FINAL

ENVIRONMENTAL CONDITION OF PROPERTY REPORT

PT LLOYD S. COOPER III
U.S. ARMY RESERVE CENTER (RI008)
885 SANDY LANE
WARWICK, RI 02889

Prepared For:

U.S. Army Corps of Engineers – Louisville District
Engineering Division – Environmental Engineering Branch
600 Dr. Martin Luther King, Jr. Place
Louisville, Kentucky 40202-2232

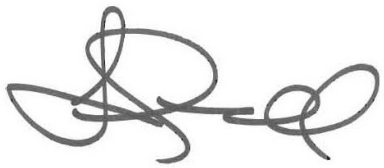
FEBRUARY 2007

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 **DATE**
Chief, Environmental Division
94th Regional Readiness Command

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



02/13/07

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

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 PT Lloyd S. Cooper III U.S. Army Reserve (USAR) Center (Facility ID RI008), hereafter referred to as the "Property" or "USAR Center." The Property is located at 885 Sandy Lane, Warwick, Kent County, Rhode Island 02889, and encompasses approximately 5 acres.

This ECP report was conducted in conformance with the Department of Defense's (DoD's) Base Redevelopment and Realignment Manual, DoD 4165.77-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 USAR and any prior tenant uses of the Site 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 August 2, 2006.

The USAR Center is currently occupied by the 443rd Civil Affairs Battalion Unit. The Property has served as a USAR Center since the City of Warwick donated the land to the U.S. Government in 1960, and the original buildings were constructed that same year. USAR has historically conducted administrative, logistical, and training activities at the Property, with limited vehicle maintenance occurring in the Organizational Maintenance Shop (OMS) building.

Based on a review of aerial photographs and U.S. Geological Survey (USGS) topographic maps dating back to 1945 and 1957, the Property appears to have been part of an area designated as a "gravel pit" on the topographic map, prior to the 1960 land donation. The present L-shaped main building and OMS building were first seen on the 1962 aerial photograph of the area.

Areas of potential environmental concern were reviewed and CH2M HILL found floor drains discharging to a leach field; wash rack and storm drain with visible staining; listing of the USAR Center on the state hazardous waste sites list; and the former Warwick City Dump under the northern part of the USAR Center relating to the environmental condition of the property. The facility is currently in non-compliance with the Rhode Island Department of Environmental Management (RIDEM) on the City Dump issues and will receive a Notice of Intent to Enforce from RIDEM within the next 60 days.

In accordance with DoD 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 appropriate governmental agencies.

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Appendixes

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 Support Activity
AR	Army Regulation
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
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
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
ECP	environmental condition of property
EDR	Environmental Data Resources, Inc.
ERNS	Emergency Response Notification System
FD	floor drain
FEMA	Federal Emergency Management Agency
kg	kilogram
kVA	kilovolt amp
LBP	lead-based paint
LUST	leaking underground storage tank
MEC	munitions and explosives of concern
MEP	military equipment parking
msl	mean sea level
NBC	nuclear, biological, and/or chemical
NEPA	National Environmental Policy Act

NFA	no further action
NPL	National Priorities List
NRHP	National Register of Historic Places
OF	outfall
OMS	Organizational Maintenance Shop
OWS	oil/water separator
PAL	Public Archaeology Laboratory, Inc.
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
RIDEM	Rhode Island Department of Environmental Management
RRC	Regional Readiness Command
SHWS	state hazardous waste site
SIR	site investigation report
STATSGO	State Soil Geographic Database
SWP3	Storm Water Pollution Prevention Plan
TSD	treatment, storage, and/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
WDPW	Warwick Department of Public Works

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 PT Lloyd S. Cooper III U.S. Army Reserve (USAR) Center (RI008). The facility is located at 885 Sandy Lane, Warwick, Kent County, Rhode Island, 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 August 2, 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 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 readily 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 Base Realignment and Closure (BRAC) property
- Assist federal agencies during the property screening process
- Provide information for prospective buyers
- Assist prospective new owners in meeting the requirements under U.S. Environmental Protection Agency's (USEPA'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 (kg) or the reportable quantity, whichever is greater, of the substances specified in 40 CFR 302.4 or 1 kg of acutely hazardous waste as defined in 40 CFR 261.30. A notice also is 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 (LBP), radon, and other substances potentially hazardous to human health.

This ECP report used the American Society for Testing and materials (ASTM) Designation D6008-96 (2005), *Standard Practice for Conducting Environmental Baseline Surveys*, the BRRM, CERCLA §120, and AR 200-1.

1.2 Scope of Services

This ECP report covers the 5.2-acre USAR Center located at 885 Sandy Lane, Warwick, Rhode Island. The Property lies on the north side of Sandy Lane with residential houses south of the road, the City of Warwick Department of Public Works (WDPW) to the west, private residence to the east, a remnant of a small 18th century cemetery to the northeast, and a wooded area that was a landfill in the 1940s north of the Property.

All site maps, figures, and aerial photographs referenced herein are provided in Appendix A, while Appendix B contains the photographs taken during the August 2, 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.

This ECP report classifies the Property into one of seven DoD Environmental ECP categories as defined by the DoD policy defining the classifications (see Sherri Goodman memorandum dated 21 October 1996). 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 PT Lloyd S. Cooper III USAR Center is located at 885 Sandy Lane in central Warwick in Kent County, Rhode Island. The 5.2-acre parcel is situated in an area that is designated residential to light commercial.

2.2 Asset Information

Facility Name and Address:	PT Lloyd S. Cooper III U.S. Army Reserve Center 885 Sandy Lane Warwick, Rhode Island 02889
Property Owner:	U.S. Government
Date of Ownership:	1960
Current Occupant:	443rd Civil Affairs Unit of U.S. Army Reserve
Zoning:	Residential to Light Commercial
County, State:	Kent County, Rhode Island
USGS Quadrangle(s):	East Greenwich, Rhode Island
Section/Township/Range:	Section 12, Township 4 North, Range 8 East
Latitude/Longitude:	41°42'24.8"N; 71°24'54.0"W
Legal Description:	A copy of the chain of title, which includes an accurate legal description of the Property, is included in Appendix C.

2.3 Physical Description

The USAR Center is located on a 5.2-acre parcel in central Warwick, Rhode Island and contains two permanent structures and two parking lots (Figure 2, Appendix A). The L-shaped main building and the Organizational Maintenance Shop (OMS) building were completed in 1960. Both structures are on concrete foundations and consist of concrete block walls covered with a brick exterior. A military equipment parking (MEP) area, a privately owned vehicle (POV) parking area, and a vehicle wash rack also are contained within the Property. The Property (except the front entrance) is secured by a chain-linked fence. The northwestern portion of the Property, including the MEP area is further separated from the rest of the Property by secured fencing. The front entrance is open to Sandy Lane.

The L-shaped main building consists of a 185-foot by 48-foot, two-story administrative and classroom block, and a 72-foot by 52-foot drill hall. The drill hall and administrative block

are connected by a narrow 34-foot corridor (Figure 3, Appendix A). The first floor of the administrative block is devoted mainly to administrative office, and the second floor is mainly classrooms. The north wall of the drill hall contains a roll-type garage door for vehicle access and a personnel door. The main building also contains a kitchen, a former rifle range, boiler room, and equipment storage.

The OMS building is located approximately 160 feet west of the main building. It is a 70-foot by 53-foot, three-bay, one-story vehicle repair garage. The east wall of the OMS building has three roll-up garage doors that each lead to a bay. The personnel access door is located on the southern wall of the OMS building.

The vehicle wash rack area is located adjacent to the northern wall of the OMS building. It consists of a concrete pad sloping inward from all sides toward the middle. At the middle of the pad is a floor drain. There is no oil/water separator (OWS) associated with this drain. A 1994 floor drain survey (ENSR, 1996) could not confirm the outfall for the drain.

The MEP lot is the fenced-off area in the northwestern corner of the Property. The area is used to store vehicles assigned to the unit and other military non-vehicle equipment (unopened crates of tents). The area also contains a metal two-bay petroleum, oil, and lubricants (POL) shed for storing hazardous material and product. There are two stormwater drains, each located at the east and west end of the area. The 2001 stormwater pollution prevention plan (SWP3; USGS, 2002) determined the discharge point for these drains to be a dry well located in the wooded area north of the parking area.

The POV parking lot consists of areas south and east of the OMS building and the area north and west of the main building. There are six stormwater drains in this area. Four of the stormwater drains are connected to the facility storm sewer system, and the facility storm sewer system is connected to and discharges to the municipal storm sewer and ultimately to Tuscatucket Brook. The remaining two drains discharge separately to a grassy area in the northern fence line area of the Property.

Impervious surface features such as asphalt parking areas, driveways, concrete walkways, and building footprints cover approximately two-thirds of the Property. The remaining land is well-maintained lawn grass with very few evergreen trees.

2.4 Site Hydrology and Geology

The USAR Center and city of Warwick are located within the Atlantic Seabed Lowland Region of the New England Physiographic Province. The geomorphic province of southern New England is known as the Atlantic Coastal Plain Province, and it is characterized by diverse surficial and bedrock geology (RI Project Facilities, date unknown). Surface elevations range from 60 feet above mean sea level (msl) to 20 feet above msl in the Warwick area.

2.4.1 Surface Water Characteristics

The Property is located within the Lower Bay drainage system of the Narragansett Bay Basin. Figure 7 in Appendix A provides a portion of the 1996 East Greenwich, Rhode Island U.S. Geological Survey (USGS) topographic map that includes the Property. As shown, the

Property is situated at an elevation of approximately 50 feet above msl and is relatively flat. In the immediate vicinity of the Property, the land surface slopes gently toward the gravel pit and Buckeye Brook located north of the Property.

Surface water features located near the Property include Little Pond located about 0.2 mile southeast of the Property, Buckeye Brook located about 0.3 mile northeast of the Property, and Tuscatucket Brook located approximately 0.5 mile southwest of the Property.

The 2001 SWP3 (USGS, 2002) identifies four outfalls (OF 1, OF 2, OF 3, and OF 4) through which stormwater and wastewater leave the facility. OF 1 collects water from storm drains located in the POV parking area east of the OMS building and part of the POV parking area north of the main building. This outfall discharges to the Tuscatucket Brook through a pipe that goes through the WDPW facility. OF 2 is a dry well located in the grassy area north of the MEP. OF 3 and OF 4 are riprap covered grassy areas located north of the new extension to the POV parking lot, which is located north of the main building.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Community Panel 4454090005E, the Property is not included in the 100-year floodplain elevation.

2.4.2 Hydrogeological Characteristics

The area where the Property is situated is underlain by the Metasedimentary Rhode Island Formation of Pennsylvanian age. This formation is comprised of sandstone, conglomerate, shale, and meta-anthracite. The surficial geology is composed of unconsolidated glacial outwash deposits of gravel, sand, silt, and clay deposited at the end of the Wisconsin glaciations (RI Project Facilities, date unknown).

According to information acquired from the Soil Conservation Service's State Soil Geographic Database (STATSGO) and EDR data search for Kent County, specific types of soil at the Property are from the Merrimac and Urban Land Series. The Merrimac and Urban Land Series are both listed as non-hydric soils. These soil series are described as having high infiltration rates and are deep and well drained. Depth to water table in these soils generally occurs at more than 6 feet.

Undisturbed surface soils are generally sandy loam composed of coarse-grained material of sands, sand with fines, and silty sand. Soil profiles in the area generally are well defined with the surface layer extending from the surface to 12 inches, the subsoil extends from the surface 12 to 25 inches, and the lower horizon extends from 25 to 60 inches. Bedrock is encountered at depth greater than 60 inches.

2.5 Site Utilities

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

***Sanitary Sewer System*—** The Property is connected to the City of Warwick sanitary sewer system. The Property had its own septic tank that was directed to a leach field north of the drill hall but within the interior fenced area of the Property; however, the septic tank was removed in the summer of 2001.

Gas and Electric— Buildings on the Property are connected to a natural gas system; the name of the supplier was not immediately known. National Grid Electric Company 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, there is no water supply well located at the Property. Potable water is supplied by the City of Warwick. The facility had its own septic tank until the summer of 2001 when the septic tank was removed during the facility repaving project.

A search of federal and state water well databases identified one water supply source located approximately 0.5 mile south of the Property. The well is one of the public water supply wells with registration number RI2000176. The well is located downgradient of the Property.

3 Site History

3.1 History of Ownership

Review of historical records (historical chain of title report) indicates that the City of Warwick donated the 5.2-acre parcel of land to the U.S. Government in 1960. The report is included in Appendix C. Other available site records (RI Project Facilities, date unknown) indicate the Property was a 40-acre farmstead belonging to different families at different times. At some time (around 1789) during the ownership of the land by Pardon Baker, a small cemetery was established. Before the land came into the City of Warwick's possession in 1925, the last recorded occupant was the Lincoln family who owned the property from 1852 to 1925.

According to a city directory provided by EDR and dated June 24, 2006, the address of the USAR Center was first listed in the research source (Cole Criss-Cross Directory) in 1995. Subsequent city directory searches do not list the Property. Historical documentation supports the 1960 construction date of the USAR Center. A copy of the city directory is included in Appendix E.

3.2 Past Uses and Operations

In 1960, the City of Warwick donated the 5.2-acre parcel of land to the U.S. Government for the construction of the USAR Center. Construction of the main and OMS buildings occurred that same year. Historical information sources suggest that the Property was formerly part of a 40-acre parcel of land used for dwelling and farmstead by successive families. The Lincoln family was the last to occupy the said parcel before it came into the City of Warwick's possession in 1925. Review of the 1939 and 1951 aerial photographs (Figures 8 and 9, Appendix A) supports the past agricultural uses.

The Property has served as a reserve and mobilization center for USAR since the U.S. Government acquired the land. The 1962 aerial photograph (Figure 10, Appendix A) shows the new buildings for the first time. The Property primarily functioned as an administrative, logistical, and educational facility, with limited maintenance of military vehicles occurring in the OMS building. The Property historically was used by reservists for drill activities on various weekends throughout the year. The 443rd Civil Affairs Battalion of USAR is the current occupant of the Property. At the time of the site reconnaissance, the main building contained various items, including desks, office furniture, and folding tables.

The OMS building was used to perform limited maintenance activities on military equipment. 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 Area Maintenance Support Activity (AMSA) shop located at one of the other USAR centers in Rhode Island. Equipment requiring a major overhaul also was sent offsite.

At the time of the site reconnaissance, the OMS building contained storage cages for equipment, parts, and electrical appliances. There also was an area of the OMS building identified as a satellite generation point. This area is used to temporarily store virgin and waste automotive fluid before moving it to the hazardous material shed. The two-bay flammable metal shed located in the MEP lot is used to store POL products and waste before they are used or disposed of by the Defense Reutilization and Marketing Office (DRMO). The Motor Sergeant confirmed that these wastes and products have been stored here in the past (Photographs 4 and 7, Appendix B). Many military vehicles were seen parked in the MEP lot.

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 a review of available site records, search of federal and state environmental databases, and interviews with USAR personnel. Chemicals formerly used and stored at the Property were associated with vehicle and facility maintenance activities and janitorial services. Janitorial chemicals and building maintenance-related products were stored in the designated storage area within the janitorial closet located in the main building. Vehicle maintenance products and small amounts of POL products also were stored in 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 north of the OMS building within the MEP area. Heating oil for the buildings' burners was stored in the 12,000-gallon and 1,000-gallon underground storage tanks (USTs) formerly located outside the northwestern corner of the main building and the southwestern corner of the OMS building. No UST is currently on the Property.

Certain types of chemical products used and stored at the Property would have contained hazardous substances pursuant to CERCLA §101 (14) (42 United States 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) (42 USC 9601 (14)) were stored at the Property for 1 year or more in excess of corresponding reportable quantities.

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 USAR and Rhode Island Department of Environmental Management (RIDEM) personnel. USAR personnel interviewed indicated that the Property has a waste generation, storage, and disposal (through DRMO) plan. The plan was not available for review for this ECP report; however, there is evidence of onsite release of regulated substances.

During construction of a new parking lot, landfill relics were discovered during excavation. RIDEM personnel were called onsite and observed evidence of a former landfill in the excavation. RIDEM personnel also were shown some preliminary data that indicated jurisdictional hazardous substances in the fill material were found to exist in concentrations that exceed RIDEM's industrial/commercial direct exposure criteria for inorganic metals. The northern part of the Property is part of the former Warwick City Dump.

In a letter dated June 7, 2001 (Voluntary Procedure Letter Case #2001-036), RIDEM indicated that it has concluded that release of hazardous materials has occurred on the Property. RIDEM therefore requested that USACE conduct and complete a site investigation report (SIR) with proposed remedial alternatives. At the time of compiling this ECP report, the required SIR had not been conducted, and the City of Warwick and 94th Regional Readiness Command (RRC) were notified that the Property is out of compliance (Letter of Non-Compliance, 19 May 2006, Appendix E). The U.S. Army had until July 1, 2006, to submit a completed SIR or face administrative penalties for noncompliance. RIDEM personnel were contacted in January 2007 to inquire about the current status of the case. CH2M HILL was informed that USACE will be issued a Notice of Intent to Enforce within 60 days from January 19, 2007, if RIDEM does not receive the SIR. A Notice of Violation would be issued next, which could include administrative fines of up to $1,000 per day from the June 7, 2001, date.

During the August 2006 site reconnaissance survey, stained soil and stressed vegetation were observed around the perimeter of the stormwater drain located in the northwestern corner of the vehicle wash rack (Photographs 1 and 3, Appendix B). The *Floor and Storm Drains Inventory and Natural Resources Inventory* (ENSR, 1996) also indicated oily sheen and fuel odor in the floor drain outside the boiler room.

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 USAR personnel, two USTs were previously located at this facility, but they were removed in 1999. The 12,000- and 1,000-gallon tanks were used to store heating oil for the buildings on the Property.

Impacted soil encountered during the tanks removal was removed and disposed of offsite. RIDEM has concurred that no further action (NFA) is needed regarding these tank removals and issued closure certificates dated September 22, 1999 (Nobis Engineering, 2000).

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 the reports with environmental information directly applicable to the ECP report. Copies of the reports, unless otherwise specified, are provided in Appendix D.

3.5.1 1996 Floor and Storm Drains Inventory and Natural Resources Inventory

ENSR (1996) prepared a report with the objective to compile an inventory of floor drains, stormwater drains, and existing natural resources on the Property and make recommendations on how to protect human health and the environment on the Property. Code requirements, facility inspection results, letters from federal and state agencies about rare and endangered species, and recommendations were included in the report. Deficiencies were noted in some of the floor and storm drains on the Property, and corrective actions were recommended. Some of the deficiencies noted include visible sheen in the floor drain outside the boiler room in the basement, storm drains and wash rack filled with soil, and a reported OWS not observed onsite and not on the site plan.

The report concluded that no rare, threatened, or endangered species of plants and animals was found on the Property, and that the Property did not contain wetlands.

3.5.2 Asbestos Survey Report and Operation and Maintenance Plan

Covino Environmental Consultants Inc., acting on behalf of Harding Lawson Associates, conducted a survey to identify asbestos-containing material (ACM) in the USAR Center. The objective of the survey was to provide the U.S. Army with information concerning the extent of ACM at the facility, a hazard assessment, an operation and maintenance plan to properly address potential concern, and provide information for future remediation effort. The survey report states both friable and non-friable ACM were identified in both buildings on the property and recommended repair, or removal and replacement of damaged friable ACM.

3.5.3 Underground Storage Tank Closure Report

Nobis Engineering Inc. closed two heating oil USTs (12,000-gallon and 1,000-gallon capacities) from the Property in April 2000 (Nobis Engineering, 2000). The objectives of the UST closure effort were to excavate and remove the two USTs, document the condition of the tanks on removal, remove and dispose as required by regulation any impacted soil, and backfill the area with clean soil. The report documents that the 12,000-gallon tank was in good condition with no sign of leaking. Soil from around the tank vault did not show signs of contamination. The 1,000-gallon tank had numerous small holes in it, and the soil surrounding it showed signs of contamination. Impacted soil was removed to regulatory requirements, and NFA status was granted for both tanks.

3.5.4 Historical Resources Report

In 1995, the 94th RRC commissioned PAL to conduct a survey and prepared a report of the historical and archaeological resources of the Property. The purpose of the survey and subsequent report was to inventory all historical and archaeological resources that exist or could potentially exist on the Property. Historical information, setting and landscape, cultural resources, security, architectural information, and structure descriptions of the Property were included in the report. The Property also was assessed for its eligibility to the National Register of Historic Places (NRHP). The existence of a small 18th century cemetery located outside the northeastern corner of the Property was confirmed in the report. No buildings or structures within the USAR Center were eligible for listing on the NRHP (PAL, 1995).

3.5.5 U.S. Army Reserve Stormwater Pollution Prevention Plan

The USGS Water Resources Division for Massachusetts and Rhode Island (USGS, 2002) prepared an SWP3 for USAR centers in the 94th RRC. The objective of the plan was to identify sources of potential pollution, describe best management practices designed to minimize pollution through prevention and source control, and recommend action for the facility. The SWP3 described stormwater runoff drainage, identified point source outfalls, and provided non-stormwater discharge certification for stormwater outfalls.

3.5.6 Range Cleanup Report

IT Corporation conducted cleanup of the indoor firing range and documented the cleanup activities in a report (IT Corporation, 2003). The report stated that material associated with the range was removed, and clearance wipe samples document that residual lead levels in the range concrete based on post-floor sealing sampling are below the 94th RRC's goal of 200 micrograms per square foot. IT Corporation further certifies that the range cleaning activities have successfully attained the project clearance objectives, and the range is approved for reoccupancy.

During the August 2, 2006, the former range was observed to be used as storage space for troop supplies (such as military clothes, boots, and helmets).

3.5.7 Archaeological and Historical Survey

Public Archaeology Laboratory, Inc. (PAL, 1995) conducted archaeological and historical surveys for six Rhode Island 94th RRC project facilities, including the PT Lloyd S. Cooper III USAR Center. This survey concluded that based on the degree of previous disturbance, the Property possesses low archaeological sensitivity for intact prehistoric and historic resources. The report also concluded that there is the possibility of existence of late 17th to early 18th century graves located outside the northeastern area of the Property.

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.

Three approaches were used to assess adjacent properties for evidence of past or present environmental issues that would impact the USAR Center. These approaches include reviewing the EDR database search results, reviewing historical aerial photographs, and visually surveying the properties from public assess areas.

4.1 Land Uses

South of the Property is Sandy Lane, a major urban street. Across Sandy Lane are single-family residential homes and Little Pond.

Immediately west of the Property is a fenced facility belonging to WDPW. Activities at this facility are classified as industrial in the EDR report. During the August 2006 visual survey of the WDPW facility, the following items were observed stored at the site: road salting equipment (heap of snow melt and salt spreader), petroleum product storage-type 55-gallon barrels, and what looked like a vehicle repair and road sign making garage. This facility had five USTs associated with it, three of which have been removed and closed; the remaining two are in use. Further west beyond WDPW are small businesses (auto repair shops, small retail shops, and restaurants) and residential homes.

The northern portion of the Property and to the north of the Property is a wooded undeveloped area. In the 1940s, the City of Warwick used part of this area as a dump site, and it was known as the "City Dump", as seen on the 1942 USGS topographic map of the area (Figure 4, Appendix A). Part of this undeveloped wooded area also has been used as a gravel pit in the past, as evident in the 1957 and 1975 USGS 7.5-minute East Greenwich topographic maps (Figures 5 and 6, Appendix A).

References to the old dumpsite are found in several documents. The Rhode Island Project Facilities (date unknown), describes a 1959 site plan that was found in the USAR Center files. The site plan appears to have been made just before construction began on the current buildings. The plan references an existing dump in the far northwestern section of the Property. This same document notes that earthmoving and modern dumping have impacted the northern portion of the Property. The BRAC 2005 National Environmental Policy Act (NEPA) questionnaire indicated that most of the rear portion of the Property is on an old municipal landfill. It also references restrictions on Property use because of this former landfill.

A section of this old dumpsite located north of WDPW and the USAR Center has been converted to a baseball field; the City of Warwick still operates a recycling and mulch yard north of the baseball field. The immediate area abutting the northern fence line of the Property is a leach field to which stormwater from the Property discharges.

A small parcel of land, the site of an 18th century cemetery, lies to the east. The cemetery is registered with the Rhode Island Cemeteries Program, Office of Veterans Affairs. Further south of this cemetery are single-family homes. East of the cemetery and the homes is a new multilevel condominium complex and apartment buildings. There are seven sites within 0.25 mile of the Property that are listed as Resource Conservation and Recovery Act (RCRA)-registered small quantity generators, as discussed in Section 5.1.5.

4.2 Findings

The WDPW facility located at 925 Sandy Lane is listed as having three gasoline USTs (1,000-, 5,000-, and 1,000-gallon capacities) and two diesel USTs (1,000- and 12,000-gallon capacities). The 1,000-gallon gasoline and 1,000-gallon diesel USTs have been removed and are considered permanently closed (EDR, 2006).

This facility also conducts road maintenance and snow removal from city roads. Large quantities of snowmelt salt are stored at the facility, as observed during the August 2, 2006, adjacent property reconnaissance survey. There have been previous violations relating to satellite hazardous accumulation point management for this facility; however, there is no indication of present or past contaminant migration from this facility to the USAR Center.

One water supply source is located approximately 0.5 mile south of the Property. This is a municipal well owned by the City of Warwick Water Authority and is located topographically downgradient of the Property.

Based on a review of available aerial photographs and historical documents (RI Project Facilities, date unknown), land use at adjacent properties has changed significantly over the years. According to this report, single-family farmsteads occupied the area where the Property is now situated. It also indicated sections of the area were used for dumping during the 1940s.

The 1939 aerial photograph (Figure 8, Appendix A) shows that the area is open land with some single-family homes at the present location of the Property and an area north that appears to be a dumping area or wetland.

In the 1951 aerial photograph (Figure 9, Appendix A), the WDPW building is seen east of the current USAR Center, but areas north, east, and south remain unchanged from the 1939 photograph. The 1962 aerial photograph (Figure 10, Appendix A) shows the USAR Center the way it appears today, and adjacent areas remain unchanged.

The 1972 aerial photograph (Figure 11, Appendix A) shows significant changes, including what looks like light commercial buildings west of the WDPW site. A baseball field is in the former open dump site to the north, and long apartment buildings are to the east and northeast. More houses are seen along the south-southeast side of the USAR Center. The 1981 aerial photograph (Figure 12, Appendix A) shows the former dump site as being further developed into sporting fields, leaving a small wooded area abutting the Property to

the north. The August 2006 site reconnaissance survey identified the condominium complex east of the Property.

The EDR report identified seven properties within 0.25 mile of the Property as RCRA-registered small quantity generators. WDPW is the only site of the seven that is listed as having violations associated with hazardous materials storage. This site has two violations associated with container management and satellite accumulation, but all violations have been brought into compliance since 2003.

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 August 2, 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 Property.

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

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 Property.

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 RCRIS TSD site, and there are no such sites located with 0.5 mile of the Property.

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 listed as an RCRA-registered small quantity generator (RIR000015552). No RCRA violations are associated with the USAR Center.

Seven adjacent property owners located within 0.25 mile of the Property are listed as RCRA-registered small quantity generators. Table 1 summarizes registered small quantity generator facilities within 0.25 mile of USAR Center. No large quantity generators are located within 0.25 mile of the USAR Center.

TABLE 1
List of RCRA Small Quantity Generators within 0.25 mile of PT Lloyd S. Cooper USAR Center, Warwick, Rhode Island

Name/Type of Property	Address	Distance and Direction from Property	Violation exists	Remarks
City of Warwick Department of Public Works	925 Sandy Lane Warwick, RI 02886	Approx. 0.009 mile southwest	Yes	Two 1998 violations associated with container management and satellite accumulation have been brought to compliance in 2003
Getty Service Station	1015 Sandy Lane Warwick, RI 02886	Approx. 0.9 mile west-southwest	No	
CD Auto	14 Clorane Street Warwick, RI 02886	Approx. 0.9 mile west-southwest	No	
Paglias Auto Sales and Services	40 Whitford Street Warwick, RI 02886	Approx. 0.9 mile west-northwest	No	
Ray Service Center	33 Clorane Street Warwick, RI 02886	Approx. 0.1 mile west	No	
B&R Auto and Truck Repair	33 Clorane Street Warwick, RI 02886	Approx. 0.1 mile west	No	
Family Transport Inc.	33 Clorane Street Warwick, RI 02889	Approx. 0.11 mile west	No	
NYNEX CTL OFF	2556 West Shore Road Warwick, RI 02886	Approx. 0.12 mile west	No	

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 also was obtained from online database searches of the RIDEM Web site (http://www.dem.ri.gov/programs/benviron/waste/index.htm). Occasionally, state and local agency personnel were interviewed by telephone to answer questions about any database issues.

5.2.1 State Lists of Hazardous Waste Sites within 1 Mile

The USAR Center is on the state list of hazardous waste sites. A portion of the former Warwick City Dump lies under the northern portion of the USAR Center. The USAR Center may be in violation with RIDEM for failure to submit an SIR and may receive a Notice of Intent to Enforce within 60 days from January 19, 2007.

The EDR record search of April 5, 2006, indicates that there are five state hazardous waste site (SHWS) facilities located within 1 mile of the Property. The Warwick City Dump is listed as an SHWS site in the EDR report but is not listed on the State of Rhode Island list of hazardous waste sites. None of these sites has violations associated with hazardous material storage or release and are thus not considered to pose an environmental threat to the Property, except for the former Warwick City Dump. Until a site investigation report has been completed, it is not yet known if this site poses an environmental threat to the Property.

TABLE 2
State Hazardous Waste Sites within 1 mile of PT Lloyd S. Cooper III USAR Center, Warwick, Rhode Island

Company/Site	Address	Distance and Direction from Property	Operation Status	Elevation Relative to Property
Warwick City Dump	Sandy Lane Warwick, RI 02886	0.1 mile east-northeast	Inactive	Higher
Municipal Auto Sales	2628 West Shore Road Warwick, RI 02886	0.2 mile west-southwest	Inactive	Lower
Truck Away Landfill	Industrial Drive Warwick, RI 02886	0.7 mile north-northwest	Active	Equal
ETCO Cord Production	333 Strawberry Field Road Warwick, RI 02886	0.7 mile west-northwest	Active	Higher
Buttonwoods Dry Cleaners	207 Buttonwoods Avenue Warwick, RI 02886	0.9 mile west-southwest	Active	Higher

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

The USAR Center does not have an active solid waste landfill, incinerator, or transfer station within the Property boundaries; however, the northern portion of the Property and land north of the Property boundaries were previously used as the City of Warwick Dump.

Based on the EDR report dated July 12, 2006, no adjacent properties within 0.5 mile of the Property 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 Rhode Island Division of Underground Storage Tanks within RIDEM maintains a comprehensive database of leaking underground storage tank (LUST) sites. The USAR Center is not listed in the state LUST database.

Within 0.5 mile of the Property, however, seven LUST sites were identified. Table 2 summarizes their information relative to the USAR Center and provides the status of their corrective action. All the identified sites have been closed with NFA status, indicating that they do not pose a threat to human health and the environment and therefore will not have an environmental impact on the Property. In addition to having NFA status, three of the sites are downgradient of the property, and therefore, offsite migration from these sites will not impact the Property.

TABLE 3
Leaking Underground Storage Tank Sites near PT Lloyd S. Cooper III USAR Center, Warwick, Rhode Island

Company/Site	Address	Distance and Direction from Property	Regulatory Status	Elevation Relative to Property
Getty Service Station	1015 Sandy Lane Warwick, RI 02886	Approx. 0.08 mile west-southwest	NFA	Higher
New England Telephone Company	2556 West Shore Road Warwick, RI 02889	Approx. 0.12 mile south	NFA	Higher
Ryder	112 Gallway Street Warwick, RI 02889	Approx. 0.2 mile northwest	NFA	Higher
West Shore Texaco Station	2501 West Shore Road Warwick, RI 02889	Approx. 0.23 mile southeast	NFA	Higher
Herb's Sunoco	2648 West Shore Road Warwick, RI 02889	Approx. 0.24 mile west-southwest	NFA	Lower
DB Mart	2400 West Shore Road Warwick, RI 02889	Approx. 0.37 mile southeast	NFA	Lower
Cedar Swamp Pumping Station	Cedar Swamp Road Warwick, RI 02889	Approx. 0.4 mile north-northeast	NFA	Lower

NFA—no further action

5.2.4 State-Registered UST Sites within 0.5 Mile

A review of the EDR report, the state Rhode Island UST database, and available records indicate there were two heating oil USTs located at the Property; both tanks have been removed and NFA issued by RIDEM. Eight other UST sites were identified within 0.5 mile of the USAR Center. Table 4 lists the sites along with the tanks status.

