EXCAVATION PLAN

4,000 gallon UST
Building P-1
Chester, Vermont

PROJECT: 37.07.92.00451

NOT TO SCALE

FIGURE: 3.3



3.2.3 Contaminated Soil Disposal

A total of 71.5 tons of No. 2 fuel oil contaminated soil generated during the removal and follow-up remediation of USTs 0126 and 0127 were removed and disposed for recycling at Bardon Trimount Bituminous Products Company, Shrewsbury, Massachusetts. Copies of Weight Receipts and Bills of Lading are included in Section 2.11.

Laboratory analysis of STKPL-126/127 obtained from the stockpiled soil associated revealed 650 ppm TPH. Laboratory analysis revealed 0.13 ppm Copper and 0.88 ppm Zinc. All other analytical results were below the Method Reporting Limits.

3.3 HYDROGEOLOGICAL SERVICES

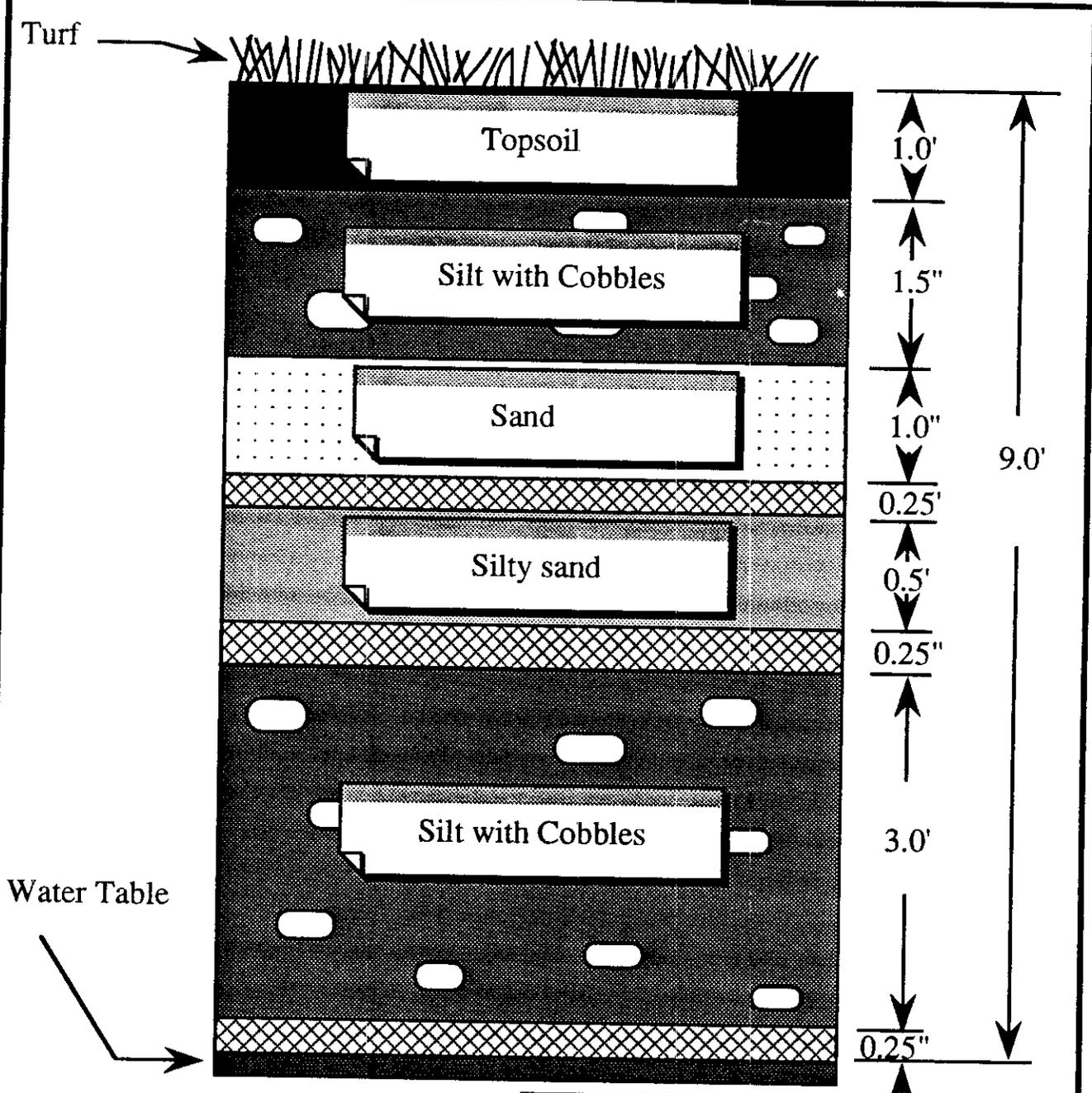
Hydrogeological services were not performed relative to UST 0127.

3.4 BACKFILL

On July 29, 1992, the UST 0127 excavation was lined with polyethylene plastic sheeting prior to backfilling. Approximately 116 cubic yards of soil was used to fill the excavation associated with the removal of UST No. 0126. Backfill material consisted clean, borrow material. Backfill material was placed and compacted to subgrade level prior to site restoration with the approval of the Contracting Officer's Representative according to contract specifications.

3.5 SITE RESTORATION

Following backfilling of the excavation, approximately 336 square feet of loam and seed were spread in September of 1992.



Legend

 :Stone

SOIL STRATIGRAPHY 4,000 gallon UST excavation at: Building P-1 Chester, Vermont	PROJECT: 37.07.91.00451	
	NOT TO SCALE	
	FIGURE: 3.4	

3.6 PHOTOGRAPHIC DOCUMENTATION

The following photographs are of the UST removed and the excavation.

A-1: One side of removed tank.

A-2: Opposite side of removed tank.

A-3: Excavation as viewed from south, facing north.

A-4: Excavation as viewed from north, facing south.

A-1



A-2

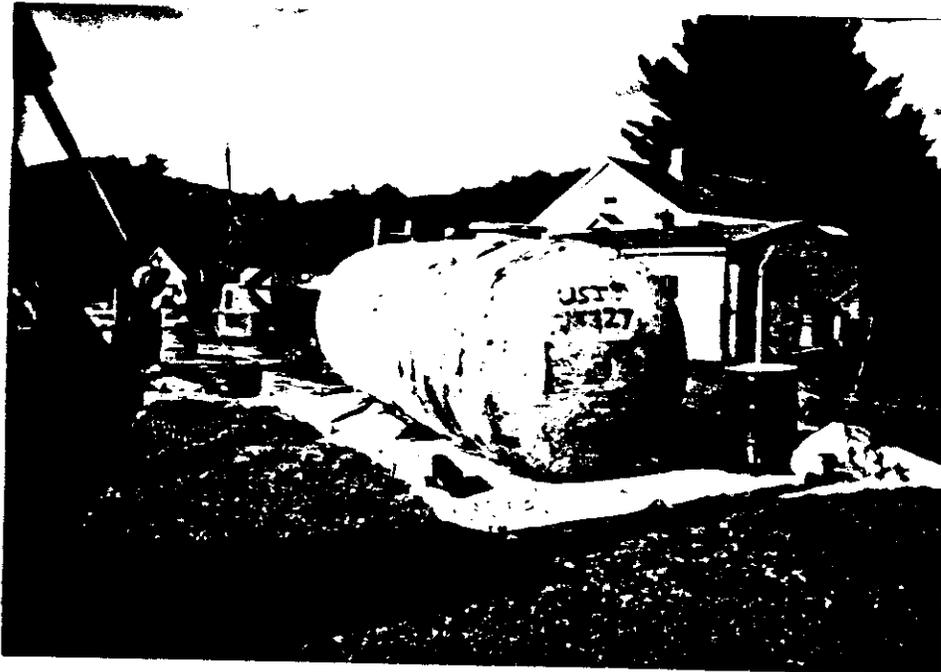


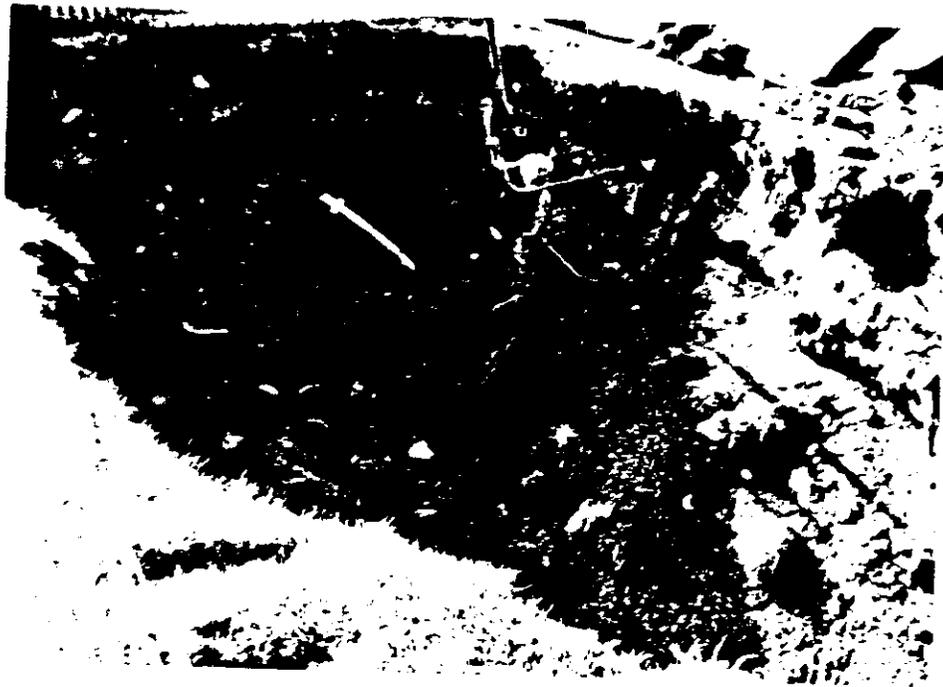
PHOTO DOCUMENTATION

4,000 gallon UST removal at:
Building P-1
Chester, Vermont

PROJECT: 37.07.91.07451



A-3



A-4



PHOTO DOCUMENTATION

4,000 gallon UST removal at:
Building P-1
Chester, Vermont

PROJECT: 37.07.91.07451



3.7 OCMA 220 DATA SHEETS

The following information was organized from the data collected from the Non-Dispersive Infrared Analyzer.

SS-1 to SS-10: Soil samples obtained from original excavation.

Stock-1 and Stock-2: Composite soil samples collected from the stockpile.

RSS-2: Soil sample collected from the post-remedial excavation.

TPH SOIL ANALYSES BY NON-DISPERSIVE INFRARED ANALYZER - MODIFIED EPA STANDARD TEST METHOD 418.1

PROJECT NAME, NUMBER, TANK: U.S. ARMY - FORT DEVENS 37.07.91.451 UST 0127

DATE: Jul 31, 1992

OPERATOR: Charles Langenhagen

CALIBRATION DATA

TYPE CALIBRATION	FIRST READING		SECOND READING		THIRD READING		SPAN CHECK
	INITIAL	FINAL	INITIAL	FINAL	INITIAL	FINAL	
ZERO:	1.8	0.0	0.5	0.0	-0.7	0.0	27.3
SPAN:	34.0	40.0	47.0	40.0	40.5	40.0	
ZERO:	6.2	0.0	-5.8	0.0	-0.6	0.0	

ANALYTICAL DATA

SAMPLE NUMBER	WEIGHT (g)		1st DILUTION RATIO (ml)		2nd DILUTION RATIO (ml)		INSTRUMENT RESULTS (ppm)			CONCENTRATION mg/l
	GROSS	TARE	F-113	SAMPLE	F-113	SAMPLE	1st	2nd	3rd	
STOCK-1	80.2	74.1	17.5	3.0	--	--	0.6	0.7	--	23.5
SS-1	81.4	74.6	17.5	3.0	--	--	0.3	0.5	--	15.1
SS-2	79.8	74.4	17.5	3.0	----	----	1.2	0.8	--	30.4
SS-3	80.5	74.6	25.0	0.5	--	--	51.1	50.6	--	13121.7
SS-4	79.9	74.2	17.5	3.0	--	--	0.3	0.4	--	14.4
SS-5	80.5	74.3	17.5	3.0	--	--	0.0	0.2	--	6.6
SS-6	80.4	74.4	17.5	3.0	--	--	1.0	1.3	--	44.4
SS-7	80.0	74.3	17.5	3.0	--	--	0.5	0.8	--	28.8
SS-8	80.4	74.5	17.5	3.0	----	----	0.8	0.5	--	17.4
SS-9	80.8	74.5	17.5	3.0	--	--	0.6	0.7	--	22.8
SS-10	81.3	74.5	17.5	3.0	--	--	3.0	3.4	--	102.5

3.8 LABORATORY ANALYTICAL REPORTS

The following laboratory analytical reports were organized and provided by Environmental Science Services Inc.

- LSS-1, and LSS-2: Soil samples obtained from original excavation. Laboratory analyzed for TPH.
- LWS-1: Groundwater sample obtained from the excavation. Laboratory analyzed for TPH.
- Stkpl-1: Soil sample obtained from stockpiled soil associated with USTs 0126 and 0127 for disposal classification. Laboratory analyzed for VOCs, SemiVOCs, Flashpoint, Reactive Cyanide/Sulfide, Polychlorinated Biphenyls, TPH, 13 Metals by Toxicity Characteristic Leachate Procedure (TCLP).



120

In Response To The Future

August 13, 1992

Mr. Craig Trombly
ATEC Environmental Consultants
62 Accord Park Drive
Norwell, MA 02061

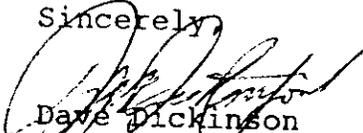
RECEIVED AUG 17 1992

Dear Mr. Trombly:

Enclosed is the data report of laboratory test results for the analyses of the samples which were received at ESS on July 30, 1992 as part of your Fort Devens UST# 126, 127-Chester, VT Project 37.07.451. Also enclosed with the data report is the project invoice for your P.O.# 72461.

If you have any questions please feel free to call.

Sincerely,


Dave Dickinson
Laboratory Director

enc.





In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-1/UST# 126

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-01

Date Reported: 8/13/92

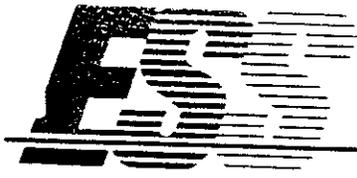
Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	653	mg/Kg	11	418.1

MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=89%

Approved by: 
 David Dickinson
 Laboratory Director

Date: 13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-2/UST# 126

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-02

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	22	mg/Kg	11	418.1

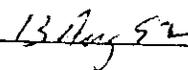
MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=89%

Approved by:


David Dickinson
Laboratory Director

Date:


13 Aug 92

002



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: RSS-1/UST# 126

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-06

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	ND	mg/Kg	11	418.1

ND = Not Detected above Method Reporting Limit (MRL)

Results reported on a dry weight basis, % solids=89%

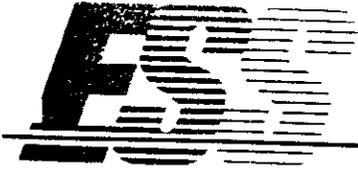
Approved by:

David Dickinson
David Dickinson
Laboratory Director

Date:

13 Aug 92

008



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-1/UST# 127

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-03

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	23,100	mg/Kg	118	418.1

MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=85%

Approved by: 
David Dickinson
Laboratory Director

Date: 13 Aug 92

003



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LSS-2/UST# 127

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-04

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	39	mg/Kg	14	418.1

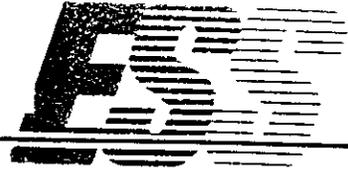
MRL = Method Reporting Limit

Results reported on a dry weight basis, % solids=72%

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

004



In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: LWS-1/UST# 127

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-05

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Total Petroleum Hydrocarbon-IR	146	mg/L	10	418.1

MRL = Method Reporting Limit

Approved by: *David Dickinson*
David Dickinson
Laboratory Director

Date: 8/13/92

005





In Response To The Future

CERTIFICATE OF ANALYSIS

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: Stkpl-1

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-07

Date Reported: 8/13/92

Parameter	Results	Units	MRL	Method
Corrosivity (pH)	7.4	S.U.	N/A	9045
Flashpoint	No Flash	°F	200	1010
Percent Solids	90	% w/w	1	160.3
Polychlorinated Biphenyls	ND	mg/Kg	Attached	8080
Reactive Cyanide	ND	mg/Kg	2	7.3.3.2
Reactive Sulfide	ND	mg/Kg	2	7.3.4.1
Paint Filter Liquid Test	ND	mls/5 min	0.5	9095
Total Petroleum Hydrocarbon-IR	650	mg/Kg	11	418.1
Semivolatile Organics	ND	ug/Kg	Attached	8270
Volatile Organics	ND	ug/Kg	Attached	8240
Toxicity Characteristic Leaching Procedure				1311
Metals				
Copper	0.13	mg/L	Attached	6010
Zinc	0.88	mg/L	Attached	6010

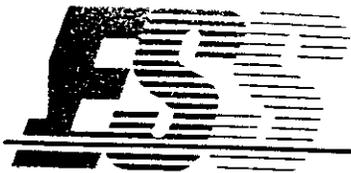
N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: 
 David Dickinson
 Laboratory Director

Date: 13 Aug 92

007



In Response To The Future

CERTIFICATE OF ANALYSIS

POLYCHLORINATED BIPHENYLS Method 8080

Client: ATEC Environmental Consultants

Client Project ID: UST# 126, 127

Client Sample ID: Stkpl-1

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-07

Date Reported: 8/13/92

Parameter	Result (mg/Kg)	MRL
Arochlor 1016	ND	1
Arochlor 1221	ND	1
Arochlor 1232	ND	1
Arochlor 1242	ND	1
Arochlor 1248	ND	1
Arochlor 1254	ND	1
Arochlor 1260	ND	1

ND = Not Detected above Method Reporting Limit (MRL)

Surrogate Recovery Data	% Recovery	QC Limit
Dibutylchloroendate	129%	50 - 150%

Approved by: David Dickinson
Laboratory Director

Date: 13 Aug 92

008



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

Client Sample ID: Stkpl-1

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-07

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL *
2-Chlorophenol	ND	1650
2-Nitrophenol	ND	1650
Phenol	ND	1650
2,4-Dimethylphenol	ND	1650
2,4-Dichlorophenol	ND	1650
2,4-Dinitrophenol	ND	1650
Pentachlorophenol	ND	8250
4-Nitrophenol	ND	8250
2,4,6-Trichlorophenol	ND	8250
2,4,5-Trichlorophenol	ND	1650
2-Methylphenol	ND	8250
4-Methylphenol	ND	1650
4-Chloro-3-Methylphenol	ND	1650
4,6-Dinitro-2-Methylphenol	ND	1650
		8250

ND = Not Detected above Method Reporting Limit (MRL)

*Sample diluted due to hydrocarbon interference

Approved by:


David Dickinson
Laboratory Director

Date:

13 Aug 92

009



In Response To The Future

CERTIFICATE OF ANALYSIS **BASE NEUTRAL EXTRACTABLES**
EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Stkpl-1

ESS Sample ID: 921975-07

Date Sample Received: 7/30/92

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL *
Acenaphthylene	ND	1650
1,2,4-Trichlorobenzene	ND	1650
Hexachlorobenzene	ND	1650
Bis(2-chloroethyl) ether	ND	1650
2-Chloronaphthalene	ND	1650
1,2-Dichlorobenzene	ND	1650
1,3-Dichlorobenzene	ND	1650
1,4-Dichlorobenzene	ND	1650
3,3-Dichlorobenzidine	ND	3300
2,4-Dinitrotoluene	ND	1650
2,6-Dinitrotoluene	ND	1650
Fluoranthene	ND	1650
4-Chlorophenyl phenyl ether	ND	1650
Bis(2-chloroisopropyl) ether	ND	1650
Bis(2-chloroethoxy) methane	ND	1650
Hexachlorobutadiene	ND	1650
Hexachlorocyclopentadiene	ND	1650
Isophorone	ND	1650
Naphthalene	ND	1650
Nitrobenzene	ND	1650
N-nitrosodiphenylamine	ND	1650
N-nitrosodi-n-propylamine	ND	1650
Bis(2-ethylhexyl)phthalate	ND	1650
Di-n-butylphthalate	ND	1650
Di-n-octylphthalate	ND	1650
Diethyl phthalate	ND	1650
Dimethyl phthalate	ND	1650
Benzo(a)anthracene	ND	1650

ND = Not Detected above Method Reporting Limit (MRL)

*Sample diluted due to hydrocarbon interference

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

010



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont. EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Stkpl-1

ESS Sample ID: 921975-07

Date Sample Received: 7/30/92

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL *
Benzo(a)pyrene	ND	1650
Benzo(b)fluoranthene	ND	1650
Benzo(k)fluoranthene	ND	1650
Chrysene	ND	1650
Acenaphthene	ND	1650
Anthracene	ND	1650
Benzo(ghi)perylene	ND	1650
Fluorene	ND	1650
Phenanthrene	ND	1650
Dibenzo(a,h)anthracene	ND	1650
Indeno(1,2,3-cd)pyrene	ND	1650
Pyrene	ND	1650
Hexachloroethane	ND	1650
4-Bromophenyl-phenylether	ND	1650
Benzyl Alcohol	ND	1650
Benzoic Acid	ND	1650
Bis(2-Chloroethoxy)methane	ND	8250
4-Chloroaniline	ND	1650
2-Methylnaphthalene	ND	1650
2-Nitroaniline	ND	1650
3-Nitroaniline	ND	8250
Dibenzofuran	ND	1650
4-Nitroaniline	ND	1650
Butylbenzylphthalate	ND	8250
		1650

ND = Not Detected above Method Reporting Limit (MRL)

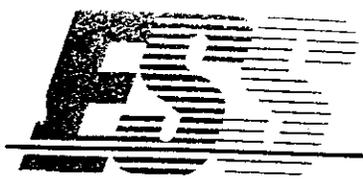
* Sample diluted due to hydrocarbon interference

Approved by:


David Dickinson
Laboratory Director

Date: 13 Aug 92

G11



In Response To The Future

CERTIFICATE OF ANALYSIS **TCL VOLATILE ORGANICS**
Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

Client Sample ID: Stkpl-1

Date Sample Received: 7/30/92

ESS Project ID: 921975

ESS Sample ID: 921975-07

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL
Methylene Chloride	ND	1000
1,1-Dichloroethane	ND	1000
Chloroform	ND	1000
Carbon Tetrachloride	ND	1000
1,2-Dichloropropane	ND	1000
Dibromochloromethane	ND	1000
1,1,2-Trichloroethane	ND	1000
Tetrachloroethene	ND	1000
Chlorobenzene	ND	1000
1,2-Dichloroethane	ND	1000
1,1,1-Trichloroethane	ND	1000
Bromodichloromethane	ND	1000
Trans-1,3-Dichloropropene	ND	1000
Bromoform	ND	1000
1,1,2,2-Tetrachloroethane	ND	1000
Benzene	ND	1000
Toluene	ND	1000
Ethyl Benzene	ND	1000
Chloromethane	ND	1000
Bromomethane	ND	1000
Vinyl Chloride	ND	1000
Chloroethane	ND	1000
1,1-Dichloroethene	ND	1000
1,2-Dichloroethene (Total)	ND	1000
Trichloroethene	ND	1000
Acetone	ND	1000
Carbon Disulfide	ND	1000
2-Butanone	ND	1000
Cis-1,3-Dichloropropene	ND	1000
4-Methyl-2-Pentanone	ND	1000
2-Hexanone	ND	1000
Styrene	ND	1000
Xylenes (Total)	ND	1000

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

012



In Response To The Future

CERTIFICATE OF ANALYSIS

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)

METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants	Date Sampled: 7/29/92
Client Project ID: UST# 126, 127	Date TCLP Performed: 8/6/92
Client Sample ID: Stkpl-1	Date Leachate Extracted: 8/7/92
ESS Sample ID: 921975-07	Date Extract Analyzed: 8/10/92

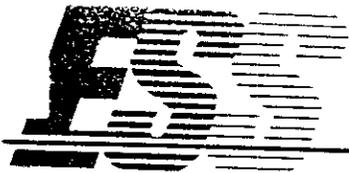
Target Analyte	Actual		Adjusted*	
	Sample Result (mg/L)	Method Reporting Limit	Sample Result (mg/L)	Method Reporting Limit
Antimony	ND	0.2	ND	0.4
Arsenic	ND	0.2	ND	0.2
Cadmium	ND	0.02	ND	0.03
Chromium	ND	0.05	ND	0.05
Lead	ND	0.1	ND	0.1
Mercury	ND	0.005	ND	0.005
Selenium	ND	0.3	ND	0.3
Silver	ND	0.05	ND	0.07
Copper	0.13	0.02	0.13	0.02
Nickel	ND	0.04	ND	0.04
Zinc	0.88	0.02	0.88	0.02
Beryllium	ND	0.02	ND	0.04
Thallium	ND	0.3	ND	0.4

* Actual sample result adjusted for matrix bias. Refer to matrix spike analysis summary form.

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
 David Dickinson
 Laboratory Director

Date: 13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client

Project ID: UST 126, 127

Date Sample Analyzed: 8/6/92

ESS

Project ID: 921975

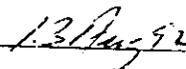
SAMPLE ID	PHENOL-D5 (10-94%)*	2-FLUOROPHENOL (21-100%)*	2,4,6 TRIBROMOPHENOL (10-123%)*
SV0717B2	52%	75%	35%
921957-07	32	30	30

* Acceptance criteria.

Approved by:


 David Dickinson
 Laboratory Director

Date:


 1.3 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE-NEUTRAL SURROGATE RECOVERY

Client: ATEC Environmental Consultants

Client

Project ID: UST 126, 127

Date Sample Analyzed: 8/6/92

ESS

Project ID: 921975

SAMPLE ID	NITROBENZENE-D5 (35-115%)*	2-FLUOROBIPHENYL (43-115%)*	P-TERPHENYL-D14 (33-141%)*
SV0717B2	65%	104%	50%
921975-07	60	51	75

* Acceptance criteria.

Approved by:


 David Dickinson
 Laboratory Director

Date:

13 Aug 92

010

010



In Response To The Future

CERTIFICATE OF ANALYSIS

ACID EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

Client Sample ID: Method Blank

Date Sample Received: N/A

ESS Project ID: 921975

ESS Sample ID: SV0717B2

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL
2-Chlorophenol	ND	330
2-Nitrophenol	ND	330
Phenol	ND	330
2,4-Dimethylphenol	ND	330
2,4-Dichlorophenol	ND	330
2,4-Dinitrophenol	ND	330
Pentachlorophenol	ND	1,650
4-Nitrophenol	ND	1,650
2,4,6-Trichlorophenol	ND	1,650
2,4,5-Trichlorophenol	ND	330
2-Methylphenol	ND	1,650
4-Methylphenol	ND	330
4-Chloro-3-Methylphenol	ND	330
4,6-Dinitro-2-Methylphenol	ND	1,650

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:


David Dickinson
Laboratory Director

Date:

13 Aug 92

017



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Method Blank

ESS Sample ID: SV0717B2

Date Sample Received: N/A

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL
Acenaphthylene	ND	330
1,2,4-Trichlorobenzene	ND	330
Hexachlorobenzene	ND	330
Bis(2-chloroethyl) ether	ND	330
2-Chloronaphthalene	ND	330
1,2-Dichlorobenzene	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
3,3-Dichlorobenzidine	ND	330
2,4-Dinitrotoluene	ND	660
2,6-Dinitrotoluene	ND	330
Fluoranthene	ND	330
4-Chlorophenyl phenyl ether	ND	330
Bis(2-chloroisopropyl) ether	ND	330
Bis(2-chloroethoxy) methane	ND	330
Hexachlorobutadiene	ND	330
Hexachlorocyclopentadiene	ND	330
Isophorone	ND	330
Naphthalene	ND	330
Nitrobenzene	ND	330
N-nitrosodiphenylamine	ND	330
N-nitrosodi-n-propylamine	ND	330
Bis(2-ethylhexyl)phthalate	ND	330
Di-n-butylphthalate	ND	330
Di-n-octylphthalate	ND	330
Diethyl phthalate	ND	330
Dimethyl phthalate	ND	330
Benzo(a)anthracene	ND	330

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

010



In Response To The Future

CERTIFICATE OF ANALYSIS

BASE NEUTRAL EXTRACTABLES cont. EPA 8270

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

ESS Project ID: 921975

Client Sample ID: Method Blank

ESS Sample ID: SV0717B2

Date Sample Received: N/A

Date Reported: 8/13/92

Parameter	Result (ug/Kg)	MRL
Benzo(a)pyrene	ND	330
Benzo(b)fluoranthene	ND	330
Benzo(k)fluoranthene	ND	330
Chrysene	ND	330
Acenaphthene	ND	330
Anthracene	ND	330
Benzo(ghi)perylene	ND	330
Fluorene	ND	330
Phenanthrene	ND	330
Dibenzo(a,h)anthracene	ND	330
Indeno(1,2,3-cd)pyrene	ND	330
Pyrene	ND	330
Hexachloroethane	ND	330
4-Bromophenyl-phenylether	ND	330
Benzyl Alcohol	ND	330
Benzoic Acid	ND	330
Bis(2-Chloroethoxy)methane	ND	1,650
4-Chloroaniline	ND	330
2-Methylnaphthalene	ND	330
2-Nitroaniline	ND	330
3-Nitroaniline	ND	1,650
Dibenzofuran	ND	330
4-Nitroaniline	ND	330
Butylbenzylphthalate	ND	1,650
		330

N/A = Not Applicable

ND = Not Detected above Method Reporting Limit (MRL)

Approved by:

David Dickinson
Laboratory Director

Date:

13 Aug 92



In Response To The Future

CERTIFICATE OF ANALYSIS

VOA SOIL SURROGATE RECOVERY

Client: ATEC Environmental Consultants Client
 Project ID: UST# 126, 127
 Date Sample Analyzed: 8/5/92 ESS
 Project ID: 921975

SAMPLE ID	1,2 DICHLOROETHANE-D4 (70-121%)*	TOLUENE-D8 (81-117%)*	BFB (74-121%)*
VS0805B2 921975-07	104% 96	100% 102	90% 91

* Acceptance criteria

Approved by: 
 David Dickinson
 Laboratory Director

Date: 8/3/92



In Response To The Future

CERTIFICATE OF ANALYSIS

TCL VOLATILE ORGANICS Method 8240

Client: ATEC Environmental Consultants

Client Project ID: UST 126, 127

Client Sample ID: Method Blank

Date Sample Received: NA

ESS Project ID: 921975

ESS Sample ID: VS0805B2

Date Reported: 8/13/92

Parameter	Result (ug/L)	MRL
Methylene Chloride	ND	5
1,1-Dichloroethane	ND	5
Chloroform	ND	5
Carbon Tetrachloride	ND	5
1,2-Dichloropropane	ND	5
Dibromochloromethane	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
Chlorobenzene	ND	5
1,2-Dichloroethane	ND	5
1,1,1-Trichloroethane	ND	5
Bromodichloromethane	ND	5
Trans-1,3-Dichloropropene	ND	5
Bromoform	ND	5
1,1,2,2-Tetrachloroethane	ND	5
Benzene	ND	5
Toluene	ND	5
Ethyl Benzene	ND	5
Chloromethane	ND	5
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
1,1-Dichloroethene	ND	10
1,2-Dichloroethene (Total)	ND	5
Trichloroethene	ND	5
Acetone	ND	5
Carbon Disulfide	ND	10
2-Butanone	ND	5
Cis-1,3-Dichloropropene	ND	10
4-Methyl-2-Pentanone	ND	5
2-Hexanone	ND	10
Styrene	ND	10
Xylenes (Total)	ND	5
		10

ND = Not Detected above Method Reporting Limit (MRL)
NA = Not Applicable

Approved by: David Dickinson
David Dickinson
Laboratory Director

Date: 13 Aug 92

021



In Response To The Future

CERTIFICATE OF ANALYSIS

MATRIX SPIKE ANALYSIS SUMMARY

TCLP METALS

EPA METHOD 1311

Client: ATEC Environmental Consultants Matrix: Solid

TCLP Batch ID: 202301

Concentration in: mg/L

Target Analyte	Result	Spike Added	Spiked Result	Percent Recovery
Antimony	ND	*	ND	76%
Arsenic	ND	2.00	2.26	113
Cadmium	ND	0.5	0.39	78
Chromium	ND	1.0	1.22	122
Lead	ND	1.0	1.12	112
Mercury	ND	0.02	0.020	100
Selenium	ND	2.00	2.13	107
Silver	ND	1.0	0.76	76
Copper	ND	1.0	1.14	114
Nickel	ND	1.0	1.07	107
Zinc	ND	1.0	1.09	109
Beryllium	ND	*	ND	76
Thallium	ND	*	ND	76

This matrix spike analysis summary applies to the following samples:
921975-07

ND = Not Detected above Method Reporting Limit (MRL)

* Matrix spike recovery is based on the lowest spike recovery of the spiked analytes.

Approved by:


David Dickinson
Laboratory Director

Date:

13 Aug 92

022

3.9 CHAIN OF CUSTODY FORMS

The following chain of custody forms were completed and submitted to ESS with the laboratory samples.