Four of the eight sites identified are at a lower elevation relative to the Property, thus offsite migration from these sites will not impact the environment at the Property. Three of the sites are at higher relative elevations, thus offsite migration from these sites may impact the environment at the Property. Two of the three sites (former Almacs and CL Marine Inc.), however, have their tanks listed as permanently closed and thus will not affect the Property (the EDR report did not state if the tanks had been removed). One other site is at an equal relative elevation to the Property, thus depending on the quantity of material released, offsite migration from this site may affect the environmental condition at the Property.

TABLE 4
Underground Storage Tank Sites near PT Lloyd S. Cooper III USAR Center, Warwick, Rhode Island

Company/Site	Address	Distance and Direction from Property	Tank Status	Closure Status	Elevation Relative to Property
City of Warwick Department of Public Works	925 Sandy Lane Warwick, RI	Approx. 0.02 mile southwest	Two tanks currently active	3 Tanks permanently closed	Lower
Sandy Lane Getty	1015 Sandy Lane Warwick, RI	Approx 0.08 mile west-southwest	Three tanks currently active	6 Tanks permanently closed	Equal
New England Telephone Company	2556 W. Shore Road Warwick, RI	Approx. 0.12 mile south	One tank currently active	2 tanks permanently closed	Higher
Vacant Lot (formerly Almacs, Inc.)	2574 W. Shore Road Warwick, RI	Approx. 0.13 mile southwest	No active tank	1 tank permanently closed	Higher
Janco Central Inc.	2625 W. Shore Road Warwick, RI	Approx. 0.16 mile southwest	No active tank	2 tanks permanently closed	Lower
C L Marine Inc. (formerly West Shore Road Texaco)	2501 W. Shore Road Warwick, RI	Approx. 0.23 mile southeast	No active tank	11 tanks permanently closed	Higher
Herb's Sunoco	2648 W. Shore Road Warwick, RI	Approx. 0.24 mile west-southwest	Two tanks currently active	6 tanks permanently closed	Lower
Cedar Swamp Pumping Station	Cedar Swamp Road Warwick, RI	Approx. 0.4 mile north-northeast	No active tank	1 tank permanently closed	Lower

5.2.5 State Spills Incidents

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

5.2.6 Records of Contaminated Public Wells

The EDR report identified one water supply source is located approximately 0.5 mile south of the USAR Center. No records of any contamination of this supply well were found, and a call to the Warwick City Water Authority confirmed that this well is still online and producing potable water passing federal drinking water standards.

5.2.7 Voluntary Remediation Program Sites within 0.5 Mile

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

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 orphan sites were identified and mapped. Two of the sites, Warwick Compost Facility & MRF and New England Auto Body, are located within the corresponding ASTM search radius for the category they belong in.

Warwick Compost Facility & MRF, which is located approximately 0.3 mile from the Property on Range Road in Warwick, Rhode Island, is located within the 1-mile ASTM search radius for an SHWS. This facility is located at an equal elevation relative to the Property and does not have an existing violation relating to an SHWS. A visual survey of the facility did not indicate any condition that would pose a threat to the USAR Center.

New England Auto Body, located 0.2 mile west-southwest of the Property at 26 Whitford Street, Warwick, Rhode Island, is within the 0.25-mile ASTM search radius for an RCRA small quantity generator. The facility is located at a lower elevation relative to the Property. There is no record of violation for this facility, and thus, it is not considered a threat to the USAR Center.

5.4 Summary of Properties Evaluated to Determine Risk to the Property

To summarize Sections 5.1 through 5.3, separate 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, and are summarized in Table 5.

Based on an evaluation of available site information and details concerning the properties listed in Table 5, one of the facilities evaluated exhibit significant environmental conditions that have the probability of adversely affecting the environmental conditions at another site.

TABLE 5
Properties Evaluated for Potential Environmental Risks
PT Lloyd S. Cooper III USAR Center, Warwick, Rhode Island

Company/Site	Database(s) Reviewed	Elevation Relative to Property?	Potential Impact on the Property?	Comments
City of Warwick Department of Public Works	LUST, UST	Lower	No	No LUST incidence. No violations associated with USTs.
Warwick City Dump	SHWS/LF	Higher	Yes	The dump is located upgradient of the facility, and there is potential from leachate from the former dump.
Warwick Compost Facility & MRF	SHWS/LF	Equal	No	No violation on record.

LF—landfill
LUST—leaking underground storage tanks
SHWS—state hazardous waste site
UST—underground storage tank

6 Site Investigation and Review of Hazards

Findings documented in the following subsections are based on the August 2, 2006, site reconnaissance, a review of available site records, and information obtained from USAR personnel.

6.1 USTs/Aboveground Storage Tanks

Two heating oil USTs associated with this facility were removed in 1999, and an NFA report was submitted to RIDEM. The agency approved the NFA in a letter dated September 22, 1999. No visible evidence was observed during the site visit to indicate where the tanks were formerly located.

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. There is an area designated "satellite hazardous waste accumulation point" in the OMS building. Hazardous wastes are held here temporarily before being moved to the flammable storage shed in the MEP lot. Materials that are stored in the satellite generation area and the shed include motor oil, antifreeze, hydraulic fluid, propane fuel, diesel fuel, silicon brake fluid, auto transmission fluid, weapon oil medium, grease graphite, and lubricating oils.

The USAR Center uses a licensed commercial company for herbicide and pesticide applications.

6.3 Waste Disposal Sites

Available records and interviews did not indicate the current practice of onsite waste disposal other than through managed storage and offsite disposal, or through the sewer or septic systems (refer to Sections 4.2 and 7.2). During the August 2006 site reconnaissance, however, the edge of the storm drain in the northwestern corner of the vehicle wash rack was observed to be stained with an oily substance, and the vegetation in the immediate area of the stain was stressed (Photographs 1 and 3, Appendix B).

Various references, including the Rhode Island Project Facilities report (date unknown) and 1939 aerial photograph (Figure 8, Appendix A), indicate the existence of an old municipal landfill on the northern portion of the Property, known as the Warwick City Dump, and north of the Property. The dump may have been there since the 1940s and was documented

as having been there in 1958. There also is the possibility that this dump site was selected due to its proximity to the gravel pits. The USAR Center is out of compliance with RIDEM for not investigating the northern portion of the Property, which is on portions of the former landfill.

6.4 Pits, Sumps, Drywells, and Catch Basins

A 1996 *Storm and Floor Drain Inventory and Natural Resources Inventory* (ENSR, 1996) and the SWP3 (USGS, 2002) inventoried the floor and storm drains on the Property as well as the outfalls to which these drains discharge. According to ENSR (1996), there are seven floor drains in different areas of the main and OMS buildings. All floor drains are said to discharge to the leach field north of the Property, except for Floor Drain (FD)-1, which has no apparent outfall. FD-2, located outside the boiler room north door, was observed to have a visible sheen and an odor of heating oil during the floor drain inventory. During the August 2, 2006, site reconnaissance, a floor trench was observed in the boiler room; the trench was connected to a floor sump also located in the boiler room. No sheen or odor was observed in the trench, sump, or FD-2 during the August 2, 2006, site reconnaissance.

USGS (2002) identified eight storm drains in the exterior of the building. These drains also were confirmed during the August 2, 2006, site reconnaissance. The four storm drains in the POV parking lot and one storm drain northwest of the wash rack are connected to the City of Warwick storm sewer that is carried offsite through WDPW. The two storm drains in the MEP lot discharge to a dry well located in the wooded area north of the MEP lot. The other two storm drains in the new extensions of the POV parking area discharge to the grassy area north of the new paved area.

6.5 Asbestos-containing Material

A 1994 survey evaluation of ACM at this facility (Harding Lawson Associates, 1998) found friable ACM in the gray-mudded pipe fitting insulation, thermal system pipe insulation in both buildings, and thermal system water tank insulation located in the main building. The report also identified non-friable ACM included in the floor tiles and underlying mastic adhesive in the main building. The report recommended repair, removal, and replacement of damaged friable ACM.

Although no record of removal was located before and during the 2006 survey, the onsite reconnaissance survey did not confirm any ACM in the buildings on the Property. Based on the August 2006 site reconnaissance, the floor tiles, pipe insulation, and thermal system water tank insulation appear to have been removed since the time of the 1994 ACM survey. It should be noted, however, that personnel conducting the 2006 survey were not trained ACM inspectors.

6.6 PCB-containing Equipment

There is one 50-kilovolt amp (kVA) transformer mounted on a utility pole located in the southwestern corner of the Property. In a letter dated August 8, 2006, personnel from the National Grid Electric Company stated that the transformer was installed in 1953, and that

there have not been any releases from this transformer. USEPA requires the utility company to assume this transformer contains polychlorinated biphenyl (PCB). The transformer exterior was in good condition at the time of the site reconnaissance, and no evidence of releases (for example, no stains on pad or adjacent soil) was observed.

No surveys of PCB-containing equipment have been performed for the Property, and thus, it is not known if there is other PCB-containing equipment within the Property.

6.7 Lead-based Paint

No LBP surveys have been conducted at the Property. Facilities constructed before 1981 are likely to have been treated 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.

6.8 Radon

No record of radon testing was located for the Property. USEPA and USGS have evaluated the radon potential in the United States. The survey results indicate 11 sites tested in zip code 02889 and reported an average radon reading of 0.900 picoCuries per liter (pCi/L). USEPA-recommended action levels nationwide are 4.0 pCi/L (USEPA Publication 402-R-93-071). Based on this information, the radon concern is considered low for the Property.

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 it was cleaned up 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 Corporation, 2003).

6.10 Radioactive Materials

Based on a review of available records, the site reconnaissance, and interviews with USAR Center personnel, radioactive materials were present in equipment used and stored on the Property. The monitoring-type equipment contained sealed radioactive power sources and was serviced only at the factory; therefore, there is minimal likelihood of a release to the environment. There is a storage cage designated nuclear, biological, and/or chemical (NBC) storage area in the main building. This room is used to store equipment containing radioactive material. A radiological survey has not been performed on the Property.

7 Review of Special Resources

7.1 Land Use

The City of Warwick's Planning and Zoning Department has designated this Property and surrounding properties as C-1, Light Commercial. The site is located in a mixed-used area that combines commercial, industrial, and residential land uses.

7.2 Coastal Zone Management

The Rhode Island Coastal Resources Management Committee is the lead agency for the Rhode Island Coastal Management Program. This Property is not included in the coastal zone management plan, nor is it in a coastal zone.

7.3 Wetlands

According to the 1988 U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps and visual observations, no wetlands were observed or appear to be associated with any of the facilities at this site.

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

A 1996 natural resources survey of the Property (*Floor and Storm Drain Inventory and Natural Resources Inventory* [ENSR, 1996]) concluded there were no threatened or endangered animal or plant species found on the Property. The August 2006 site reconnaissance survey indicates that it is unlikely any threatened or endangered plant or animal species, or any habitat critical to their survival, would occur at this location because of the developed nature of the area, the length of time this area has been developed, and the small acreage involved.

7.6 Cultural Resources

The Rhode Island Historical Preservation and Heritage Commission Historic Property Data Collection Form (Appendix D) provides information about a cultural resources survey that PAL performed for this site in March 1995. The purpose of the survey was to review historical information, setting and landscape, cultural resources, architectural information, and structure descriptions for this Property. Each structure also was assessed for its eligibility to the NRHP. Overall, neither building at the Property was found to meet the

criteria for inclusion in the NRHP. It should be noted, however, that the facilities are not yet 50 years old, which is the first criterion for eligibility consideration. When they are 50 years old, in 2010, if they are still unchanged, they may be re-evaluated for possible inclusion.

The existence of remnants of an 18th century cemetery located outside the northeastern corner of the Property means this section of the Property could hold resources of archaeological and historical significance.

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) (42 USC 9601 (14)) were used and stored at the Property in amounts necessary to support unit-level vehicle and building maintenance activities.

Available records and the August 2006 site reconnaissance survey indicate that hazardous materials and/or POL products have been and are stored at this facility. These materials include virgin and used motor oil, antifreeze, and other POL.

In addition, there is evidence that the northern portion of the Property includes part of the former Warwick City Dump. Jurisdictional hazardous substances in the fill material were found to exist in concentrations that exceed RIDEM's industrial/commercial direct exposure criteria for inorganic metals. RIDEM has requested an SIR, and the Property is currently out of compliance. RIDEM personnel have indicated their intent to issue a Notice of Intent to Enforce within the next 60 days.

USTs/Aboveground Storaget Tanks (ASTs). Available records do not indicate any ASTs currently or formerly located at this facility. Two USTs (1,000-gallon and 1,200-gallon capacities) containing heating oil were located at this Property, but were removed in 1999. An NFA report was submitted to RIDEM, which approved the NFA status and issued a closure certificate for both USTs dated September 22, 1999.

Non-UST/AST Petroleum Storage. Used oil was observed stored in both 30- and 55-gallon barrels in the OMS building and the hazardous material metal shed located in the MEP lot.

PCBs. There is one 50-kVA transformer mounted on a utility pole located in the southwestern corner of the Property. Information from National Grid Electric Company indicated that the transformer was installed in 1953, and that no releases are known to have occurred from it. The transformer exterior was in good condition at the time of the site reconnaissance, and no evidence of releases (for example, no stains on pad or adjacent soil) was observed.

No surveys of PCB-containing equipment have been performed for the Property, and thus, it is not known if there is other PCB-containing equipment within the Property.

ACM. A 1994 survey evaluation of ACM at this facility (Harding Lawson Associates, 1998) found friable ACM in the gray-mudded pipe fitting insulation, thermal system pipe insulation in both buildings, and thermal system water tank insulation in the main building.

The report also identified non-friable ACM included in the floor tiles and underlying mastic adhesive in the main building. Harding Lawson Associates (1998) recommended repair, removal, and replacement of damaged friable ACM.

Although no record of removal was located before and during this survey, the onsite reconnaissance survey did not confirm any ACM in the buildings. Based on the August 2006 site reconnaissance, the floor tiles, pipe insulation, and thermal system water tank insulation appear to have been removed since the time of the ACM survey.

LBP. No LBP surveys have been conducted at the Property. Facilities constructed before 1981 are likely to have been treated 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.

Radiological Materials. Based on a review of available records, the site reconnaissance, and interviews with USAR Center personnel, radioactive materials were present in equipment used on the Property, including testing and calibration equipment. Equipment containing radioactive material included compasses. There is a storage cage designated as an NBC storage area in the main building. This room is used to store equipment containing radioactive material. A radiological survey has not been performed on the Property.

Radon. No record of radon testing was located for the Property. USEPA and USGS have evaluated the radon potential in the United States. The survey results indicate 11 sites tested in zip code 02889 and reported an average radon reading of 0.900 pCi/L. USEPA action levels nationwide are 4.0 pCi/L (USEPA Publication 402-R-93-071). Based on this information, the radon concern is considered low for the Property. Onsite radon screening would be needed to quantify actual radon levels at the Property.

MEC. There are no indications that MEC is present at the Property. There was an indoor firing range on the Property, but it was successfully cleaned up in 2003, and that space is now used for storage (IT Corporation, 2003).

Surrounding Properties. One of the adjacent properties evaluated exhibited environmental conditions that may have the potential to adversely affect environmental conditions at the USAR Center. This property is the Warwick City Dump, which extends under the northern half of the Property.

Wetlands and Floodplain. According to the 1988 USFWS National Wetlands Inventory maps and visual observations, no wetlands were observed or appear to be associated with any of the facilities at this site. The Property is not located within a 100-year floodplain or within a coastal zone. A 1996 natural resources survey of the Property (*Floor and Storm Drain Inventory and Natural Resources Inventory* [ENSR, 1996]) also concluded there were no wetlands on the Property.

Threatened and Endangered Species. The *Floor and Storm Drain Inventory and Natural Resources Inventory* (ENSR, 1996) concluded there were no threatened or endangered animal or plant species found on the Property. In addition, 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. Overall, neither building at the Property was found to meet the criteria for inclusion in the NRHP. The existence of remnants of an 18th century cemetery located outside the northeastern corner of the Property means this section of the Property could hold resources of archaeological and historical significance.

8.2 Environmental Condition of Property

Findings of this ECP report were based on reasonably available environmental information; interviews with site, 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 DoD policy defining the classifications (see Sherri Goodman memorandum dated 21 October 1996), the Property has been assigned an overall DoD Environmental Condition Type 7. The property type is based on the following major findings:

- The portion of the Property from the rear of the main building to the northern edge of the Property, according to verbal communication with RIDEM on September 8, 2006, and January 19, 2007, is an area considered part of the former Warwick City Dump. The facility is currently in non-compliance with RIDEM.
- The leach field east of the MEP lot, because floor drains discharge to it. In particular, during the 1994 inventory, FD-2, located outside the boiler room by the north door, was observed to have a visible sheen and a strong heating oil odor. No apparent source for the sheen or odor could be determined. FD-2 discharges to the leach field.
- Wash rack north of the OMS building and storm drain on the western edge of the Property had visible staining.
- The USAR Center is on the SHWS list.

9 References

Persons Contacted

- Sgt Manuel Almeida, PT Lloyd S. Cooper III USAR Center, Facility Manager/Motor Sergeant, 401-738-5900, August 2, 2006.
- Craig Kelley, 94th RRC NEPA Consultant, 978-302-6642, August 2, 2006.
- Randy Trantham, Regional Facility Manager, 94th RRC, 401-253-0451, August 2, 2006.
- Jeffery Crawford, Principal Environmental Scientist, Office of Waste Management, RIDEM, 401-222-2797 ext. 7102.

Resources Consulted

- Aerial photographs provided by University of Rhode Island, dated 1937, 1957, 1962, 1970 and 1981
- USEPA Map of Radon Zones, http://www.epa.gov/radon/zonemap.html
- USEPA Waste Site Cleanup & Reuse in New England, http://yosemite.epa.gov/r1/npl_pad.nsf/QuickByName?SearchView&Query=Warwick&count=10&start=1&SearchOrder=1
- 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, 2005
  - Underground Storage Tank File, April 2006
  - Rhode Island Brownfield Inventory
  - Rhode Island Department of Health, http://www.health.state.ri.us/media/031016a.php

Agencies Contacted

City of Warwick, Rhode Island

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U.S. Environmental Protection Agency (USEPA). 1988. Radionuclide action levels nationwide. USEPA Publication 402-R-93-071.

U.S. Geological Survey (USGS). 2002. Storm Water Pollution Prevention Plan PT Lloyd S. Cooper III U.S. Army Reserve Center.

Appendix A
Figures

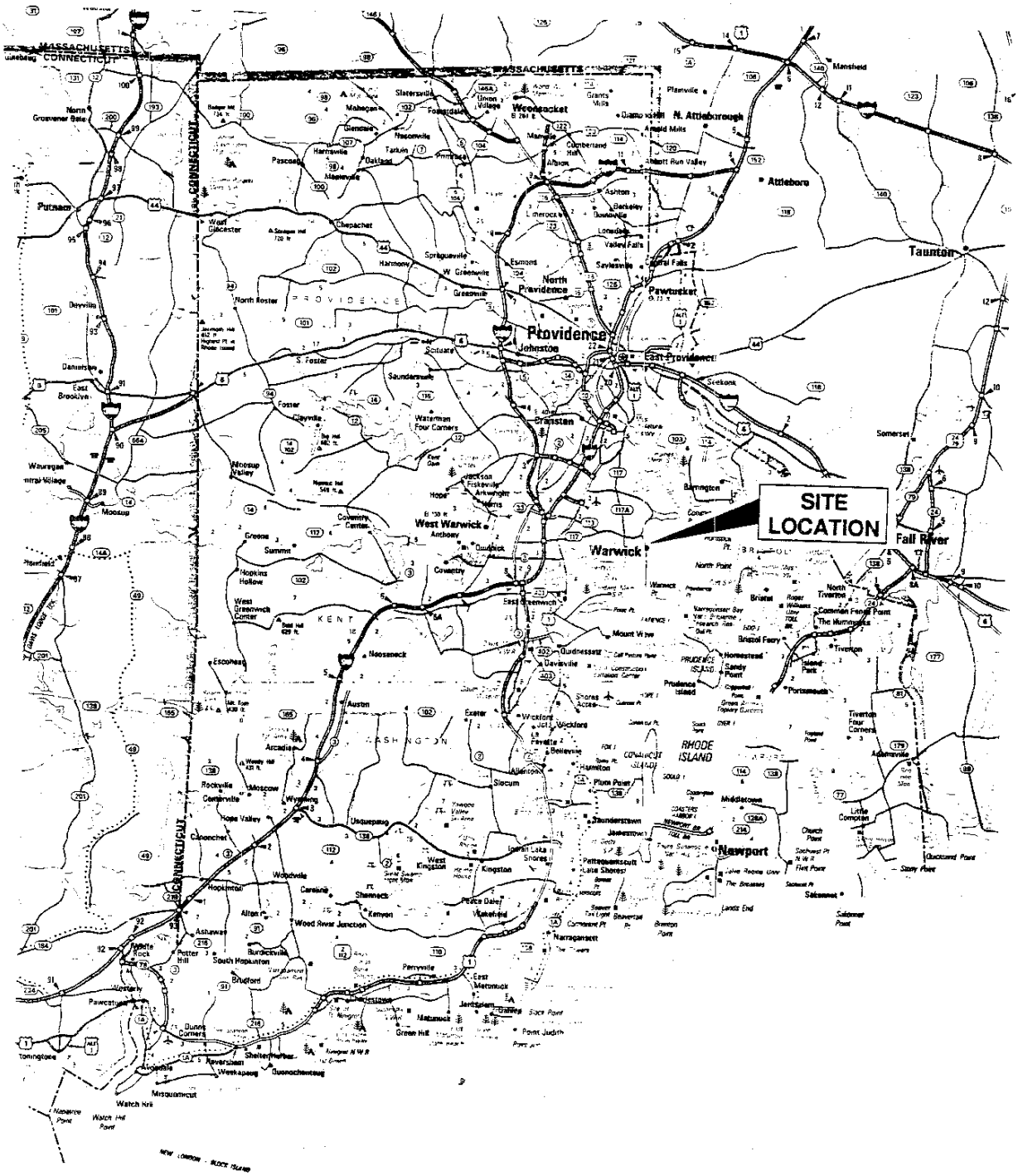
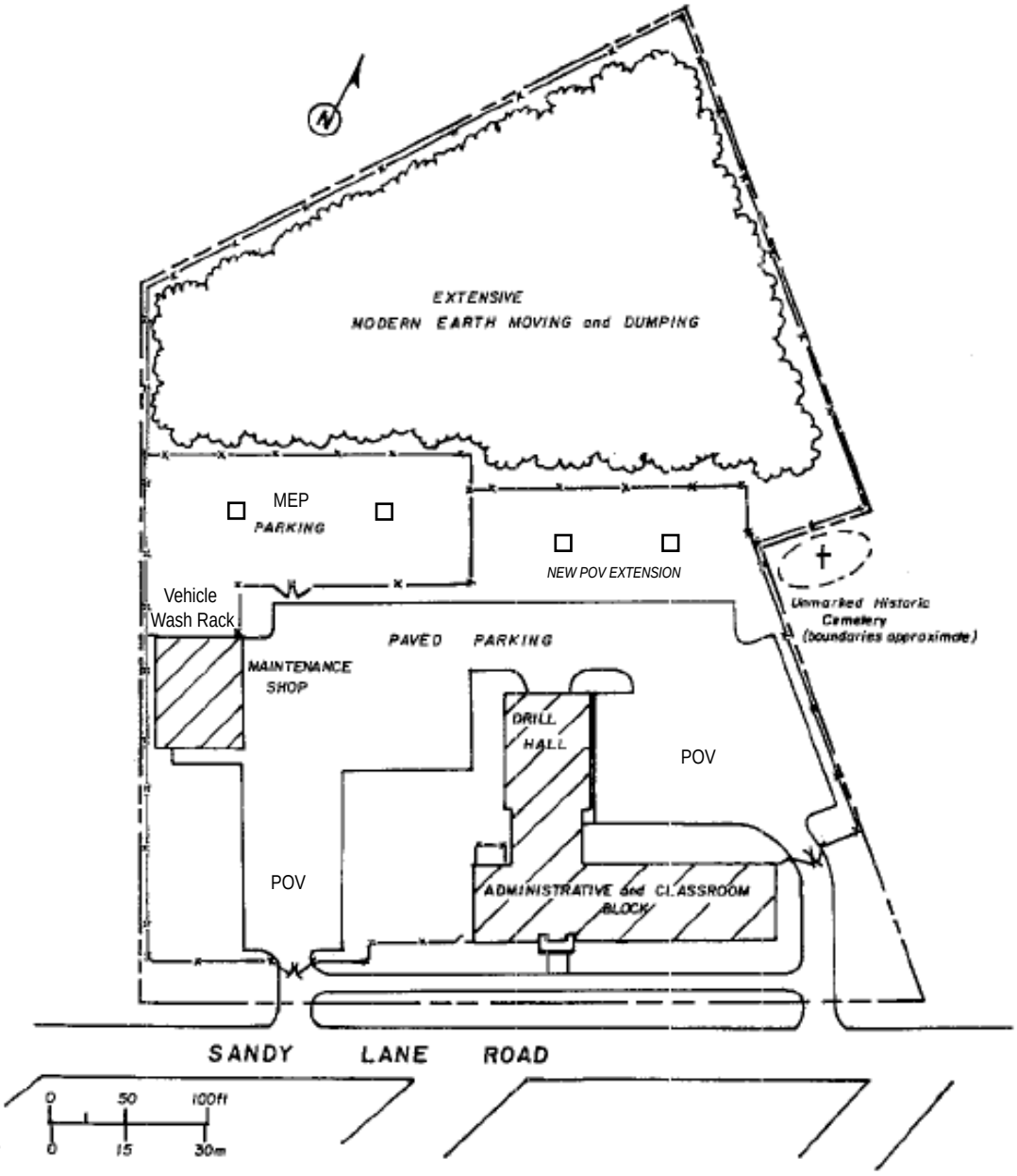


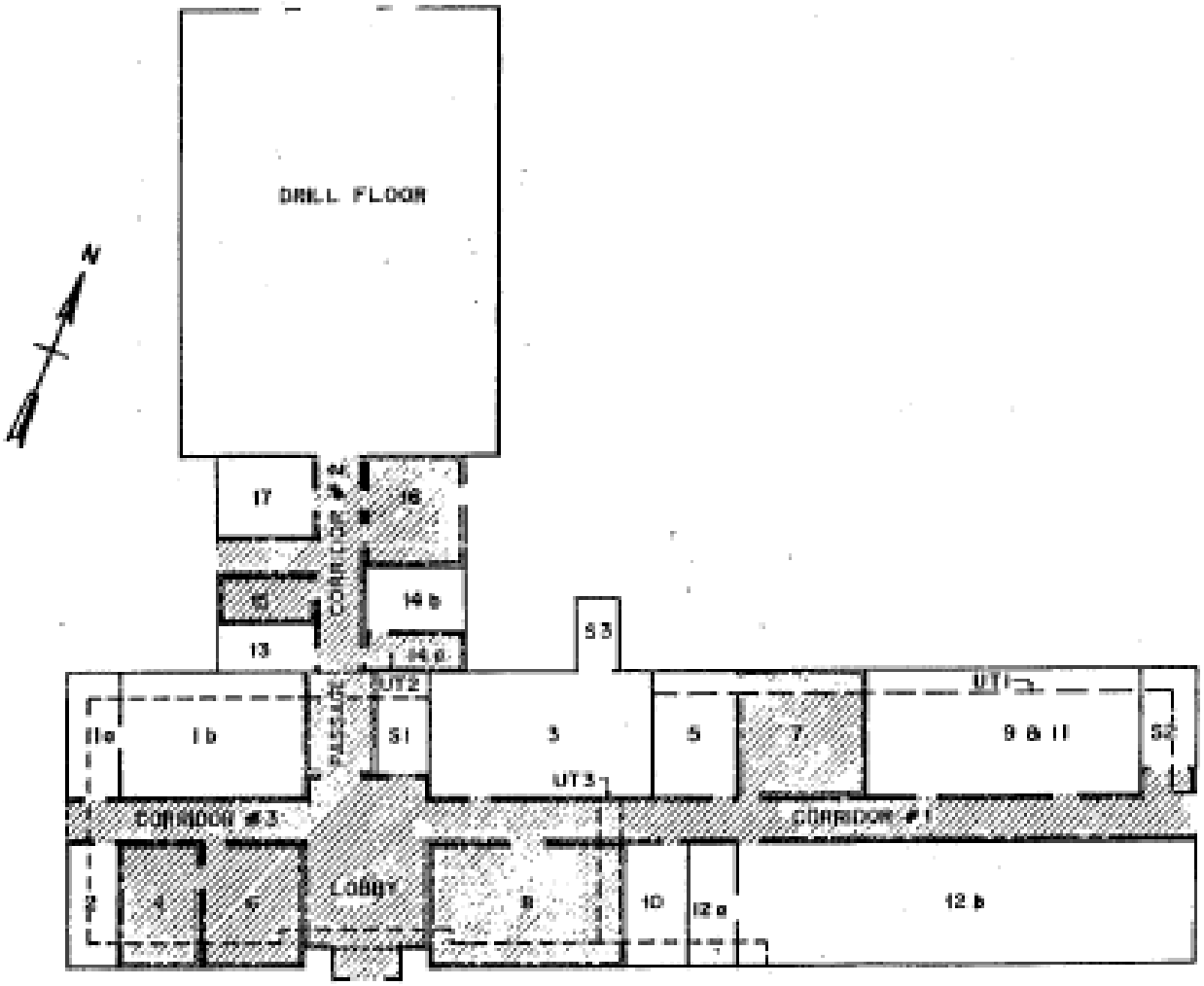
FIGURE 1
Site Location Map
Phase I ECP Report



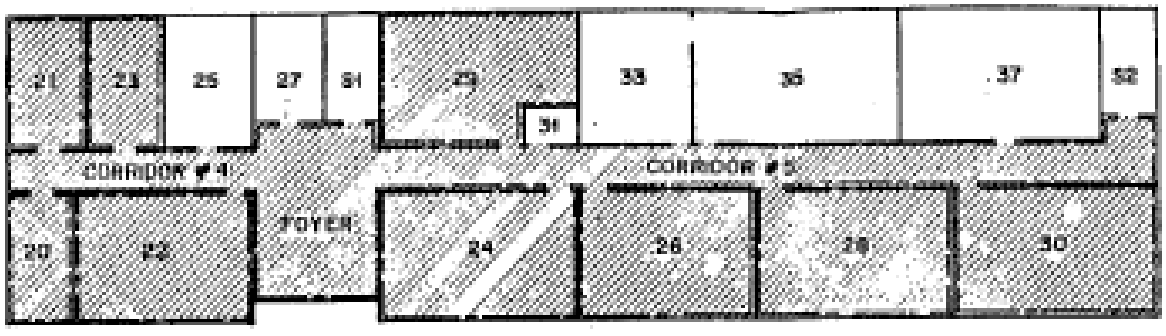
LEGEND

☐ Storm Drains

FIGURE 2
Site Layout Plan
Phase I ECP Report



FIRST FLOOR PLAN



SECOND FLOOR PLAN

FIGURE 3
Main Building Floorplan
Phase I ECP Report

FIGURE 4
1942 Topographical Map
Phase I ECP Report

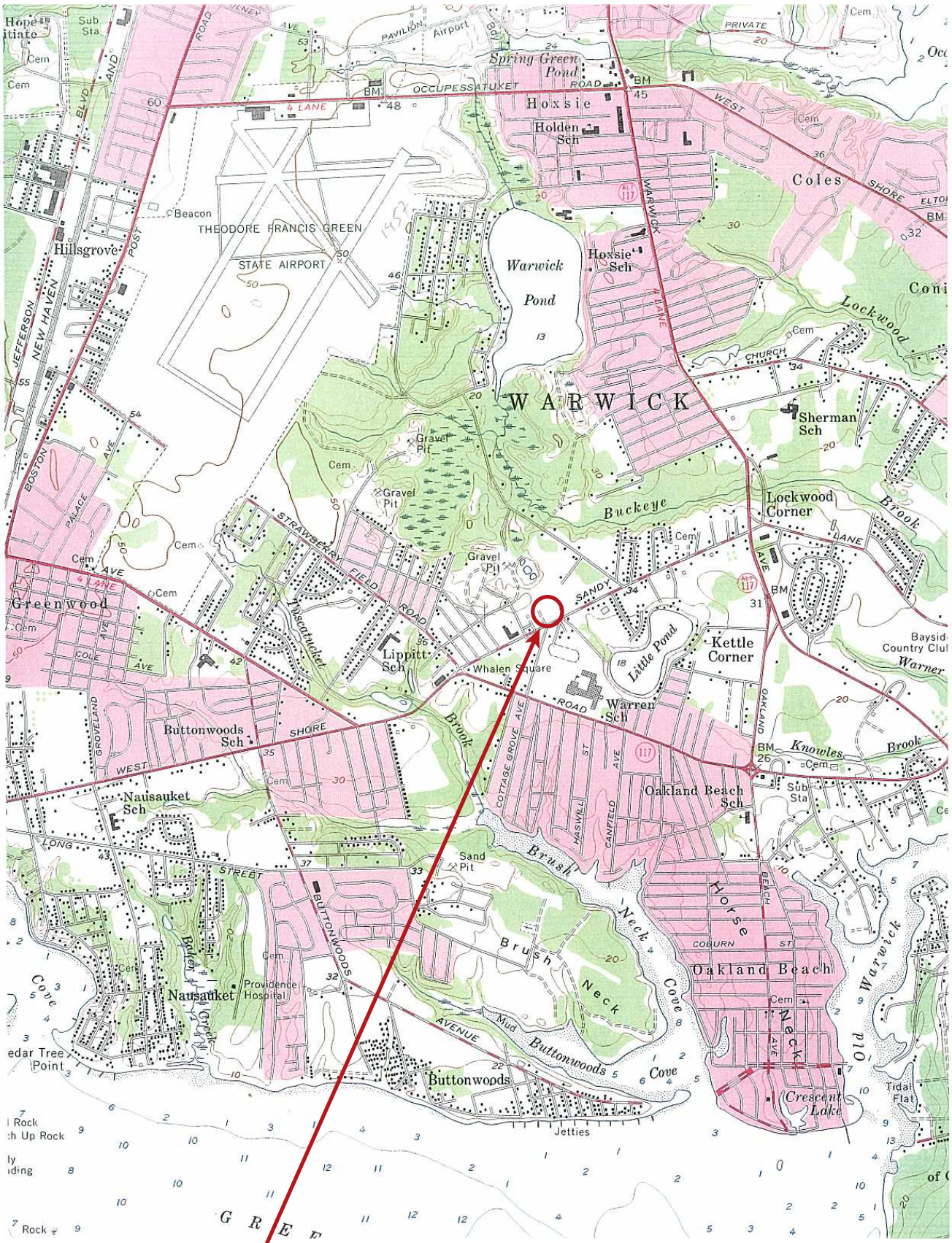


FIGURE 5
1957 Topographical Map
Phase I ECP Report

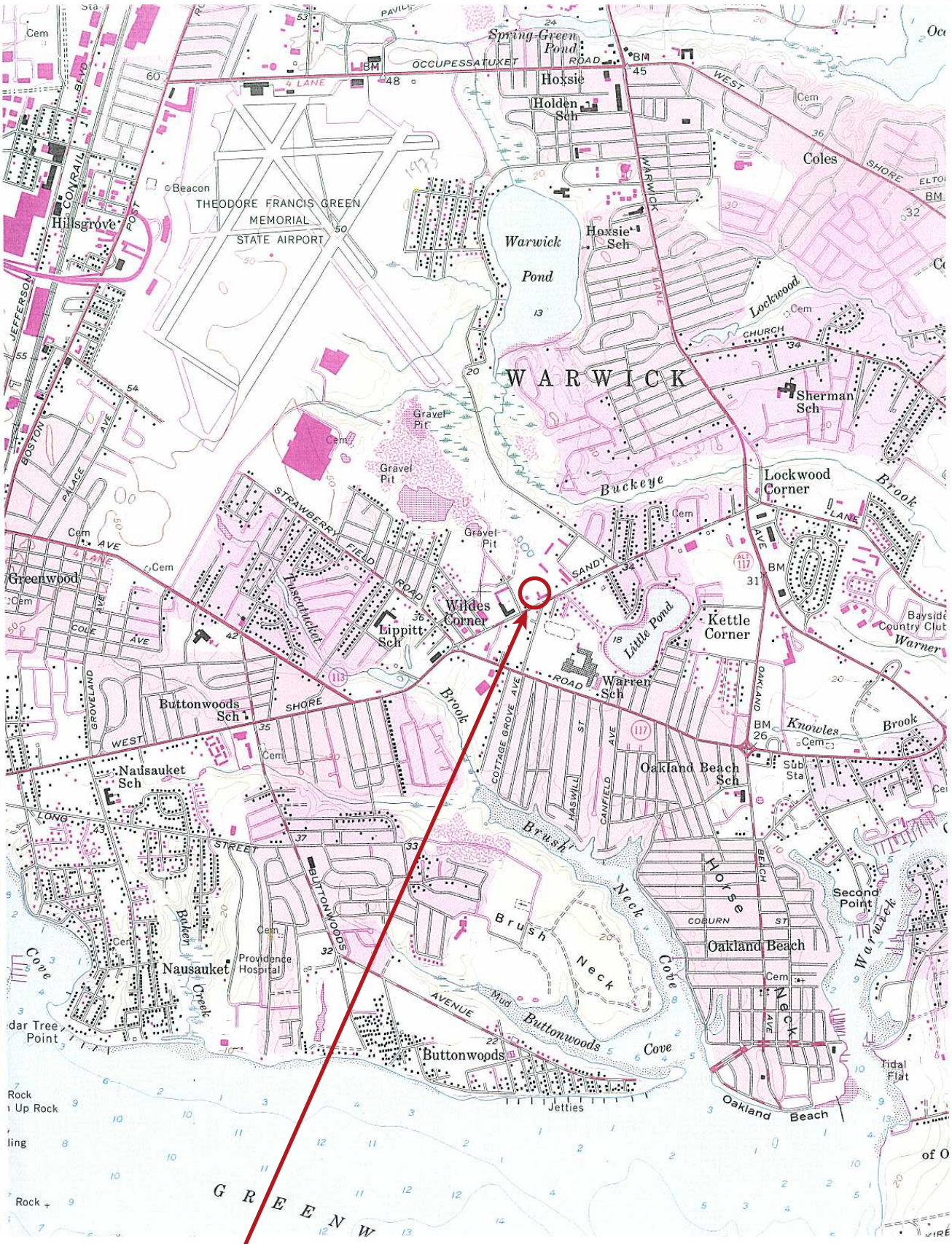


FIGURE 6
1975 Topographical Map
Phase I ECP Report

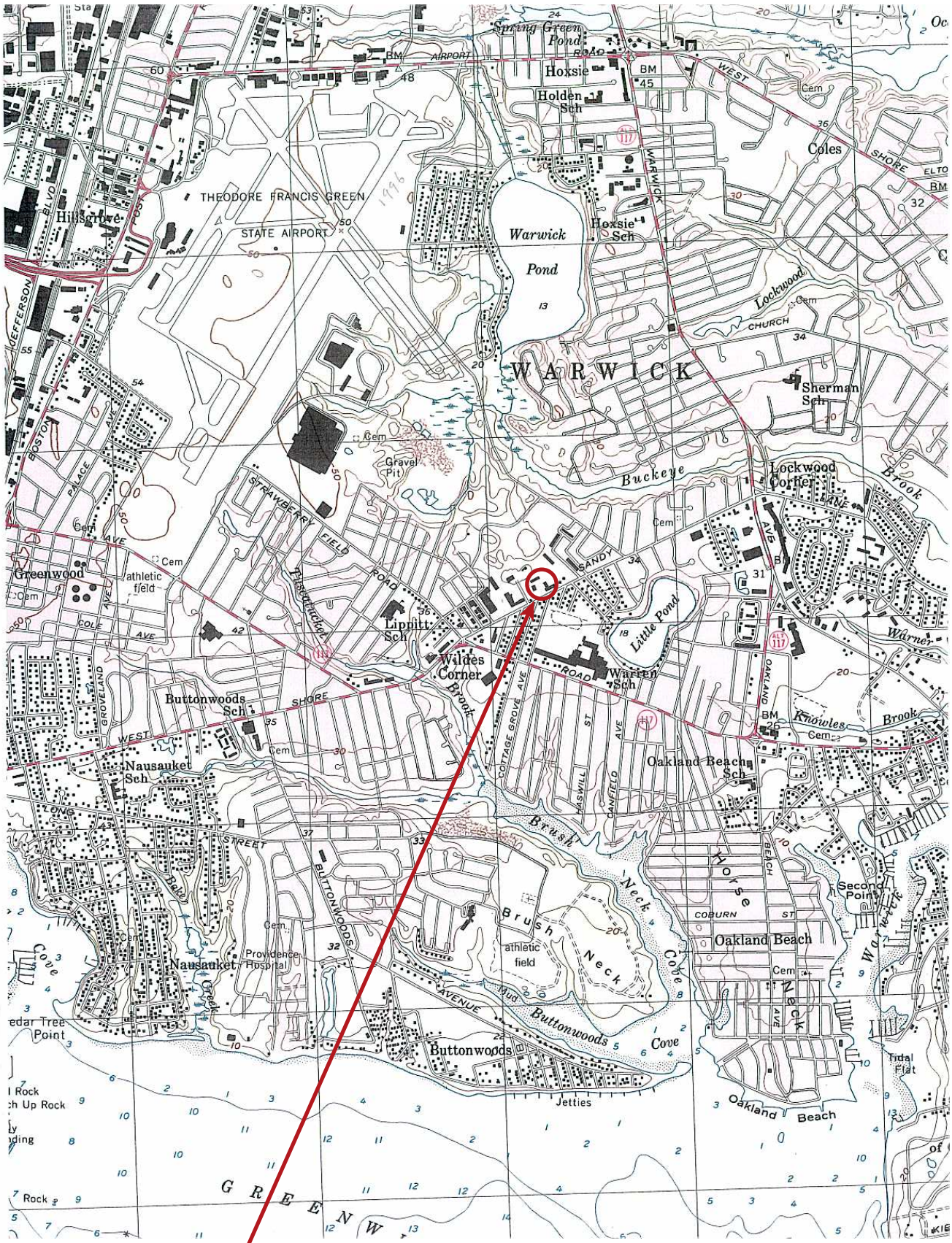


FIGURE 7
1996 Topographical Map
Phase I ECP Report

FIGURE 8
1939 Aerial Photograph
Phase I ECP Report

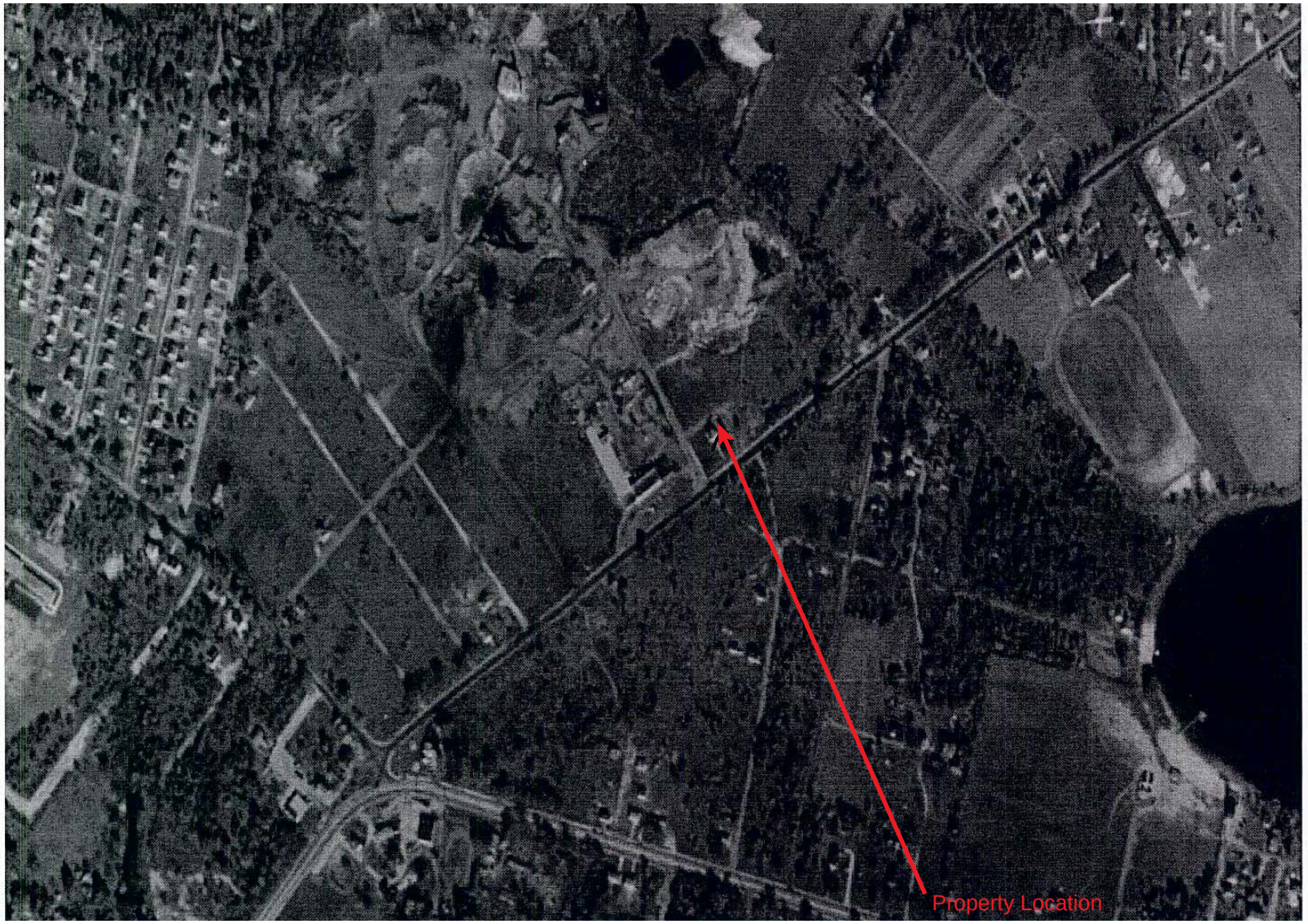


FIGURE 9
1951 Aerial Photograph
Phase I ECP Report

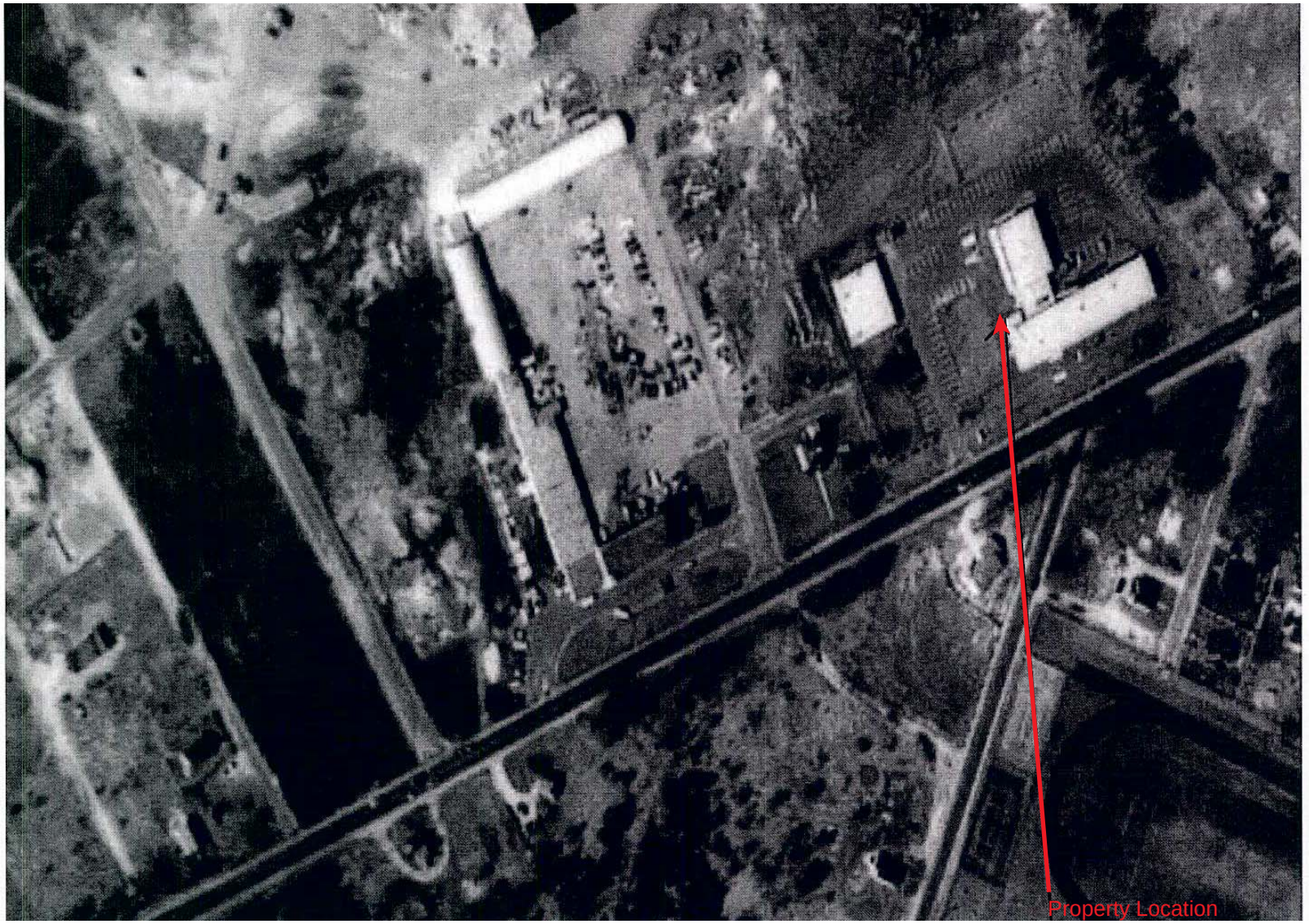


FIGURE 10
1962 Aerial Photograph
Phase I ECP Report

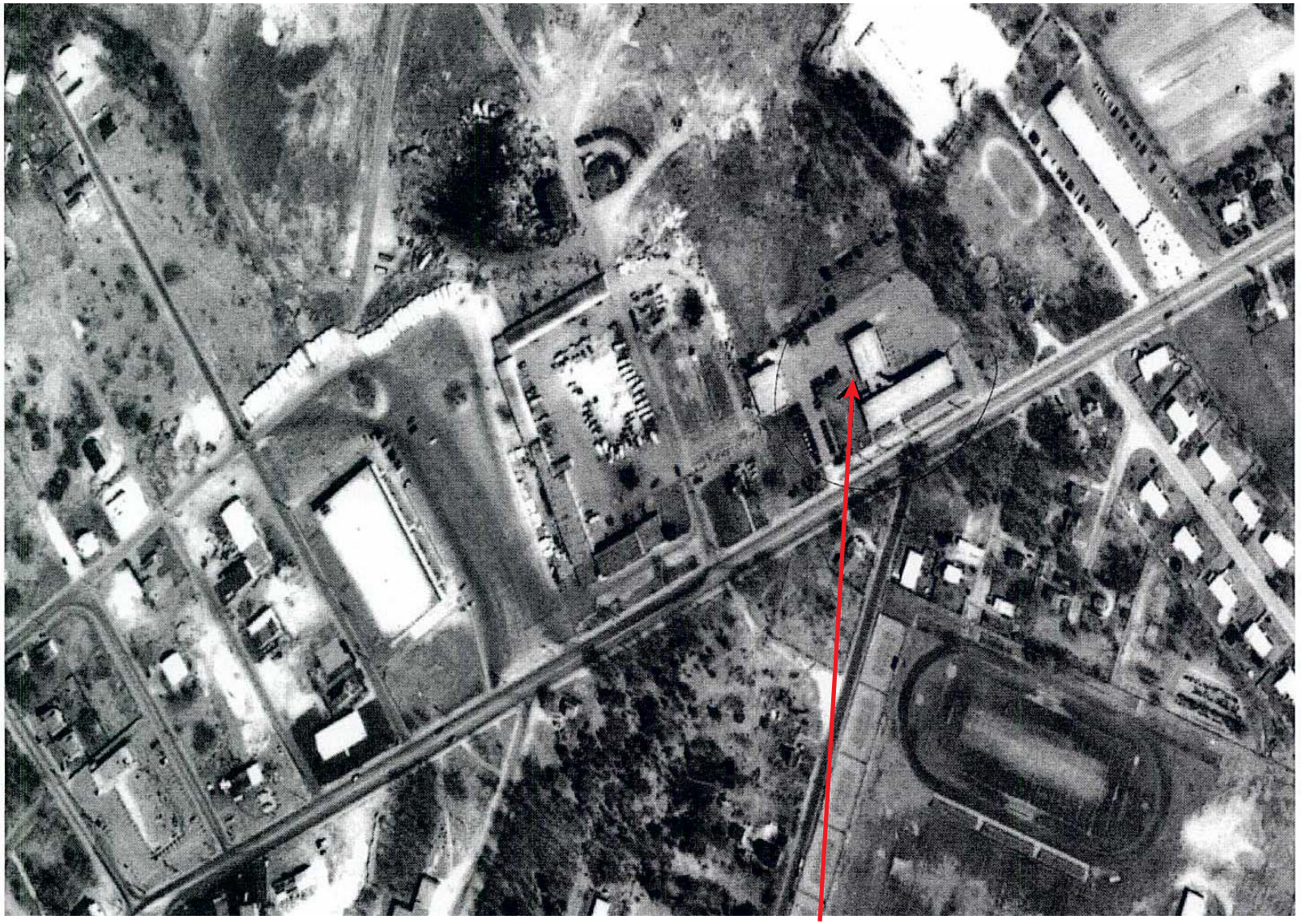


FIGURE 11
1972 Aerial Photograph
Phase I ECP Report

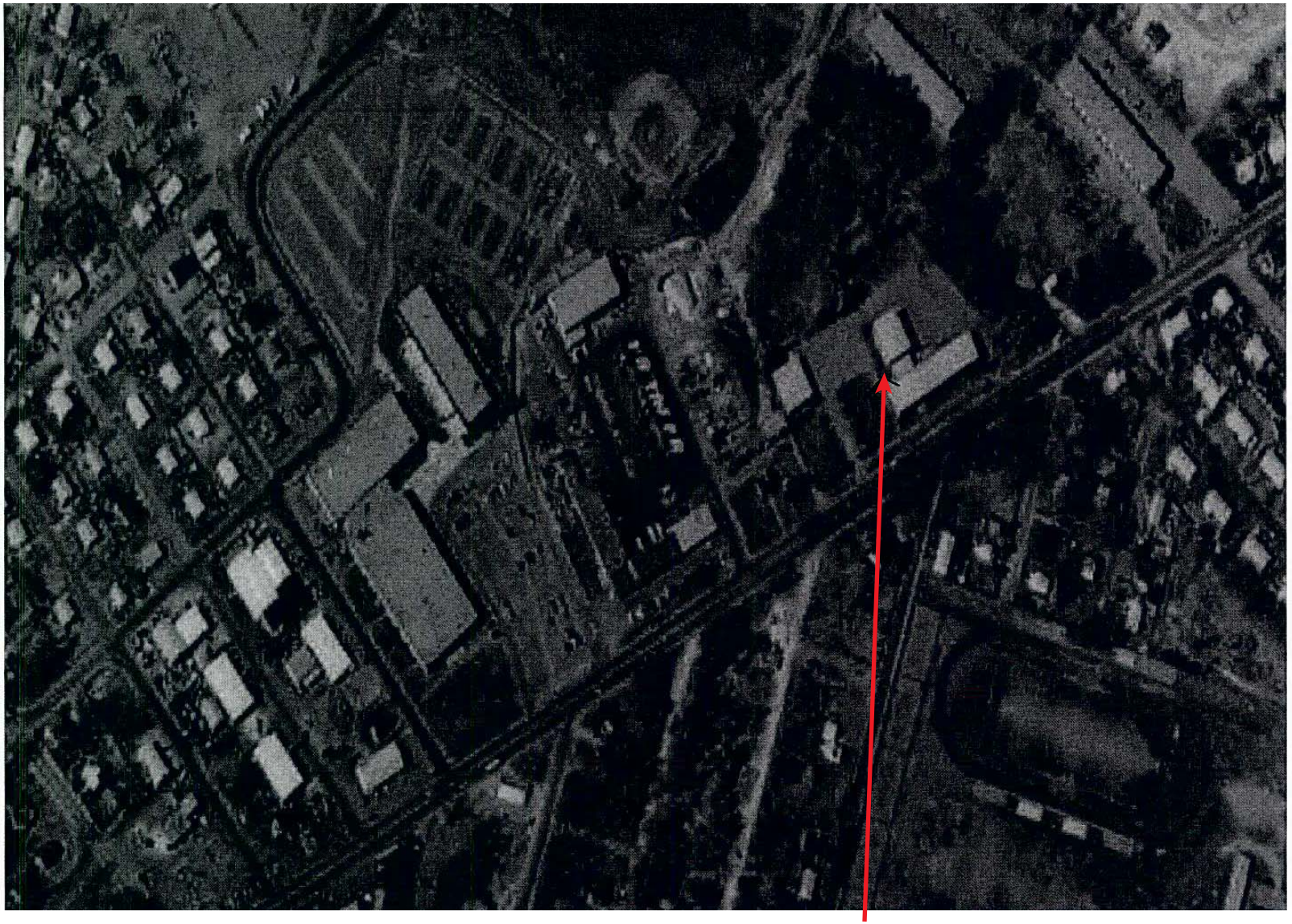


FIGURE 12
1981 Aerial Photograph
Phase I ECP Report

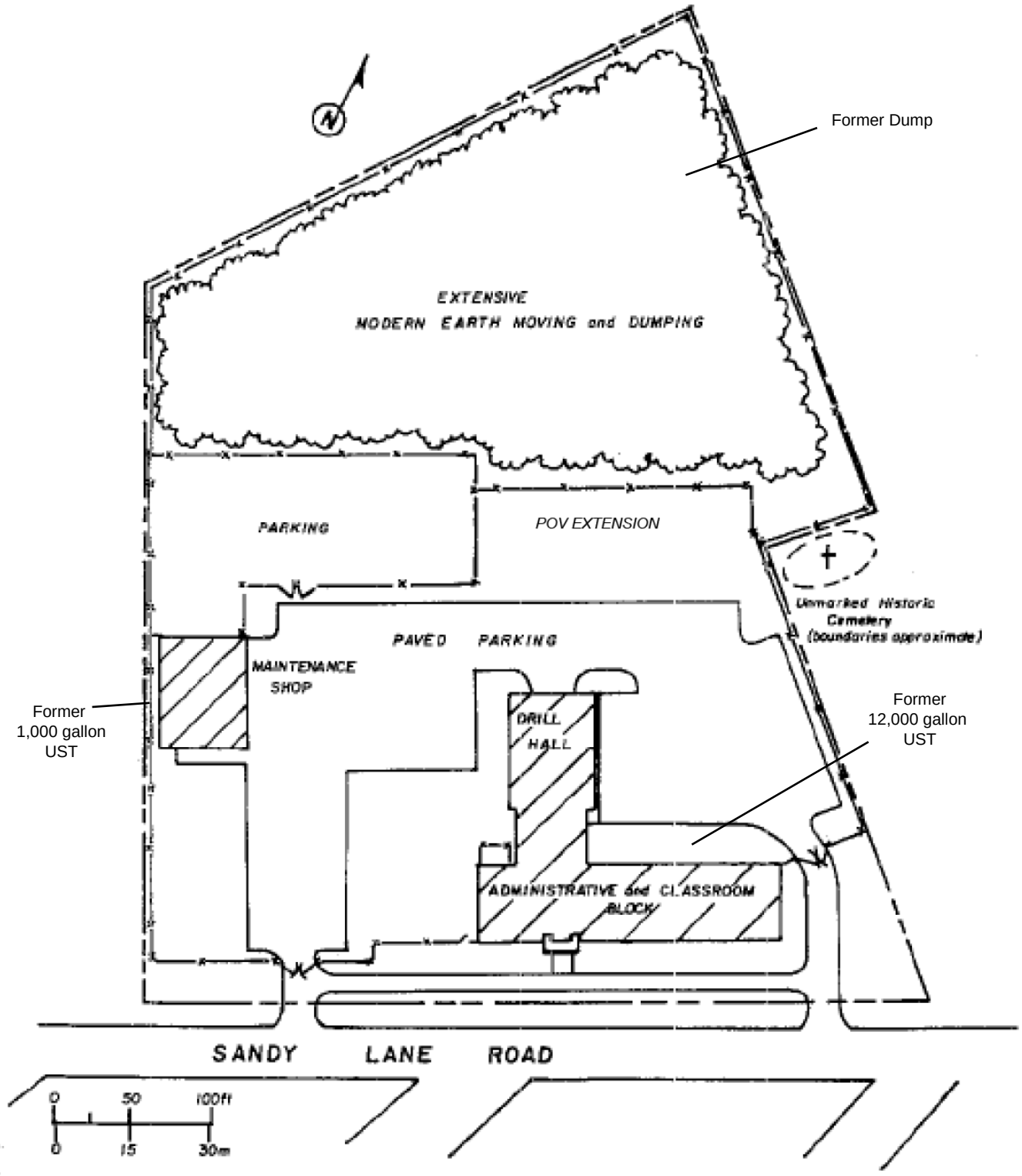


FIGURE 13
Major Findings Map
Phase I ECP Report

Appendix B
Site Reconnaissance Photographs

APPENDIX B

Site Reconnaissance Photographs

1. Stain around edge of storm water drain northeast of wash rack. Storm drain is located north of OMS building.

2. View of WDPW property from northwest corner of USAR Center. Large metal containers in foreground is salt spreader.

3. View of wash rack on north side of OMS building.

4. View of metal hazardous materials storage shed in southeast corner of the MEP. Shed floor is slightly elevated above asphalt.

5. View of main building facing north from Sandy Lane.

6. View of staining on the eastern wall in mechanical room of the main building.

7. Interior of OMS building showing current use and staining on concrete.

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

PT LLOYD S. COOPER 111 USARC, RI
885 SANDY LANE
WARWICK, RHODE ISLAND

Submitted to:

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

Attention: Mary Jacques

Project No. N06-5597

Thursday, September 07, 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, consisting of approximately 5.20 acres, situated and lying along the northerly side of Sandy Lane in the City of Warwick, Kent County, State of Rhode Island

Assessor's Parcel No: 34906349 and 00034906350000

1. HISTORICAL CHAIN OF TITLE

1. COMMISSIONER'S DEED:
   - RECORDED: 03-28-1925
   - GRANTOR: Henry J. Merck, Commissioner
   - GRANTEE: City of Warwick, a municipal corporation
   - INSTRUMENT: Bk 117, Pg 371

2. DEED:
   - RECORDED: 06-13-1960
   - GRANTOR: City of Warwick, a municipal corporation
   - GRANTEE: United States of America
   - INSTRUMENT: Bk 310, Pg 468

2. LEASES AND MISCELLANEOUS

1. No environmental liens, institutional controls or engineering controls were found of record.

3. LIMITATION

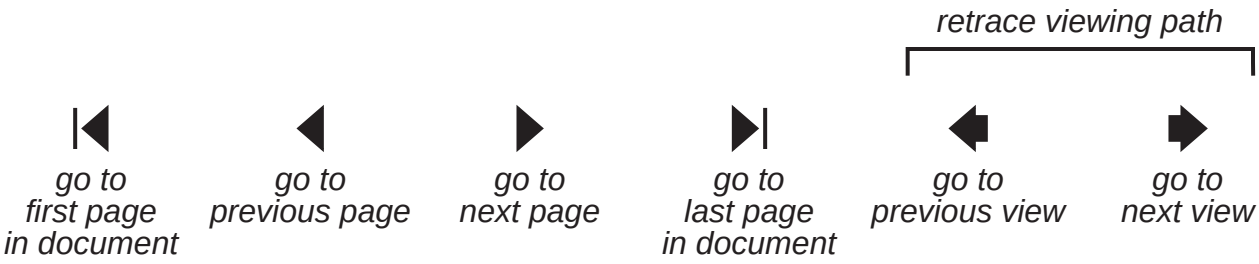
This report was prepared for the use of Environmental Data Resources, Inc., and CH2M Hill, exclusively. This report is neither a guarantee of title, a commitment to insure, or a policy of title insurance. NETR- Real Estate Research & Information does not guarantee nor include any warranty of any kind 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.