3.10 HAZARDOUS WASTE MANIFESTS

UST No. 0127 contained 10 gallons of fuel oil sludge. The drummed material was transported on August 28, 1992 by Lincoln Environmental, Inc. to Pollution Solutions of Williston, Vermont. A copy of the appropriate hazardous waste manifest follows.



Environmental Consultants

Division of ATEC Associates, Inc.
62 Accord Park Drive
Norwell, Massachusetts 02061-1606
(617)878-6200 FAX (617)871-6781

Solid & Hazardous Waste Site Assessments
Remedial Design & Construction
Underground Tank Management
Asbestos Surveys & Analysis
Hydrogeologic Investigations & Monitoring
Analytical Testing / Chemistry
Industrial Hygiene / Hazard Communication
Environmental Audits & Permitting
Exploratory Drilling & Monitoring Wells

September 2, 1992

Ms. Beth Castriotta, Contract Specialist
U.S. Army
Directorate of Contracting
Building 227
Fort Devens, MA 01433-5340

RE: Drum Disposal
USARC Chester, Vermont
Contract No. DAKF31-91-D-0015
ATEC File No. 37.04.91.00451

Ms. Castriotta:

Please find attached a Hazardous Waste Manifest for the disposal of one 55-gallon drum of No. 2 Fuel Oil sludges associated with the removal of two underground storage tanks (USTs) located at the United States Army Reserve Center (USARC), Chester, Vermont. The associated USTs are referenced by ATEC Associates, Inc. (ATEC) as UST Nos. 126 and 127. These drums were removed from the USARC on August 26, 1992 for disposal at Pollution Solutions of Williston, Vermont.

ATEC appreciates the opportunity to be of service in this manner. If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

ATEC Associates, Inc.

Mark E. Baldi
Project Manager



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Division of Air and Hazardous Materials
291 Promenade Street, Providence, RI 02908-5167

Please print or type. (Form designed for use on elite (12 pitch) typewriter) R01277-2797

Form Approved OMB No. 2060-0039 Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

Generator's ID No. **VTP000003848** Manifest No. **1000011**

of 1 Manifests Generated in this State by this Generator

3 Generator's Name and Mailing Address
**Chester Memorial Reserve Center
Rte. 11
Chester, VT 05143 802/675-2413**

A. State Manifest Document Number
RI C 0023371

4 Generator's Phone ()
802/675-2413

B. Generator/Site Address
State

5 Transporter 1 Company Name
Lincoln Environmental, Inc.

C. State Transporter ID/License Plate
RI 4C-15642965

6 US EPA ID Number
RI 902192027

D. Transporter's Phone
401/232-3353

7 Transporter 2 Company Name
Lincoln Environmental, Inc.

E. State Transporter ID/License Plate
RI 4C-15642965

8 US EPA ID Number
RI 902192027

F. Transporter's Phone
401/232-3353

9 Designated Facility Name and Site Address
**Pollution Solutions of VT, Inc.
2 Avenue D
Williston, VT 05495**

G. Facility Mailing Address
Williston, VT 05495

10 US EPA ID Number
VT 902766527

H. Facility's Phone
802/560-1200

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. Unit M/Vol	15. Waste No.
	No	Type			
a. Waste fuel oil, No. 2, Combustible Liquid, RA 1993, VI09	XX1	US	XX X 55 G		VT09
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. **WIP#14737**
b. **L.S.G. 6**
c. **F-21601**
d.

K. Handling Codes for Wastes Listed Above			
Interim	Final	Interim	Final
a.		c.	
b.		d.	

15. Special Handling Instructions and Additional Information
RRC#27 In case of emergency call 401/232-3353 (Lincoln) or 800/424-9300 (Chemtrec)

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this manifest are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled and are in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable method of treatment, storage or disposal currently available to me which minimizes the present and future threat to human health and the environment, or, if I am a small quantity, I have made good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: **William R Conyers** Signature: *William R Conyers* Date: **08/28/92**

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: **David L. King** Signature: *David L. King* Date: **08/28/92**

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name: **David L. King** Signature: *David L. King* Date: **08/28/92**

19. Discrepancy Indication Space
Small amount of waste not listed

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name: **William R Conyers** Signature: *William R Conyers* Date: **08/28/92**

For sales within Rhode Island contact the RI Department of Environmental Management (401) 277-2797. For sales outside Rhode Island contact the RI Department of Environmental Management (401) 277-2797.

Copy of Manifest to be retained by Generator

ALL COPIES MUST BE LEGIBLE!!

RI C 0023371

3.11 WEIGHT RECEIPTS AND BILLS OF LADING

The following Weight Receipts and Bills of Lading document the disposal of contaminated soil generated during the removal and follow-up remediation of UST No. 0126 and 0127.

Bardon Trimount

RECEIVED SEP 30 1992

September 28, 1992

Mr. Dick Laubinger
ATEC Associates
62 Accord Park Drive
Norwell, MA 02061

Re: Soil, Route 11
 Chester, VT
 P.O. #076115

Dear Mr. Laubinger:

The recyclable soil from the above address was received at our facility on September 24, 1992. Attached are the shipper's log of soil receipts which total 71.05 tons along with bills of lading.

We will issue a "Certificate of Recycling" shortly upon processing.

Thank you for recycling soil at our Shrewsbury facility.

Yours truly,

David M. Peter

David M. Peter, Manager *man*
Environmental Engineering

DP/203

ANDON
TRIMOUNT, INC.
a subsidiary of
Bardon USA, Inc.

ATES:
Trimount Bituminous
Products Company
Trimount International
Terminal Systems, Inc.
The Guyatt Company
Sand & Stone Co.
Stone Corporation
Bardon Trimount
Environmental Services

9 Blanchard Road
O. Box 39
Shrewsbury, Massachusetts
01545-0039

Phone:
1-8400

Fax:
17-221-8452

7
 Shippers Log 3:29:01 pm Sep 24, 1992
 Product #76
 Plant 360
 Customer ATE001
 ATEC ASSOC.
 62 ACCORD PARK DRIVE
 BRWELL, MA 02061
 517-878-6200
 Job CHSTRVT
 11
 WHESTER, VT

PO# 076115

Shippers Log 3:29:01 pm Sep 24, 1992
 Truck Ticket# Tons

Acc/Tons	Time & Date	Fob/Del
15.080	14:27:17 09/24/92	F
32.300	14:29:26 09/24/92	F
55.880	14:30:56 09/24/92	F
71.050	14:32:58 09/24/92	F

9
 00076681 15.080
 00076682 17.220
 00076683 23.580
 00076685 15.170

DATE: _____

DEQ USE #:

CASTVT

GENERATOR NAME/ADDRESS:

FT. DEVENS

MASSACHUSETTS

01433-5340

SITE OF GENERATION: CHESTER MEMORIAL RESERVE CENTER

STREET RT. 11

TOWN CHESTER

STATE VERMONT

TRANSPORTATION ACCIDENT? Y N

ACT/TEL #:

L DESCRIPTION (TOTAL PROJECTED QUANTITY):

CONTAMINATED SOIL: wt (tons) 100 vol (cu yds) 65

CONTAMINATED DEBRIS: # absorbent pads # absorbent booms
vol (cu yds) specialty debris other (specify)

CONTAMINATION:

#1 oil #2 oil #4 oil #6 oil other (specify)

ANALYSES ATTACHED?

Volatiles: Y N TPH: Y N

DESTINATION NAME/ADDRESS:

DESTINATION FACILITY NAME/ADDRESS:

Bardon Trimount, Inc.

651 Lake Street

Shrewsbury, MA 01545

TYPE OF FACILITY: Recycling Landfill Incinerator

DRIVER'S SIGNATURE:

DRIVER'S SIGNATURE MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION

DATE: 9/20/92

ORIGINATOR'S DEQE SIGNATURE (originating region):

DATE: _____

DESTINATION'S DEQE SIGNATURE (destination region):

DATE: _____

ORIGINATOR'S REGISTRATION

913 380 MA

DESTINATION'S REGISTRATION

39475 MA

DEPARTURE AT 10:30

DATE 9/24

ORIGINATOR OR RECEIVING FACILITY REPRESENTATIVE'S NAME:

QUANTITY SHIPPED:

TOTAL PROJECTED

SHIPPED TO DATE

THIS LOAD (as this load)

REMAINING TO BE SHIPPED

Ticket R 76681

wt (tons)

vol (cu yds)

ORIGINATOR'S SIGNATURE

Michael R. Santos

DATE 9-24-92

RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE

[Signature]

DATE 9/24/92

ARR TIME 2:27

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING

BWSC EMERGENCY RESPONSE BRANCH

ONE WINTER STREET, 5th FLOOR

BOSTON, MA 02108

AND

THE ORIGINATING REGIONAL OFFICE

VIOLATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 10A CMR 1.00 AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY PROVISIONS.



TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY HILL DRIVE
P.O. BOX 100
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

T
I
M
E

FMN
ARRIVED JOB
LEFT JOB

CHECK #

Cash

C.O.D.

Charge

CHECKED BY

CARRIER

TICKET # R

76681

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-6200

Job # CHSTRVT
RP 11
CHESTER, VT
PO# 076115

MIX # 476

MIX NAME OIL SOIL

TRUCK # 9

Time	Tare	Net	Gross	Total
2:27:15	27000	30160	57160	15.08

Load#	Job Total	Time & Date	Fob/Del
1	15.08	2:27:15 pm	Sep 24, 1992 F

RECEIVED BY

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

1

LOADING

✓

DATE:

DEC 56:

CHESTER

SHIPPER NAME/ADDRESS:

FT. DEVENS

MASSACHUSETTS

01433-5340

SITE OF GENERATION: CHESTER MEMORIAL RESERVE CENTER

STREET RT. 11

TOWN CHESTER

STATE VERMONT

TRANSPORTATION ACCIDENT? Y N

CONTAMINANT DESCRIPTION (TOTAL PROJECTED QUANTITY):

CONTAMINATED SOIL: 100 wt (tons) 65 vol (cu yds)

CONTAMINATED DEBRIS: # absorbent pads # absorbent bums vol (cu yds) specialty det other (specify)

CONTAMINATION:

oil #2 oil #4 oil #5 oil other (specify)

ANALYSES ATTACHED?

Volatiles Y X N TPH: Y X N

DESTINATION NAME/ADDRESS:

DESTINATION FACILITY NAME/ADDRESS:

Bardon Trimount, Inc.

651 Lake Street

Shrewsbury, MA 01545

TYPE OF FACILITY: X Recycling Landfill Incinerator

SHIPPER'S SIGNATURE:

[Signature]

ALL ITEMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION

DATE: 8/20/92

ORIGINATOR'S DEQE SIGNATURE (originating region):

DATE:

DESTINATION DEQE SIGNATURE (destination region):

DATE:

VEHICLE REGISTRATION

REGISTRATION

SITE AT

VEHICLE OR RECEIVING FACILITY REPRESENTATIVE'S

NAME

SHIPPER'S SIGNATURE

RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE

QUANTITY SHIPPED:

TOTAL PROJECTED

SHIPPED TO DATE

THIS LOAD (estimated)

REMAINING TO BE SHIPPED

wt (tons)

vol (cu yds)

17.32

Ticket # 76682

DATE 9/22/92

DATE 9/24/92

ARR TIME 2:29

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING

BWSC EMERGENCY RESPONSE BRANCH

ONE WINTER STREET, 5th FLOOR

BOSTON, MA 02108

AND

THE ORIGINATING REGIONAL OFFICE

FALSE INFORMATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 310 CMR AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY



TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY HILL DRIVE
P.O. BOX 9
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 981-1430 PLANT 754-4709

T	FMN	Cash <input type="checkbox"/>	C.O.D. <input type="checkbox"/>	Charge <input checked="" type="checkbox"/>
M	ARRIVED JOB	CHECKED BY _____		
E	LEFT JOB	CHECK # _____	CARRIER _____	

TICKET #R 76682

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
NORWELL, MA 02061
617-878-0200

Job # CHESTRVT
Rt 11
CHESTER, VT
PO# 076115

MIX # #76 MIX NAME OIL SOIL TRUCK# 9

Time	Tare	Net	Gross	Total
2:29:24	27960	34440	62400	17.22

Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge	Total Cost

THIS COMPANY WILL NOT BE RE-
SPONSIBLE FOR DAMAGE CAUSED
BY TRUCKS DELIVERING MATERIAL
BEYOND STREET PAVEMENT.

RECEIVED BY  _____

2

DATE: _____ DEQ# CHSTRVT

GENERATOR NAME/ADDRESS: <u>FT. DEVENS</u> <u>MASSACHUSETTS</u> <u>01433-5340</u> ACT/TEL #: _____	SITE OF GENERATION: <u>CHESTER MEMORIAL RESERVE CENTER</u> STREET <u>RT. 11</u> TOWN <u>CHESTER</u> STATE <u>VERMONT</u> TRANSPORTATION ACCIDENT? <u>Y</u> <u>X</u> <u>N</u>
---	--

L DESCRIPTION (TOTAL PROJECTED QUANTITY):
 CONTAMINATED SOIL: 100 65
 wt (tons) vol (cu yds)

CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____
 vol (cu yds) epoxy dsl _____ other (specify) _____

CONTAMINATION: oil #1 oil _____ #4 oil _____ #5 oil _____ other (specify) _____

ANALYSES ATTACHED? Volatiles Y X N TPH: Y X N

GENERATOR NAME/ADDRESS: _____ _____ _____ ACT/TEL #: _____	DESTINATION FACILITY NAME/ADDRESS: <u>Bardon Trimount, Inc.</u> <u>651 Lake Street</u> <u>Shrewsbury, MA 01545</u> TYPE OF FACILITY: <input checked="" type="checkbox"/> Recycling <input type="checkbox"/> Landfill <input type="checkbox"/> Incinerator
--	---

GENERATOR'S SIGNATURE: [Signature] DATE: 8/20/92

EMTS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION

AUTHORIZATION: DEQE SIGNATURE (originating region): _____ DATE: _____

(if applicable) DEQE SIGNATURE (destination region): _____ DATE: _____

GENERATOR REGISTRATION: <u>674837</u> REGISTRATION: <u>84840</u> SHIPPED AT: <u>10/30</u> DATE: <u>9/24/92</u> DRIVER OR RECEIVING FACILITY REPRESENTATIVE'S NAME: <u>[Signature]</u> DRIVER'S SIGNATURE: <u>[Signature]</u> DATE: <u>9/24/92</u> RECEIVING FACILITY REPRESENTATIVE'S SIGNATURE: <u>[Signature]</u> DATE: <u>9/24/92</u> ARRIVE TIME: <u>2:30</u>	QUANTITY SHIPPED: TOTAL PROJECTED: _____ wt (tons) vol (cu yds) SHIPPED TO DATE: _____ THIS LOAD (actual): <u>13.58</u> REMAINING TO BE SHIPPED: _____
--	--

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 BWS/Emergency Response Branch
 ONE WINTER STREET, 5th FLOOR
 BOSTON, MA 02108
 AND
 THE ORIGINATING REGIONAL OFFICE

VIOLATION OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 10A CMR AND 310 CMR 30.006 AND 30.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY PROVISIONS.



TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY HILL DRIVE
P.O. BOX 109
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
651 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

T	FMN	Cash	<input type="checkbox"/>	C.O.D.	<input type="checkbox"/>	Charge	<input checked="" type="checkbox"/>
M	ARRIVED JOB	CHECKED BY					
E	LEFT JOB	CHECK #					
		CARRIER					

TICKET #R 76683

Customer # ATE001
ATEC ASSOC.
62 ACCORD PARK DRIVE
MORVILLE, MA 02061
0-7-878-6200

Job # CHESTRVT
RT 11
CHESTER, VT
PO# 076115

MIX # 776 MIX NAME OIL SOIL TRUCK# 9

Time	Fare	Net	Gross	Total
2:30:53	27000	47160	74160	23.58
Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge
				Total Cost

Load# 3 Job Total 55.88
Time & Date 2:30:54 pm Sep 24, 1992 Fob/Del

RECEIVED BY

[Signature]

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

4
DEQ# _____

DATE _____

DEQE# _____

CHESTRVT

TOR NAME/ADDRESS:

FT. DEVENS

MASSACHUSETTS

01433-5340

TEL# _____

SITE OF GENERATION: CHESTER MEMORIAL RESERVE CENTER

STREET RT. 11

TOWN CHESTER

STATE VERMONT

TRANSPORTATION ACCIDENT? Y X N

DESCRIPTION (TOTAL PROJECTED QUANTITY):

CONTAMINATED SOIL: 100 65
wt (tons) vol (cu yds)

CONTAMINATED DEBRIS: # absorbent pads _____ # absorbent booms _____
vol (cu yds) specialty det _____ other (specify) _____

CONTAMINATION:

X #2 oil _____ #4 oil _____ #6 oil _____ other (specify) _____

ANALYSES ATTACHED?

Volatiles Y X N TPH: Y X N

DESTINATION FACILITY NAME/ADDRESS:

Bardon Trimount, Inc.

651 Lake Street

Shrewsbury, MA 01545

TYPE OF FACILITY: X Recycling _____ Landfill _____ Incinerator

TOR'S SIGNATURE: [Signature]

DATE: 9/20/92

FORMS MUST BE COMPLETED PRIOR TO DEQE AUTHORIZATION

ORIGINATOR'S DEQE SIGNATURE (originating region): _____

DATE: _____

DESTINATION FACILITY'S DEQE SIGNATURE (destination region): _____

DATE: _____

REGISTRAR REGISTRATION

A3816 MA

REGISTRATION

29747 MA

DATE AT 10:30

DATE

9/24

OR RECEIVING FACILITY REPRESENTATIVE'S

[Signature]

QUANTITY SHIPPED:

wt (tons) vol (cu yds)

TOTAL PROJECTED

SHIPPED TO DATE

THIS LOAD (estimated)

REMAINING TO BE SHIPPED

15.17

ORIGINATOR'S SIGNATURE

[Signature]

DATE

9/24/92

DESTINATION FACILITY REPRESENTATIVE'S SIGNATURE

[Signature]

DATE

9/24/92

ARRIVAL TIME

232

GENERATOR IS RESPONSIBLE FOR RETURNING COMPLETED FORM WITHIN 5 DAYS TO:

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING

8 WSC EMERGENCY RESPONSE BRANCH

ONE WINTER STREET, 5th FLOOR

BOSTON, MA 02108

AND

THE ORIGINATING REGIONAL OFFICE

NON COMPLIANCE OR MISREPRESENTATION OF ANY OF THE INFORMATION ON THIS BILL OF LADING IS A VIOLATION OF 10A CMR 310.006 AND 310.007 AND IS SUBJECT TO APPROPRIATE STATUTORY OR REGULATORY



TRIMOUNT BITUMINOUS PRODUCTS CO.

MAIN OFFICE:
DANVERS 750-4200

5 CHERRY DRIVE
P.O. BOX 89
DANVERS, MA 01923-5089
SHREWSBURY DIVISION
661 LAKE STREET AT RTE. 20
SHREWSBURY, MA 01545
OFFICE 881-1430 PLANT 754-4709

T	FMN	Cash <input type="checkbox"/>	C.O.D. <input type="checkbox"/>	Charge <input checked="" type="checkbox"/>
M	ARRIVED JOB	CHECKED BY		
E	LEFT JOB	CHECK		

TICKET # R 76685

CARRIER

Customer # ATR001
ATEC ASSOC.
62 RECORD PARK DRIVE
HERRILL, MA 02061
617-878-6200

Job # CHESTRVT
KT 11
CHESTER, VT
PO# 076115

MIX # 476

DIX NAME OIL SOIL

TRUCK # 9

Time	Tare	Net	Gross	Total
2:32:56	28700	30340	59040	15.17
Cost/Ton	Percent Tax	Load Cost	Amount Tax	Dest Charge
4	Job Total	71.05	Time & Date	Fob/Dei
			2:32:56 pm	Sep 24, 1992 F

RECEIVED BY

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY TRUCKS DELIVERING MATERIAL BEYOND STREET PAVEMENT.

3.12 PERMITS AND CERTIFICATIONS

The following permit was obtained for the proper closure of an underground storage tank. Following the permit there is a disposal receipt for the steel underground storage tank.

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
 UNDERGROUND STORAGE TANK PROGRAM
 TANK PULL FORM

RECEIVED JUL 24 1992

TODAY'S DATE: 7-29-92

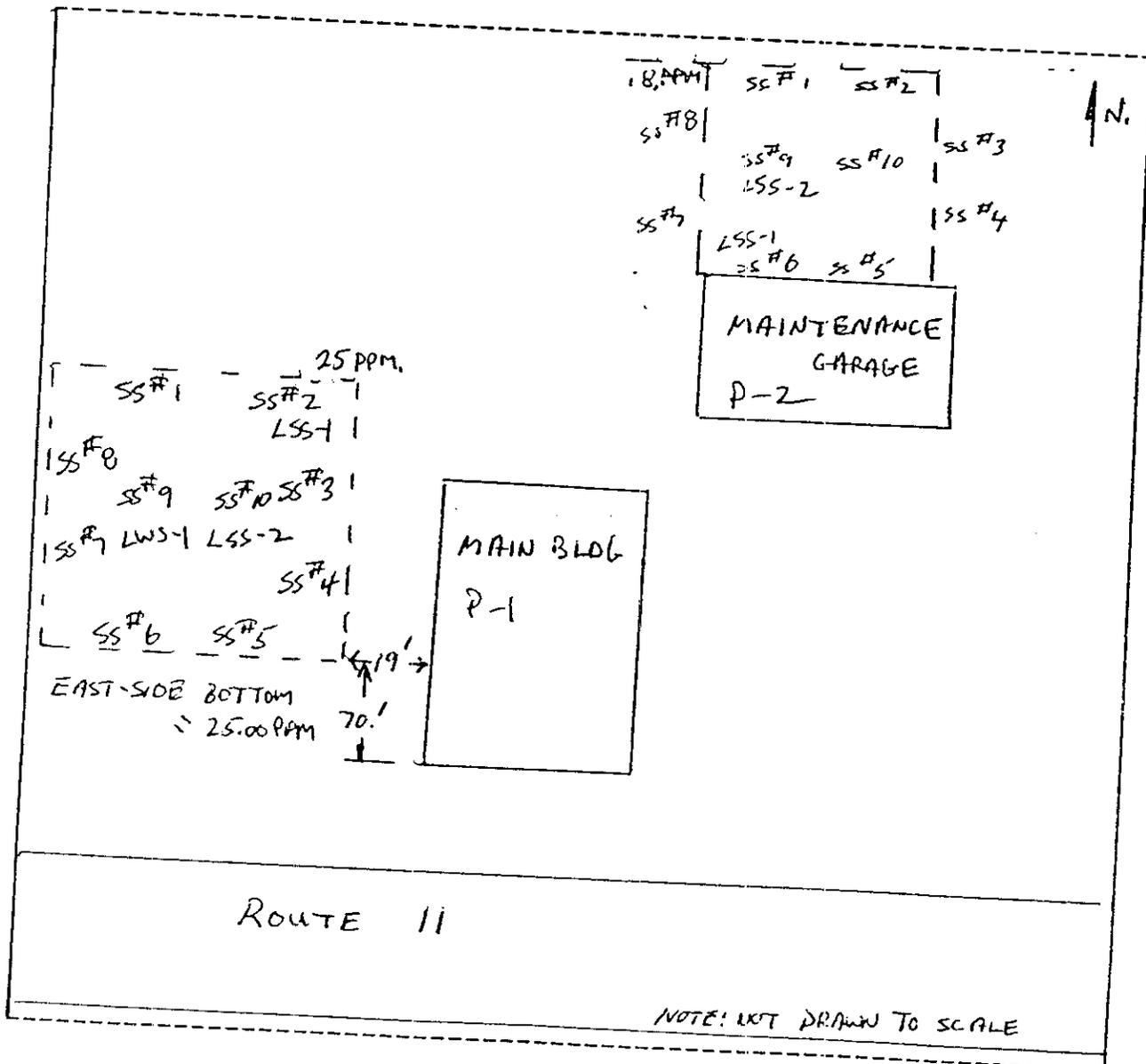
INSPECTOR: CRAIG D. TROMBLY

DATE OF REMOVAL: 7-27-92
 AND
 7-28-92

BUSINESS NAME: ATEC ASSOCIATES

SITE DIAGRAM

Show location of all tanks and distance to permanent structures, sample points, areas of contamination and any pertinent site information. Indicate North arrow and major street names or route number.



SS = SOIL SAMPLE
 LSS = LAB SOIL SAMPLE - PH (IR)
 LWS - GROUNDWATER SAMPLE

All parts must be returned within ten (10) days. No parts ACCEPTED for credit if returned after ten (10) days. 15% restocking charge.

UST# 126
UST# 127



WRECKING & SALVAGE YARD
HODGDON BROTHERS, INC.

NEW & USED AUTO PARTS
24 Hour Wrecker Service

Box 136
ASCUTNEY, VT. 05030
Telephone (802) 674-6202

MOBILE AUTO CRUSHER SERVICE
Repair Service

NOTE → Parts Line (802) 674-6368

Customer's Order No. _____ Phone No. _____ Date 7-29-92
Name ATEC ASSOCIATES
Address ACCORD PARK NORWELL MASS.

SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MOISE RETD.	PAID OUT	
Quantity	DESCRIPTION				PRICE	AMOUNT	
1	1000 GAL ASPHALT COATED TANK				200.00	200.00	
1	4000 GAL FIBERGLASS TANK				400.00	400.00	
TOTAL						600.00	600.00
paid 7-29-92						-	300.00
USED PARTS ARE SOLD ON AN "AS IS CONDITION" NO WARRANTY IS IMPLIED OR EXPRESSED TERMS OF SALE ALL BILLS ARE DUE AND PAYABLE THE 10th OF EACH MONTH. IN THE EVENT LEGAL ACTION IS NECESSARY I WILL PAY REASONABLE ATTORNEY'S FEES & COURT COSTS. FINANCE CHARGE of 1% per month on unpaid balance with minimum finance charge of 50c computed AT ANNUAL RATE OF 18% 5% Vermont Sales Tax							
TOTAL						300.00	300.00

All claims and returned goods MUST be accompanied by this bill

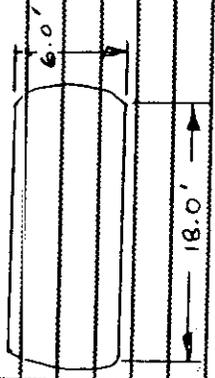
Rec'd by George Skilton

3.13 UST CLOSURE CHECKLIST

The following UST closure checklist was produced by ATEC Associates Inc., for quality control purposes.

LEAK CLOSURE O/C CHECK LIST

DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Calibrate PID & LEL/O2 meters	7-28-92	9:00		Site Topography: TUEP COVERED RELATIVELY LEVEL
Drain & flush piping & pumps	7-27-92	—		
Excavate to top of tank	7-27-92	2:00		Depth to tank: 2.0
Vent tank note LEL/O2 levels & times	7-28-92	8:30	LEL O2	
	"	T1: 8:30	0.0	STAINED SOILS AND LAYERS OF SAND AT NORTH EAST CORNER (SIDE WALL)
	"	T2: 8:40	0.0	
	"	T3: 8:50	0.0	
	"	T4:		
		T5:		
		T6:		
		T7:		
		T8:		
		T9:		
		T10:		
		T11:		
		T12:		
Pump & clean tank				
Note quantities liquid (gal) & sludge (lbs)	7-28-92	5:00	gal liquid 20 lbs. sludge	drummed
Remove all tank connections, and cap openings	7-28-92	—		
Excavate soils to free tank	7-27-92	2:30		
Segregate stained soils: Note PID readings (if >10 ppm NDIR also)	7-28-92	—	PID (ppm)	NDIR (ppm)
Stack pile - 1	7-28-92	9:50	2.0	CONDITIONS - (2) CRACKS ON THE CENTER BOTTOM OF BOTH SIDES OF TANK. NOTE: PATCH WAS OBSERVED ON THE INTERIOR OF TANK NEAR THE WEST SIDE OF



DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Remove tank, piping, pumps, and hardware.	7-27-92			
Photograph excavation; note descriptions.	7-28-92	8:00	Photographic Descriptions: Photo 1: ONE SIDE OF REMOVED TANK	Soil Description: VERY FINE SAND - SILT
Sketch Schematic	"	8:00	Photo 2: OPPOSITE SIDE OF REMOVED TANK	
	"	8:05	Photo 3: EXC. AS VIEWED FROM EAST	
	"	8:05	Photo 4: " WEST EAST	
			Photo 5:	Depth to Groundwater/Conditions: 8.5'
			Photo 6:	NOTE: SHEEN WAS NOTED
Place tank at safe distance from excavation	7-27-92	3:30		Depth of Excavation/Conditions: 9.0'
Secure tanks transport off-site				
			WEIGHED ON SITE	
Obtain 10 soil samples from excavation walls/bottom: Note PID/NDIR readings and sample locations.	7-28-92	8:00	PID (ppm) NDIR (ppm)	Sample locations:
	"	8:00	SS1: 0.0	NORTH WALL OF EXC. (5.0)
	"	8:05	SS2: 0.0	" "
	"	8:10	SS3: 25.0	EAST WALL OF EXC. (5.0)
	"	8:15	SS4: 0.2	" "
	"	8:15	SS5: 0.0	SOUTH WALL OF EXC. (5.0)
	"	8:15	SS6: 0.0	" "
	"	8:20	SS7: 0.0	WEST WALL OF EXC. (5.0)
	"	8:20	SS8: 0.0	" "
	"	8:20	SS9: 1.5	BOTTOM OF EXC. (WEST)
	"	8:20	SS10: 25.0	BOTTOM OF EXC. (EAST)
Obtain 2 soil samples & 1 water samples for laboratory analysis. Note sample locations.	7-28-92	9:30		Sample Locations:
	7-28-92	9:30		LSS1: EAST SIDE OF EXC. (WALL) (5.0)
	7-28-92	9:15		LSS2: BOTTOM OF EXC. (5.0)
				LWS1:

LIST CLOSURE O/C CHECK LIST

DEFINABLE FEATURE	DATE	TIME	MEASUREMENTS	NOTES
Backfill excavation (if clean): Note amount & type of backfill	7-29-92 7-29-92	—		1.50 tons of backfill Backfill description: SAND SAND
Close open excavation (if applicable)	7-29-92	—		
Restore surface and rope off	7-29-92	—		
Remove rubbish/debris	7-29-92	—		
Transport hazardous material off-site: Note amount/classification				Amount Classification
Make copies of manifests, permits, and disposal receipts.	8-11-92 "	—		

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
UNDERGROUND STORAGE TANK PROGRAM

103 SOUTH MAIN STREET
WATERBURY, VERMONT 05671-0404
(802) 244-8702

=====
Date of Removal: 7-28-92 Date of Assessment: 7-28-92
Person & Company Doing Assessment: ATEL ASSOCIATES
Telephone Number: (617) 878-6200
=====

Business Name Where Tank(s) Located: USARC CHESTER, VT.
Number of Employees:
Street Address & Town/City:

Owner of Tank(s): US GOVERNMENT
Address: Chester Memorial Reserve Center
Town/City: STATE, ROUTE 11
Contact Person: MRS. GONZYEA
Phone Number: (602) 875-2930 - 1000

[check all that apply: soil groundwater drinking water]

Receptors Affected (check all that apply):
 soil residential; # of houses/people: for Mrs. Gonzyea
 groundwater surface water; name/type of water body: for Mrs. Gonzyea

=====
Signature of Owner or Authorized Representative: Mrs. Gonzyea
Date: _____
Signature of Person Performing Site Assessment: Rajiv D. Zou
Date: 7-28-92

*** ATTACH OBSERVATIONS, CONCLUSIONS, AND DRAWING ON A SEPARATE PAGE ***

ATEC Promises

- To be totally responsive to our clients' wants and needs with a constant sense of urgency.
- To perform high quality services with technically superior personnel.
- To perform all assignments for a reasonable fee and within budget.
- To communicate with our clients frequently so there will be no surprises.
- To complete our assignments and deliver reports when promised.
- To review reports with our clients to be sure there are no misunderstandings.
- To deliver accurate invoices to our clients within seven (7) days after the completion of the assignment or as required by the clients.
- To follow up with the clients to be sure services completely satisfied their wants and needs.

ATEC Associates, Inc.

Corporate Headquarters
8665 Bash Street
Indianapolis, IN 46256-1202
(317) 577-1761

At ATEC, "Client satisfaction with a constant sense of urgency" is our goal. If you have concerns with an ATEC project or service that your local ATEC Representative has not resolved, please call 1-800-800-ATEC, a "hot line" to my office. We will do everything possible to satisfy your concerns. If you have received quality service, we would appreciate knowing that as well. Thank you for allowing us to work on your team.

Sincerely,



Gerald D. Mann
President
ATEC Associates, Inc.

Corporate Headquarters Client Satisfaction Hot Line
1-800-800-ATEC
(1-800-800-2832)



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 244-5141

November 19, 1993

Ron Ostrowski
Installation Environmental Management Officer
AFZD-EM, Box 19
Fort Devens, MA 01433-5190

RE: Chester Reserve Center in Chester, Vermont (Site #92-1287)

Dear Mr. Ostrowski:

The Sites Management Section (SMS) has received the "Geohydrologic Study" for the Chester Reserve Center dated April 26-29, 1993 for the above referenced site. The following conclusions have been reached based on the information in the report:

1. Three additional monitoring wells were installed at the site on April 26-27, 1993.
2. All onsite monitoring wells were sampled and analyzed for petroleum compounds. The results indicate benzene to be present in groundwater in the vicinity of MW-9 at 3 parts per billion (ppb), which is below the Vermont Groundwater Enforcement Standard and Health Advisory Level of 5 ppb. Other organic compounds were present in groundwater, but were also not above Health Advisory Levels.
3. The likely source of any contamination was the two underground storage tanks (USTs) which were removed on July 27 and 28, 1993.
4. The approximately 148 cubic yards of contaminated soil which was removed during the UST removals has been sent to an asphalt batching plant in Massachusetts.
5. Little to no risk is posed to surrounding sensitive receptors, such as public or private drinking water wells, from any residual contamination which may be present in soil and/or groundwater.