Appendix D

Previous Environmental Site Assessment Reports

Navigation notes:

For easiest navigation, extensive use of "bookmarks" has been made. To view a given Section, simply click on the desired Section heading. A "+" sign indicates collapsed subheadings can be found by clicking on the "+". To re-collapse the heading, click on the "–" sign. Use the *Page Up* and *Page Down* keys to move to adjacent pages. You can also navigate by single-clicking the arrow buttons on the toolbar at the top of the Acrobat Reader window (see the diagrams below for an explanation).



Range Cleanup - RI008, 94th RSC

Lloyd S. Cooper U.S. Army Reserve Center

Warwick, Rhode Island

Project Report

Prepared for

U.S. Army Corps of Engineers
Louisville District
Environmental Engineering Branch
Contract No. DACA27-99-D-0021 • Delivery Order No. 0014

Prepared by

IT CORPORATION
312 Directors Drive
Knoxville, Tennessee 37923-4799

December 2003

INTERNATIONAL TECHNOLOGY CORPORATION

PROJECT REPORT

RANGE CLEANUP – RI008, 94th RSC
LLOYD S. COOPER
U.S. ARMY RESERVE CENTER
WARWICK, RHODE ISLAND

Contract No. DACA 27-99-D-0021
Delivery Order No. 0014

Submitted to:

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Louisville District
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Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923-4799

December 2003

Table of Contents

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1.0 Introduction

This document presents the report for cleanup activities at the 94th RSC facility located at 885 Sandy Lane, Warwick, Rhode Island (Figure 1-1). The cleanup activities were based on the Scope of Work (SOW) provided by the U.S. Army Corps of Engineers (USACE) Louisville District (CELRL) and a site inspection conducted on July 22, 2002.

1.1 Property/Project Identifiers

- Facility ID Number: RI008
- State: Rhode Island
- Facility Name: Lloyd S. Cooper U.S. Army Reserve Center
- City: Warwick.

1.2 Site Description

1.2.1 Inspection Information

Mr. Kevin Hayes of Diversified Technology Consultants (DTC) and Mr. Chris Pomeroy of Eagle Environmental, Inc., inspected the range on July 22, 2002. Figure 1-2 presents the facility layout. The four-position range with a manual target retrieval system was located on the ground floor of the facility. The range appeared very dirty and contained both sand and lead shot in the bullet trap area.

The concrete block walls were partially covered with a fiberglass sound deadening material that was affixed to furring strips and screwed to the walls. A false pegboard wall had been constructed behind the firing line. The ceiling and floor were both constructed of concrete. The ceiling was partially covered with acoustic tiles that were glued to plywood and affixed to the ceiling with screws. No floor drain was observed in the range.

An asbestos inspection was also conducted at the range.

1.2.2 Pre-Cleanup Characteristics

1.2.2.1 Number of Firing Points

The range had four firing points.

1.2.2.2 Bullet Trap Characteristics

The bullet trap was a steel deflector system with sand.

1.2.2.3 Range Characteristics

The range, which is located on the first floor, was constructed of the following:

- Floor – concrete
- Walls – concrete block, partially covered with a fiberboard sound deadening material affixed to furring strips
- Ceiling – concrete covered with acoustical tiles glued to plywood.

Other features included:

- Stored items, including 28 wooden pallets, eight shelving units, four chairs, two storage cabinets, a 2 ft x 19 ft (approximately) wooden walkway, and numerous other miscellaneous items
- Four-position, hardened steel bullet trap
- Hand-crank retrieval system
- One radiant heater hanging from the ceiling in back of the firing line
- Banks of fluorescent lights spaced across the ceiling
- Incandescent and flood lights.

1.2.2.4 Suspect Asbestos Containing Materials (ACM) Inventory

Prior to initiating cleanup, an ACM inspection was conducted on suspect materials. The results of that inspection are detailed in Section 3.1.

1.2.2.5 Air Handling Systems Description

The air handling system at the site consisted of the following:

- Air intake unit behind a false pegboard wall located in back of the firing line
- Wall-mounted air exhaust fan located behind the bullet trap.

1.2.2.6 Access Points

Access to the firing range is via an entry door near the firing line and another door located behind the bullet trap.

1.3 Scope of Work

The Scope of Work consisted of the following:

- Removing ACM
- Cleaning/removing stored items
- Removing sound deadening material and acoustical tile ceiling
- Removing the bullet trap and associated lead
- Cleaning the range
- Cleaning and removing the air handling system
- Collecting clearance samples
- Scabbling and sealing the floor, if necessary, based on clearance data.

The U.S. Army Reserve Command (USARC) recognized safety and health hazards from lead-dust in indoor rifle ranges; however, regulations supporting cleanup remedies dealt primarily with non-industrial standards. After reviewing information relative to cleaning methods and clearance sampling, the value of 200 micrograms per square foot (µg/sf) was derived as a value that would release the indoor ranges as a room that could be reoccupied as a non-lead work area. This value has also been selected by other federal agencies as acceptable.

2.0 Project Team

The project team involved with the cleanup activities included the following organizations and their representatives:

- Project Initiator - USARC
  Ken Coulter - Facility Support Branch, U.S. Army Reserve Engineer

- Client – 94th RSC

- Construction Manager – USACE, Louisville District
  Contracting Officer's Representative – David Dierken
  Construction Inspectors – Jim Conway

- Contractor – IT Corporation
  Project Manager – Bill Scoville
  Site Supervisor – Charles Heffelfinger
  Site Safety Officer/Construction Quality Control Engineer – Kelly Baum

- Subcontractors
  Range Inspection and Debris Sampling – Diversified Technology Consultants, North Haven, Connecticut
  Asbestos Inspection, Sampling, and Abatement Oversight – Eagle Environmental, Inc., Bristol, Connecticut
  Asbestos Abatement – Yankee Fiber Control, Inc., East Providence, Rhode Island
  Range Clearance Inspection and Sampling – Eagle Environmental, Inc., Bristol, Connecticut
  Hazardous Sand, Debris, and Decontamination Water Disposal Facility – Clean Harbors of Braintree, Inc., Braintree, Massachusetts
  Asbestos Disposal Facility – BFI Imperial Landfill, Imperial, Pennsylvania
  Recycled Metal Facility – Metals Recycling L.L.C., Johnston, Rhode Island
  Non-hazardous Debris Disposal Facility – Rhode Island Resource Recovery Corporation Central Landfill, Johnston, Rhode Island.

3.0 Project Activities

This section details the project activities performed at the 94th RSC facility located at 885 Sandy Lane, Warwick, Rhode Island. The cleanup activities consisted of the following:

- Asbestos Inspection and Abatement (Section 3.1)
- Range Removal Activities (Section 3.2)
- Range Cleaning Activities (Section 3.3)
- Range Clearance Inspection and Sampling (Section 3.4)
- Range Aggressive Air Clearance Sampling (Section 3.5)
- Range Floor Sealing and Post-floor Sealing Wipe Samples (Section 3.6)
- Waste Management, Transportation, and Disposal (Section 3.7)
- Site Monitoring (Section 3.8).

The following sections discuss the operational details associated with the implementation of each of these activities.

Range cleanup activities commenced on April 1, 2003, and continued until May 14, 2003. Photographs of cleanup activities are included in Appendix A. Major schedule milestones include:

- Commenced field work on April 1, 2003.
- Completed range cleanup activities on April 11, 2003, and demobilized pending clearance sampling and receipt of clearance sampling results.
- Conducted clearance sampling on April 23, 2003; the results indicated that the cleanup performance standards had been attained.
- Remobilized to the site, conducted aggressive air clearance sampling, and sealed the range floor on May 14, 2003.
- Collected post-floor sealing wipe samples on June 5, 2003.

In summary, the following work was performed:

- Double-washed and HEPA-vacuumed the range
- Achieved cleanup of range concrete floor surface to 200 µg/sf
- Removed and disposed of 11 bags and two drums of ACM pipe insulation, sheetrock, and joint compound (approximately 19 linear feet of pipe insulation and 175 square feet of sheetrock and joint compound)
- Removed and disposed of one vacuum truck (16,700 pounds) of lead-contaminated sand
- Removed and disposed of four drums (400 pounds) of lead-contaminated debris
- Removed and disposed of four drums (175 gallons) of lead-contaminated decontamination water
- Removed and recycled one roll-off box (8,860 pounds) of scrap steel
- Removed and disposed of two roll-off boxes (5.55 tons) of non-hazardous debris.

3.1 Asbestos Inspection and Abatement

Eagle Environmental, Inc., Bristol, Connecticut, under a subcontract to IT Corporation, conducted an inspection for asbestos on July 22, 2002. Mr. Chris Pomeroy, a state of Connecticut Licensed Asbestos Inspector (ID No. 000376), conducted the inspection and collected bulk samples. A copy of the analytical results is presented in Appendix B.

The scope of Eagle's investigation was intended to provide a sufficient amount of information to estimate the quantity of ACM and included the following:

- Identifying and sampling all suspect ACM in accordance with the Asbestos Hazard Emergency Response Act (AHERA)

- Analyzing (using polarized-light microscopy) the suspect ACM samples using a laboratory accredited under the National Voluntary Laboratory Accreditation Program (NVLAP).

Seven samples of possible ACM were collected by Eagle and analyzed by a NVLAP-accredited laboratory. As shown by the analytical results in Table 3-1, asbestos was determined to be present in the joint compound.

Yankee Fiber Control, Inc., a state licensed asbestos abatement company, was contracted to remove and dispose of the asbestos-containing joint compound material. During removal activities, Yankee Fiber Control, Inc., discovered additional ACM in pipe insulation located in

the range. Yankee Fiber Control, Inc., was subsequently authorized to remove the asbestos-containing pipe insulation.

Yankee Fiber Control, Inc., removed and transported the ACM on March 31, 2003. Approximately 19 linear feet of pipe insulation and 175 square feet of sheetrock and joint compound were removed. All abated ACM were double-bagged for landfilling at BFI Imperial Landfill in Imperial, Pennsylvania. A copy of the asbestos clearance sampling report is provided in Appendix C.

3.2 Range Removal Activities

The range was prepared for lead cleanup activities by completion of the following actions from April 1 through April 8, 2003:

- Wiped and cleaned stored items and moved them to a location identified by facility personnel.
- Removed and cut-up approximately 8,860 pounds of steel from the bullet deflector/backstop system, ceiling deflectors, bullet trap, and air exhaust fan and placed materials in scrap steel roll-off boxes for recycling. All scrap steel was decontaminated using a lead-clean solution.
- Removed and disposed of sound deadening material and acoustical tile on ceiling and walls, and other range accessories (e.g., firing line).
- Cleaned and stored overhead fluorescent lights.

3.3 Range Cleaning Activities

On April 9 through 11, 2003, after the removal activities were completed, the firing range was initially cleaned. To remove as much dust and remaining debris as possible, the firing range was vacuumed using a HEPA vacuum. All surfaces were vacuumed, starting at the end farthest from the main entrance (the bullet trap area) and moving towards the main exit, beginning with the top of the room and working down. All vacuumed materials were containerized and later recycled with the scrap metal.

The walls and ceiling were washed with a commercial detergent and a primer and two coats of lead barrier paint were applied.

Floor cleaning activities consisted of the application of the following cleaning solutions:

- ZEP All Purpose Cleaner & Degreaser, manufactured by ENFORCER Products, Inc.
- HMCS-101, manufactured by Chemical Solutions, International.

These solutions were applied in accordance with the manufacturers' recommendations; floor scrubbers were used to increase the effectiveness of the solutions. After the excess solution was removed with wet-dry vacuums, the floor was rinsed with hot water until the water being vacuumed was visibly clear of dirt and suds. All decontamination water was containerized in 55-gallon drums. Copies of the Material Safety Data Sheets for the cleaning solutions are provided in Appendix D.

The clearance inspection report noted visual dust in the range. Additional cleaning was performed on May 14, 2003, using D-Lead™ wipes, manufactured by Esca-Tech.

3.4 Range Clearance Inspection and Sampling

Upon completion of cleaning activities and prior to clearance sampling, a visual inspection was conducted of the areas potentially affected by the lead hazard control project. The inspection was conducted on April 23, 2003, by Peter J. Folino, Certified Lead Inspector/Risk Assessor (License No. 000102) of Eagle Environmental, Inc., Bristol, Connecticut. The purpose of the inspection was to determine whether the work was completed as required on all interior surfaces treated, as specified in the original project scope and as indicated in the project report, and whether visible settled dust or debris was present.

The visual examination included a surface-by-surface examination to determine if known or suspected lead-dust surfaces were still present in the range. Lead hazard removal verification was documented on a Visual Clearance Form (Appendix E). All interim controls were verified visually to confirm stabilization of all lead dust surfaces, including any friction or impact surfaces treated during the project.

As noted in Section 3.3, the clearance inspection report noted visual dust in the range and additional cleaning was performed in May 2003. The absence of all waste and debris was verified.

After the visual examination, clearance dust sampling commenced. Clearance dust sampling consisted of collecting single-surface dust wipe samples and analyzing them for lead content to determine whether lead concentrations exceeded clearance criteria (the clearance standard for this project is 200 µg/sf and 2.16 milligrams per cubic meter [mg/m^{3}]).

A total of 23 dust wipe samples were collected from the following locations:

- Twenty dust wipe samples from:
  - Firing line-floor (001DT)
  - Mid-range-floor (002DT)
  - Bullet trap-firing line-floor (003DT)
  - Bullet trap-wall side-floor (004DT)
  - Ceiling (005DT)
  - Ceiling (006DT)
  - Ceiling (007DT)
  - Side wall left-bullet trap (008DT)
  - Side wall left-bullet trap (009DT)
  - Side wall left-bullet trap (010DT)
  - Side wall right-bullet trap (011DT)
  - Side wall right-bullet trap (012DT)
  - Side wall right-bullet trap (013DT)
  - Front wall (014DT)
  - Front wall (015DT)
  - Front wall (016DT)
  - Back wall (017DT)
  - Back wall (018DT)
  - Back wall (019DT)
  - Floor outside range (021DT)
- Two spike samples (020DT and 022DT)
- One field blank sample (023DT).

Figure 3-1 shows the locations where clearance samples were collected. The sampling procedures are discussed in Section 4.1; analytical results are presented on Table 4-1. The

clearance inspection and dust wipe sample collection forms and the analytical reports are included in Appendix E.

3.5 Range Aggressive Air Clearance Sampling

At the request of the 94th RSC, aggressive air clearance sampling was conducted to:

- Provide additional data verifying that the lead removal and clean-up efforts meet established standards (the clean-up goal for air will not exceed 15 micrograms per cubic meter of air [15 • g/m^3], which is one-half the OSHA action level of 30 • g/m^3 for airborne concentrations of lead).

- Provide air sampling clearance data that would simulate a worst-case scenario for stirring up lead-contaminated dust and particulates during future use of the former gun range.

Accordingly, aggressive air clearance sampling was conducted on May 14, 2003. The following procedures were used to achieve the stated objectives:

- The indoor gun range was cleaned (as summarized in Section 3.2) to the specified criteria, using visual inspections and surface wipe sampling/verification (presented in Section 3.3).

- Containment barriers were installed over doors, windows, and air passageways prior to aggressive air sampling to prevent potential fugitive emissions.

- Aggressive air sampling conditions, using a leaf blower to dislodge any remaining lead contaminated dust, were utilized to simulate worst-case future use of the room. Additionally, 20-inch fans were used to provide on-going agitation during sample collection.

- National Institute for Occupational Safety and Health (NIOSH) Method 7300, Elements by ICP was used as the sampling and analytical procedure.

- All samples were shipped under chain of custody to an American Industrial Hygiene Association (AIHA) accredited laboratory for analysis.

Analytical results are presented on Table 4-2. Appendix F includes the analytical report for the aggressive air clearance sampling.

3.6 Range Floor Sealing and Post-floor Sealing Wipe Samples

After the completion of the aggressive air clearance sampling, the range floor was sealed with epoxy paint. After letting the floor sealant dry, the floor was re-sampled to determine if the location-specific clearance standard of 40 µg/sf was attained. Four additional wipe samples were collected by Kevin Cote of IT Corporation, on June 5, 2003, from the following locations:

- Bullet trap, wall side (001DT)
- Bullet trap, firing side (002DT)
- Mid-range (003DT)
- Firing line (004DT).

Figure 3-1 shows the locations where the clearance samples were collected. Sampling procedures are discussed in Section 4.1; analytical results are presented on Table 4-1. The dust wipe sample collection form and the analytical report are included in Appendix G.

3.7 Waste Management, Transportation, and Disposal

One composite sample of acoustical tile and sound deadening material was collected by Kevin Hayes of DTC, on July 22, 2002, and analyzed for lead by U. S. Environmental Protection Agency (USEPA) Method SW-846 6010. The analysis was performed by Complete Environmental Testing, Inc. (CET), in accordance with USEPA Toxicity Characteristic Leaching Procedure Method (TCLP) Method 1311. As indicated by the analytical results presented in Table 3-2, the acoustical tile and sound deadening materials are not Resource Conservation and Recovery Act (RCRA) hazardous. A copy of the analytical report is provided in Appendix H.

One composite sample of sand was also collected by Kevin Hayes of DTC, on July 22, 2002, and analyzed for lead by USEPA Method SW-846 6010. The analysis was performed by CET in accordance with USEPA TCLP Method 1311. As indicated by the analytical results presented in Table 3-2, the sand is RCRA hazardous. A copy of the analytical report is provided in Appendix H.

Hazardous wastes generated during cleanup activities included:

- One vacuum truck (16,700 pounds) of lead-contaminated sand was transported by Clean Harbors Environmental Services on April 7, 2003, and taken to Clean Harbors of Braintree, Inc., Braintree, Massachusetts, for stabilization and subsequent landfilling.

- Four drums (400 pounds) of lead-contaminated debris, were transported by Clean Harbors Environmental Services on June 24, 2003, and taken to Clean Harbors of Braintree, Inc., Braintree, Massachusetts, for stabilization and subsequent landfilling.

- Four drums (175 gallons) of lead-contaminated decontamination water were transported by Clean Harbors Environmental Services on June 24, 2003, and taken to Clean Harbors of Braintree, Inc., Braintree, Massachusetts, for treatment.

Table 3-3 summarizes these hazardous waste shipments. Copies of the waste profiles, Land Disposal Restriction (LDR) notifications, and hazardous waste manifests are provided in Appendix I.

Non-hazardous waste generated during project activities and subsequently disposed of includes:

- Asbestos – Eleven bags plus two drums (approximately 19 linear feet of pipe insulation and 175 square feet of sheetrock and joint compound) of ACM were removed and transported by Yankee Fiber Control, Inc., and Service Transport Group, Inc., and disposed of at BFI Imperial Landfill, Imperial, Pennsylvania, on March 31, 2003.

- Scrap metal from the back stop and ceiling deflectors – one roll-off box (8,860 pounds) of scrap metal was transported by Metals Recycling L.L.C., and taken to its facility in Johnston, Rhode Island, on April 11, 2003, for recycling.

- Demolition debris, including acoustical tile and sound deadening material – two roll-off boxes (5.55 tons) of debris were transported by BFI, and taken to Rhode Island Resource Recovery Central Landfill, Johnston, Rhode Island on April 4 and 11, 2003, for disposal.

Table 3-4 summarizes these non-hazardous waste shipments. Copies of the non-hazardous waste manifests are provided in Appendix J.

3.8 Site Monitoring

Asbestos clearance sampling was conducted to evaluate the absence or presence of airborne-asbestos fibers during the removal and disposal of bagged asbestos-containing pipe insulation and joint compound. A copy of the air sampling report is provided in Appendix C.

Personal and area air monitoring for lead was conducted during lead removal operations. Information on airborne lead sampling and analytical methods is presented in Section 4.2 of this report. A copy of the site monitoring data is provided in Appendix K.

4.0 Sample Collection and Analysis

4.1 Lead Wipe Sampling Summary

To confirm that the lead contamination had been removed from the floor of the range, on April 23, 2003, personnel from Eagle Environmental, Inc., collected the samples described in Section 3.3, following procedures presented in the project Work Plan.

Horizontal surfaces were sampled to determine total lead content in the settled dust. Lead-in-dust wipe samples were generally secured over a 1-sf area following an "S" pattern from side-to-side, folded in half, and wiped over the same area at a 90° angle to the first "S" pattern (top-to-bottom). Latex gloves were changed between sampling episodes. Samples were then returned to the vials, sealed, and labeled for transport to the laboratory.

One field blank and two spike samples were also prepared and submitted for analysis. The field blank was prepared by removing and replacing the cap of the vial in the sampling area. The spike samples were prepared in the laboratory by treating sampling media with a known quantity of lead dust.

All lead-in-dust wipe samples were acid digested in accordance with USEPA Method SW-846 6010B. Results of the wipe sample analyses are summarized in Table 4-1 and are detailed in the laboratory analytical report provided in Appendix E. Wipe sample locations are shown on Figure 3-1. Copies of the Visual Clearance Form and the Dust Sampling Form are also provided in Appendix E.

The analytical results in Table 4-1 may be summarized as follows:

- After the initial cleaning, the range floor had lead levels from <2.50 µg/sf (numerous wall and ceiling locations) to 143 µg/sf (bullet trap-wall side-floor). The floor outside the entrance door had a lead level of 16 µg/sf. Because the visual clearance inspection noted dust in the range, additional cleaning was performed.

Thus, based on these results, the clearance criteria of 200 µg/sf has been attained.

Following the floor sealing described in Section 3.5, four additional floor samples were collected by IT Corporation on June 5, 2003, to determine if the floor lead concentrations met the 94th RSC's goal of 40 µg/sf. The sampling procedures were similar to that described above. Wipe sample locations are shown on Figure 3-1. A copy of the Dust Sampling Form is also provided in Appendix G. As shown by the data on Table 4-1, the lead concentrations were less than 7 µg/sf in the samples. Thus, based on these results, the 94th RSC's goal has been attained.

Via a letter dated June 30, 2003, the facility was notified that the clearance levels were attained and that the range could be reoccupied. A copy of the clearance certification letter is provided in Appendix L.

4.2 Aggressive Air Sampling Summary

IT Corporation performed airborne lead sampling during the aggressive air sampling discussed in Section 3.4. Air sampling was conducted on May 14, 2003; the results are summarized on Table 4-2. Based on these data, the airborne lead levels during aggressive air sampling were below 15 • g/m^3, which is one-half the OSHA action level of 30 • g/m^3 for airborne concentrations of lead.

4.3 Air Monitoring Sampling Summary

IT Corporation performed airborne lead monitoring. Monitoring was conducted April 2 through 4, 2003.

Air monitoring consisted of taking background, personal, excursion, and perimeter samples throughout this project to comply with Occupational Safety and Health Administration (OSHA) and USEPA rules and regulations during lead clean-up.

All air samples were prepared and analyzed in accordance with NIOSH Method 7300 using a Thermo Jarrell Ash 61E (ICP) purged spectrometer. A copy of the air monitoring data is provided in Appendix K.

5.0 Conclusions

In total, all the range structures associated with the indoor range at the Lloyd S. Cooper U.S. Army Reserve Center, Warwick, Rhode Island, were successfully removed, characterized for disposal, and properly disposed of as indicated below:

- Hazardous, Lead Contaminated Waste – one vacuum truck (16,700 pounds) of sand, four drums (400 pounds) of debris and four drums (175 gallons) of water
- Asbestos – 11 bags plus two drums (approximately 19 linear feet of pipe insulation and 175 square feet of sheetrock and joint compound) of ACM
- Recycled Metal – one roll-off box (8,860 pounds) of scrap metal
- Non-hazardous Waste – two roll-off boxes (5.55 tons) of debris.

All removal activities were performed as specified in the project Scope of Work and Work Plan, using direct Health and Safety support involving personal and area air monitoring.

Clearance wipe samples document that residual lead levels in the range concrete are below the clearance level of 200 µg/sf. At the completion of site operations for this activity, all planned objectives were met. Based on a review of the clearance wipe sample data, IT concludes that no further range cleanup is necessary for the Lloyd S. Cooper facility. IT further certifies that the range cleaning activities have successfully attained the project clearance objectives and the range is approved for reoccupancy. Range clearance procedures consisted of the following:

- A surface-by-surface visual examination to verify that:
  - The lead hazard control work was completed as required
  - No known or suspected lead dust surfaces are still present in the range at levels that exceed the project clearance level of 200 µg/sf or the site specific goal of 40 µg/sf.

- Clearance sampling consisting of collecting wipe samples from the floor, wall, and ceiling surfaces and analyzing the samples for lead.

- Aggressive air clearance sampling consisting of collecting air samples during aggressive air activities and analyzing the samples for lead.

Please note that although the range has been cleaned to below the project clearance levels, small amounts of lead dust may be present in the range. The OSHA Construction Industry Standard for Lead (29 CFR 1926.62) should be reviewed before any remodeling activities that may cause a

release of dust on wall and floor surfaces are undertaken. The OSHA standard requires certain controls to reduce or maintain worker exposures less than the Permissible Exposure Limit (PEL) of 50 $\mu g/m^3$ of lead. The employer must protect the worker from lead.

TABLES

Table 3-1
Asbestos Sample Analytical Results
Lloyd S. Cooper U.S. Army Reserve Center, RI008
Warwick, RI

Sample Number	Material	Sample Date	Asbestos Content
7-22-CP-16	Structural roof deck	7/22/02	None
7-22-CP-17	1ft x 1ft hole pattern ceiling tile	7/22/02	None
7-22-CP-18	Brown glue daubs associated with sample 7-22-CP-17	7/22/02	None
7-22-CP-19	HVAC flex connector	7/22/02	None
7-22-CP-20	Sheetrock	7/22/02	None
7-22-CP-23	Joint compound	7/22/02	2.1% Chrysotile
7-22-CP-26	Brown caulk @ wall/HVAC	7/22/02	None

Table 3-2
Disposal Sample Analytical Results
Lloyd S. Cooper U.S. Army Reserve Center, RI008
Warwick, RI

Sample ID	WRI-1	CCDWRI-1	TCLP Regulatory Limit
Media	Sand	Debris	
Sample Date	7/22/02	7/22/02	
TCLP Metals (mg/L)			
Lead	320	0.40	5

Table 3-3
Hazardous Waste Disposal Log
Lloyd S. Cooper U.S. Army Reserve Center, RI008
Warwick, RI

Waste Type	Code	Shipment Date	Volume/ Weight	Transporter	TSD Facility	Manifest	Doc. #	Disposal Method
Sand	D008	4/7/03	1 Vacuum truck (16,700 lbs)	Clean Harbors Environmental Services	Clean Harbors of Braintree, Inc., Braintree, MA	MAQ264906	Q4906	Stabilization/landfill
Hazardous debris	D008	6/24/03	4 Drums (400 lbs)			MAQ254513	Q4513	Stabilization/landfill
Decontamination water			4 Drums (175 gal)					Treatment

Table 3-4
Non-Hazardous Waste Disposal Log
Lloyd S. Cooper U.S. Army Reserve Center, RI008
Warwick, RI

Waste Type	Shipment Date	Volume/ Weight	Transporter	TSD Facility	Manifest/ Bill of Lading	Disposal Method
Asbestos	3/31/03	11 Bags plus 2 Drums[1]	Yankee Fiber Control, Inc. and Service Transport Group, Inc.	BFI Imperial Landfill, Imperial, PA	S.T.G.# TR8274	Landfill
Scrap metal	4/11/03	1 Roll-off (8,860 lbs)	Metals Recycling L.L.C.	Metals Recycling L.L.C., Johnston, RI	Weigh ticket TJG937	Recycle
Demolition debris including acoustical tile and sound deadening material	4/4/03	1 Roll-off (2.39 tons)	BFI	Rhode Island Resource Recovery Corporation Central Landfill, Johnston, RI	Weigh ticket 92237621	Landfill
	4/11/03	1 Roll-off (3.16 tons)			Weigh ticket 92242576	

[1] Approximately 19 linear feet of pipe insulation and 175 square feet of sheetrock and joint compound.

Table 4-1
Lead Wipe Clearance Sample Results (µg/sf)[1]
Lloyd S. Cooper U.S. Army Reserve Center, RI008
Warwick, RI

Site/Date Code	94RIWAR03APR23			94RIWAR03JUN05 [3]	
Sampler	Eagle Environmental, Inc.			IT Corporation	
Location	Sample ID	Result[2]	Comment	Sample ID	Result[2]
Firing line-floor	001DT	**90**		No sample	
Firing line-floor	No sample			004DT	**6.75**
Mid-range-floor	002DT	**46**		No sample	
Mid-range-floor	No sample			003DT	**4.51**
Bullet trap floor	003DT	**103**		001DT	**<2.50**
Bullet trap floor-firing side	No sample			002DT	**<2.50**
Bullet trap-wall side-floor	004DT	**143**		No sample	
Ceiling	005DT	**<2.50**		No sample	
Ceiling	006DT	**<2.50**		No sample	
Ceiling	007DT	**<2.50**		No sample	
Side wall left-bullet trap	008DT	**<2.50**		No sample	
Side wall left-bullet trap	009DT	**<2.50**		No sample	
Side wall left-bullet trap	010DT	**<2.50**		No sample	
Side wall right-bullet trap	011DT	**5.25**		No sample	
Side wall right-bullet trap	012DT	**6.33**		No sample	
Side wall right-bullet trap	013DT	**6.35**		No sample	
Front wall	014DT	**<2.50**		No sample	
Front wall	015DT	**8.88**		No sample	
Front wall	016DT	**<2.50**		No sample	
Back wall	017DT	**<2.50**		No sample	
Back wall	018DT	**<2.50**		No sample	
Back wall	019DT	**<2.50**		No sample	
Spike I	020DT	178	192 µg spike	No sample	
Floor outside range	021DT	**16**		No sample	
Spike II	022DT	42	49 µg spike	No sample	
Blank	023DT	<2.50		No sample	

[1] Results expressed in micrograms per square foot (µg/sf) of surface area, except Field Blank and Spike Sample, which are µg/wipe.

[2] Results (other than blanks or spikes) in **bold** type are below the clearance level of 200 µg/sf .

[3] Sampler did not use the correct site/date code format. This table reflects the correct format.

Table 4-2
Aggressive Air Sampling Clearance Sample Results
Lloyd S. Cooper U.S. Army Reserve Center, RI008
Warwick, RI

Sample Number	Location	Sample Date	Lead ($\mu g/m^3$)
001AR	Inside Range, Middle	5/14/03	<0.125
002AR	Inside Range, Back		<0.115
003AR	Inside Range, Back, duplicate		<0.115
004AR	Area, CRZ, outside range		<0.107
Goal			15

FIGURES

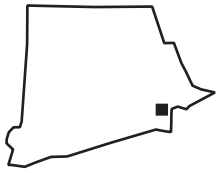
Source Map: MapQuest.com, Inc.

N

Scale - Miles

0 .5 1

RHODE ISLAND



QUADRANGLE LOCATION

IT CORPORATION

Figure 1-1.
Site Location Map.
Warwick, RI (RI008) Reserve Center.

DRAWING NO. K-807744-0301-6/03-w

CHECKED BY

APPROVED BY

KMS 6/9/03

DRAWING BY

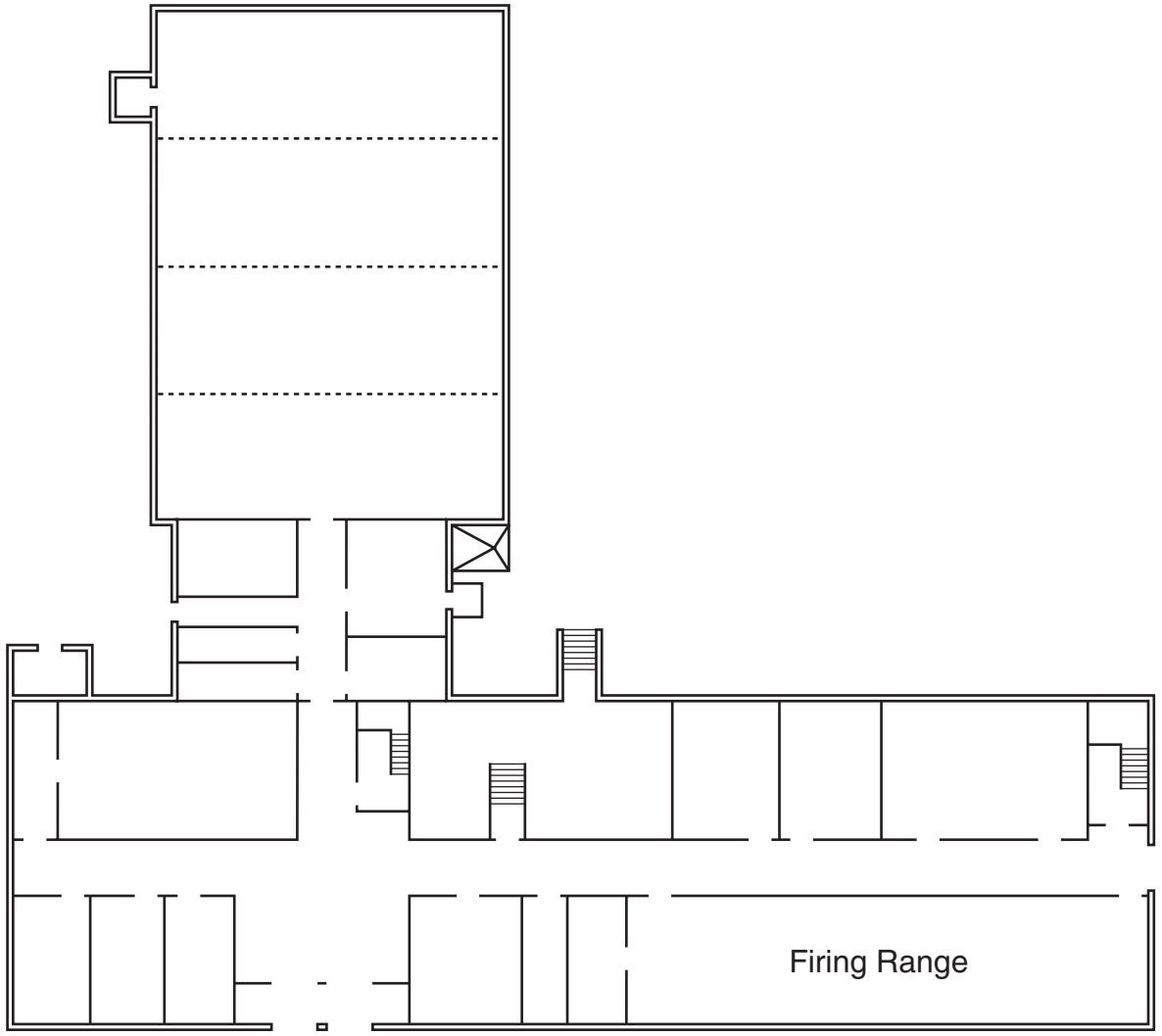
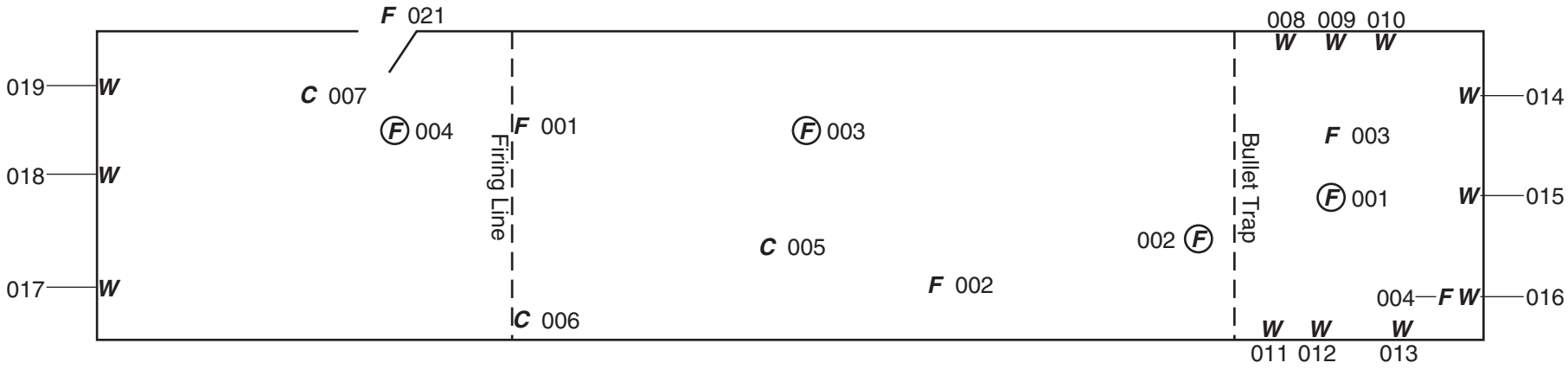
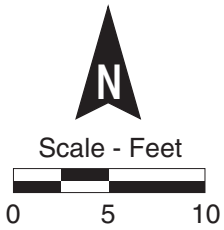


Figure 1-2.
Facility Layout.
Warwick, RI (RI008) Reserve Center.

IT CORPORATION

DRAWING BY	KMS	CHECKED BY			DRAWING NO.
	6/9/03	APPROVED BY			K-807744-0399-6/03-w





Legend

	Sample Date
F/W/C	23 April 03
Ⓕ	5 June 03

Notes: ***F*** (floor), ***C*** (ceiling) and ***W*** (wall) designate the location of the sample.
Samples 020 and 022 were spikes.
Sample 023 was a blank.

IT CORPORATION

Figure 3-1.
Clearance Wipe Sample Locations.
Warwick, RI (RI008) Reserve Center.

DRAWING BY	KMS	CHECKED BY			DRAWING NO.
	6/9/03	APPROVED BY			K-807744-0399-6/03-w

APPENDIX A
Photographs

Warwick (RI008) Photo No. 1 – View of the firing line area (4 pt range).

Warwick (RI008) Photo No. 2 – Another view of the firing line area.

Warwick (RI008) Photo No. 3 – View of the bullet trap area (4 pt range).

Warwick (RI008) Photo No. 4 – View of the false pegboard wall behind the firing line. Note the air intake unit behind the wall.

Warwick (RI008) Photo No. 5 – Another view of the air intake unit.

Warwick (RI008) Photo No. 6 – View of the wall-mounted air exhaust vent located behind the bullet trap area.

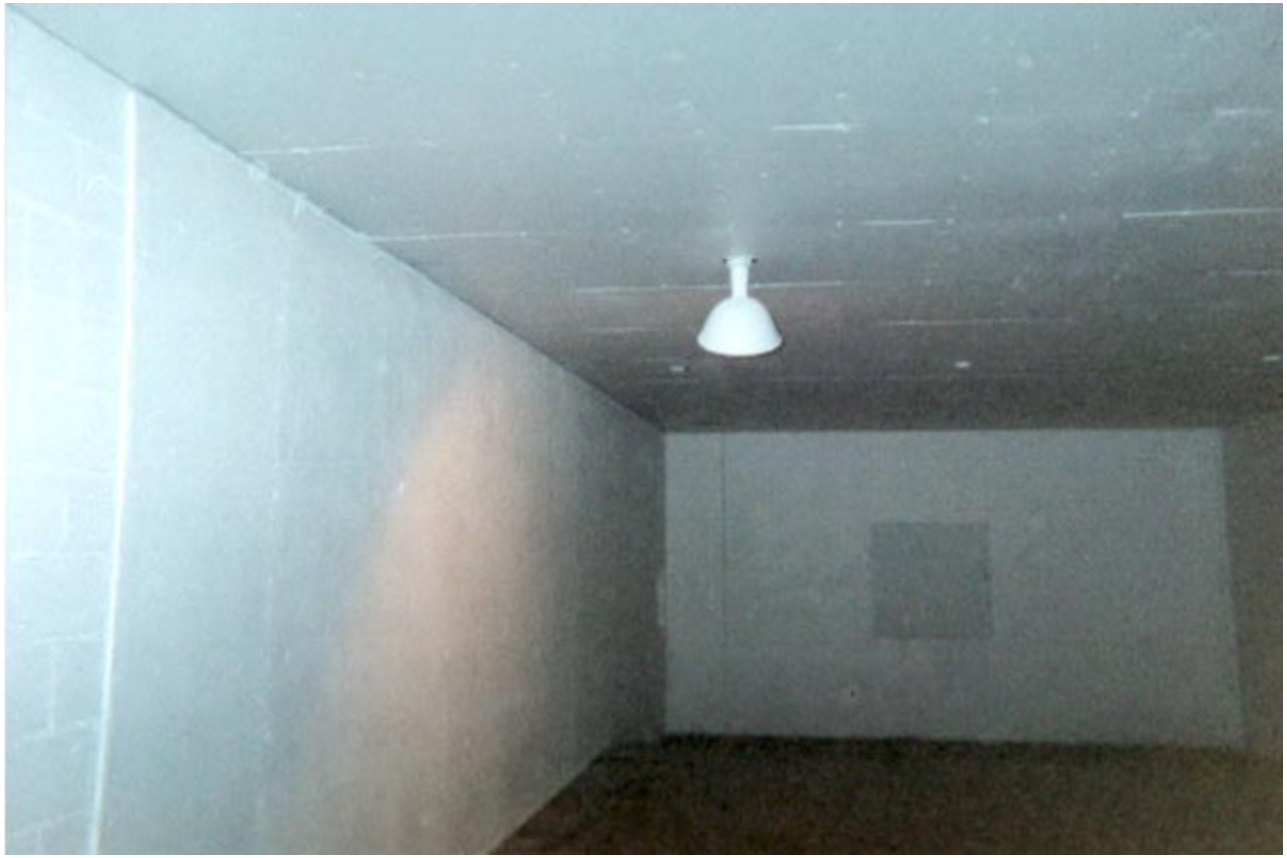
Warwick (RI008) Photo No. 7 - Range wall during removal of the sound deadening material.

Warwick (RI008) Photo No. 8 – Removal of sound deadening material from range wall.

Warwick (RI008) Photo No. 9 – Removal of acoustic tile from the range ceiling.

Warwick (RI008) Photo No. 10 – Firing line area after removal of the false wall, cleanup, and application of lead barrier paint. Note the air intake unit.

Warwick (RI008) Photo No. 11 – Bullet trap area after cleanup activities and application of lead barrier paint. Note sealed exhaust vent.



APPENDIX B
Asbestos Bulk Sampling Analytical Results, International Asbestos Testing Laboratories, July 31, 2002

IATL International Asbestos Testing Laboratories

16000 Horizon Way Unit 100 Mt. Laurel, NJ 08054

Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client: Eagle Environmental Inc.
481 orth Main St., Unit 11
Bristol CT 06010

Report Date: 07/31/2002
Project: DTC-RIFR; 885SandyLane, 7-22-02
Project No.: 02-105.10

BULK SAMPLE ANALYSIS SUMMARY

Lab No. 1546842 **Material Description:** LtTanFibrousMaterial
Client No.: 7-22-CP-16 **Location:** Structural Roof Deck Location 1-01

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	80	Cellulose	20

Lab No. 1546843 **Material Description:** White/TanCeilingTile
Client No.: 7-22-CP-17 **Location:** 1x1 Location 1-01

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	70	Cellulose	15
		15	Mineral Wool	

Lab No. 1546844 **Material Description:** Dk.Brown Mastic
Client No.: 7-22-CP-18 **Location:** A/W Sample 17 Location 1-02

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

Lab No. 1546845 **Material Description:** Blk/Wht Insulation
Client No.: 7-22-CP-19 **Location:** HVAC Flex Connector Location 1-03

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	80	— Fibrous Glass	20

NIST-NVLAP No. 1165 **NY-DOH No. 11021** **AIHA Lab No. 444**

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP or any agency of the U.S. government.

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-asbestos containing, confirmation must be made by quantitative TEM.

Analysis Performed By: _____

Date: _____

Approved By: _____

Frank E. Ehrenfeld, III
Laboratory Director

IATL International Asbestos Testing Laboratories

16000 Horizon Way Unit 100 Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client: Eagle Environmental Inc.
481 orth Main St., Unit 11
Bristol CT 06010

Report Date: 07/31/2002
Project: DTC-RIFR; 885SandyLane, 7-22-02
Project No.: 02-105.10

BULK SAMPLE ANALYSIS SUMMARY

Lab No. 1546846 **Material Description:** Tan/OffWht Sheetrock
Client No.: 7-22-CP-20 **Location:** Location 1-03

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	10	Cellulose	90

No Joint Compound

Lab No. 1546847 **Material Description:** Sample Not Received
Client No.: 7-22-CP-23 **Location:**

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
Sample Not Received		Sample Not Received		

Lab No. 1546848 **Material Description:** Brown Caulk
Client No.: 7-22-CP-26 **Location:** @ Wall/HVAC Location 1-03

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

NIST-NVLAP No. 1165 **NY-DOH No. 11021** **AIHA Lab No. 444**

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP or any agency of the U.S. government.

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Before this material can be considered or treated as non-asbestos containing, confirmation must be made by quantitative TEM.

Analysis Performed By: _____

Date: _____

Approved By: _____

Frank E. Ehrenfeld, III
Laboratory Director

5/3/5

EAGLE ENVIRONMENTAL, INC.

EAGLE PROJECT NAME: JTC - Rhode Island Firing Ranges - 885 Sandy Lane Warwick, RI 02886
PROJECT NO. 02-105.10

POLARIZED LIGHT MICROSCOPY SAMPLE LOG

TITLE NO.	LOCATION	MATERIAL TYPE	ASBESTOS	
7-22-CP-16	1-01	Structural roof deck	1546842	NAD
7-22-CP-17	1-01	1'X1' hole pattern ceiling tile	1546843	
7-22-CP-18	1-02	Brown glue dauber assoc. w/17	1546844	
7-22-CP-19	1-03	HVAC Flex connector	1546845	
7-22-CP-20	1-03	Sheetrock	1546846	
7-22-CP-23	1-03	Joint compound	1546847	Sample not rece.
7-22-CP-26	1-03	Brown caulk @ wall/HVAC	1546848	NAD

Test Method: PLM Turnaround Time: 5-day

Special Instructions:

mm 7/30/02

_____ Stop on first positive for each set of samples. Please do not separate samples.

_____ Stop on first positive for samples numbers _____ thru _____

_____ Please Point Count any samples analyzed as Trace asbestos content.

Samples Collected By: C. Pomeroy Date: 7/22/02 Time: PM

Samples Sent By: Sue Thibault Date: 7/23/02 Time: PM

Samples Received By: _____ Date: _____ Time: _____ JUL 24 2002

Shipped To: IATL

fax 7/23/02 cm

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-9257 • FAX (860) 585-7034

APPENDIX C
Asbestos Removal Final Report, Eagle Environmental, Inc., April 18, 2003

EAGLE ENVIRONMENTAL, INC.

April 18, 2003

Mr. Art Simonian
DTC
556 Washington Avenue
North Haven, CT 06473

RE: Asbestos Removal Project – Firing Range
885 Sandy Lane
Warwick, Rhode Island
Eagle Project No. 02-172

Dear Mr. Simonian,

Enclosed please find the final report for the asbestos removal project completed at 885 Sandy Lane in Warwick, Rhode Island. A checklist has been provided with this report that identifies the closeout documents required for asbestos abatement projects. The contractor has provided the required closeout documentation for this project and has fulfilled their obligations regarding these matters.

This report contains important documentation that must be retained by the building owner for thirty (30) years.

Please call us directly if you have any questions regarding the content of this report.

Sincerely,

Eagle Environmental, Inc.

Peter J. Fojino
Vice President

P:\Reports\Asb-02\AMN02-172Warwick,RI.doc

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

CLOSEOUT DOCUMENT STATUS

CLOSEOUT DOCUMENT	INCLUDED	PENDING
Eagle Environmental Text Reports	X	
Eagle Environmental Daily Monitoring Data	X	
Eagle Environmental Final Air Clearance Reports	X	
Eagle Environmental Certificates	X	
Contractor Waste Manifests	X	
Contractor Work Area Access Logs	X	
Contractor Worker Certificates	X	
Contractor OSHA Air Monitoring Samples	X	

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EAGLE ENVIRONMENTAL, INC.

ASBESTOS ABATEMENT PROJECT MONITORING REPORT
FOR
885 SANDY LANE
FIRING RANGE
WARWICK, RHODE ISLAND

PROVIDED TO

DTC
556 WASHINGTON AVENUE
NORTH HAVEN, CONNECTICUT

PROVIDED BY

EAGLE ENVIRONMENTAL, INC.
481 NORTH MAIN STREET
BRISTOL, CONNECTICUT 06010

DATE: APRIL 18, 2003

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ASBESTOS ABATEMENT PROJECT MONITORING

INTRODUCTION:

Eagle Environmental, Inc., was retained to provide asbestos abatement project monitoring services at 885 Sandy Lane in Warwick, Rhode Island. Asbestos abatement was necessary due to the planned decommissioning of the firing range.

Eagle Environmental, Inc prepared project specifications. The Asbestos Contractor was Yankee Fiber Control, Inc., of East Providence, Rhode Island.

Eagle Environmental collected background air samples upon the commencement of abatement activities. These background air samples were collected at various locations such as the entrance to the worker decontamination facility, outside critical barriers, and at the negative air exhaust. These samples were collected and analyzed in order to monitor the air quality outside the containment during the abatement process. Following the completion of final cleaning and encapsulation of the work area, aggressive final air clearance sampling was performed inside the work area to comply with State and Federal regulatory requirements.

In addition to air sampling, Eagle Environmental, Inc. performed job site inspections. Prior to the beginning of removal activities, a precommencement inspection was conducted. This was to document that work area preparations were performed in accordance with the written technical specifications. During removal activities, progress inspections were conducted inside the work area to assess work progress and work procedures for adherence to contract specifications. Presealant inspections were also conducted to verify that the work area met the no visible dust criteria prior to conducting work area encapsulation and final air clearance sampling. A post-teardown inspection was also performed to ensure that all ACM scheduled for removal was removed and that no residual ACM remained behind the containment barriers.

SCOPE OF WORK:

The scope of the abatement work included the removal and disposal of the ACM listed for each of the following locations:

LOCATION	ACM REMOVED	QUANTITY
1-03	Pipe insulation	19 LF
1-03	Sheetrock and joint compound	175 SF

DISCUSSION:

Containment preparations began on March 3, 2003 in room 1-03. Abatement of the asbestos containing sheetrock and joint compound was performed on March 4, 2003. The final visual and air clearance were performed on that same day. The pipe insulation was removed on March 6, 2003 in accordance with paragraph B.8.7 (a)(3) of the Rules and Regulations for Asbestos Control where less than two hundred and sixty (260) linear feet of pipe insulation is to be

removed by the Glovebag method. Removal was performed by Rhode Island certified abatement workers inside a containment with at contiguous decontamination unit and a negative pressure ventilation unit. The pipe insulation was discovered above the fixed sheetrock ceiling during sheetrock removal.

CONCLUSION:

Aggressive air sampling was performed inside each containment in accordance with subparagraphs (.1.3(a)(1)-(a)(4) of the Rules and Regulations for Asbestos Control.

PCM air sample analysis was performed by Silva Environmental and Associates, Inc. of Warwick, Rhode Island, a Rhode Island certified laboratory.

All work was performed within the allotted time frame. There were no delays caused by, or incurred by, the asbestos abatement contractor.

The waste shipment records confirm proper disposal of the ACM waste generated during this project.

This site is classified as a federal facility and does not fall under the State of Rhode Island's jurisdiction. It is therefore exempt from the requirements of the State of Rhode Island Rules and Regulations for Asbestos Control.

A

EAGLE ENVIRONMENTAL, INC.

PROJECT MONITORING LOG

Date: 3-3-03 **Eagle Project No.:** 02-172
Abatement Site: 885 Shady Lane Warwick RI.
Work Area: Firing Range 1st floor
Abatement Contractor: Yankee Fiber Control
Abatement Supervisor: Sergio Ramero
Eagle Project Monitor: Jerry Hunt **State License No.:**

FIELD NOTES

TIME	DESCRIPTION
07:15	Eagle on site
08:30	Main gate opened.
09:30	Yankee Fiber showed up. Have to wait on Robert Cragon to open Range door.
10:15	Door to range open. Yank
10:30	Yankee unloading equipment and material for job.
11:00	Prepping started in Room 1-03 on 1st floor Firing range.
11:15	Unloading my equipment to range area.
11:45	Precalibrated pumps onsite and 2 background pumps and samples
12:00	Lunch
12:30	Back to work preping room.
13:45	Post-Calibrated pumps and collected background samples.
13:50	Now setting up decon for containment.
14:45	Setting up neg-air machine to blow out into a 55gal drum with water. No outside excess to run exhaust tube
14:55	hooking up shower and filter for drain of shower.
15:30	Done for today left site.

PAGE 1 OF 1

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Silva Environmental & Associates, Inc.
45 Transit Street
Warwick, Rhode Island 02889
(401) 732 - 3976

Lab No. Below

Date Rec'd. 3-3-03

CERTIFICATE OF ANALYSIS

Client: Eagle Environmental, Inc.
481 North Main Street Unit 11
Bristol, CT 06010

Report Date: March 3, 2003

Project: 885 Shady Lane Warwick,RI
1st Floor Firing Range
Room 1-03 02-172

Project No.: 53417

PCM AIR SAMPLE ANALYSIS SUMMARY

Sample Identification	Description / Location	Sample Volume	Density Fibers/mm2	Concentration Fibers/cc
03-3-10868 3-3JH 01	Backgroung air sample Inside Containment	1200	11.46	<0.004
03-3-10869 3-3JH 02	Background air sample Outside Cont.	1200	6.37	<0.004
03-3-10870 3- 03	Field Blank	-	<12.7	-
03-3-10871 3-3JH 04	Field Blank	-	<12.7	-

Field Blanks falls within acceptable limits.

LAB NO. AAL - 084A1

NIOSH-PAT NO. 12612

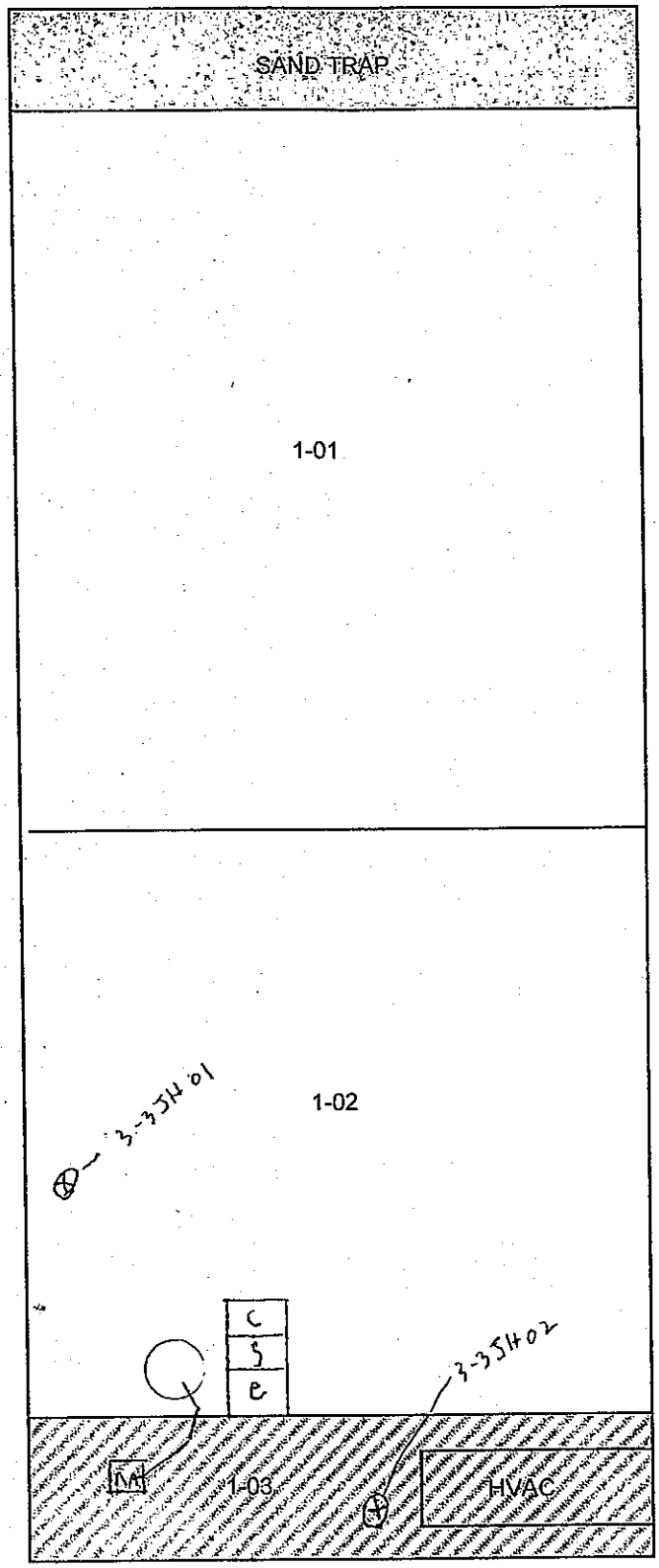
Analysis Method: Phase Contrast Microscopy - NIOSH 7400 Method Revision #3 May 15, 1989

Comments: *A VOID concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Analysis Performed By _____

Approved By _____
Laboratory Director

Date 3-3-03



ASBESTOS REMOVAL KEY

= AC SHEETROCK/JOINT COMPOUND REMOVAL LOCATION

AC= ASBESTOS CONTAINING

N.T.S.

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BRISTOL, CONNECTICUT 06010
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FIRING RANGE ABATEMENT PLAN
885 SHADY LANE
WARWICK, RHODE ISLAND

ASB-01

11/7/02 | 02-172

EAGLE ENVIRONMENTAL, INC.

PROJECT MONITORING LOG

Date: 03-04-03 **Eagle Project No.:** 02-172
Abatement Site: 885 Shedey Lane Warwick CT
Work Area: Room 1-03 on 1st Floor Firing Range
Abatement Contractor: Yankee Fiber Control
Abatement Supervisor: Sergio Romero
Eagle Project Monitor: Jerry Hunt **State License No.:**

FIELD NOTES

TIME	DESCRIPTION
07:55	Eagle onsite with Jerry Hunt as Project Monitor,
08:10	Yankee arrives on site with 1 supervisor and 1 worker
08:12	Unloading truck with drums and equipment.
08:19	Setting up for todays abatement.
08:30	Pre-abatement Inspection commencing.
08:40	Pre-abatement Inspection Passed contractor can now start abatement. Pre calibrates 3 perimeter pumps, one outside decon, one in neg-air exhaust and one in Hallway
08:41	Starting Samples and contractor started abatement
09:30	Abatement of ceiling sheetrock and joint compound continues.
09:50	Suiting up and went into containment. Told supervisor That the ~~drywall~~ sheetrock need more water on it and water is not supposed to stop when breaking.
10:05	came out of containment.
10:30	ceiling is done now cleaning containment
10:40	Robert Gagnon of BJ Regional Facility Manager came by to see how things are going and to tell us that firing range in Providence is unlocked
11:00	Final Visual Inspection on containment.
11:15	Came out Area Passed Visual Inspection. Contractor can now encapulate Area
11:20	Post calibrates pumps and collects perimeter samples
11:21	Encapulation started.
11:35	finish encapulation.

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TIME	DESCRIPTION
11:36	Wait for encapulation to dry 45 to 50 mins.
11:45	Lunch
12:30	Blowing down containment with Power sweeper.
12:40	Pre-calibrated pumps and set out clearance samples.
13:55	Post-calibrated pumps and collected clearance samples
14:05	left for Lab.
14:15	left Sample at Lab they will call with results. when back to 885 Shadey lane
15:35	Call by Lab clearance samples passed. contractor dismantle equipment
15:39	Call office told them about pipe insulation under Sheetrock.
16:38	left Site.

Silva Environmental & Associates, Inc.
45 Transit Street
Warwick, Rhode Island 02889
(401) 732 - 3976

Lab No. Below

Date Rec'd. 3-4-03

CERTIFICATE OF ANALYSIS

Client: Eagle Environmental, Inc.
481 North Main Street Unit 11
Bristol, CT 06010

Report Date: March 4, 2003

Project: 885 Shadey Lane Warwick, RI
Room 1-03 02-172

Project No.: 53417

PCM AIR SAMPLE ANALYSIS SUMMARY

Sample Identification	Description / Location	Sample Volume	Density Fibers/mm2	Concentration Fibers/cc
03-3-10872 3-4JH 01	During removal air sample outside Decon	1610	8.92	<0.004
03-3-10873 3-4JH 02	During removal air sample negative air Exhaust	1610	3.82	<0.004
03-3-10874 3-4JH 03	During removal air sample Hallway	1610	5.73	<0.004
03-3-10875 3-4JH 04	Field Blank	-	<12.7	-
03-3-10876 3-4JH 05	Field Blank	-	<12.7	-
	Field Blanks falls within acceptable limits.			

LAB NO. AAL - 084A1

NIOSH-PAT NO. 12612

Analysis Method: Phase Contrast Microscopy - NIOSH 7400 Method Revision #3 May 15, 1989

Comments: *A VOID concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Analysis Performed By _____

Approved By _____
Laboratory Director

Date 3-4-03

EAGLE ENVIRONMENTAL, INC.

PREABATEMENT CHECKLIST

Eagle Project No: 02-172 Date: 3-4-03

Eagle Job Name: Firing range Otis 885-Shudey Lane Location: Warwick CT

Contractor: Yankee Fiber Control Supervisor: Sergio Romero

Project Location: 885 Shudey Lane, 1ST floor, Firing range, Room 103

Scope of Work: Sheetrock + Joint Compound 175~ sq ft.

(Removal) Encapsulation Encasement Enclosure Glovebag

CHECKLIST: (Satisfactory — Yes or No or N/A)

1.Warning Signs	Yes
2.Entry Secured	Yes
3.Two Layers of 6 mil Poly	
All Penetrations	Yes
All Fixed Objects	Yes
Walls	Yes
Ceilings	no
4.Spray Applied Poly	
Walls	n/a
Ceilings	n/a
5.Decontamination Facilities	
Personnel	Yes
Equipment/Waste	Yes
Shower	Yes
Proper filtration system	Yes
6.Temporary Lighting	Yes
7.Electrical System Off	Yes
8.HVAC System Off	Yes
9.Communication System	no
10.Emergency Warning System	no
11.Emergency Exit	no
12.Negative Air	
Smoke Test	Yes
4 Air Changes/hr.	Yes
No. of Units	Yes
Manometer Reading	n/a
13. Type "C" System with Alarms	no

Log Book	Yes
Release Forms	Yes
Copy of Specifications	Yes
Copies of Regulations	Yes

Notes:

Circle One

(Pass) Fail

Name: Jerry Hunt

Signature: Jerry Hunt

EAGLE ENVIRONMENTAL, INC.

WORK AREA AND CONTAINMENT DAILY CHECK LIST

WORK AREA INFORMATION

Date: 3-4-03 Eagle Project Number: 02172

Building: 885 Shadey Lane Floor: 1st

Work Area: Firing Range Room 1-03

CONTAINMENT

1) Breaches in containment: Yes____ No ✓: If yes where_____

Corrective actions taken_____

2) Manometer reading: — inches of water
3) Smoke test containment: Yes ✓ No:_____
4) All ingresses to the work area posted with warning signs: Yes ✓ No:_____
5) Wall poly intact: Yes ✓ No:_____
6) Number of negative air machines running: 1
7) Number of back up negative air machines in containment: 0
8) Negative air machines exhausting outside the building: Yes ✓ No_____
9) Airless sprayer or water in work area operable: Yes ✓ No_____
10) All electrical devices equipped with GFCI: Yes ✓ No_____
11) Auxiliary lighting sufficient: Yes ✓ No_____

NOTES:_____

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EAGLE ENVIRONMENTAL, INC.