Based on the results of this investigation, the SMS is closing this site. The closure of this site doesn't release the Department of the Army from any past or future liability which may arise from the petroleum contamination which originated from the leaking USTs at the Chester Reserve Center in Chester, Vermont. The closure does mean that the SMS isn't requiring any additional work be performed at this site in response to the initial contamination.

FORT DEVENS ENVIRONMENTAL MANAGEMENT OFFICE

FAX TRANSMITTAL SHEET

TO GARY PORYERIE

GARY FYI
THIS CASE WAS
INP 1/20/00
QUESTIONS OF JAMES
GRI

FAX NUMBER 7-377-9961

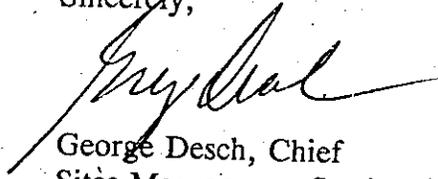
FROM JOHN A DELANEY

FAX NUMBER (508) 796-3699

NUMBER OF PAGES
INCLUDING COVER
SHEET 3

Please feel free to contact either myself or Chuck Schwer with any further questions or comments you may have.

Sincerely,



George Desch, Chief
Sites Management Section

cc: Chester Selectboard

tw/closures/chester



ENSR International
2 Technology Park Drive
Westford, MA 01886-3140
(978) 589-3000
FAX (978) 589-3100
www.ensr.com

ENSR Proj. No: 09090-028

October 2, 2002

Mr. Gary Puryear
Environmental Affairs Manager
Headquarters, 94th Regional Support Command
50 Sherman Avenue
Devens, MA 01433-4000

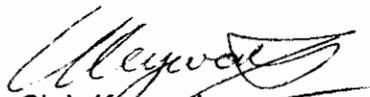
Reference: **Wetland Evaluations, Chester Memorial USARC in Chester, VT and the Allen Street USARC in Rutland, VT**

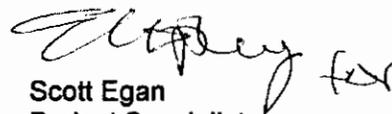
Dear Mr. Puryear

Under ENSR's 94th RSC RCRA/IRP Support Contract through the US Army Corps of Engineers New England District, ENSR was assigned to conduct site visits at the Chester Memorial USARC in Chester, VT and the Allen Street USARC in Rutland, VT, and to perform follow-up wetland evaluations. The site visits were conducted on Monday September 23, 2002. These visits have been followed by interpretation of 1:5000 digital aerial photographs, National Wetland Inventory and Vermont Significant Wetlands Inventory map inspections, as well as an evaluation of Vermont wetland regulations. A report is enclosed documenting the objectives of these evaluations, and our findings and recommendations.

We hope that this report meets your needs. If you have any questions please contact either Scott Egan at 978-589-3179 or Chris Keyworth at 978-589-3048.

Sincerely,


Chris Keyworth
Snr. Program Manager


Scott Egan
Project Specialist

Enclosure

cc: Steve Lombardi, Devens Support Office



Wetland Evaluations
Chester Memorial USARC, Chester, VT
Allen Street USARC, Rutland, VT

On Monday September 23, 2002 ENSR conducted site visits to the Chester Memorial USARC in Chester, VT and the Allen Street USARC in Rutland, VT. Following the site visits, interpretation of 1:5000 digital aerial photographs, National Wetland Inventory (NWI) and Vermont Significant Wetland Inventory (VSWI) map inspections, and a thorough regulatory review was conducted to meet the following requirements established by the 94th RSC:

- (1) Determine the classification of wetland habitats on and adjacent to both properties according to the Vermont Wetland Rules (VWR) (Section 4.1) as Class One, Class Two or Class Three wetlands;
- (2) Determine the approximate extent of wetland boundaries according to the methodology set forth in the U.S. Army Corps of Engineers (USACE) 1987 edition of the Federal Manual for Identifying and Delineating Jurisdictional Wetlands which employs vegetation, soils, and hydrology as parameters for identification, and is cited in VWR Section 3.2;
- (3) Develop a comprehensive list of vegetation species growing in wetland habitats; and
- (4) Provide state and federal regulatory citations pertaining to the use of herbicides (i.e., Roundup) within regulated wetlands and wetland buffer zones.

Regulatory Overview

Wetland Regulations

VT Wetland Rules

In Vermont, wetlands are placed into one of three classes (VWR Section 4.1) as outlined below:

- Class One wetlands are those wetlands determined by the board to be exceptional or irreplaceable and have a 100-foot protected buffer zone (there are currently less than ten Class One designated wetlands in VT).
- Wetlands shown on the NWI or VSWI maps and those wetlands 'contiguous' to mapped wetlands are designated as Class Two and have a 50-foot buffer zone associated with them. However, wetlands 'contiguous' to perennial Riverine, or Lacustrine (i.e. lake) systems shown on NWI maps and listed in VWR Section 4.2(b)(2) are not Class Two wetlands.
- Class Three wetlands, which have not been mapped on NWI maps, are not protected under the Vermont Wetland Rules. However, Class Three wetlands may be regulated by other federal, state, or local regulations based on the nature of the proposed activity. Class Three wetlands can only be determined to be significant

enough to merit protection (i.e., changed to a Class One or Two) under the Wetland Rules by the VT Water Resources Board on its own motion or by petition (VWR Section 7.1).

Section 6.2(a-t) of the VWR outline allowed uses within Class One and Class Two wetlands and associated buffer zones. All proposed activities not designated as allowed uses require a Conditional Use Determination (CUD) in accordance with the provisions of VWR Section 8.0. Unauthorized conditional uses in a significant wetland (i.e., Class One or Two) or its buffer zone are prohibited.

VT Act 250

Class Three wetlands are regulated under Act 250 only for certain categories of development, such as subdivisions of 10 lots or more, commercial projects on more than one acre or ten acres (depending on whether the town has permanent zoning and subdivision regulations), and any development above the elevation of 2,500 feet. As the application of herbicides in wetlands is not associated with development activity, Act 250 jurisdiction is not invoked.

Federal Wetlands Regulations

At the federal level the USACE regulates the discharge of fill into waters of the United States under 33 CFR 323. As the application of herbicides in wetlands does not constitute a discharge of dredged or fill material, it is not regulated by the USACE.

Herbicide Application Regulations

VT Regulations for the Control of Pesticides

The Vermont Department of Agriculture, Food and Markets (DFA) regulates the use of pesticides and herbicides in accordance with the VT Regulations for the Control of Pesticides (6 V.S.A. Chapter 87) for commercial applications such as Rights-of-Way clearing and maintenance. Noncommercial applicators are exempt from the company licensing requirements. Noncommercial applicators without certification may apply only Class "C" pesticides in the course of their employment (DFA Section 10). Under DFA, Section 1(8)(e), a Noncommercial Applicator is defined as:

"A person who uses or applies pesticides in the course of employment. It is anticipated by these regulations that in most instances the use of pesticides will comprise only a portion of the applicator's duties and that other employment responsibilities will be unrelated to pesticide application".

As the applicator is engaged in landscaping activities and the application of herbicides is assumed to be only a portion of his duties, and as the herbicide used (RoundUp) is a



Class C substance, the VT Regulations for the Control of Pesticides do not have jurisdiction.

However, Chapter 87 does contain requirements for all applicators of pesticides, see Appendix A. The definition of "pesticides" contained in the regulations includes herbicides. Section IV of these regulations contain general standards of care, safety and protection of the environment.

Aquatic Nuisance Control Permit Program

Under the Aquatic Nuisance Control Permit Program (10 V.S.A. Chapter 47 § 1263a), a permit is required for activities used to control nuisance aquatic plants, insects or other aquatic life within waters of the State of Vermont. Waters of the state include streams, rivers, lakes and ponds, but not wetlands. Therefore, the application of herbicides within wetlands and/or buffer zones do not require an Aquatic Nuisance Control Permit.

Site Investigations

Chester Memorial USARC, Chester, VT

ENSR wetland scientists determined the land area situated along the northern property line of the Chester Memorial USARC (Figure 1) to meet all three criteria set forth in the ACOE 1987 wetland delineation manual (i.e., presence of hydrophytic vegetation, hydric soils, and hydrology). Therefore, this land area is considered wetland habitat under both the state and federal wetland regulations. The approximate wetland boundary is identified by the turquoise polygon in Figure 1, showing wetland both within and adjacent to the USARC property. This wetland is long, narrow, and situated at the toe of a steep slope, and is dominated by sensitive fern (*Onoclea sensibilis*), wool-grass (*Scirpus cyperinus*) and one large stand of willow (*Salix sp.*). A complete vegetation list is provided in Table 1. Soils are classified as hydric due to the presence of redoximorphic features and low-chroma matrix colors present near the soil surface (Table 2). Inspection of aerial photographs revealed a potential outlet at the eastern end of the wetland, shown as a turquoise line on Figure 1, which appears to drain to the southeast, crossing Route 11, and draining by one of the routes shown into the perennial Branch River (Figure 1).

Using the U.S. Fish and Wildlife Service's Wetland Classification System (Cowardin et al. 1979), this wetland can be characterized as a palustrine, emergent marsh nonpersistent / scrub-shrub broad-leaved deciduous, seasonally flooded wetland (PEM2/SS1C).

According to the VWR outlined above (Section 4.1) this wetland would be considered Class Three and is not jurisdictional. Although this wetland appears 'contiguous' to the

Branch River, perennial Riverine and Lacustrine systems shown on NWI maps are not classified as Class Two wetlands because they do not serve all of the functions in Section 5 of the Rules (Section 4.2(b)(2)). Therefore, this wetland is not a state-regulated wetland under the Vermont Wetland Rules.

Allen St. USARC, Rutland, VT

ENSR wetland scientists identified wetland areas along the southwest property line of the Rutland facility and crossing the southern portion of the property. This wetland is shown as a solid turquoise line on Figure 2, and extends approximately five to ten feet from the centerline. The wetland drains to the northwest extending off the property to a culvert on Allen Street. These wetlands meet all three criteria set forth in the USACE 1987 wetland delineation manual (i.e., presence of hydrophytic vegetation, hydric soils, and hydrology). Therefore, this land area is considered wetland habitat under both the state and federal wetland regulations. The upgradient portion of this wetland located due south of the main AMSA building (shown in pink on Figure 2) can be characterized as a palustrine, emergent marsh, persistent, seasonally flooded wetland (PEM1C). The wetland is dominated by cattails (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*) and other sedges (*Carex spp.*). A complete vegetation list is provided in Table 3. Deep, organic hydric soils were documented within this wetland (Table 4). The downgradient portion of the wetland parallel to the western edge of the property can be characterized as a Riverine, intermittent, streambed, vegetated (R4SB7). Dominant vegetation includes red elm (*Ulmus rubra*), boxelder (*Acer negundo*), sensitive fern (*Onoclea sensibilis*) and black cherry (*Prunus serotina*).

Following careful inspection of digital aerial photographs, NWI maps, and VSWI maps, it appears that this wetland system may be connected – see dotted turquoise line on Figure 2 - to a larger wetland system located approximately 0.4 miles to the southeast of the property. This larger wetland appears on both the NWI and VSWI maps as a palustrine, unconsolidated bottom, intermittently exposed / permanent wetland system (PUBZ).

According to the VWR outlined above (Section 4.1), if the USARC wetland and the larger wetland to the southeast can be conclusively determined to be hydrologically connected, they would be regulated as Class Two. Therefore, any use not specified by the VWR as an allowed use (Section 6.2(a-t)), such as the application of herbicides, would require the filing of a Conditional Use Determination application with the VT Department of Environmental Conservation (DEC), Water Quality Division, Wetlands Section.

Findings

In summary, under the VT Wetland Rules the application of herbicides in wetlands are only regulated when they occur in Class One or Class Two wetlands and their associated buffer zones. Other aforementioned federal and state regulations regarding pesticides are for agricultural uses, applicator certification, and development or activities in wetlands do not have jurisdiction. General standards of care for any applicators of herbicides are contained in the Vermont Regulations for Control of Pesticides.

Conclusions

Based on ENSR's review of wetlands and pesticide regulations, the 94th RSC may wish to consider the following options regarding any future herbicide applications at the Chester and Rutland USARCs:

1. Conduct a field investigation to determine if a hydrologic connection exists between the Rutland USARC wetland and the larger wetland located to the southeast to determine whether VT Wetland Rules can exert jurisdiction over these wetlands as Class Two systems.
2. If no hydrologic connection exists between the above wetlands, it is possible to request a jurisdictional determination from the DEC Wetlands Section for the Rutland USARC wetland. Depending on DEC's determination, a Conditional Use Determination application may be required for any future work within the vicinity of the wetland.
3. Petition the DEC, Water Resources Board for an evaluation of the Chester USARC wetland to determine whether it is significant enough to merit protection under the VWR. This may involve completing a Vermont Wetland Evaluation Form which address function outlined in VWR Section 5.
4. Require any contractors to strictly follow the standards of care for application of herbicides described in Section IV of the Vermont Regulations for Control of Pesticides, as shown in Appendix A.

Table 1. Wetland vegetation observed on Chester USARC

Common Name	Genus	Species
Arrow-leaved tearthumb	<i>Polygonum</i>	<i>sagittatum</i>
Baneberry	<i>Actaea</i>	<i>pachypoda</i>
Boneset	<i>Eupatorium</i>	<i>perfoliatum</i>
Cursed-crowfoot	<i>Ranunculus</i>	<i>sceleratus</i>
Hemp nettle	<i>Galeopsis</i>	<i>tetrahit</i>
Hypericum	<i>Hypericum</i>	<i>sp.</i>
Jewelweed	<i>Impatiens</i>	<i>capensis</i>
Joe-pye-weed	<i>Eupatorium</i>	<i>dubium</i>
Mannagrass	<i>Glyceria</i>	<i>canadensis</i>
Marsh bedstraw	<i>Galium</i>	<i>palustre</i>
New England Aster	<i>Aster</i>	<i>Novae-angliae</i>
Northern willow herb	<i>Epilobium</i>	<i>Glandulosum</i>
Rice-cutgrass	<i>Leersia</i>	<i>oryzoides</i>
Sedges	<i>Carex</i>	<i>spp</i>
Sensitive fern	<i>Onoclea</i>	<i>sensibilis</i>
Steeplebush	<i>Spirea</i>	<i>tomentosa</i>
Swamp rose	<i>Rosa</i>	<i>palustris</i>
Sweetflag	<i>Acorus</i>	<i>calamus</i>
Tussock sedge	<i>Carex</i>	<i>stricta</i>
White willow	<i>Salix</i>	<i>alba</i>
Pussy willow	<i>Salix</i>	<i>discolor</i>
Willow	<i>Salix</i>	<i>Spp</i>
Wool-grass	<i>Scirpus</i>	<i>cyperinus</i>

Table 2. Soil characteristics of wetlands on Chester USARC

Horizon	Depth	Matrix Color	Mottle Color
A	0-2"	10YR 2/1	None
B	2"-18"	10YR 4/1	10YR 4/6
C	18"-27"	10YR 4/2	10YR 5/1 10YR 5/6 Gley-1 4/10GY

Table 3. Wetland vegetation observed on Rutland USARC

Common Name	Genus	Species
Baneberry	<i>Actaea</i>	<i>pachypoda</i>
Boneset	<i>Eupatorium</i>	<i>perfoliatum</i>
Cattails	<i>Typha</i>	<i>latifolia</i>
Cinnamon fern	<i>Osmunda</i>	<i>cinnamomea</i>
Coltsfoot	<i>Tussilago</i>	<i>farfara</i>
Cursed-crowfoot	<i>Ranunculus</i>	<i>sceleratus</i>
Jewelweed	<i>Impatiens</i>	<i>capensis</i>
Joe-pye-weed	<i>Eupatorium</i>	<i>dubium</i>
Late Goldenrod	<i>Solidago</i>	<i>gigantea</i>
Lurid sedge	<i>Carex</i>	<i>lurida</i>
Mannagrass	<i>Glyceria</i>	<i>canadensis</i>
Marsh bedstraw	<i>Galium</i>	<i>palustre</i>
Meadowsweet	<i>Spirea</i>	<i>latifolia</i>
New England Aster	<i>Aster</i>	<i>Novae-angliae</i>
Nodding bur-marigold	<i>Bidens</i>	<i>cernua</i>
Northern willow herb	<i>Epilobium</i>	<i>Glandulosum</i>
Phragmites	<i>Phragmites</i>	<i>australis</i>
Purple loosestrife	<i>Lythrum</i>	<i>salicaria</i>
Pussy willow	<i>Salix</i>	<i>discolor</i>
Red Elm	<i>Ulmus</i>	<i>glabra</i>
Reed canary grass	<i>Phalaris</i>	<i>arundinacea</i>
Sedge	<i>Carex</i>	<i>crinita</i>
Sedges	<i>Carex</i>	<i>spp</i>
Sensitive fern	<i>Onoclea</i>	<i>sensibilis</i>
Silky dogwood	<i>Cornus</i>	<i>amomum</i>
Steeplebush	<i>Spirea</i>	<i>tomentosa</i>
Tussock sedge	<i>Carex</i>	<i>stricta</i>
Wild tomato	<i>Solanum</i>	<i>dulcamara</i>
Willow	<i>Salix</i>	<i>Spp</i>
Wool-grass	<i>Scirpus</i>	<i>cyperinus</i>

Table 4. Soil characteristics of wetlands on Rutland USARC

Horizon	Depth	Matrix Color	Description
Oi	0-20"	10YR	Fibric organic soil
Oa	20"-40"	10YR 2/1	Sapric organic soil

Appendix A

Extract from
Vermont Regulations for Control of Pesticides
in Accordance with 6 V.S.A. Chapter 87

Section IV -Restrictions on the Use and Application of Pesticides

1. Registered and recommended uses of pesticides

a. All pesticide uses or recommendations for use shall comply with that pesticide's label, which shall be registered with the U.S. Environmental Protection Agency and the Department (except as provided under authority for pesticide use in Section 18 and 24(c) of FIFRA as amended).

b. Pesticide Drift - Pesticide applicators shall use pesticides and conduct operations under conditions known to minimize contamination of non-target land and water areas.