DAILY WASTE LOAD OUT LOG

WORK AREA INFORMATION

Date: 3-4-03 Eagle Project No. 02-172

Building: 385 Shadey lane Floor: 1st

Work Area: Room 1-03 firing range

WASTE LOAD OUT CHECK LIST

1) Type of asbestos-containing waste: Sheetrock + Joint compound
2) Waste containerization method: bags + drums
3) All waste adequately wet: yes
4) Waste generator labels applied:
5) All waste double bagged: Yes
6) Number of bags or drums removed from work area: 5 bags & 2 drums 1 cu yd
7) Waste path from containment to waste container: thru decon then to truck
8) Waste container lined: Yes
9) Waste container posted with warning signs: Yes
10) Waste container locked following load out procedures: Yes
11) General clean-up required: Yes _____ No ✓

NOTES: _____

Project Monitor Name: Jerry Hynes Signature: Jerry Hynes
License No. _____

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WASTE LOAD OUT FACILITY

1) Number of chambers: 3
2) Posted with warning signs: Yes ✓ No _____
3) Chambers sealed: Yes ✓ No _____
4) General clean-up required no

NOTES: _____

Project Monitor Signature: _____ Date: 7-4-03

License No. _____

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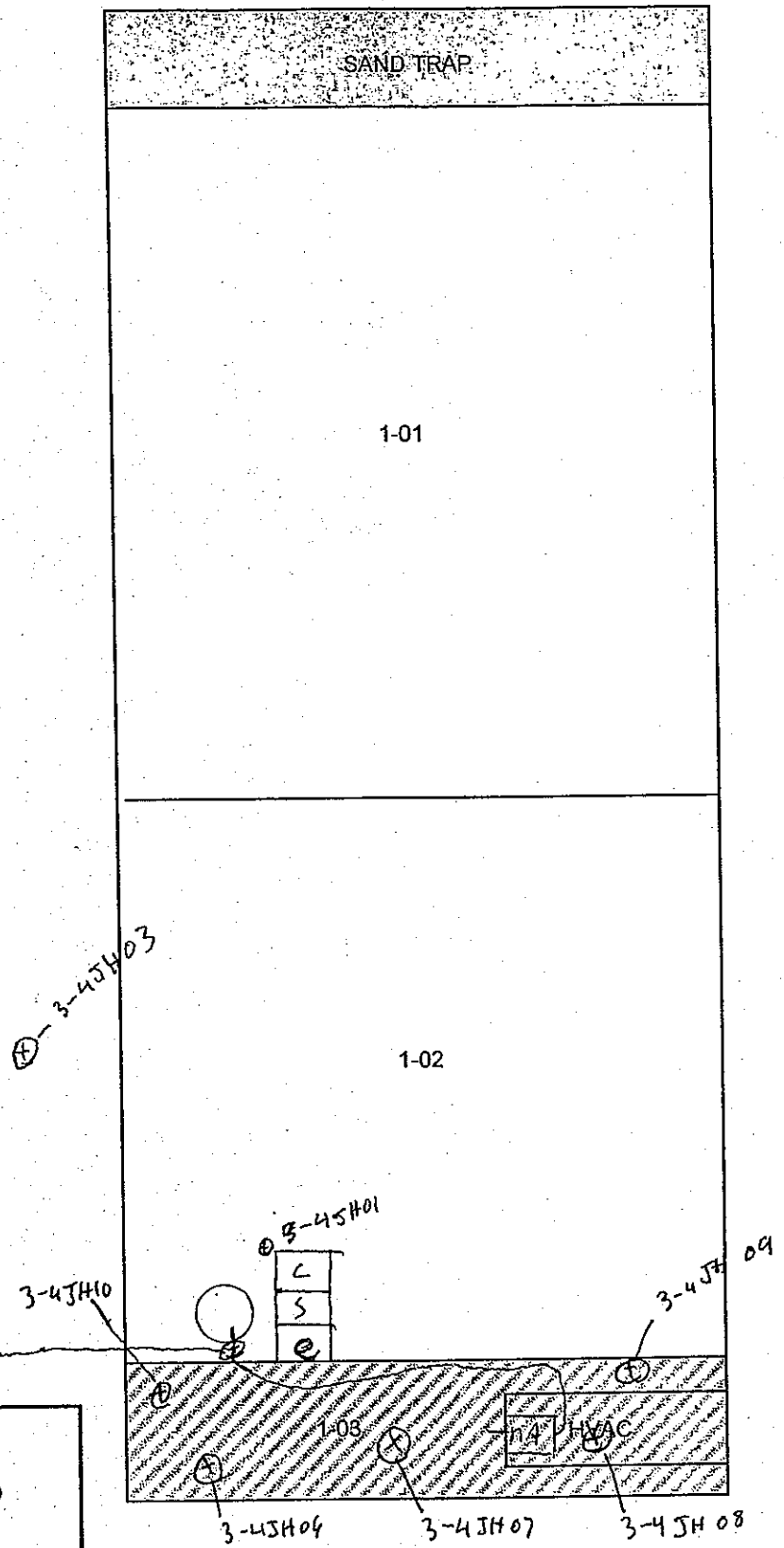
Yankee Fiber Control, Inc.
E. Providence, RI
RI LIC: LAC-001-000
MA LIC: 000096
JOB # : 6696
SITE : USARC / WARWICK
885 SANDY LANE
WARWICK RI. 02886



Legend
C - clean Room
S - Shower
e - equipment Room
n4 - neg-air machine
⊕ sample location

ASBESTOS REMOVAL KEY

= AC SHEETROCK/JOINT COMPOUND REMOVAL LOCATION

AC= ASBESTOS CONTAINING

N.T.S.

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481 NORTH MAIN STREET
BRISTOL, CONNECTICUT 06010
Phone: (860) 589-8257

FIRING RANGE ABATEMENT PLAN
885 SHADY LANE
WARWICK, RHODE ISLAND

ASB-01

11/7/02 | 02-172

EAGLE ENVIRONMENTAL, INC.

PROJECT MONITORING LOG

Date: 3-6-03 **Eagle Project No.:** 02-172
Abatement Site: 885 Shadey Lane Warwick RI
Work Area: Firing Range Room 1-03
Abatement Contractor: Yankee Fiber Control
Abatement Supervisor: Sergio Romero
Eagle Project Monitor: Jerry Hunt **State License No.:**

FIELD NOTES

TIME	DESCRIPTION
08:00	Eagle on site Jerry Hunt Project Manager
08:30	Yankee arrives with 1 workers and 1 supervisor near unloading truck and Prepping Room 1-03.
09:45	Prepping containers in Room 1-03 of Firing Range They are using a Tunnel with 1 layer of 6 mil ~~on~~ bathroff and 1 layer of 6 mil on floor with neg-air machine and 3 Stage contiguous decon attached.
10:30	Prepping 3 stage decon neg-air machine.
11:15	Pre abatement Inspection on Containment Passed. Contractor can now begin abatement.
11:20	Pre calibrated pumps and setup 3 samples, one outside decon, one neg-air exhaust, one in Hallway.
11:25	Started abatement in Containment
12:05	Bagging out of containment.
12:09	Suiting up To do Final Visual Inspection
12:14	Come out of containment Area passed Final visual Inspection Contractor can now encapulate Area
12:16	Post-calibrated pumps and collected perimeter samples,
12:20	finish encapulation of Area. Now waiting for encapulent to dry to start samples for clearance
12:40	Blowing down containment with Power Sweep.
12:50	Starting Pre calibrated pumps and set out clearance Samples in containment

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TIME	DESCRIPTION
14:02	Setting up to retrieve clearance samples.
14:05	Post-calibrated pumps and collected clearance samples from inside containment.
14:10	Came out of containment.
14:12	Left for Lab.
14:30	Drop off samples at Lab left for Job site
14:50	Arrived back on site.
16:15	Lab call all samples passed.
16:16	Contractor tearing down poly.
16:45	Left site

Silva Environmental & Associates, Inc.
45 Transit Street
Warwick, Rhode Island 02889
(401) 732 - 3976

Lab No. Below

Date Rec'd. 3-6-03

CERTIFICATE OF ANALYSIS

Client: Eagle Environmental, Inc.
481 North Main Street Unit 11
Bristol, CT 06010

Report Date: March 6, 2003

Project: 885 Shady Lane Warwick,RI
1-03 Firing Range 02-172

Project No.: 53417

PCM AIR SAMPLE ANALYSIS SUMMARY

Sample Identification	Description / Location	Sample Volume	Density Fibers/mm2	Concentration Fibers/cc
03-3-10931 -6JH 01	Glove Bag air sample Outside Decon	560	5.09	<0.004
03-3-10932 -6JH 02	Glove Bag air sample Neg.Air Exhaust	560	2.55	<0.004
03-3-10933 -6JH 03	Glove Bag air sample Hallway	560	3.82	<0.004
03-3-10934 -6JH 04	Field Blank	-	<12.7	-
03-3-10935 -6JH 05	Field Blank	-	<12.7	-
	Field Blanks falls within acceptable limits.			

LAB NO. AAL - 084A1

NIOSH-PAT NO. 12612

Analysis Method: Phase Contrast Microscopy - NIOSH 7400 Method Revision #3 May 15, 1989

Comments: *A VOID concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Analysis Performed By _____

Approved By _____
Laboratory Director

Date 3-6-03

EAGLE ENVIRONMENTAL, INC.

PREABATEMENT CHECKLIST

Eagle Project No: 02-172 Date: 3-6-03

Eagle Job Name: DEC Firing Range Warwick Location: Warwick RI

Contractor: Yankee Fiber Control Supervisor: Sergio Romero

Project Location: 885 Shady Lane Firing Range Room 1-03

Scope of Work: 1925 Pipe Insulation

Removal Encapsulation Encasement Enclosure (Glovebag)

CHECKLIST: (Satisfactory — Yes or No or N/A)

1.Warning Signs	Yes
2.Entry Secured	Yes
3.~~Two~~ One Layers of 6 mil Poly	
All Penetrations	Yes
All Fixed Objects	Yes
Walls	Yes
Ceilings	N/A
4.Spray Applied Poly	
Walls	N/A
Ceilings	N/A
5.Decontamination Facilities	
Personnel	Yes
Equipment/Waste	Yes
Shower	Yes
Proper filtration system	Yes
6.Temporary Lighting	Yes
7.Electrical System Off	Yes
8.HVAC System Off	Yes
9.Communication System	N/A
10.Emergency Warning System	N/A
11.Emergency Exit	N/A
12.Negative Air	
Smoke Test	Yes
4 Air Changes/hr.	Yes
No. of Units	1
Manometer Reading	-
13. Type "C" System with Alarms	N/A

Log Book	Yes
Release Forms	Yes
Copy of Specifications	Yes
Copies of Regulations	Yes

Notes:

Circle One

(Pass) Fail

Name: Jerry Hunt

Signature: Jerry Hunt

EAGLE ENVIRONMENTAL, INC.

WORK AREA AND CONTAINMENT DAILY CHECK LIST

WORK AREA INFORMATION

Date: 3-6-03 Eagle Project Number: 03-06-03

Building: 885 Shady Lane Floor: 1ST

Work Area: Room 1-03 of Firing Range

CONTAINMENT

1) Breaches in containment: Yes____ No ✓: If yes where_____

Corrective actions taken_____

2) Manometer reading: — inches of water
3) Smoke test containment: Yes ✓ No:_____
4) All ingresses to the work area posted with warning signs: Yes ✓ No:_____
5) Wall poly intact: Yes ✓ No:_____
6) Number of negative air machines running: 1
7) Number of back up negative air machines in containment: 0
8) Negative air machines exhausting outside the building: Yes ✓ No ✓
9) Airless sprayer or water in work area operable: Yes ✓ No_____
10) All electrical devices equipped with GFCI: Yes ✓ No_____
11) Auxiliary lighting sufficient: Yes ✓ No_____

NOTES: Negitalive air is vented into a 55 gal drum with water and filter on top

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EAGLE ENVIRONMENTAL, INC.

DAILY WASTE LOAD OUT LOG

WORK AREA INFORMATION

Date: 3-6-03 Eagle Project No. 02-172

Building: 885 Shady Lane Floor: 1st

Work Area: Room 1-B3 in Firing Range

WASTE LOAD OUT CHECK LIST

1) Type of asbestos-containing waste: Pipe Insulation, Poly, disposable Suits
2) Waste containerization method: bag
3) All waste adequately wet: Yes
4) Waste generator labels applied: Yes
5) All waste double bagged: Yes
6) Number of bags or drums removed from work area: 6 bags 1/4 cu. yd.
7) Waste path from containment to waste container: Down to Truck
8) Waste container lined: Yes
9) Waste container posted with warning signs: Yes
10) Waste container locked following load out procedures: Yes
11) General clean-up required: Yes _____ No ✓

NOTES: _____

Project Monitor Name: Jerry Hunt Signature: _____

License No. _____

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WASTE LOAD OUT FACILITY

1) Number of chambers: 3
2) Posted with warning signs: Yes ✓ No _____
3) Chambers sealed: Yes ✓ No _____
4) General clean-up required NO

NOTES: _____

Project Monitor Signature: Jerry Kmit Date: 3-6-03

License No. _____

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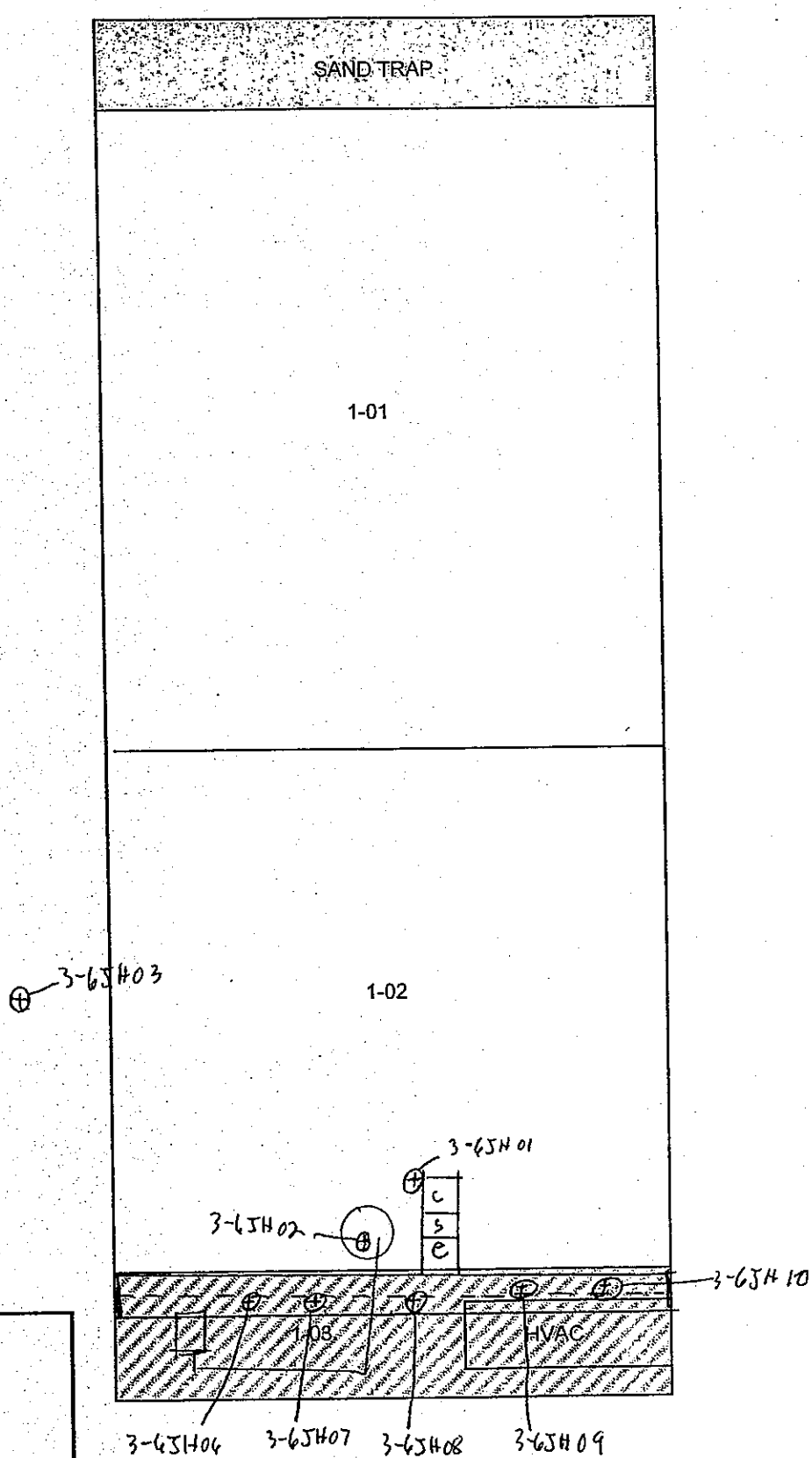

Legend
C-Clean Room
S-shower
E- equipment Room
NA- neg-air machine
---- - Pipe Insulation
⊕ - sample location

ASBESTOS REMOVAL KEY

= AC SHEETROCK/JOINT COMPOUND REMOVAL LOCATION

AC= ASBESTOS CONTAINING

N.T.S.

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481 NORTH MAIN STREET
BRISTOL, CONNECTICUT 06010
Phone: (860) 589-8257

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885 SHADY LANE
WARWICK, RHODE ISLAND

ASB-01

11/7/02 | 02-172

EAGLE ENVIRONMENTAL, INC.

April 21, 2003

Mr. Art Simonian
DTC
556 Washington Street
North Haven, Connecticut 06473

RE: Final Visual Inspection Report
885 Sandy Lane, Room 1-03 – Pipe Insulation
Warwick, Rhode Island
Eagle Project No. 02-172

Dear Mr. Simonian:

On March 6, 2003 Eagle Environmental, Inc. conducted final air clearance sampling and a visual inspection at the above mentioned abatement site to ensure that the regulated area had been properly decontaminated in accordance with Paragraph B.8.7 (a)(3) of the Rules and Regulations for Asbestos Control. At the time of the inspection the negative air machines were operable and the worker decontamination unit was in place. A thorough inspection was conducted by Jerry Hunt. Upon verification that nineteen (19) linear feet of pipe insulation was removed from the work area utilizing the glove bag method, the work area was encapsulated final air clearance sampling was conducted once the encapsulate was dry.

Five (5) air samples were collected inside containment under aggressive sampling conditions in accordance with the State of Rhode Island Department of Public Health (DPH) Regulations. At the completion of sampling, Silva Environmental & Associates, Inc. of Warwick, Rhode Island analyzed all samples by Phase Contrast Microscopy (PCM), utilizing NIOSH 7400 Counting Method, Issue #3, 1989.

Sample analyses confirmed that the work area met the DPH requirements for air clearance sampling following an asbestos abatement project. All five samples were less than 0.010 fibers per cubic centimeter of air. Based upon these results the area is suitable for reoccupancy. Laboratory results supporting these findings are attached to this report.

Please call us directly if you have any questions regarding the content of this report.

Sincerely,

Eagle Environmental, Inc.

Peter J. Foline
Vice President

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EAGLE ENVIRONMENTAL, INC.

FINAL VISUAL INSPECTION

Eagle Project No: 02-172 Date: 3-6-03
Eagle Project Name: DTCI Firing Range Warwick Location: Warwick RI
Contractor: Yankee Fiber Control Supervisor: Sergio Romero
Project Location: 885 Shady lane, Warwick RI Firing Range Room 1-03
Scope of Work 19 LF Pipe Insulation

Type of Abatement (Circle one)

Removal Encapsulation (Glovebag) Enclosure

Checklist (Within limits - yes or no)

Residual Dust: Below Eye Level		Above Eye Level	
Floor	Yes	Horizontal Surfaces	Yes
Horizontal Surfaces	Yes	Pipes	Yes
Pipes	no	Ducts	no
Ducts	no	Registers	no
Ventilation System	no	Lights	Yes
Registers	no	Miscellaneous Surfaces	Yes

Circle One

(PASS) FAIL

Field Notes:
The Final Visual Inspection of containment Passed. The Contractor can now encapulate the containment.

Jon Hunt

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(401) 732 - 3976

Lab No. Below

Date Rec'd. 3-6-03

CERTIFICATE OF ANALYSIS

Client: Eagle Environmental, Inc.
481 North Main Street Unit 11
Bristol, CT 06010

Report Date: March 6, 2003

Project: 885 Shady Lane Warwick,RI
1-03 Firing Range 02-172

Project No.: 53417

PCM AIR SAMPLE ANALYSIS SUMMARY

Sample Identification	Description / Location	Sample Volume	Density Fibers/mm2	Concentration Fibers/cc
03-3-10936 3-6JH 06	Final clearance air sample inside Containment	1125	7.64	<0.004
03-3-10937 3-6JH 07	Final clearance air sample inside Containment	1125	8.92	<0.004
03-3-10938 3-6JH 08	Final clearance air sample inside Containment	1125	6.37	<0.004
03-3-10939 3-6JH 09	Final clearance air sample inside Containment	1125	7.00	<0.004
03-3-10940 3-6JH 10	Final clearance air sample inside Containment	1125	10.19	<0.004
03-3-10941 3-6JH 11	Field Blank	-	<12.7	-
03-3-10942 3-6JH 12	Field Blank	-	<12.7	-
	Field Blanks falls within acceptable limits.			

LAB NO. AAL - 084A1

NIOSH-PAT NO. 12612

Analysis Method: Phase Contrast Microscopy - NIOSH 7400 Method Revision #3 May 15, 1989

Comments: *A VOID concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Analysis Performed By _____

Approved By _____
Laboratory Director

Date 3-6-03

EAGLE ENVIRONMENTAL, INC.

April 21, 2003

Mr. Art Simonian
DTC
556 Washington Avenue
North Haven, Connecticut 06473

RE: PCM Final Air Clearance Sampling and Inspection
885 Sandy Lane, Room 1-03, Sheetrock/Joint Compound
Warwick, Rhode Island
Eagle Project No. 02-172

Dear Mr. Simonian:

On March 4, 2003 Eagle Environmental, Inc. conducted final air clearance sampling and a visual inspection at the above mentioned abatement site to ensure that the work area had been properly decontaminated and was suitable for reoccupancy. At the time of the inspection the negative air machines were operable and the worker decontamination unit was in place. A thorough inspection was conducted by Jerry Hunt. Upon verification that one hundred seventy-five (175) square feet of sheetrock and joint compound was removed from the work area, the area was encapsulated and final air clearance sampling was conducted once the encapsulant was dry.

Five (5) air samples were collected inside containment under aggressive sampling conditions in accordance with the State of Connecticut Department of Public Health (DPH) Regulations. At the completion of sampling, all samples were analyzed on-site by Phase Contrast Microscopy (PCM), utilizing NIOSH 7400 Counting Method, Issue #3, 1994.

Sample analyses confirmed that the work area met the DPH requirements for air clearance sampling following an asbestos abatement project.

All five samples were less than 0.010 fibers per cubic centimeter of air. Based upon these results the area is suitable for reoccupancy. Laboratory results supporting these findings are attached to this report.

Please call us directly if you have any questions regarding the content of this report.

Sincerely,

Eagle Environmental, Inc.

Peter J. Folino
Vice President

P:\Reports\Asb-02\FacReports\02-172 885 Sandy Lane.doc

421 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

EAGLE ENVIRONMENTAL, INC.

FINAL VISUAL INSPECTION

Eagle Project No.: 02-172 Date 3-4-03
Eagle Project Name: DTCi Firing Range Warwick Location: Warwick RI
Contractor: Yankee Fiber control Supervisor: Sergio Romero
Project Location: 885 Shadey Lane, Firing Range Room 1-03
Scope of Work: 175 sq ft of Sheetrock and Joint compound

Type of Abatement (circle one)

(Removal) Encapsulation Glovebag Enclosure

Checklist (Within limits - yes or no)

Residual Dust:	**Below Eye Level**	**Above Eye Level**
Floor	Yes	
Horizontal Surfaces	Yes	Horizontal Surfaces Yes
Pipes	Yes	Pipes Yes
Ducts	Yes	Ducts Yes
Ventilation System	Yes	Registers no
Registers	no	Lights Yes
		Miscellaneous Surfaces Yes

Circle One

(PASS) FAIL

Field Notes: The Final Visual Inspection of Room 1-03 in Firing Range of 885 Shadey lane in Warwick Passed. Contractor can now encapulate Area

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

Silva Environmental & Associates, Inc.
45 Transit Street
Warwick, Rhode Island 02889
(401) 732 - 3976

Lab No. Below

Date Rec'd. 3-4-03

CERTIFICATE OF ANALYSIS

Client: Eagle Environmental, Inc.
481 North Main Street Unit 11
Bristol, CT 06010

Report Date: March 4, 2003

Project: 885 Shadey Lane Warwick, RI
Firing Range Room 1-03

Project No.: 53417 02-172

PCM AIR SAMPLE ANALYSIS SUMMARY

Sample Identification	Description / Location	Sample Volume	Density Fibers/mm2	Concentration Fibers/cc
)3-3-10877				
)-4JH 06	Final clearance air sample Inside Containment	1125	5.09	<0.004
)3-3-10878				
)-4JH 07	Final clearance air sample Inside Containment	1125	7.00	<0.004
)3-3-10879				
)- 08	Final clearance air sample Inside Containment	1125	3.82	<0.004
)3-3-10880				
)-4JH 09	Final clearance air sample Inside Containment	1125	7.64	<0.004
)3-3-10881				
)-4JH 10	Final clearance air sample Inside Containment	1125	6.37	<0.004
)3-3-10882				
)-4JH 11	Field Blank	-	<12.7	-
)3-3-10883				
)-4JH 12	Field Blank	-	<12.7	-
	Field Blanks falls within acceptable limits.			

LAB NO. AAL - 084A1

NIOSH-PAT NO. 12612

Analysis Method: Phase Contrast Microscopy - NIOSH 7400 Method Revision #3 May 15, 1989

Comments: *A VOID concentration means that the sample has been overloaded with particulate matter and could not be reliably analyzed.

Analysis Performed By _____

Approved By _____
Laboratory Director

Date 3-4-03

RHODE ISLAND DEPARTMENT OF HEALTH

OFFICE OF OCCUPATIONAL AND RADIOLOGICAL HEALTH

ASBESTOS ABATEMENT CONTRACTOR LICENSE

Supplementary Sheet

License No.: LAC-001-000

AMENDMENT 71

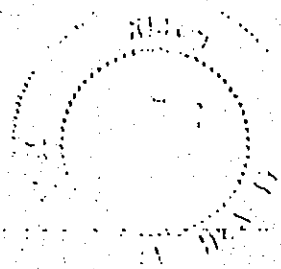
Yankee Fiber Control, Inc.
2 Dexter Road
East Providence, RI 02914

In accordance with letter dated 25 October 2002, License LAC-001-000 is amended as follows:

Conditions 6, 7, 8, and 11 are amended to read:

6. Number of Asbestos Abatement Site Supervisor(s) Authorized: Twelve (12)

7. Asbestos Abatement Site Supervisor	**8. License Number**
A. James A. Hutzler	**A.** LAC-001-2542
B. Jean Bois	**B.** LAC-001-2623
C. Brian Castro	**C.** LAC-001-2118
D. Rafael Encarnacion	**D.** LAC-001-3914
E. Christopher Gagnon	**E.** LAC-001-2185
F. Ronald A. Gagnon, Jr.	**F.** LAC-001-3422
G. Michael Lury	**G.** LAC-001-3874
H. Michael Mallinson	**H.** LAC-001-3053
I. Scott Moul	**I.** LAC-001-3476
J. Sergio Romero	**J.** LAC-001-3933
K. Thuon Suon	**K.** LAC-001-4010
L. Gary C. Williams	**L.** LAC-001-2451



RHODE ISLAND DEPARTMENT OF HEALTH

OFFICE OF OCCUPATIONAL AND RADIOLOGICAL HEALTH

ASBESTOS ABATEMENT CONTRACTOR LICENSE

Supplementary Sheet

License No.: LAC-001-000

AMENDMENT 71

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11. Except as specifically provided otherwise in this license, the licensee shall conduct his program in accordance with statements, procedures and representations contained in the documents, including any enclosures, listed below. The Rhode Island Rules and Regulations for Asbestos Control shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Renewal application dated 25 June 2002.
B. Letter, with enclosures, dated 5 August 2002.
C. Letters, with enclosures, dated 25 & 26 September 2002.
D. Letter dated 22 October 2002.
E. Letter, with enclosures, dated 25 October 2002.

For The Rhode Island Department of Health

Date: 25 Oct 2002

by Donna L Russell

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF HEALTH

Safe and Healthy Lives in Safe and Healthy Communities

10 July 2002

Mr. James A. Hutzler, President
Yankee Fiber Control, Inc.
2 Dexter Road
East Providence, RI 02914

License No: LAC-001-000

Dear Mr. Hutzler:

Enclosed are Asbestos Abatement Contractor License LAC-001-000, issued by the Rhode Island Department of Health to Yankee Fiber Control, Asbestos Abatement Site Supervisor License LAC-001-2542, issued to James A. Hutzler, License LAC-001-2623, issued to Jean Bois, License LAC-001-2118, issued to Brian Castro, License LAC-001-3768, issued to Steven J. Dougherty, License LAC-001-3914, issued to Rafael Encarnacion, License LAC-001-2185, issued to Christopher Gagnon, License LAC-001-3422, issued to Ronald A. Gagnon, Jr., License LAC-001-3874, issued to Michael Lury, License LAC-001-3053, issued to Michael Mallinson, License LAC-001-3476, issued to Scott Moul and License LAC-001-3932, issued to Luis Tejada.

Your activities in the area of asbestos abatement are subject to the terms and conditions of this license and the Rhode Island Rules and Regulations for Asbestos Control. Management, Asbestos Abatement Site Supervisors, Asbestos Abatement Workers and other agents operating under this license must be aware of and comply with all license conditions. Particular attention should be paid to ensuring that all individuals operating under this license have been trained in accordance with Section B.3.1 of the Rhode Island Rules and Regulations for Asbestos Control and that such training is updated on an annual basis in accordance with Section B.3.4 of the Rhode Island Rules and Regulations for Asbestos Control.

It is recommended that the followings steps be taken to ensure compliance with the license and the Rhode Island Rules and Regulations for Asbestos Control:

1) That a representative of management understands the commitments being made in the application and contained in the license as finally issued;
2) That existing and new employees and agents are instructed in and are familiar with all applicable conditions of the license, including the details of applicable documents that are incorporated by condition into the license and;
3) That copies of the agency regulations, copies of the license and other documents are maintained in accordance with Section B.2.4 of the Rhode Island Rules and Regulations for Asbestos Control.

If you wish to make any changes in the authorized personnel or conditions incorporated by reference into the license, you must submit a written request to this office for their implementation.

The office will make periodic inspections of asbestos abatement activities conducted under your license as they relate to general safety and compliance with both the terms of an approved Asbestos Abatement Plan and compliance with agency regulations.

At least one of the Asbestos Abatement Site Supervisors listed in condition 7 of your license must be physically present whenever any on-site work is being performed in conjunction with an approved asbestos abatement project. Furthermore, the photo ID issued by this office must be clearly displayed by an Asbestos Abatement Site Supervisor at all times while supervising an approved asbestos abatement project.

Your Asbestos Contractor license will expire on 30 June 2004. An application for renewal should be filed at least thirty (30) days before the expiration date of your existing license.

If you have any questions, please call me at (401) 222-7750.

Your cooperation with us in this matter is appreciated.

Sincerely,

Donna S. Poissant
Industrial Hygienist
Office of Occupational and
Radiological Health

enclosure

asbcont

Job No. 6696-03

SERVICE TRANSPORT GROUP, INC.

58 PYLES LANE, NEW CASTLE, DE 19720 PHONE:(877) 999-9559

№ 119136

WASTE SHIPMENT RECORD

S.T.G. # 18274

GENERATOR

1. Material Origin Site	Generator: Name/Address	Generator: Phone #
US Army Reserve Center 885 Sandy Lane Warwick, RI	Shaw Environmental & Infrastructure 312 Directors Drive Knoxville, TN 37923-4799	865-694-7338

2. Removal Contractor: Name/Address		Contractor: Phone #
Yankee Fiber Control, Inc. 2 Dexter Road East Providence, RI 02914	Contact: Jim Hutzler	401-435-4390

3. Responsible Agency: Name/Address	4. US DOT Class - FRIABLE ASBESTOS ONLY
U.S. EPA Region I JFK Federal Building Boston, MA 02203-2211	RQ ASBESTOS, 9, NA 2212, PG III

5. Description of Materials Specify Friable or Non-Friable	Containers No.	Type	Total Quantity
ACM	2	Drums	
ACM	11	BAGS	

6. Special Handling Instructions: 24-hour emergency spill response no. 800-424-9300

7. Generator Certification:

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transport by highway according to the applicable regulations of the Department of Transportation, US E.P.A., and any other state government agency. I certify that the foregoing is true and correct to the best of my knowledge. If the waste shipment is not as I stated, I accept the RETURN of the COMPLETE LOAD to the generator's service location at the generator's expense.