2. Standards of operations - all pesticide applicators and licensed companies:

a. Shall use only methods and equipment which insure safe and efficient application of materials.

b. Shall use equipment with an effective anti-siphoning device to prevent backflow when drawing or pumping water to fill pesticide application devices.

c. Shall use equipment with an effective anti-siphoning device to prevent backflow when drawing or pumping water to be used in chemigation operations.

d. Shall operate in a careful manner and only when climatic, pest or other conditions are proper for controlling pests in the locality.

e. Shall make no false or fraudulent claims. The term "fraud" includes, but is not limited to, intentional misrepresentation through verbal or written statements, the media, falsified records, invoices or reports or false statement on applications for licenses or certificates.

f. Shall fill out weekly spray reports accurately.

g. Shall conform to the application restrictions established in 6 V.S.A. Chapter 87, the Regulations for Control of Pesticides and permits issued thereunder.

h. Shall cooperate with Department requests to observe spraying operations, to inspect equipment, to inspect pesticide related records, to inspect business premises and to conduct pesticide-related sampling.

i. Shall apply all pesticides consistent with their labeling. Use of a pesticide in the following manner shall be considered application consistent with the labeling:

(1) applying a pesticide at any dosage, concentration or frequency less than specified on the labeling;

(2) applying a pesticide against any target pest not specified on the labeling if the application is to the crop, animal or site specified on the labeling except when the labeling specifically states that the pesticide may be used only on pests specified on the labeling;

(3) employing any method of application not prohibited by labeling;

(4) mixing a pesticide with fertilizer when such mixture is not prohibited by labeling or state regulations;

(5) using a pesticide for agricultural or silvicultural purposes at a dilution factor less than label dosages as authorized by the EPA in regulations or in advisory opinions.

j. Shall provide the following information (on a bill, invoice or other written documentation) to all customers or persons for which pesticide applications are exchanged for remuneration, at the time of application except for applications under Section IV 8:

(1) the common or trade name for each pesticide used;

(2) the EPA registration number for each pesticide used;

(3) the amount of each pesticide used;

(4) the pest(s) treated for; and

(5) the name and signature of the applicator.

k. Are advised that Vermont Occupational Safety and Health Program requirements may be applicable to their activities.

l. Shall use pesticides so as not to exceed the primary groundwater quality enforcement standards identified in Chapter 12.702 of the "Ground Water Protection Rule and Strategy" in accordance with 10 V.S.A. Chapter 48.

m. Shall manage the use of pesticides to reduce the concentrations of pesticides in groundwater to the preventive action limits established by Chapter 12.702 of the "Ground



Water Protection Rule and Strategy" when monitoring indicates the presence of pesticide concentrations in groundwater that exceed the preventive action limits.

n. Shall obtain a Water Quality Permit (from the Vermont Department of Environmental Conservation, Water Quality Division), prior to using pesticides in waters of the State.

o. Shall maintain a fifty (50) foot buffer when applying pesticides which provide control within the soil profile around any existing private well unless written permission allowing a lesser distance has been granted by the well owner.



Figure 1. Chester Memorial USARC

Approximate Wetland Boundaries and
Possible Routes for Surface Connection to Branch River



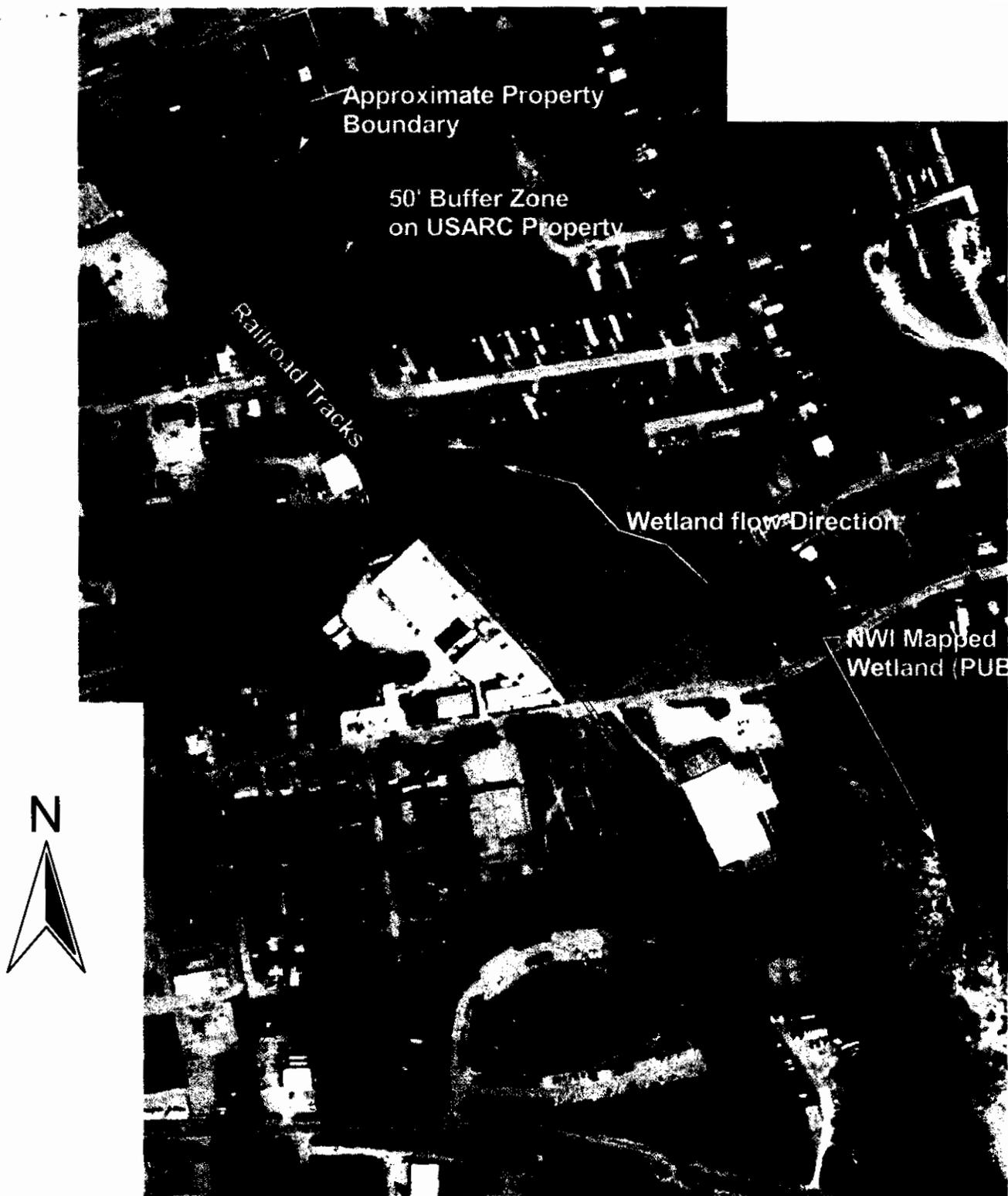
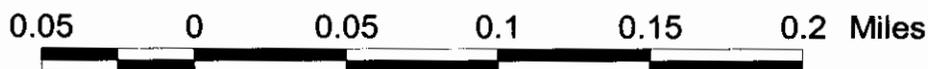


Figure 2. Allen Street USARC, Rutland

Approximate Wetland Boundaries and Possible Routes for Surface Connection to NWI Wetlands



Appendix E
**Regulatory Database
Search Reports**



EDR® Environmental
Data Resources Inc

The EDR Radius Map with GeoCheck®

**Chester Memorial USARC, VT
978 VT Route 11 West
Chester, VT 05143**

Inquiry Number: 01762041.1r

September 25, 2006

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

978 VT ROUTE 11 WEST
CHESTER, VT 05143

COORDINATES

Latitude (North): 43.270700 - 43° 16' 14.5"
Longitude (West): 72.626500 - 72° 37' 35.4"
Universal Transverse Mercator: Zone 18
UTM X (Meters): 692617.5
UTM Y (Meters): 4793396.5
Elevation: 704 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 43072-C6 ANDOVER, VT
Most Recent Revision: 1971

East Map: 43072-C5 CHESTER, VT
Most Recent Revision: 1971

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
Delisted NPL..... National Priority List Deletions
NPL RECOVERY..... Federal Superfund Liens
CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

EXECUTIVE SUMMARY

CORRACTS	Corrective Action Report
RCRA-TSDF	Resource Conservation and Recovery Act Information
RCRA-LQG	Resource Conservation and Recovery Act Information
RCRA-SQG	Resource Conservation and Recovery Act Information
ERNS	Emergency Response Notification System
HMIRS	Hazardous Materials Information Reporting System
US ENG CONTROLS	Engineering Controls Sites List
US INST CONTROL	Sites with Institutional Controls
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
US BROWNFIELDS	A Listing of Brownfields Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
ODI	Open Dump Inventory
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SHWS	Sites Database
SWF/LF	Landfills and Transfer Stations
LUST	Sites Database
UST	State of Vermont Underground Storage Tank Database
LAST	Sites Database
VT MANIFEST	Hazardous Waste Manifest Data
SPILLS	Sites Database
ENG CONTROLS	Engineering Controls Site Listing
INST CONTROL	Institutional Control Sites Listing
DRYCLEANERS	Drycleaner Facilities List
BROWNFIELDS	Brownfields Site List
NPDES	Inventory of NPDES Permits
TIER 2	Tier 2 Data Listing

TRIBAL RECORDS

INDIAN RESERV	Indian Reservations
INDIAN LUST	Leaking Underground Storage Tanks on Indian Land
INDIAN UST	Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

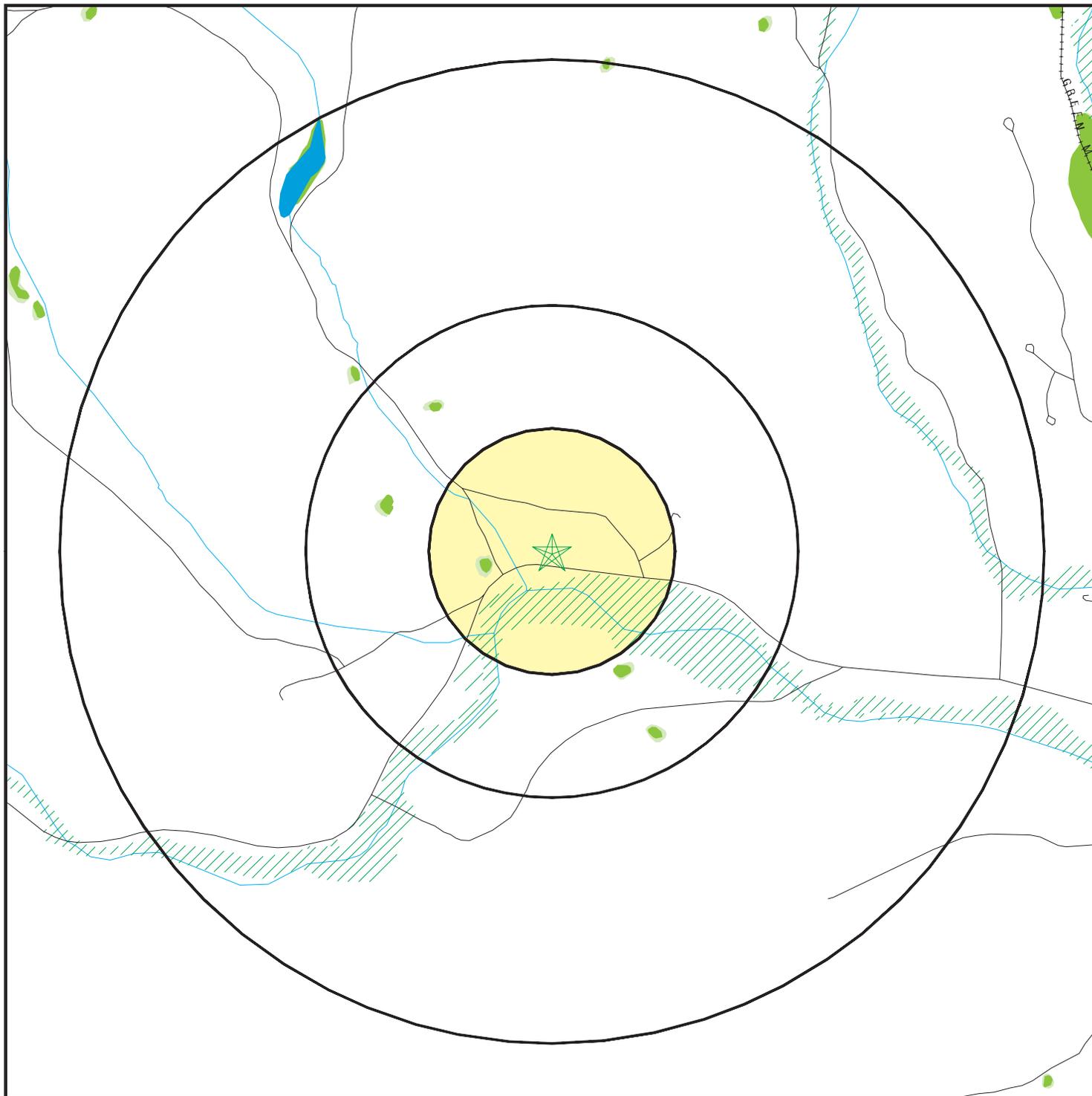
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

<u>Site Name</u>	<u>Database(s)</u>
CHESTER ANDOVER ELEMENTRY SCHOOL	FINDS, FTTS
B & B AUTO	LUST
SOAP SHED LAUNDROMAT	LUST
CHESTER RESERVE	LUST
CHESTER TIRE CENTER	LUST
SCOTT HINCKLEY	LUST
JAKES AMERICAN	UST
AOT RIGHT OF WAY	UST
R. B. ERSKINE GRAIN STORE	UST
RESIDENCE STONE	UST
GREEN MOUNTAIN UNION HIGH SCHOOL	UST
ROY SPAULDING SERVICE	UST
CHESTER TIRE CENTER	UST
GREEN MOUNTAIN TALC CORP.DBA CYPRE	UST
GREEN MOUNTAIN CABINS INC.	UST
MCGILL RESIDENCE	UST
THE SOAP SHED LAUNDROMAT	UST
RIGHT OF WAY(R.O.W.)	UST
CHESTER JIFFY MART	UST
BUTTERFIELD RESIDENCE	UST
CHESTER SUNOCO #225	UST
CHESTER USARC	UST
SOUTHERN VT SURVEYS OFFICE BLDG	UST
ROCKINGHAM STATE POLICE BARRACKS	UST
CHICO GREG TRUCKING	RCRA-SQG, FINDS
BUX AUTO BODY	RCRA-SQG, FINDS
CHAMPLAIN OIL CO CHESTER JIFFY MAR	RCRA-SQG, FINDS, VT MANIFEST
DR STEPHEN A SAUNDERS DDS	RCRA-SQG, FINDS
PUTNEY PASTA CO INC	RCRA-SQG, FINDS
W A SANDRI INC	RCRA-SQG, FINDS
MCDERMOTTS AUTO WRECKING	RCRA-SQG, FINDS
MILLS PRIDE, INC.	CT MANIFEST
MILLS PRIDE, INC.	CT MANIFEST
GREE MOUNTAIN LOG HOMES	CT MANIFEST
CYPRUS INDUSTRIAL MINERIALS COMPAN	NY MANIFEST
SOAP SHED LAUNDROMAT	CT MANIFEST
CHESTER MARBLE MART	CT MANIFEST