Printed/Typed Name & Title	Signature	Date
Jim Hutzler, President	J Hutzler	3/31/03

TRANSPORTER

8. Transporter 1 (Acknowledgement of Receipt of Materials) *If blank, Transporter 2 serves as sole transporter.

Company Name & Address		
Yankee Fiber Control, Inc. 2 Dexter Rd. East Providence, RI 02914	Signature: J Hutzler Printed Name: Jim Hutzler Title: President	Telephone No. 401-435-4390 Date: 3/31/03

9. Transporter 2 (Acknowledgement of Receipt of Materials)

Company Name & Address		
Service Transport Group, Inc. 58 Pyles Lane New Castle, DE 19720	Signature: Printed Name: Title:	Telephone No. 877-999-9559 Date: 4-3-03

DISPOSAL SITE

10. Discrepancy Indication Space:

11. Waste Disposal/Recycling Site Owner or Operator's Certification (Receipt of above Waste Except as Noted in 10)

Company Name & Address		
BFI Imperial Landfill 11 Boggs Road Imperial, PA 15126 Permit No. 100620	Signature: Printed Name: Title:	Telephone No. 724-695-0900 Date 4-4-03

WHITE-Disposal Site • GREEN-S.T.G. • YELLOW-Contractor • PINK-Generator • GOLD - Pick Up Receipt

YANKEE FIBER CONTROL

Revision A

FIELD FORMS

TITLE: DAILY SIGN-IN SHEETS USARC #6696 SANDY LANE WARWICK RI

DATE: 03-03-03

PRINTED NAME	SIGNATURE	Lic. No. STATE	AM IN	AM OUT	PM IN	PM OUT
Sergio Ramirez	Sergio Ramirez	AS001733	9:00	12:10	12:40	3:45
Jose Ramirez	Jose Ramirez	IAW3895	9:00	12:10	12:40	3:45

YANKEE FIBER CONTROL

Revision A

FIELD FORMS

TITLE: DAILY SIGN-IN SHEETS USARC #6696 SANDY LANE
WARWICK RI

DATE: 03-04-03

PRINTED NAME	SIGNATURE	Lic. No. STATE	AM IN	AM OUT	PM IN	PM OUT
Sergio Ramiro		001-3933	8:00	12:00	12:30	
Jose Ramirez	Jose Ramirez	3895	8:00	12:00	12:30	

Yankee Fiber / Spot Repair Work Form

Date: 03-06-03

Job Number: 6696-03

Job Name & Address: URI USAR, Warwick, SANDY LANE pipe insulation.

Personal Sampling

Name	Time On	Time Off	Flow Rate	Signature
Juan C. Izaguirre	11:40	12:15	2 lm	

Description Of Work, Including Specific Areas Of Work:

arrived to Job Site at 8:30 AM. Mobilized in equipment and supplies and prep the area in the firing range room to remove 20' of TSI. 11:40 started removal, 12:15 Hygenist came in inspected the removal and then we encapsulated. 12:30 - 1:00 took lunch. and then loaded the truck while waited for air results. 5:00 left the Job Site.

Travel Time / To the Project

Name	License No.	In	Out	Signature
Sergio Romero	001-3933	7:30 AM	8:30 AM	Sergio Romero

On-Site Time

Name	License No.	In	Out	Signature
Sergio Romero	001-3933	8:30	5:00	Sergio Romero
Juan C. Izaguirre	3755	8:30	5:00	Juan C. Izaguirre

Travel Time & Shop Waste Handling / From The Project

Name	License No.	In	Out	Signature
Sergio Romero	001-3933	5:00	5:45	Sergio Romero
Juan				

Waste Total	4 bags

Project Completion Sign Off

Client Name / Print	Client / Name Signature
Supervisor / Name	**Supervisor / Signature**
Sergio Romero	Sergio Romero

Name	Social Security No.	Medical Expiration	Fit Test Expiration	~~CP~~ RI License #	License Expiration	Worker (W) Supervisor (S)	Original Training Cert Expiration	Latest Refresher Expiration
1 Sergio D. Romero	542-40-5017	9-26-02	9-30-03	LAC-001-3933	6-30-04	S	7-19-02	9-25-03
2 Jose A. Ramirez	037-62-4343	8-19-03	8-20-03	LAC 3895	8-31-03	W	8-20-00	8-17-03
3 Juan C. Izaguirre	039-66-7009	2-12-04	10-7-03	LAC 3755	1-31-04	W		1-18-04
4								
5								
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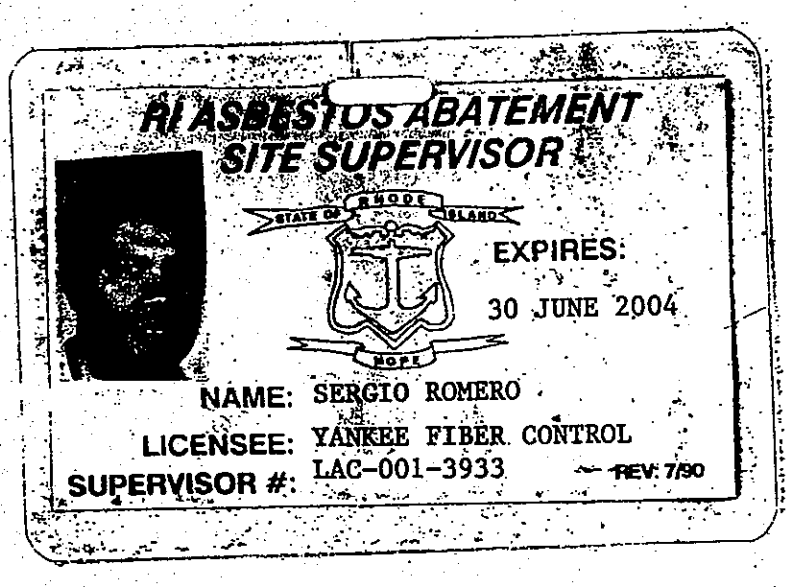
16								


RI ASBESTOS ABATEMENT
SITE SUPERVISOR
STATE OF RHODE ISLAND
HOPE
EXPIRES:
30 JUNE 2004
NAME: SERGIO ROMERO
LICENSEE: YANKEE FIBER CONTROL
SUPERVISOR #: LAC-001-3933
REV: 7/90

VORTEX

Environmental Training School

This is to certify that

SERGIO D. ROMERO

542-40-5017

has successfully completed the requisite training for asbestos accreditation under TSCA Title II.

"ANNUAL REVIEW" - ASBESTOS SUPERVISOR/CONTRACTOR (8 Hour)

9/24/02-9/25/02 Dates of Course	**CONES/MAP Approved** State Licenses	 Training Provider
9/25/03 Expiration Date	**9/25/02 92%** Exam Date/Score	**02774** Dedicated Certificate Number

3670 West Shore Road, Warwick, Rhode Island 02886 1-800-VORTEXX

OCEAN STATE
WORKPLACE HEALTH

Fitness and Surveillance Exam

EMPLOYEE Ramera, Sergio Social Security # 542-40-5017

COMPANY Yankee Fiber DATE of Exam 9/26/02

☒	*Placement/Fitness for Duty*	☑	*Asbestos*	☐	*Hazmat*
☐	*Drug Screen*	☐	*Deleading*	☐	*Periodic*

I have evaluated the above employee per *OSHA* and *ADA* requirements. In my professional opinion:

- ☒ **The physical findings and testing are acceptable for full duty.**
- ☐ **Not all findings are normal but employee is able to perform job duties.**
- ☐ **A medical condition was detected which may place the employee or others at risk.**
- ☐ **Further information is required before opinion can be rendered.**

Recommendations blood work is within normal limits

Restrictions _____

The employee has been informed of any medical findings which require further evaluation or treatment; for asbestos exams, the employee has been informed of the risks of smoking and asbestos exposure.

WORK STATUS ☒ **CLEARED for Duty** ☐ Work Restricted

DRUG SCREEN ☐ Negative ☐ Positive

NT Tsiongas MD

Nick Tsiongas, MD, MPH **Medical Director**

Date 9/26/02

Board-Certified in Occupational Medicine/Certified Independent Medical Examiner

407 East Avenue, Suite 200 Pawtucket, RI 02860
Telephone: (401) 721-9941 Fax: (401) 721-9942

YANKEE
FIBER CONTROL INC.

DOCUMENTATION OF RESPIRATOR FIT TEST
QUALITATIVE TEST

NAME: Sergio Romero

S.S.#: 542-405-017

COMPANY: Yankee Fiber Control, Inc.

LAST TESTED: N/A

DATE: 09/30/02

****

I, CERTIFY THAT I HAVE BEEN QUALITATIVELY FIT TESTED FOR PROPER RESPIRATOR FIT, AND THAT A SATISFACTORY SEAL WAS ACHEIVED IN ACCORDANCE WITH OSHA 29 CFR 1926.58 USING IRRITANT FUME PROTOCOL AND THE RAINBOOW PASSAGE VERSE.

RESPIRATOR MODEL: NORTH 7700 SERIES

SIGNATURE

****

I CERTIFY THAT I HAVE ADMINISTERED A QUALITATIVE FIT TEST TO THE ABOVE MENTIONED PERSON IN ACCORDANCE WITH OSHA 20 CFR 1926.58.

TEST CONDUCTOR:

Brian Castro
YANKEE FIBER CONTROL, INC.

RI ASBESTOS ABATEMENT WORKER LICENSE

STATE OF RHODE ISLAND

HOPE

EXPIRES: 31 JAN. 2004

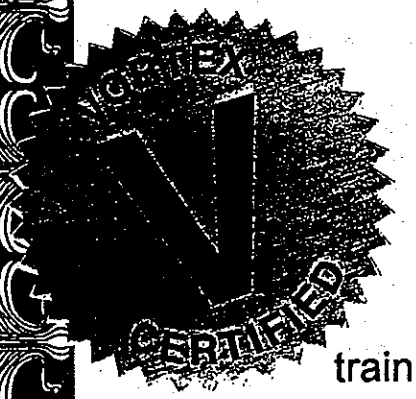
NAME: JUAN C. IZAGUIRRE

LICENSE #: LAW-3755

VORTEX

Environmental Training School

This is to certify that



JUAN IZAGUIRRE

has successfully completed the requisite
training for asbestos accreditation under TSCA Title II.

"REFRESHER" ASBESTOS WORKER
[8 HOURS] SPANISH LANGUAGE

1/18/03	CONES/MAP Approved	John Carlone
Dates of Course	States Licensed	Training Provider
1/18/04	1/18/03 - 96 %	03049
Expiration Date	Exam Date/Score	Dedicated Certificate Number

3670 West Shore Road, Warwick, R.I. 02886 1-800-VORTEXX

OCEAN STATE
WORKPLACE HEALTH

Fitness and Surveillance Exam

EMPLOYEE JUAN CARLOS IZAGUIRRE **Social Security #** 039-66-7009

COMPANY YANKEE FIBER **DATE of Exam** 02/12/03

☐ *Placement/Fitness for Duty*	☐ *Asbestos*	☐ *Hazmat*
☐ *Drug Screen*	☐ *Deleading*	☒ *Periodic*

I have evaluated the above employee per *OSHA* and *ADA* requirements. In my professional opinion:

☒ **The physical findings and testing are acceptable for full duty.**

☐ **Not all findings are normal but employee is able to perform job duties.**

☐ **A medical condition was detected which may place the employee or others at risk.**

☐ **Further information is required before opinion can be rendered.**

Recommendations _____

_____

Restrictions _____

_____

The employee has been informed of any medical findings which require further evaluation or treatment; for asbestos exams, the employee has been informed of the risks of smoking and asbestos exposure.

WORK STATUS ☒ **CLEARED for Duty** **DRUG SCREEN** ☐ **Negative**

☐ **Work Restricted** ☐ **Positive**

KNT MD

Nick Tsiongas, MD, MPH **Medical Director** **Date** 2/12/03

Board-Certified in Occupational Medicine/Certified Independent Medical Examiner

407 East Avenue, Suite 200 Pawtucket, RI 02860
Telephone: (401) 721-9941 Fax: (401) 721-9942

OCEAN STATE
WORKPLACE HEALTH
Certification for Respirator Use
29 CFR 1910.134

Employee's Name: JUAN CARLOS IZAGUIRRE

Social Security #: 039-66-7009

Company: YANKEE FIBER

Date of Exam: 02/12/03

Exam Location/
Company Branch: _____

I have examined the above named individual and I certify that this employee:

☒ is physically capable ☐ is not physically capable

of using a negative pressure, air supplied respirator and/or powered air purifying respirator subject to the following restrictions:

☒ Prescription eyeglasses/contact lenses* and beards cannot be worn with all types of respirators. Any interference with a face-to-face piece seal is not acceptable; contact lenses cannot be worn with any supplied air respirator.

☐ Respirator use should be limited to air supplied or powered air purifying respirators. (positive pressure)

☐ No respirator use if wheezing and shortness of breath are evident.

Comments: _____

_____

_____

_____

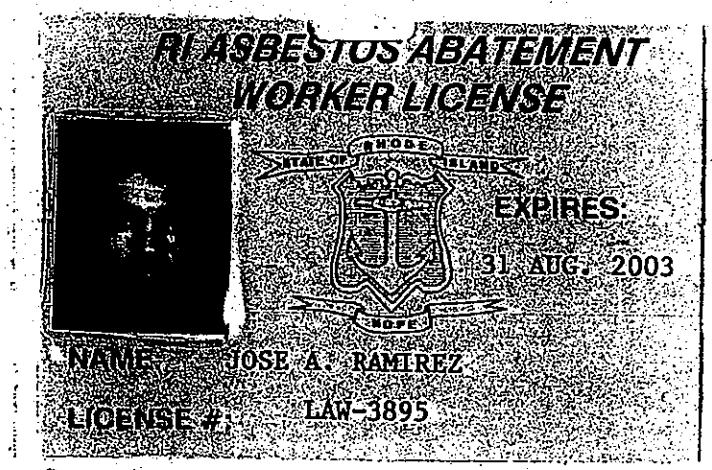
KNT MD — 2/12/03

Authorized Physician Signature — Date

*General safety recommendations indicate that contact lenses should not be worn in areas where there may be likelihood of chemical splashes.

Board-Certified in Occupational Medicine/Certified Independent Medical Examiner

407 East Avenue, Suite 200 Pawtucket, RI 02860
Telephone: (401) 721-9941 Fax: (401) 721-9942


RI ASBESTOS ABATEMENT
WORKER LICENSE
STATE OF RHODE ISLAND
HOPE
EXPIRES:
31 AUG 2003
NAME: JOSE A. RAMIREZ
LICENSE #: LAW-3895

LAWRENCE TRAINING SCHOOL, INC.

88 Franklin Street, Lawrence, MA 01841

Telephone: (978) 689-7370

This is to certify that

Jose Ramirez

has successfully completed the 8-hour course

Asbestos Refresher for Workers - Spanish

pursuant to the requirements for asbestos accreditation of the TSCA, Title II

AR0802-17-JR4343

Certificate Number

AUG 17, 2002

Dates of Training

AUG 17, 2002

Date of Examination

AUG 17, 2003

Expiration Date

Mario Becerra

President/Director of Training

OCEAN STATE
WORKPLACE HEALTH

Fitness and Surveillance Exam

EMPLOYEE Jose Ramirez Social Security # 037-62-4343

COMPANY Yankee Fiber DATE of Exam Aug 14 2002

☒ *Placement/Fitness for Duty* ☐ *Drug Screen*

☒ *Asbestos* ☒ *Deleading*

☐ *Hazmat* ☐ *Periodic*

I have evaluated the above employee per *OSHA* and *ADA* requirements. In my professional opinion:

☒ **The physical findings and testing are acceptable for full duty.**

☐ **Not all findings are normal but employee is able to perform job duties.**

☐ **A medical condition was detected which may place the employee or others at risk.**

☐ **Further information is required before opinion can be rendered.**

Recommendations Blood work is within normal limits

2 (+) = 24 [illegible]

Restrictions _____

The employee has been informed of any medical findings which require further evaluation or treatment; for asbestos exams, the employee has been informed of the risks of smoking and asbestos exposure.

WORK STATUS ☒ **CLEARED for Duty** ☐ **Work Restricted**

DRUG SCREEN ☐ Negative ☐ Positive

NT MD

Nick Tsiongas, MD, MPH **Medical Director**

8/14/02

Date

Board-Certified in Occupational Medicine/Certified Independent Medical Examiner

407 East Avenue, Suite 200 Pawtucket, RI 02860
Telephone: (401) 721-9941 Fax: (401) 721-9942

OCEAN STATE
WORKPLACE HEALTH
Certification for Respirator Use
29 CFR 1910.134

Employee's Name: Jose Ramirez
Social Security #: 037-62-4343
Company: Yankee Fiber
Date of Exam: Aug 14, 2002
Exam Location/ Company Branch: From State Workplace Health 407 East Ave Pawtucket RI 02860

I have examined the above named individual and I certify that this employee:

☒ is physically capable ☐ is not physically capable

of using a negative pressure, air supplied respirator and/or powered air purifying respirator subject to the following restrictions:

☐ Prescription eyeglasses/contact lenses* and beards cannot be worn with all types of respirators. Any interference with a face-to-face piece seal is not acceptable; contact lenses cannot be worn with any supplied air respirator.

☐ Respirator use should be limited to air supplied or powered air purifying respirators. (positive pressure)

☐ No respirator use if wheezing and shortness of breath are evident.

Comments: _____

KN T MD
Authorized Physician Signature

8/14/02
Date

*General safety recommendations indicate that contact lenses should not be worn in areas where there may be likelihood of chemical splashes.

Board-Certified in Occupational Medicine/Certified Independent Medical Examiner

407 East Avenue, Suite 200 Pawtucket, RI 02860
Telephone: (401) 721-9941 Fax: (401) 721-9942

MYSTIC AIR QUALITY CONSULTANTS

1204 North Road (Rt 117) Groton, Connecticut 06340

TELECOMMUNICATIONS 3/12/03
Office: 449-8903
Nights & Weekends: 860-464-2050
FAX: 860-449-8860
Toll Free: 1-800-247-7746

6696-03

THIRD PARTY SAMPLING—LAB RESULTS

ASBESTOS CONTRACTOR: Yankee Fiber Control | SITE ADDRESS: US Army Reserve 835 Sandy Lane RI

TYPE OF AIR SAMPLE (check): ☐ area ☑ personal ☐ final clearance

CONTAINMENT LOCATION: Firing Range

SAMPLED BY (print name): Sergio Romero (sign name): Sergio Romero

CASSETTE SIZE: 25 FILTER AREA: 380 mm² ROTOMETER#:

ANALYSIS METHOD: PCM-NIOSH 7400 A-RULES | circle (Legend) | MICROSCOPE FIELD AREA: 0.00785 | MICROSCOPE FACTOR: 48.4

LOG NUMBER	SAMPLE NUMBER	SAMP DATE	SAMPLE DATA (For personal samples use name & Social Security #)	Respirator (circle)	Work (circle)	TIME (minutes) Start	Stop	Total Min	PUMP FLOW RATE Liters/Min	SAMPLE VOLUME Liters	LAB RESULTS Fibers/Fields	FINAL RESULTS Fibers/CC	TIME WEIGHTED Average (8hr)
	01	03 04 03	Sergio Romero AS-001-3433 RI	(A) B C	A (B) C	835	11:00	145	2	290	39/100	0.065	0.020 (A) B
	02	03 04 03	OPen Blank	A B C	A B C						0/100		A B
	03	03 04 03	Blank.	A B C	A B C						0/100		A B
				A B C	A B C								A B
				A B C	A B C								A B
			BLANK										
			REPLICATE SAMPLE#										

QC DATA: Book Page Calculator

LEGEND:
Respirator Worn: A=neg press B=PAPR C=Type C Supplied
Work: A=Pre-cleaning/Set-up B= Removal C=Glovebag

AIHA CERTIFICATION: 484 Lab Certified for CT, MA, RI, NYS
Mystic Air Quality Lab meets AHERA 40 CFR 763.90 (i) (2) (ii) requirements

SIGNATURES:
Samples Collected By (enter above)
Samples Analyzed By Marlene Finch
Calculation QC'd By V. Williamson
Date of Sample Analysis 3/19/03

TWA Determination: A - unsampled time assumed to be zero exposure
B - unsampled time assumed to be the highest level detected during same sample period

MYSTIC AIR QUALITY CONSULTANTS

1204 North Road (Rt. 117) Groton, Connecticut 06340

TELECOMMUNICATIONS 3/12/03

Office: 860-449-8903
Nights & Weekends: 860-464-2050
FAX: 860-449-8860
Toll Free: 1-800-247-7746

6696.03

THIRD PARTY SAMPLING—LAB RESULTS

ASBESTOS CONTRACTOR: Yankee Fiber Control SITE ADDRESS: USAR Warwick, Pipe Insulation

TYPE OF AIR SAMPLE (check): ☐ area ☑ personal ☐ final clearance

CONTAINMENT LOCATION: Firing Range

SAMPLED BY (print name): Sergio Romero (sign name): Sergio Romero

CASSETTE SIZE: 25 FILTER AREA: 380 mm² ROTOMETER#:

ANALYSIS METHOD: PCM-NIOSH 7400 A-RULES circle (Legend) MICROSCOPE FIELD AREA: 0.00785 MICROSCOPE FACTOR: 48.4

LOG NUMBER	SAMPLE NUMBER	SAMP DATE	SAMPLE DATA (For personal samples use name & Social Security #)	Respirator (A B C)	Work (A B C)	TIME (minutes) Start	Stop	Total Min	PUMP FLOW RATE Liters/Min	SAMPLE VOLUME Liters	LAB RESULTS Fibers/Fields	FINAL RESULTS Fibers/CC	TIME WEIGHTED Average (8hr) A	B
	01	03 06 03	Juan C. Izaguirre AW 3755 RT	(A) B C	A B (C)	1140	1215	35	2 lm / 2.1	70 ✓	2/100	<0.069	✓	
	02	03 06 03	Open Blank	A B C	A B C						0/100			
	03	03 06 03	Blank	A B C	A B C						0/100			
				A B C	A B C									
				A B C	A B C									
				A B C	A B C									
			BLANK											
			REPLICATE SAMPLE#											

QC DATA: Book Page Calculator

LEGEND:
Respirator Worn: A=neg press B=PAPR C=Type C Supplied
Work: A=Pre-cleaning/Set-up B= Removal C=Glovebag

AIHA CERTIFICATION: 484 Lab Certified for CT, MA, RI, NYS
Mystic Air Quality Lab meets AHERA 40 CFR 763.90 (i) (2) (ii) requirements

SIGNATURES:
Samples Collected By (enter above) ✓
Samples Analyzed By [signature]
Calculation QC'd By [signature]
Date of Sample Analysis 3/19/03

TWA Determination: A - unsampled time assumed to be zero exposure B - unsampled time assumed to be the highest level detected during same sample period

CERTIFICATE OF ACHIEVEMENT

This certifies that

Jerry Hunt

has successfully completed the

8 Hour Asbestos Project Monitor Refresher Training

conducted by
ATC Associates Inc.
39 Spruce Street
East Longmeadow, MA 01028
(413) 525-1198

Edward Kolodziej
Principal Instructor

May 1, 2002
Date of Course

May 1, 2003
Expiration Date

Gregory J. Morach
Regional Manager

PMR-0357
Certificate Number

May 1, 2002
Examination Date

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH
PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS LICENSED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT - PROJECT MONITOR

LICENSE NO.
000466
CURRENT THROUGH
07/31/03
VALIDATION NO.
02-719463

JERRY E. HUNT

Jerry Hunt
SIGNATURE

COMMISSIONER/DEPT. OF PUBLIC HEALTH

APPENDIX D
Material Safety Data Sheets

ENFORCER Products, Inc.
P.O. Box 1060
Cartersville, GA 30120
1-888-805-HELP

Material Safety Data Sheet
AND SAFE HANDLING DISPOSAL INFORMATION

Section 1. Chemical Product and Company Identification

Product name	**All Purpose Cleaner & Degreaser**
Product Code	**HD0860-32/5G** **CN0860-32/5G**
Formula No.	**F0567**
Date of Issue	**03/20/02** **Version** 1.00
Emergency telephone number	For MSDS Information: Compliance Services, 404 352 1680 For a Medical Emergency: Toll Free INFOTRAC, 877 541 2016 (Calls Recorded) For a Transportation Emergency: Toll Free CHEMTREC, 800 424 9300 (Calls Recorded)
Prepared by	Acuity Specialty Products Group 1420 Seaboard Industrial Blvd. Atlanta, GA 30318

Section 2. Composition, Information on Ingredients

Name of Hazardous Ingredients	CAS #	% by Weight	Exposure Limits
1) OSHA's Hazard Communication Standard (29 CFR 1910.1200) does not require the listing of any ingredient for this product.			

Section 3. Hazards Identification

Acute Effects **Routes of Entry** Not applicable.

Eyes Slightly hazardous in case of eye contact (irritant).
Skin Non-irritant for skin.
Inhalation Exposure unlikely in this form.
Ingestion Non-hazardous in case of ingestion.

HMIS

[illegible]	1
[illegible] Hazard	0
	0
Personal Protection	B

Chronic Effects Repeated or prolonged exposure is not known to aggravate medical condition.
Carcinogenic Effects Ingredients: Not listed as carcinogen by OSHA, NTP or IARC.

See Toxicological Information (section 11)

Section 4. First Aid Measures

Eye Contact Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
Skin Contact Rinse with plenty of running water. Get medical attention if irritation develops.
Inhalation Exposure via inhalation is unlikely in this form.
Ingestion Do NOT induce vomiting unless directed to do so by medical personnel. If large quantities of this material are swallowed, call a physician immediately.

Section 5. Fire Fighting Measures

Flash Point Not applicable. **Flammable Limits** Not applicable.
Flammability Not applicable. **Fire Hazard** Not applicable.
Fire-Fighting Procedures Not applicable.

Section 6. Accidental Release Measures

Spill Clean up Absorb with an inert material and place in an appropriate waste disposal container.

Continued on Next Page

Section 7. Handling and Storage

Handling Do not ingest. Avoid contact with eyes.
Storage Keep container tightly closed. Store above 40°F and below 120°F.

Section 8. Exposure Controls, Personal Protection

Personal Protection

Eyes Safety glasses.
Body No special protection is required.
Respiratory Not applicable.

Protective Clothing (Pictograms)

Section 9. Physical and Chemical Properties

Physical State	Liquid.	**Color**	Green.
pH	9 - 9.5	**Odor**	Pleasant.
Boiling Point	Not available.	**Vapor Pressure**	Not available.
Specific Gravity	100 (Water = 1)	**Vapor Density**	Not available.
VOC (Consumer)	19 (g/l).	**Evaporation Rate**	Not available.
Solubility	Not available.		

Section 10. Stability and Reactivity

Stability and Reactivity The product is stable.
Incompatibility None identified.
Hazardous Decomposition Products Carbon oxides (CO, CO2) and organic materials
Hazardous Polymerization Will not occur.

Section 11. Toxicological Information

Toxicity to Animals Non-toxic.
Chronic Effects on Humans No evidence of risk in humans.

Section 12. Ecological Information

Ecotoxicity Not available.
Biodegradable/OECD Not available.

Section 13. Disposal Considerations

Waste Information Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste Stream N/A
Consult your local or regional authorities.

Section 14. Transport Information

Proper shipping name Not applicable.
DOT Classification Not a DOT controlled material (United States).
UN number Not regulated.

TDG Classification Not available.

Section 15. Regulatory Information

U.S. Federal Regulations SARA 313 toxic chemical notification and release reporting: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

State Regulations California prop. 65: No products were found.

WHMIS (Canada) Not controlled under WHMIS (Canada).

Section 16. Other Information

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Heavy Metal Cleaning Solution (HMCS-101)

(Catalog # RP-104)

General Information - Application Information - MSDS

I Product: HEAVY METAL CLEANING SOLUTION (HMCS-101)	
Description: Clear Liquid Manufacturer: **Chemical Solutions Int'l. Corp.** **P.O. Box 891185** **Houston, TX 77289-1185**	Date Prepared: July 2000. Emergency Telephone No. **(281) 992-3031** **(800) 424-4804** E-mail: jimarnold@chemicalsolutionsintl.com Home Page: www.chemicalsolutionsintl.com

II Health Hazard Data:

Health Hazards (Acute & Chronic)
EYES: May cause discomfort.
SKIN: Concentrate will dry out and chap sensitive skin as would detergent.
INHALATION of fumes may upset stomach.

SIGNS & SYMPTOMS OF EXPOSURE:

EYES:Redness, tearing, blurred vision.
SKIN: Dryness, redness, chapping.
INGESTION may cause vomiting.

FIRST AID: EYES: Flush 15 minutes with water.
SKIN: Wash with soap and water.
INHALATION: Move to fresh air. Apply artificial respiration if breathing has stopped.
INGESTION: Do not induce vomiting. If any irritation persists, seek medical atttention.

III Precautions for Safe Handling & Use:

If material is spilled, remove leaking package to safe area. Flush with water.
Disposal: Any approved method for dilute cleaner.
Surfactants are highly biodegradable.

IV Physical Data:

pH.....10

V Hazardous Ingredients:

Hg Cleaning Solutions is a proprietary formulation which contains small amounts of minerals and organics.
This product should be handled accordingly.
Complies with OSHA 29 CFR XVIII-1910.1200 Section (I) "Trade Secrets"
Contains no hazardous components under current OSHA definitions.

VI Special Protection & Precautions:

Hygienic Practices: Wash after each shift. Remove and wash contaminated clothing before re-used.
Work Practices: Wear goggles or face shield. Rubber gloves.
Other Protective Clothing: Long sleeved shirt buttoned at neck is desirable. Rubber boots.

VII Reactivity Data:

Stable under normal use and storage conditions.
Incompatible with strong oxidizing agents.
Hazardous decomposition or byproducts - oxides of carbon.

VIII Fire & Explosion Data:

Flash Point/Method Used..... None/COC.

IX Control Measures:

Solubility in water.....100% Boiling Point..... 212°F Vapor Pressure/Density..... Same as water Evaporation Rate (Butyl Acetate=1).....<1 Appearance & Odor: Clear liquid with medium viscosity and synthetic cleaner odor. Specific Gravity..... 1.06	Respiratory Protection: Not Necessary. Ventilation: Local Exhaust/Desirable. Mechanical/Helpful in congested areas. (Complies with OSHA 174, Sep. 1985.)

HMIS CODE: Health 1 Flammability 0 Reactivity 0 Personal Protection B

Back to Main Catalog

Material Safety Data Sheet

Issue Date: March 20, 1991; Revisions: Rev 1: 01/01/94; Rev 2: 05/01/97; Rev 3: 06/09/97, Rev 4: 01/28/98; Rev 5: 09/22/00; Rev 6: 01/29/02

Product Name: D-Lead® Equipment Cleaner

Product Code #: 3102ES

Product Information: (414) 962-5323
Manufacturer: ESCA Tech, Inc.
3747 North Booth Street
Milwaukee, WI 53212
Fax: (414) 962-7003

Transportation Emergency Phone:
1-800-535-5053 Info Trac
(24 hours, during transportation only)

email: eti@execpc.com

Section 1: Material Identification

Proper Shipping Name:	(49 CFR 172.101) Compound, Cleaning Liquid, N.O.S.	
D.O.T. Hazard Name:	(49 CFR 172.101) None	
D.O.T. ID No.:	Same as above	
D.O.T. Hazard Class:	Same as above	
RCRA Hazard Class:	(40 CFR 261) (As Received) None	
E.P.A. Priority Pollutants:	(40 CFR 401.15) None	
Generic Description:	Liquid, concentrated alkaline detergent	
NFPA: None	Health (NFPA): N.A.	Flammability (NFPA): N.A.
Reactivity (NFPA): N.A.	CAS No.: Mixture	OSHA Subpart Z. No
OSHA 1910.119: No	SARA Title III, Sec.312; 313; 372: Yes	TPQ: No
Reportable Quantity: None	State Lists: None	Proposition 65: No
Reproductive Hazard: No	Carcinogen: No	WHMIS (Canada): No
Extremely Hazardous Substances List: No		

Section 2: Ingredients and Hazards

Hazardous Ingredients

Ingredient CAS Number	Max %	SARA applies			Air contaminant levels			Skin Agent
	w/w	312	313	372	TWA/TLV (ppm)	STIEL (ppm)	CEILING (ppm)	
Ethylene Glycol Monobutyl Ether (CAS#: 111-76-2)	4.8	Y	Y	Y	25	None	None	OSHA - Y ACGIH - Y

Other Recommended Limits: None ♦ Contains: Nonionic surfactants, complexing alkali and builders. Does not contain EDTA, chelates, phosphates, stearates, solvents, free alkalies, abrasives, citrates, tartrates, or acetates. Contains 2.0 % silicates. All ingredients are listed with EPA TSCA Inventory of Chemical Substances.