OVERVIEW MAP - 01762041.1r



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ▣ National Priority List Sites
- ▣ Landfill Sites
- ▣ Dept. Defense Sites

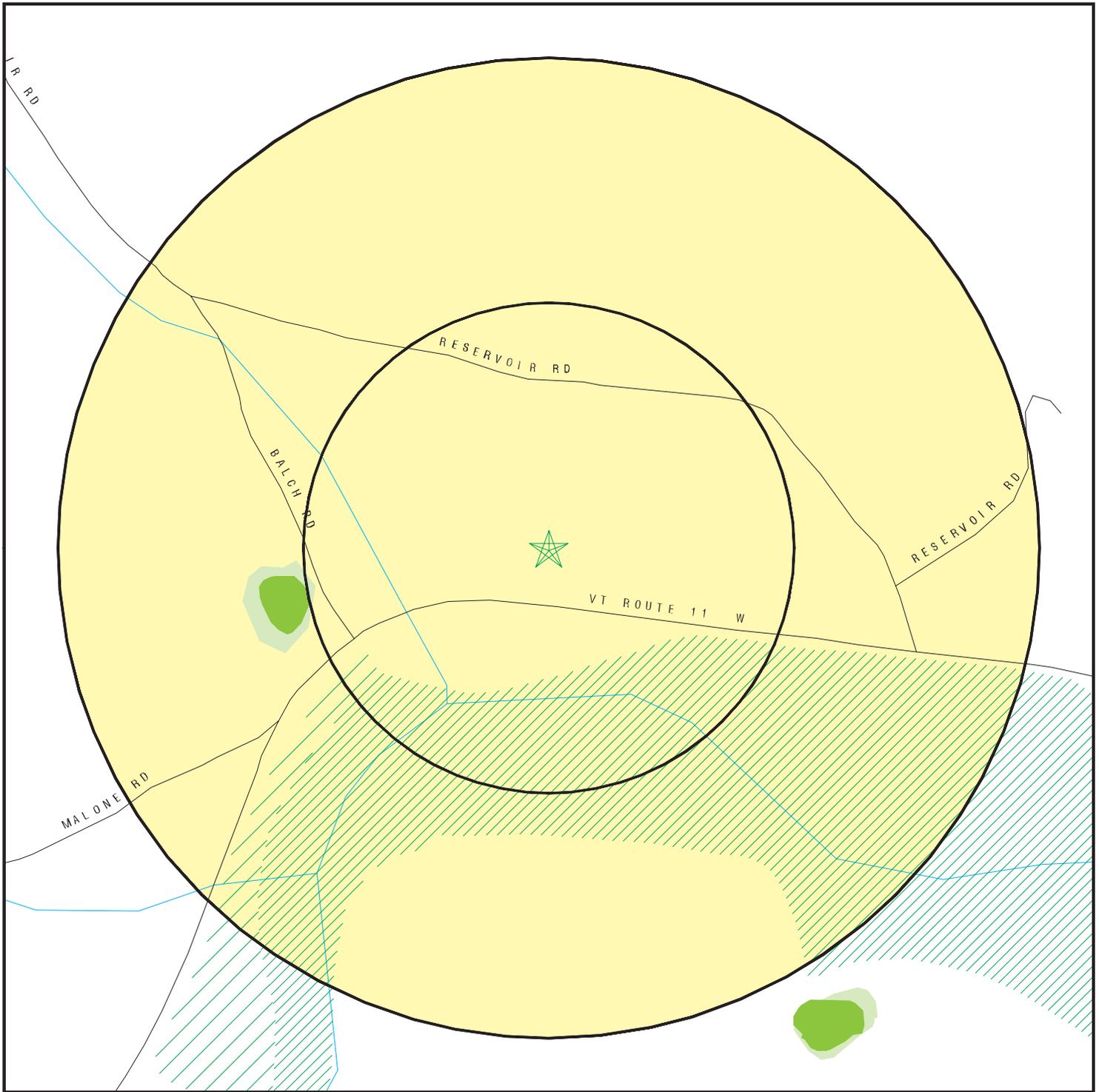
- ▣ Indian Reservations BIA
- ▣ Oil & Gas pipelines
- ▣ 100-year flood zone
- ▣ 500-year flood zone
- ▣ National Wetland Inventory
- ▣ State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Chester Memorial USARC, VT
 ADDRESS: 978 VT Route 11 West
 Chester VT 05143
 LAT/LONG: 43.2707 / 72.6265

CLIENT: CH2M Hill
 CONTACT: Mary Beth Jacques
 INQUIRY #: 01762041.1r
 DATE: September 25, 2006 3:22 pm

DETAIL MAP - 01762041.1r



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ⚙ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- 🚚 National Priority List Sites
- 🗑 Landfill Sites
- 🏢 Dept. Defense Sites

- 🏠 Indian Reservations BIA
- 🛢 Oil & Gas pipelines
- 🌊 100-year flood zone
- 🌊 500-year flood zone
- 🌿 National Wetland Inventory
- 🌿 State Wetlands

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SITE NAME: Chester Memorial USARC, VT
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CLIENT: CH2M Hill
 CONTACT: Mary Beth Jacques
 INQUIRY #: 01762041.1r
 DATE: September 25, 2006 3:22 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<u>FEDERAL RECORDS</u>								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL RECOVERY	TP		NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS	TP		NR	NR	NR	NR	NR	0
HMIRS	TP		NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
<u>STATE AND LOCAL RECORDS</u>								
State Haz. Waste		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
LAST		0.500	0	0	0	NR	NR	0
MANIFEST		0.250	0	0	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
ENG CONTROLS		0.500	0	0	0	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
TIER 2	TP		NR	NR	NR	NR	NR	0
<u>TRIBAL RECORDS</u>								
INDIAN RESERV		1.000	0	0	0	0	NR	0

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Target Property</u>	<u>Search Distance (Miles)</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
<u>EDR PROPRIETARY RECORDS</u>								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Distance (ft.)
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

NO SITES FOUND

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
ANDOVER	S106133696	B & B AUTO	ROUTE 11	05143	LUST
CHESTER	U003545895	JAKES AMERICAN	ROUTE 10		UST
CHESTER	U003517162	AOT RIGHT OF WAY	ROUTE 10 AND 103		UST
CHESTER	S103869435	SOAP SHED LAUNDROMAT	ROUTE 103		LUST
CHESTER	U003515878	R. B. ERSKINE GRAIN STORE	ROUTE 103 RAILROAD AVE/1ST AVE		UST
CHESTER	U003516983	RESIDENCE STONE	ROUTE 103 NORTH GASSETTS		UST
CHESTER	U003545099	GREEN MOUNTAIN UNION HIGH SCHOOL	ROUTE 103	05143	UST
CHESTER	1007915966	MILLS PRIDE, INC.	ROUTE 103	05143	CT MANIFEST
CHESTER	1007915964	MILLS PRIDE, INC.	ROUTE 103	05143	CT MANIFEST
CHESTER	1004792552	CHICO GREG TRUCKING	RTE 103	05143	RCRA-SQG, FINDS
CHESTER	U003515877	ROY SPAULDING SERVICE	ROUTE 108		UST
CHESTER	S103451864	CHESTER RESERVE	ROUTE 11		LUST
CHESTER	U003516345	CHESTER TIRE CENTER	ROUTE 11 AND 103		UST
CHESTER	1007912951	GREE MOUNTAIN LOG HOMES	ROUTE 11		CT MANIFEST
CHESTER	U003545772	GREEN MOUNTAIN TALC CORP.DBA CYPRE	ROUTE 11		UST
CHESTER	U003545886	GREEN MOUNTAIN CABINS INC.	ROUTE 11	05143	UST
CHESTER	U003545102	MCGILL RESIDENCE	ROUTE 11	05143	UST
CHESTER	1009247646	CYPRUS INDUSTRIAL MINERIALS COMPAN	ROUTE 11	05143	NY MANIFEST
CHESTER	1001216479	BUX AUTO BODY	RTE 11	05143	RCRA-SQG, FINDS
CHESTER	S106133614	CHESTER TIRE CENTER	ROUTE 11, MAIN ST.		LUST
CHESTER	S103451520	SCOTT HINCKLEY	RT 11, N MAIN ST		LUST
CHESTER	U003515832	THE SOAP SHED LAUNDROMAT	DEPOT STREET ROUTE 103	05143	UST
CHESTER	U003517165	RIGHT OF WAY(R.O.W.)	JCT OF ROUTE 10 AND 103 GASSET		UST
CHESTER	U003545100	CHESTER JIFFY MART	MAIN STREET	05143	UST
CHESTER	1004792767	CHAMPLAIN OIL CO CHESTER JIFFY MAR	MAIN ST	05143	RCRA-SQG, FINDS, VT MANIFEST
CHESTER	1004611902	CHESTER ANDOVER ELEMENTRY SCHOOL	MAIN STREET	05143	FINDS, FTTS
CHESTER	U001624581	BUTTERFIELD RESIDENCE	PLEASANT STREET (ROUTE 11)	05143	UST
CHESTER	U001392106	CHESTER SUNOCO #225	ROUTES 103 AND 11	05143	UST
CHESTER	1006811972	DR STEPHEN A SAUNDERS DDS	55 VT RTE 11 W ELLSWORTH BLDG	05143	RCRA-SQG, FINDS
CHESTER	1004792936	PUTNEY PASTA CO INC	926 VT RTE 103 SOUTH	05143	RCRA-SQG, FINDS
CHESTER	1004792358	W A SANDRI INC	60 VT RTE 103 SOUTH	05143	RCRA-SQG, FINDS
CHESTER	U003515961	CHESTER USARC	STATE ROUTE 11	05143	UST
ROCKINGHAM	U003516037	SOUTHERN VT SURVEYS OFFICE BLDG	ROUTE 103	05143	UST
ROCKINGHAM	U003545394	ROCKINGHAM STATE POLICE BARRACKS	ROUTE 103	05143	UST
ROCKINGHAM	1000810842	MCDERMOTTS AUTO WRECKING	WILLIAMS RD OFF RTE 103	05143	RCRA-SQG, FINDS
USA COUNTY	1007924103	SOAP SHED LAUNDROMAT	ROUTE 103 CHESTER	05143	CT MANIFEST
USA COUNTY	1007889072	CHESTER MARBLE MART	RTE 11 CHESTER	05143	CT MANIFEST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/05/2006	Source: EPA
Date Data Arrived at EDR: 08/02/2006	Telephone: N/A
Date Made Active in Reports: 09/12/2006	Last EDR Contact: 08/02/2006
Number of Days to Update: 41	Next Scheduled EDR Contact: 10/30/2006
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 07/05/2006	Source: EPA
Date Data Arrived at EDR: 08/02/2006	Telephone: N/A
Date Made Active in Reports: 09/12/2006	Last EDR Contact: 08/02/2006
Number of Days to Update: 41	Next Scheduled EDR Contact: 10/30/2006
	Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/05/2006	Source: EPA
Date Data Arrived at EDR: 08/02/2006	Telephone: N/A
Date Made Active in Reports: 09/12/2006	Last EDR Contact: 08/02/2006
Number of Days to Update: 41	Next Scheduled EDR Contact: 10/30/2006
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL RECOVERY: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/21/2006
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/19/2006	Source: EPA
Date Data Arrived at EDR: 06/22/2006	Telephone: 703-413-0223
Date Made Active in Reports: 08/23/2006	Last EDR Contact: 09/21/2006
Number of Days to Update: 62	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 07/17/2006	Source: EPA
Date Data Arrived at EDR: 08/02/2006	Telephone: 703-413-0223
Date Made Active in Reports: 09/12/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 41	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/2006	Source: EPA
Date Data Arrived at EDR: 03/17/2006	Telephone: 800-424-9346
Date Made Active in Reports: 04/13/2006	Last EDR Contact: 09/05/2006
Number of Days to Update: 27	Next Scheduled EDR Contact: 12/04/2006
	Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006	Source: EPA
Date Data Arrived at EDR: 06/28/2006	Telephone: 800-424-9346
Date Made Active in Reports: 08/23/2006	Last EDR Contact: 09/15/2006
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2005	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/12/2006	Telephone: 202-260-2342
Date Made Active in Reports: 02/21/2006	Last EDR Contact: 07/25/2006
Number of Days to Update: 40	Next Scheduled EDR Contact: 10/23/2006
	Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/03/2006	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 07/19/2006	Telephone: 202-366-4555
Date Made Active in Reports: 08/23/2006	Last EDR Contact: 07/19/2006
Number of Days to Update: 35	Next Scheduled EDR Contact: 10/16/2006
	Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/21/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/27/2006	Telephone: 703-603-8905
Date Made Active in Reports: 05/22/2006	Last EDR Contact: 09/07/2006
Number of Days to Update: 56	Next Scheduled EDR Contact: 10/02/2006
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/21/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/27/2006	Telephone: 703-603-8905
Date Made Active in Reports: 05/22/2006	Last EDR Contact: 09/07/2006
Number of Days to Update: 56	Next Scheduled EDR Contact: 10/02/2006
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2004	Source: USGS
Date Data Arrived at EDR: 02/08/2005	Telephone: 703-692-8801
Date Made Active in Reports: 08/04/2005	Last EDR Contact: 08/11/2006
Number of Days to Update: 177	Next Scheduled EDR Contact: 11/06/2006
	Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/05/2005	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 01/19/2006	Telephone: 202-528-4285
Date Made Active in Reports: 02/21/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 33	Next Scheduled EDR Contact: 01/01/2007
	Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients--States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/10/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/13/2006	Telephone: 202-566-2777
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 09/11/2006
Number of Days to Update: 55	Next Scheduled EDR Contact: 12/11/2006
	Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 02/15/2005	Telephone: Varies
Date Made Active in Reports: 04/25/2005	Last EDR Contact: 09/18/2006
Number of Days to Update: 69	Next Scheduled EDR Contact: 10/23/2006
	Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/10/2006	Source: EPA
Date Data Arrived at EDR: 07/21/2006	Telephone: 703-416-0223
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 07/06/2006
Number of Days to Update: 47	Next Scheduled EDR Contact: 10/02/2006
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005	Source: Department of Energy
Date Data Arrived at EDR: 11/28/2005	Telephone: 505-845-0011
Date Made Active in Reports: 01/30/2006	Last EDR Contact: 09/05/2006
Number of Days to Update: 63	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2004
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/20/2006	Source: EPA
Date Data Arrived at EDR: 07/21/2006	Telephone: 202-564-6064
Date Made Active in Reports: 08/22/2006	Last EDR Contact: 07/06/2006
Number of Days to Update: 32	Next Scheduled EDR Contact: 10/02/2006
	Data Release Frequency: Quarterly

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004	Source: EPA
Date Data Arrived at EDR: 06/22/2006	Telephone: 202-566-0250
Date Made Active in Reports: 08/23/2006	Last EDR Contact: 09/22/2006
Number of Days to Update: 62	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002	Source: EPA
Date Data Arrived at EDR: 04/14/2006	Telephone: 202-260-5521
Date Made Active in Reports: 05/30/2006	Last EDR Contact: 07/17/2006
Number of Days to Update: 46	Next Scheduled EDR Contact: 10/16/2006
	Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/14/2006	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 07/18/2006	Telephone: 202-566-1667
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 50	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 07/14/2006	Source: EPA
Date Data Arrived at EDR: 07/18/2006	Telephone: 202-566-1667
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 50	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2004	Source: EPA
Date Data Arrived at EDR: 05/11/2006	Telephone: 202-564-4203
Date Made Active in Reports: 05/22/2006	Last EDR Contact: 07/17/2006
Number of Days to Update: 11	Next Scheduled EDR Contact: 10/16/2006
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/21/2006	Telephone: 202-564-5088
Date Made Active in Reports: 05/11/2006	Last EDR Contact: 07/17/2006
Number of Days to Update: 20	Next Scheduled EDR Contact: 10/16/2006
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/07/2006	Source: EPA
Date Data Arrived at EDR: 08/09/2006	Telephone: 202-566-0500
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 08/09/2006
Number of Days to Update: 28	Next Scheduled EDR Contact: 11/06/2006
	Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/10/2006	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 07/20/2006	Telephone: 301-415-7169
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 07/03/2006
Number of Days to Update: 48	Next Scheduled EDR Contact: 10/02/2006
	Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/16/2006	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 06/28/2006	Telephone: 303-231-5959
Date Made Active in Reports: 08/23/2006	Last EDR Contact: 06/28/2006
Number of Days to Update: 56	Next Scheduled EDR Contact: 09/25/2006
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/21/2006	Source: EPA
Date Data Arrived at EDR: 07/25/2006	Telephone: N/A
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 04/03/2006
Number of Days to Update: 43	Next Scheduled EDR Contact: 07/03/2006
	Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 09/05/2006
Number of Days to Update: 35	Next Scheduled EDR Contact: 12/04/2006
	Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2003	Source: EPA/NTIS
Date Data Arrived at EDR: 06/17/2005	Telephone: 800-424-9346
Date Made Active in Reports: 08/04/2005	Last EDR Contact: 09/15/2006
Number of Days to Update: 48	Next Scheduled EDR Contact: 12/11/2006
	Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Sites Database

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 07/07/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 07/14/2006	Telephone: 802-241-3443
Date Made Active in Reports: 07/31/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 17	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

SWF/LF: Landfills and Transfer Stations

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 07/13/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 08/01/2006	Telephone: 802-241-3444
Date Made Active in Reports: 08/31/2006	Last EDR Contact: 04/28/2006
Number of Days to Update: 30	Next Scheduled EDR Contact: 07/10/2006
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST: Sites Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. Source Type: Underground Storage Tank.

Date of Government Version: 07/07/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 07/14/2006	Telephone: 802-241-3888
Date Made Active in Reports: 07/31/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 17	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

UST: State of Vermont Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 07/07/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 07/14/2006	Telephone: 802-241-3888
Date Made Active in Reports: 08/18/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 35	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

LAST: Sites Database

Date of Government Version: 07/07/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 07/14/2006	Telephone: 802-241-3443
Date Made Active in Reports: 07/31/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 17	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2005	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 06/29/2006	Telephone: 802-241-3443
Date Made Active in Reports: 07/31/2006	Last EDR Contact: 08/15/2006
Number of Days to Update: 32	Next Scheduled EDR Contact: 11/13/2006
	Data Release Frequency: Annually

SPILLS: Sites Database

Date of Government Version: 07/07/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 07/14/2006	Telephone: 802-241-3443
Date Made Active in Reports: 07/31/2006	Last EDR Contact: 06/19/2006
Number of Days to Update: 17	Next Scheduled EDR Contact: 09/18/2006
	Data Release Frequency: Quarterly

ENG CONTROLS: Engineering Controls Site Listing

A listing of Active and Closed sites with institutional controls in place

Date of Government Version: 07/07/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 07/14/2006	Telephone: 802-241-3443
Date Made Active in Reports: 07/31/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 17	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

INST CONTROL: Institutional Control Sites Listing

Active and Closed Sites with institutional controls in place.

Date of Government Version: 07/07/2006	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 07/14/2006	Telephone: 802-241-3443
Date Made Active in Reports: 07/31/2006	Last EDR Contact: 09/18/2006
Number of Days to Update: 17	Next Scheduled EDR Contact: 12/18/2006
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DRYCLEANERS: Drycleaner Facilities List

A listing of drycleaners that use perchloroethylene.

Date of Government Version: 06/27/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 33

Source: Department of Environmental Conservation
Telephone: 802-241-3857
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

BROWNFIELDS: Brownfields Site List

A listing of sites in the Brownfields program.

Date of Government Version: 05/31/2006
Date Data Arrived at EDR: 07/05/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 26

Source: Department of Environmental Conservation
Telephone: 802-241-3888
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

NPDES: Inventory of NPDES Permits

A listing of NPDES permits.

Date of Government Version: 05/22/2006
Date Data Arrived at EDR: 06/07/2006
Date Made Active in Reports: 07/10/2006
Number of Days to Update: 33

Source: Department of Environmental Conservation
Telephone: 802-241-2369
Last EDR Contact: 08/15/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

TIER 2: Tier 2 Data Listing

A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 10/11/2005
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 07/10/2006
Number of Days to Update: 40

Source: Department of Public Safety
Telephone: 802-244-8721
Last EDR Contact: 09/01/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Varies

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/28/2006
Number of Days to Update: 19

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/06/2006	Source: EPA Region 8
Date Data Arrived at EDR: 06/09/2006	Telephone: 303-312-6271
Date Made Active in Reports: 07/28/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/08/2006	Source: EPA Region 10
Date Data Arrived at EDR: 06/09/2006	Telephone: 206-553-2857
Date Made Active in Reports: 07/28/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/01/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/23/2006	Telephone: 415-972-3372
Date Made Active in Reports: 08/02/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 40	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2006	Source: EPA Region 7
Date Data Arrived at EDR: 07/10/2006	Telephone: 913-551-7003
Date Made Active in Reports: 09/12/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 64	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006	Source: EPA Region 9
Date Data Arrived at EDR: 06/23/2006	Telephone: 415-972-3368
Date Made Active in Reports: 08/02/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 40	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 06/08/2006	Source: EPA Region 10
Date Data Arrived at EDR: 06/09/2006	Telephone: 206-553-2857
Date Made Active in Reports: 07/28/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004	Source: EPA Region 5
Date Data Arrived at EDR: 12/29/2004	Telephone: 312-886-6136
Date Made Active in Reports: 02/04/2005	Last EDR Contact: 08/21/2006
Number of Days to Update: 37	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2006	Source: EPA Region 8
Date Data Arrived at EDR: 06/09/2006	Telephone: 303-312-6137
Date Made Active in Reports: 07/28/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/30/2006	Source: EPA Region 6
Date Data Arrived at EDR: 07/03/2006	Telephone: 214-665-7591
Date Made Active in Reports: 09/06/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

A listing of underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006	Source: EPA, Region 1
Date Data Arrived at EDR: 06/09/2006	Telephone: 617-918-1313
Date Made Active in Reports: 06/30/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 21	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006	Source: EPA Region 7
Date Data Arrived at EDR: 07/10/2006	Telephone: 913-551-7003
Date Made Active in Reports: 09/12/2006	Last EDR Contact: 08/21/2006
Number of Days to Update: 64	Next Scheduled EDR Contact: 11/20/2006
	Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/06/2006
Date Made Active in Reports: 08/01/2006
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/05/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/02/2006
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 06/27/2006
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 09/30/2005
Date Data Arrived at EDR: 05/09/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: PennWell Corporation
Telephone: (800) 823-6277

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Providers

Source: Social & Rehabilitation Services

Telephone: 802-241-2158

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory

Source: Vermont Center for Geographic Information, Inc.

Telephone: 802-882-3000

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CHESTER MEMORIAL USARC, VT
978 VT ROUTE 11 WEST
CHESTER, VT 05143

TARGET PROPERTY COORDINATES

Latitude (North): 43.27070 - 43° 16' 14.5"
Longitude (West): 72.6265 - 72° 37' 35.4"
Universal Tranverse Mercator: Zone 18
UTM X (Meters): 692617.5
UTM Y (Meters): 4793396.5
Elevation: 704 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map: 43072-C6 ANDOVER, VT
Most Recent Revision: 1971

East Map: 43072-C5 CHESTER, VT
Most Recent Revision: 1971

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

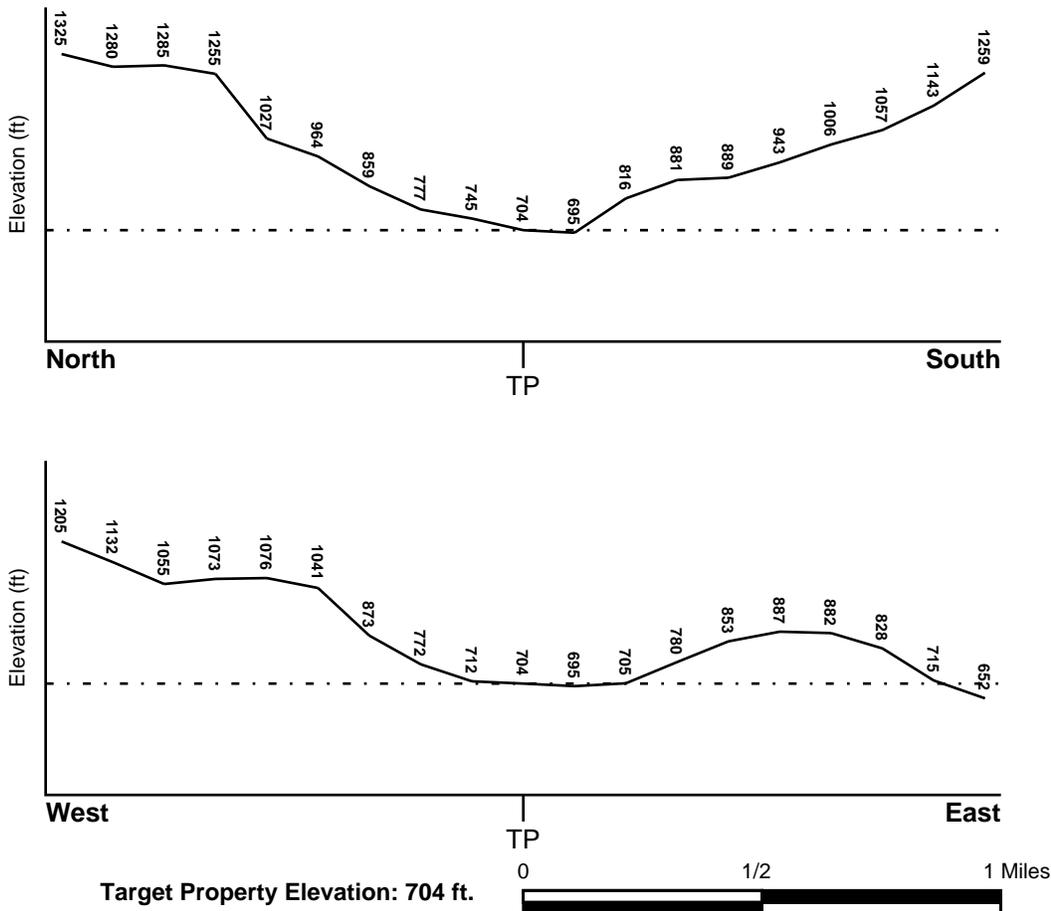
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General East

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Target Property County</u> WINDSOR, VT	<u>FEMA Flood Electronic Data</u> YES - refer to the Overview Map and Detail Map
Flood Plain Panel at Target Property:	5001460005C
Additional Panels in search area:	5001460010C 5001460020C 5001460015C

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u> ANDOVER	<u>NWI Electronic Data Coverage</u> YES - refer to the Overview Map and Detail Map
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HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era: Precambrian
System: Precambrian
Series: Paragneiss and schist
Code: Ym (decoded above as Era, System & Series)

GEOLOGIC AGE IDENTIFICATION

Category: Metamorphic Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: CABOT

Soil Surface Texture: extremely stony - fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Not reported

Hydric Status: Soil meets the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: HIGH

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Permeability Rate (in/hr)	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	8 inches	extremely stony - fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 5.10
2	8 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 5.10
3	14 inches	65 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.20 Min: 0.00	Max: 7.80 Min: 5.60

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: fine sandy loam
unweathered bedrock
extremely stony - loam
very stony - fine sandy loam
very stony - silt loam
very stony - loam
extremely stony - silt loam
silt loam

Surficial Soil Types: fine sandy loam
unweathered bedrock
extremely stony - loam
very stony - fine sandy loam
very stony - silt loam
very stony - loam
extremely stony - silt loam
silt loam

Shallow Soil Types: gravelly - loam
silt loam

Deeper Soil Types: unweathered bedrock
fine sandy loam
gravelly - sandy loam

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

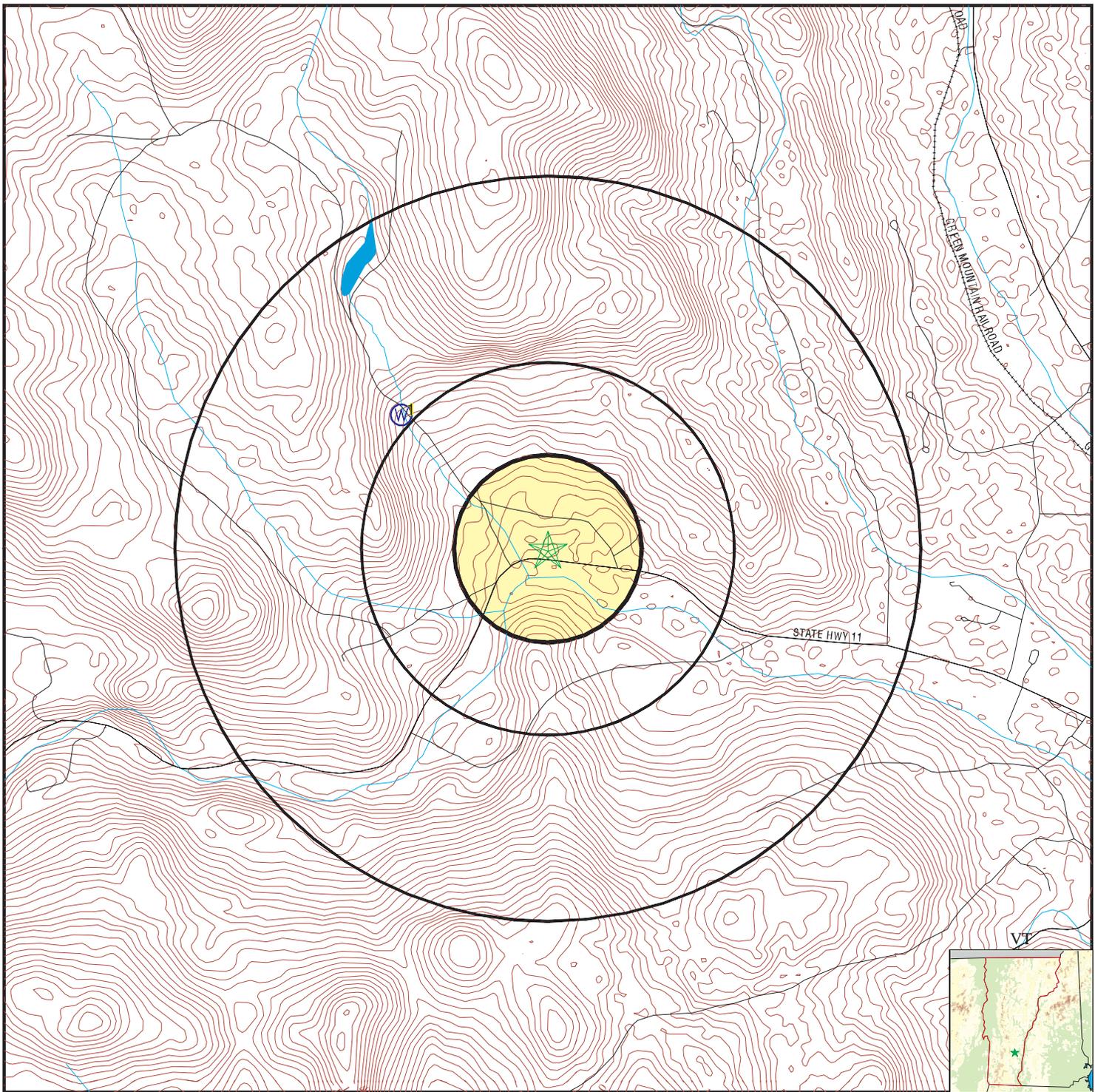
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	VT10000503	1/2 - 1 Mile NW

PHYSICAL SETTING SOURCE MAP - 01762041.1r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location

SITE NAME: Chester Memorial USARC, VT
 ADDRESS: 978 VT Route 11 West
 Chester VT 05143
 LAT/LONG: 43.2707 / 72.6265

CLIENT: CH2M Hill
 CONTACT: Mary Beth Jacques
 INQUIRY #: 01762041.1r
 DATE: September 25, 2006 3:22 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Database EDR ID Number

Map ID	Direction	Distance	Elevation	Database	EDR ID Number
1	NW	1/2 - 1 Mile	Higher	VT WELLS	VT10000503

Wsid:	5318	Srcnum:	003
Locmeth:	FIELD LOCATED WITH GPS UNIT - UNCORRECTED		
Locconf:	HIGH LEVEL OF CONFIDENCE WITH LOCATION		
Verify:	DATA HAS BEEN VERIFIED AS OF RELEASE DATE		
Gis date:	2002/01/18		
Wsidsn:	5318003	Srcname:	PIERCE BROOK RES.
Srctype:	2	Srcuse:	EMERGENCY
Sppdate:	Not Reported		
Anrnum:	0		
Anrtag:	0		
Srcdepth:	0		
Caslngth:	0		
Yrconstr:	0		
Appyield:	0		
Wsysname:	Chester Water Dept	Wstype:	COMMUNITY SYSTEM
Activityfl:	A		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for WINDSOR County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level \geq 2 pCi/L and \leq 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 05143

Number of sites tested: 6

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.080 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	9.517 pCi/L	50%	33%	17%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory

Source: Vermont Center for Geographic Information, Inc.

Telephone: 802-882-3000

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Vermont Public Drinking Water Sources

Source: ANR, Water Supply Division

Telephone: 802-241-3406

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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