Section 3: Physical Data

Boiling Point:	208° F
Vapor Pressure:	17mm Hg.
Vapor Density (Air = 1):	>1, same as water
Melting Point:	28° F, -2° C
Specific Gravity (H_2O = 1):	1.033 (8.60 lbs./gal.)
Evaporation Rate (Butyl Acetate = 1):	0.36, (Slower)
Solubility in Water:	Infinite
Appearance and Odor:	Purple liquid, moderately viscous, characteristic odor
pH:	11.5 to 11.8 - undiluted; 10.5 at a 4:1 dilution with water

Section 4: Fire and Explosion Hazard Data

Flash Point (method used): NA ◆ Flammable Limits: Material will not burn ◆ LEL: NA ◆ UEL: NA ◆ Extinguishing Media: Material is not flammable ◆ Special Fire Procedures: None ◆ Unusual Hazards: None Material will not support combustion.

Section 5: Reactivity Data

Stable/Unstable: Stable ◆ Conditions to Avoid: Do not mix with other chemicals ◆ Hazardous Decomposition/Byproducts: Thermal decomposition may produce carbon monoxide ◆ Hazardous Polymerization: Will not occur ◆ Incompatibility: Strong oxidizing agent such as bleach. Should not be mixed with other chemicals.

Section 6: Health Hazard Data

Routes of entry:	Ingestion possible. No inhalation normally. Eye contact possible if splashed.
Acute/Chronic Health Effects:	**INHALATION:** Does not generate vapors at normal temperatures of use. **SKIN:** May defat the skin. **INGESTION:** Nausea, dizziness, fatigue.
Carcinogenicity:	None known. NTP? No IARC Monographs? No OSHA Regulated? No
Signs/Symptoms of Exposure:	SKIN: De-fatting of the skin. EYES: Burning. ORAL: Nausea, dizziness, fatigue.
Emergency and First Aid:	SKIN: Remove from source. Rinse with water. Treat as a caustic burn. EYES: Flush thoroughly with cool water for 15 minutes, lifting lids. Get medical attention. Treat as a caustic burn. INHALATION: Remove to fresh air. ORAL: Do not induce vomiting, keep quiet, get medical attention immediately. Treat as alkaline detergent.
Medical Condition Generally Aggravated by Exposure:	None known.

Section 7: Spill, Leak, and Disposal Procedures

Steps to be Taken in Case Material is Released or Spilled: Stop leak at source. Small spills can be mopped up, and floor rinsed with water. For large spills, stop leak at source and absorb onto inert medium for disposal. Collect in an approved container. Material is an alkaline detergent, do not release to streams, lakes, storm sewer, etc. ◆ Waste Disposal Method: According to all local, state and federal regulations.

Section 8: Special Protection Information

Respiratory Protection: None required ◆ Ventilation: Not needed ◆ Protective Gloves: Neoprene, nitrile, natural rubber or PVC ◆ Eye Protection: Chemical safety goggles or faceshield ◆ Other Protective Clothing or Equipment: Eye wash and safety shower, impervious clothing ◆ Work/Hygienic Practices: Wash with soap and water. Discard contaminated clothing according to state or EPA regulations.

Section 9: Special Precautions and Comments

Storage Requirements: Store above 32°F. Keep from freezing. If frozen, product should thaw without adverse effects. Product may appear cloudy. Keep out of extreme heat. Generally stored at temperatures between 40° and 90°F, out of direct sunlight. Heat buildup will cause product to cloud and separate irreversibly.

Comments: Product has a shelf life of 9-12 months. Keep containers tightly closed when not in use. Keep out of reach of children. For professional use only. After use, solution will contain dissolved and suspended heavy metals along with fats, oils and greases. Discharge waste water in accordance with all applicable local, state and federal regulations and in accordance with all water discharge permits.

D:\My Documents\Sales\SOAP EQUIPMM\SDS\Equip5 .pd

APPENDIX E
Inspection and Clearance Sampling Report, Eagle Environmental, Inc., May 13, 2003

EAGLE ENVIRONMENTAL, INC.

INDOOR FIRING RANGE INSPECTION AND CLEARANCE SAMPLING
FOR

SSGT LLOYD S. COOPER USARC
885 SANDY LANE
WARWICK, RHODE ISLAND

PROVIDED TO

SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC.
11499 CHESTER ROAD
CINCINNATI, OHIO 45246-4012

PROVIDED BY

EAGLE ENVIRONMENTAL, INC.
481 NORTH MAIN STREET
BRISTOL, CONNECTICUT

MAY 13, 2003

EAGLE PROJECT NO.03-086.12

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

EAGLE ENVIRONMENTAL, INC.

May 13, 2003

Mr. William Scoville, PE
Shaw Environmental & Infrastructure, Inc.
11499 Chester Road
Cincinnati, OH 45246-4012

RE: Indoor Firing Range Inspection and Clearance Sampling
SSGT Lloyd S. Cooper USARC
885 Sandy Lane
Warwick, RI
Eagle Project No. 03-086.12

Dear Mr. Scoville:

Attached is the report for the indoor firing range inspection and clearance sampling performed at the above referenced site. Please call me directly if you have any questions regarding the contents of this report.

Sincerely,

Eagle Environmental, Inc.

Peter J. Folino
Vice President

P:\Templates\Lbp\ShawFiringRanges.doc

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

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481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

INTRODUCTION

On April 23, 2003, Eagle Environmental, Inc. conducted a post abatement visual examination and clearance dust wipe sampling within the indoor firing range located at the SSGT Lloyd S. Cooper USARC, 885 Sandy Lane, Warwick, RI. The visual examination and clearance dust wipe sampling was completed following the lead decontamination work associated with the decommissioning of the firing range.

The visual examination and dust wipe sampling was performed by Peter J. Folino; a State of Connecticut licensed Lead Inspector/Risk Assessor (Connecticut license # 000102).

DISCUSSION

The indoor firing range located at the SSGT Lloyd S. Cooper USARC contains four (4) firing points. The firing range is located off of the main corridor on the ground level of the building.

Visual Examination

The visual examination was conducted following the completion of cleaning activities. The intent of the visual examination is to evaluate if the lead hazard control work was completed as required and to determine if visible settled dust or debris was present.

The visual examination included a surface-by-surface examination of the firing range. The walls, ceilings, floors and miscellaneous horizontal surfaces were examined for settled dust and or debris.

Clearance Sampling

Following the visual examination, single-surface clearance lead dust wipe samples were collected. Sampling surface areas were pre-determined in the Scope of Work. The specific sampling locations for each surface were determined by the Inspector in the field. One (1) unused blank wipe was submitted with the batch of samples. Two quality control spike samples with known lead concentrations were also submitted with the batch of samples. The spike samples were submitted in a manner as not to reveal the sample identity. The intent of the clearance dust sampling was to evaluate if lead dust levels exceeded the clearance criteria specified in the Scope of Work.

Single surface dust wipes were collected following ASTM's Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Absorption Spectrometry (AAS) Techniques (E 1728). Wipe materials utilized on this project complied with ASTM's Standard Specification for Wipe Sampling Materials for Lead in Surface Dust (E 1792).

The clearance dust wipe samples were analyzed by EnviroData Group of Lexington, KY utilizing the EPA SW-846 Method 6010B. Laboratory results are reported in micrograms per square foot (ug/ft2).

CONCLUSION

Visual Examination

Minor areas of settled dust were observed during the visual examination. The areas included on top of the ceiling mounted Heating, Ventilation, and Air Condition (HVAC) unit located at the rear of the range, on top of the wood furring strips suspended from the black ceiling bar joists, within the floor expansion joint, on top of the electrical panel box cover, and on the bullet trap floor. Less than one square foot of settled dust was observed in a localized area of the bullet trap floor. Eagle Environmental recommends further cleaning of these areas.

The hazardous lead waste was present inside the range at the time of the visual examination. The waste was properly containerized in 55-gallon steel drums with locking ring top lids. The drums contained the required hazardous waste accumulation start date stickers and Department of Transportation (DOT) labeling.

Clearance Dust Wipe Sampling

A total of twenty-three (23) dust wipes, including one (1) blank and two (2) spikes were submitted to the laboratory for analysis. All clearance dust wipe results were below the specified criteria of 200 ug/ft2. Spike #1(Eagle sample # 94RIWAR03APR23020DT) had a known lead concentration of 192 ug. The laboratory result for this sample was 178 ug with a 93% recovery. Spike #2 (Eagle sample # 94RIWAR03APR23022DT) had a known lead concentration of 49 ug. The laboratory result for this sample was 42 ug with an 86% recovery.

APPENDIX A
VISUAL CLEARANCE FORM

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

Visual Clearance Form

Installation SSGT Lloyd S. Cooper USARC Army POC Bob GAGNON
Building Address or Location 885 SAWOY LANE WARWICK, RI
Range Unit No. _____

Date Cleanup Completed 4/10/03 Time Cleanup Completed 1700 Date and Time Inspection Initiated 4/23/03 - 9:30

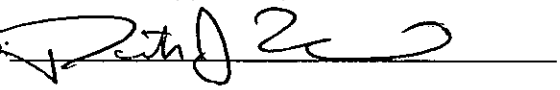
Lead Hazard Control Contractor Name IT CORPORATION
Address 11499 Chester Rd
Cincinnati, OH 45246
Telephone No. 513-782-4700

Location within Range	Work Completed? (yes/no)	Visible Dust Seen? (yes/no)	More Work Required? (yes/no)	Comments
Firing Line Floor	YES	NO	NO	
Floor between Firing Line and Bullet Trap	YES	NO	NO	
Bullet Trap Floor	YES	YES	YES	FRONT LEFT FLOOR
Ceiling	YES	NO	NO	
Sidewalls	YES	SEE Comments	YES	Top of ELECTRICAL PANEL
Front Wall	YES	NO	NO	
Back Wall	YES	NO	NO	
Ventilation System	YES	NO	NO	Exhaust Fan SEALED
HVAC UNIT-	NO	YES	YES	CLEAN RESIDUAL DUST
EXPANSION JOINT	YES	YES	YES	CLEAN DEBRIS
Furring Strips- REAR	NO	YES	YES	CLEAN RESIDUAL DUST

Does range venting discharge to soil? ✓ Yes ___ No
Was contaminated soil removed? ___ Yes ✓ No
Is additional soil treatment required? ___ Yes ✓ No

Other Comments: DECONTAMINATE RESIDUAL DUST FROM IDENTIFIED LOCATIONS

Name of Clearance Examiner (print) PETER J. FOLINO
Certification Title and License Number Connecticut LEAD Inspector/Risk Assessor #000102
(EPA, State, or both, if applicable)

Signature:  Date April 23, 2003

APPENDIX B
CLEARANCE DUST WIPE LABORATORY RESULTS

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034

Dust Sampling Form

Installation SSGT Lloyd S. Cooper USARC Army POC Bob Gagnon

Building Address or Location 885 Sandy Lane Warwick, RI

Range Unit No. _____

Date Cleanup Completed 4/10/03 Time Cleanup Completed 1700 Date and Time Sampling Initiated 4/23/03 - 445 Am

Clearance Categories:

1. Interior treatment without containment
2. Interior treatment with containment
3. Exterior work (including soil)
4. Routine Maintenance

Sample No.	Sample Location	Clearance Category No.	Sample Area Dimensions	Sample Area (ft^2)	Lab Results ($\mu g/ft^2$)*	Pass or Fail
001	FIRING LINE - Floor	1	12" x 12"	144	~~89.9~~ 90	PASS
002	MID RANGE - FLOOR	1	12" x 12"	144	~~45.7~~ 46	
003	BULLET TRAP - Firing Line Fl	1	12" x 12"	144	103	
004	BULLET TRAP - WALL SIDE - Fl	1	12" x 12"	144	143	
005	CEILING	2	12" x 12"	144	<2.5	
006	CEILING	2	12" x 12"	144	<2.5 ~~630~~	
007	CEILING	2	12" x 12"	144	<2.5 ~~11.5~~	
008	SIDE WALL LEFT - Bullet Trap	2	12" x 12"	144	<2.5	
009	SIDE WALL LEFT	2	12" x 12"	144	<2.5 ~~<1.0~~	
010	SIDE WALL LEFT	2	12" x 12"	144	<2.5 ~~<1.0~~	
011	SIDE WALL RIGHT Bullet Trap	2	12" x 12"	144	5.25	
012	SIDE WALL RIGHT	2	12" x 12"	144	6.33	
013	SIDE WALL RIGHT	2	12" x 12"	144	6.35	
014	FRONT WALL	2	12" x 12"	144	<2.5 ~~<1.0~~	
015	Front wall	2	12" x 12"	144	8.88	
016	Front wall	2	12" x 12"	144	<2.5	
017	BACK WALL	2	12" x 12"	144	<2.5	
018	BACK WALL	2	12" x 12"	144	<2.5	
019	BACK WALL	2	12" x 12"	144	<1.0	
020	SPIKE I 06033	NA	12" x 12"	144	178	—
021	FLOOR OUTSIDE RANGE	NA	12" x 12"	144	16 ~~15.7~~	P
022	SPIKE II 16849	NA	12" x 12"	144	42	—
023	Unknown	NA	12" x 12"	144	<2.5 ~~<1.0~~	—

Comments * Corrected data results to match EnviroData results

6/5/03

Date of Sample Collection April 23, 2003 Date Shipped to Lab April 23, 2003

(Attach a Copy of the Chain of Custody to this Form)

Name of Lab and Phone No. EnviroData Group

Name of Clearance Examiner (print) Peter J. Folino

Certification Title and License Number (EPA, State, or both, if applicable) Lead Inspector / Risk Assessor # 000102 (Connecticut)

Signature: _____ Date April 23, 2003

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Road
Lexington, KY 40503-2921
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
Email: info@envirodatagroup.com
www.envirodatagroup.com

May 8, 2003

Mr. Peter Folino
Eagle Environmental, Inc.
481 North Main Street
Unit 11
Bristol, CT 06010

RE: Data Package and Narrative
COC 20374

Dear Mr. Folino:

Enclosed is the case narrative, which summarizes any issues encountered with the analyses for the samples referenced below.

General

EnviroData Group (EDG) received twenty-three (23) samples on April 24, 2003. The samples were received at 25 °C and intact. The temperature of the samples was measured upon receipt and was noted on the Chain of Custody Form #20374.

The individual client sample ID and laboratory sample number cross-reference list is provided, as follows:

EnviroData Group Lab Number	Client Sample ID
207302	94RIWAR03APR23001DT
207303	94RIWAR03APR23002DT
207304	94RIWAR03APR23003DT
207305	94RIWAR03APR23004DT
207306	94RIWAR03APR23005DT
207307	94RIWAR03APR23006DT
207308	94RIWAR03APR23007DT
207309	94RIWAR03APR23008DT
207310	94RIWAR03APR23009DT
207311	94RIWAR03APR23010DT
207312	94RIWAR03APR23011DT
207313	94RIWAR03APR23012DT

207314	94RIWAR03APR23013DT
207315	94RIWAR03APR23014DT
207316	94RIWAR03APR23015DT
207317	94RIWAR03APR23016DT
207318	94RIWAR03APR23017DT
207319	94RIWAR03APR23018DT
207320	94RIWAR03APR23019DT
207321	94RIWAR03APR23020DT
207322	94RIWAR03APR23021DT
207327	94RIWAR03APR23022DT
207328	94RIWAR03APR23023DT

Metals- Lead

Samples 207302-207322 and 207327-207328 were analyzed for total lead by method SW6010B on 05/05/2003.

Instrument Calibration: The calibration criteria were within the corresponding QC limits.

Initial Calibration Verification (ICV): The ICV was within the corresponding QC limits for all project analytes.

Initial Calibration Blanks (ICB): The ICBS were below the corresponding reporting limits for all project analytes.

ICS A/ICS AB: The ICS A and AB at the beginning and end of the run were within acceptable limits.

Continuing Calibration Verification (CCV): All CCVs were within the corresponding QC limits for all project analytes.

Continuing Calibration Blanks (CCB): All CCBs were within the corresponding QC limits for all project analytes.

Method Blank (MB): No target analyte was detected in method blank samples.

Laboratory Control Sample (LCS): The LCS percent recoveries were within the corresponding QC limits for all project analytes.

Matrix Spike/Matrix Spike Duplicate (MS/MSD): The MS/MSD samples' percent recoveries and relative percent difference were within LCG limits for all project analytes from prep batch 6642. Percent recoveries were low for prep batch 6641 while the relative percent difference for this batch was acceptable. Since the post digestion spike sample from this prep batch was within acceptable limits, a matrix effect was confirmed and no further action was taken.

Post Digestion Spike (PDS): The PDS percent recoveries were within the corresponding LCG limits for all prep batches.

If you have any questions regarding the enclosed information, please contact Lisa Sexton at (859) 276-3506 extension 57.

Sincerely,

Lisa Sexton
Project Manager

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Rd
Lexington, KY 4050
Phone: 859-276-350
Toll Free: 800-489-350
Fax: 859-278-566
E-mail: info@envirodatagroup.com

Analytical Results

Eagle Environmental, Inc.
Attn: Mr. Peter Folino
481 North Main Street
Unit 11
Bristol, CT 06010

cc:

Project Name: Warwick USARC
Project Number: 03.086.12
Chain of Custody: 20374

Date Received: 04/24/2003 Collector: Client Temperature Received: 25
Project Manager: Lisa Sexton

	Result	Units	Client Limit	RL	Qualifiers	Analyzed/Analyst	Extracted
Laboratory Sample #: 207302 Client Sample ID: 94RIWAR03APR23001DT						Sampled: 04/23/2003 10:00	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**90**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207303 Client Sample ID: 94RIWAR03APR23002DT						Sampled: 04/23/2003 10:03	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**46**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207304 Client Sample ID: 94RIWAR03APR23003DT						Sampled: 04/23/2003 10:06	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**103**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207305 Client Sample ID: 94RIWAR03APR23004DT						Sampled: 04/23/2003 10:07	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**143**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207306 Client Sample ID: 94RIWAR03APR23005DT						Sampled: 04/23/2003 10:12	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207307 Client Sample ID: 94RIWAR03APR23006DT						Sampled: 04/23/2003 10:15	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003

Results reported on a Wet Weight Basis

Printed: 05/07/2003

EnviroData Group

Chain of Custody: 20374
Project Name: Warwick USARC
Project Number: 03.086.12

	Result	Units	Client Limit	RL	Qualifier	Analyzed/Analyst	Extracted
Laboratory Sample #: 207308 Client Sample ID: 94RIWAR03APR23007DT						Sampled: 04/23/2003 10:18	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207309 Client Sample ID: 94RIWAR03APR23008DT						Sampled: 04/23/2003 10:21	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207310 Client Sample ID: 94RIWAR03APR23009DT						Sampled: 04/23/2003 10:24	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207311 Client Sample ID: 94RIWAR03APR23010DT						Sampled: 04/23/2003 10:25	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207312 Client Sample ID: 94RIWAR03APR23011DT						Sampled: 04/23/2003 10:28	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**5.25**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207313 Client Sample ID: 94RIWAR03APR23012DT						Sampled: 04/23/2003 10:31	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**6.33**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207314 Client Sample ID: 94RIWAR03APR23013DT						Sampled: 04/23/2003 10:32	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**6.35**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207315 Client Sample ID: 94RIWAR03APR23014DT						Sampled: 04/23/2003 10:35	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207316 Client Sample ID: 94RIWAR03APR23015DT						Sampled: 04/23/2003 10:38	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**8.88**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207317 Client Sample ID: 94RIWAR03APR23016DT						Sampled: 04/23/2003 10:41	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003

EnviroData Group

Chain of Custody: 20374
Project Name: Warwick USARC
Project Number: 03.086.12

	Result	Units	Client Limit	RL	Qualifier	Analyzed/Analyst	Extracted
Laboratory Sample #: 207318 Client Sample ID: 94RIWAR03APR23017DT						Sampled: 04/23/2003 10:44	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207319 Client Sample ID: 94RIWAR03APR23018DT						Sampled: 04/23/2003 10:47	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207320 Client Sample ID: 94RIWAR03APR23019DT						Sampled: 04/23/2003 10:50	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207321 Client Sample ID: 94RIWAR03APR23020DT						Sampled: 04/23/2003 10:50	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**178**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207322 Client Sample ID: 94RIWAR03APR23021DT						Sampled: 04/23/2003 10:53	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**16**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207327 Client Sample ID: 94RIWAR03APR23022DT						Sampled: 04/23/2003 10:53	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**42**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003
Laboratory Sample #: 207328 Client Sample ID: 94RIWAR03APR23023DT						Sampled: 04/23/2003 10:53	
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		05/05/2003 / TNT	04/29/2003

EnviroData Group

Chain of Custody: 20374
Project Name: Warwick USARC
Project Number: 03.086.12

	Result	Units	Client Limit	RL	Qualifier	Analyzed/Analyst	Extracted

All samples were received intact and properly preserved unless otherwise noted.
The results reported relate only to the samples tested.
This report shall not be reproduced except in full, without written approval of this laboratory.

Submitted by:

Project Manager: Lisa Sexton

Lab# E87286

ACCREDITED
Lab#: 100343

Specific tests covered by A2LA and NELAC accreditations are listed in each Scope of Accreditation.

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Rd.
Lexington, KY 40503
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
E-mail: info@envirodatagroup.com

Data Qualifiers

Qualifier	Description
A	E. coli Present.
A'	E. coli absent.
B	Analyte detected in associated Method Blank.
C	Sample Result confirmed.
D	Results reported from dilution.
E	Analyte concentration exceeds calibration range.
F	Unable to analyze due to sample matrix interference.
H	Sample was received or analyzed past the established holding time.
J	Estimated concentration.
K	Sample contained lighter hydrocarbon fractions.
L	Sample contained heavier hydrocarbon fractions.
M	Matrix Spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Presumptive evidence of analyte present.
O	Sample hydrocarbon pattern does not match calibration standard pattern.
P	Percent difference between primary and secondary column concentrations exceeds acceptance limit.
Q	Laboratory Control Sample outside acceptance limits.
R	Data unusable.
S	Surrogate outside acceptance limits on initial and reanalysis.
S'	Surrogates diluted below detection.
T	Sample received improperly preserved.
U	Analyte not detected.
W	Raised Quantitation or Reporting Limit due to limited sample volume.
Y	Replicate/Duplicate precision outside acceptance limits.
Z'	Calibration criteria exceeded but for this situation acceptable by method.
Z	Calibration criteria exceeded.
M'	Result from Method of Standard Additions (MSA).
Q'	LCS/LCD analyzed due to insufficient sample for MS/MSD.

The uncertainty of analytical results can be calculated using the following equation:

$$n = t^*s/1.414$$

where

t=12.706 (Students t value for 95% confidence interval of two replicates)
s= standard deviation of sample and duplicate data
1.414 is square root of the number of replicates (two)

COC # 20374 — CHAIN OF CUSTODY — 207302-22; 27-28 — Page of

Client: Shaw Environmental
Project Name: Warwick U.S.A.R.C.
Project #: 03.086.12 Acct #:
Quote #: P.O. #:
Project Contact: Pete Folino
Phone #: 860-589-8257
Collected By: Peter J. Folino #000102
Landfill License #: / PWS ID #:

Shipped Via: (Fed-Ex) / UPS / Courier / CTI
Airbill #:
COC Seal #:

Turnaround Time:
10-Day / 5-Day / 3-Day / (24-Hours) / Other
Date / Time Needed: 4/25/03 pm
QC Level:
I II III IV
EDD: Yes / No

EnviroData Group
2520 Regency Road, Lexington, KY 40503-2421
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
email: info@envirodatagroup.com

Mail Report To: Pete Folino
Company: Eagle Environmental
Address: 481 North Main St.
City/State/Zip: Bristol, CT 06010
Invoice To:
Company: Eagle Environmental
Address: 481 North Main St.
City/State/Zip: Bristol, CT 06010

* Matrix
A - Air
DW - Drinking Water
GW - Groundwater
L - Liquid
SE - Sediment
S - Soil
LS - Liquid Sludge
ST - Stormwater
SS - Solid Sludge
SU - Surface Water
WW - Wastewater
W - Water
O-Other:

* * Preservation Type

Requested Analyses: EPA SW-846 Method 6010B

* * Preservation Code
AA - Ascrobic Acid
AC - NH_4Cl
E - EnCore®
HA - HCl
M - Methanol
NA - HNO_3
SA - H_2SO_4
SH - NaOH
SS - Na_2SO_3
ST - $Na_2S_2O_3$
ZA - Zinc Acetate
O - Other:

Sample I.D.	Location	Collection Date	Collection Time	Sample Matrix	Grab / Comp.	Fil'd Y/N	# of Containers Per Analysis	EDG Lab #	Comments
94RIWARO3APR23 001 DT	Firing line - Floor	4/23/03	AM 10:00	wipe	Grab	N	1	207302	
94RIWARO3APR23 002 DT	Mid Range - Floor	4/23/03	AM 10:03	wipe	Grab	N	1	207303	
94RIWARO3APR23 003 DT	Bullet Trap - Firing line side Floor	4/23/03	AM 10:06	wipe	Grab	N	1	207304	
94RIWARO2APR23 004 DT	Bullet Trap - Wall side Floor	4/23/03	AM 10:09	wipe	Grab	N	1	207305	
94RIWARO3APR23 005 DT	Ceiling - Mid range	4/23/03	AM 10:12	wipe	Grab	N	1	207306	
94RIWARO3APR23 006 DT	Ceiling - Fire line	4/23/03	AM 10:15	wipe	Grab	N	1	207307	
94RIWARO3APR23 007 DT	Ceiling - rear Area	4/23/03	AM 10:18	wipe	Grab	N	1	207308	
94RIWARO3APR23 008 DT	Side wall left Bullet trap	4/23/03	AM 10:21	wipe	Grab	N	1	207309	
94RIWARO3APR23 009 DT	Side wall left Bullet trap	4/23/03	AM 10:24	wipe	Grab	N	1	207310	
94RIWARO3APR23 010 DT	Sidewall left Bullet trap	4/23/03	AM 10:25	wipe	Grab	N	1	207311	

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time
	4/23/03		
Fed Ex	4/24/03 1120		4/24/03 1120

Properly Preserved: (Yes / No) Headspace: (Yes / No)
COC Seals Intact: (Yes / No / NA) Bottles Intact: (Yes / No)
Temp. Upon Receipt (°C): 25° By: JCF
Field Document Attached: (Yes / No)

White Copy - Original (Accompanies Samples) — Yellow Copy - Lab — Pink Copy - Other — Golden Rod - Client

COC # 20374

CHAIN OF CUSTODY

207302-22,27-28 of

Client: SHAW Environmental

Project Name: Warwick U.S.A.R.C.

Project #: 03.086.12 Acct #:

Quote #: P.O. #:

Project Contact: Pete Folino

Phone #: 860-589-8257

Collected By: Peter J. Folino #000102

Landfill License #: / PWS ID #:

Shipped Via: (Fed-Ex) / UPS / Courier / CTI

Airbill #:

COC Seal #:

Turnaround Time:

10-Day / 5-Day / 3-Day / (24-Hours) / Other

Date / Time Needed: 4/25/03 PM

QC Level:

I II III IV

EDD: Yes / No

EnviroData Group

2520 Regency Road, Lexington, KY 40503-2421

Phone: 859-276-3506

Toll Free: 800-489-3506

Fax: 859-278-5665

email: info@envirodatagroup.com

Mail Report To: Pete Folino

Company: Eagle Environmental

Address: 481 North Main St.

City/State/Zip: Bristol, CT 06010

Invoice To:

Company: Eagle Environmental

Address: 481 North Main St.

City/State/Zip: Bristol, CT 06010

* Matrix

A - Air
DW - Drinking Water
GW - Groundwater
L - Liquid
SE - Sediment
S - Soil
LS - Liquid Sludge
ST - Stormwater
SS - Solid Sludge
SU - Surface Water
WW - Wastewater
W - Water
O-Other:

* * Preservation Type

Requested Analyses

EPA SW-846 Method 6010B

* * Preservation Code

AA - Ascrobic Acid
AC - NH_4Cl
E - EnCore®
HA - HCl
M - Methanol
NA - HNO_3
SA - H_2SO_4
SH - NaOH
SS - Na_2SO_3
ST - $Na_2S_2O_3$
ZA - Zinc Acetate
O - Other:

Sample I.D.	Location	Collection Date	Collection Time	Sample Matrix	Grab / Comp	Fild Y/N	# of Containers Per Analysis	EDG Lab #	Comments
94RIWAR03APR23 011 DT	Sidewall Right Bullet Trap	4/23/03	AM 10:28	wipe	Grab	N	1	207312	
94RIWAR03APR23 012 DT	Sidewall Right Bullet Trap	4/23/03	AM 10:31	wipe	Grab	N	1	207313	
94RIWAR03APR23 013 DT	Sidewall Right Bullet Trap	4/23/03	AM 10:32	wipe	Grab	N	1	207314	
94RIWAR03APR23 014 DT	Frontwall	4/23/03	AM 10:35	wipe	Grab	N	1	207315	
94RIWAR03APR23 015 DT	Frontwall	4/23/03	AM 10:38	wipe	Grab	N	1	207316	
94RIWAR03APR23 016 DT	Frontwall	4/23/03	AM 10:41	wipe	Grab	N	1	207317	
94RIWAR03APR23 017 DT	Backwall	4/23/03	AM 10:44	wipe	Grab	N	1	207318	
94RIWAR03APR23 018 DT	Backwall	4/23/03	AM 10:47	wipe	Grab	N	1	207319	
94RIWAR03APR23 019 DT	Backwall	4/23/03	AM 10:50	wipe	Grab	N	1	207320	
94RIWAR03APR23 020 DT	SPIKE I	4/23/03	AM 10:50	wipe	Grab	N	1	207321	

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time
	4/23/03		
Fed Ex	4/24/03 1120		4/24/03 1120

Properly Preserved : (Yes / No) Headspace : (Yes / No)

COC Seals Intact : (Yes / No / NA) Bottles Intact : (Yes / No)

Temp. Upon Receipt (°C) : 25° By: JCF

Field Document Attached : (Yes / No)

White Copy - Original (Accompanies Samples) Yellow Copy - Lab Pink Copy - Other Golden Rod - Client

COC # 20374 — CHAIN OF CUSTODY — 207302-22,22-28 — Page ___ of ___

Client: Shaw Environmental
Project Name: Warwick U.S.A.R.C.
Project #: 03.086.12 Acct #:
Quote #: P.O. #:
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Phone #: 860-589-8257
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Airbill #:
COC Seal #:

Turnaround Time:
10-Day / 5-Day / 3-Day / (24-Hours) / Other
Date / Time Needed: 4/25/03 pm
QC Level:
I / II / III / IV
EDD: Yes / No

EnviroData Group
2520 Regency Road, Lexington, KY 40503-2421
Phone: 859-276-3506
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email: info@envirodatagroup.com

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Company: Eagle Environmental
Address: 481 North Main St.
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Invoice To:
Company: Eagle Environmental
Address: 481 North Main St.
City/State/Zip: Bristol, CT 06010

* Matrix: A - Air; DW - Drinking Water; GW - Groundwater; L - Liquid; SE - Sediment; S - Soil; LS - Liquid Sludge; ST - Stormwater; SS - Solid Sludge; SU - Surface Water; WW - Wastewater; W - Water; O-Other: ___

* * Preservation Type

Requested Analyses: EPA SW-846 Method 6010B

* * Preservation Code: AA - Ascrobic Acid; AC - NH_4Cl; E - EnCore®; HA - HCl; M - Methanol; NA - HNO_3; SA - H_2SO_4; SH - NaOH; SS - Na_2SO_3; ST - $Na_2S_2O_3$; ZA - Zinc Acetate; O - Other: ___

Sample I.D.	Location	Collection Date	Collection Time	Sample *Matrix	Grab / Comp.	Fil'd Y/N	# of Containers Per Analysis	EDG Lab #	Comments
94RIWAR03APR23 021 DT	Floor Outside Range	4/23/03	10:53	wipe	Grab	N	1	207322	
94RIWAR03APR23 022 DT	SPIKE II	4/23/03	10:53	wipe	Grab	N	1	207327	
94RIWAR03APR23 023 DT	~~unknown~~ Blank	4/23/03	10:53	wipe	Grab	N	1	207328	
94RIWAR03APR23 DT		4/23/03		wipe	Grab	N	1		
94RIWAR03APR23 DT		4/23/03		wipe	Grab	N	1		
94RIWAR03APR23 DT		4/23/03		wipe	Grab	N	1		
94RIWAR03APR23 DT		4/23/03		wipe	Grab	N	1		
94RIWAR03APR23 DT		4/23/03		wipe	Grab	N	1		
94RIWAR03APR23 DT		4/23/03		wipe	Grab	N	1		
94RIWAR03APR23 DT		4/23/03		wipe	Grab	N	1		

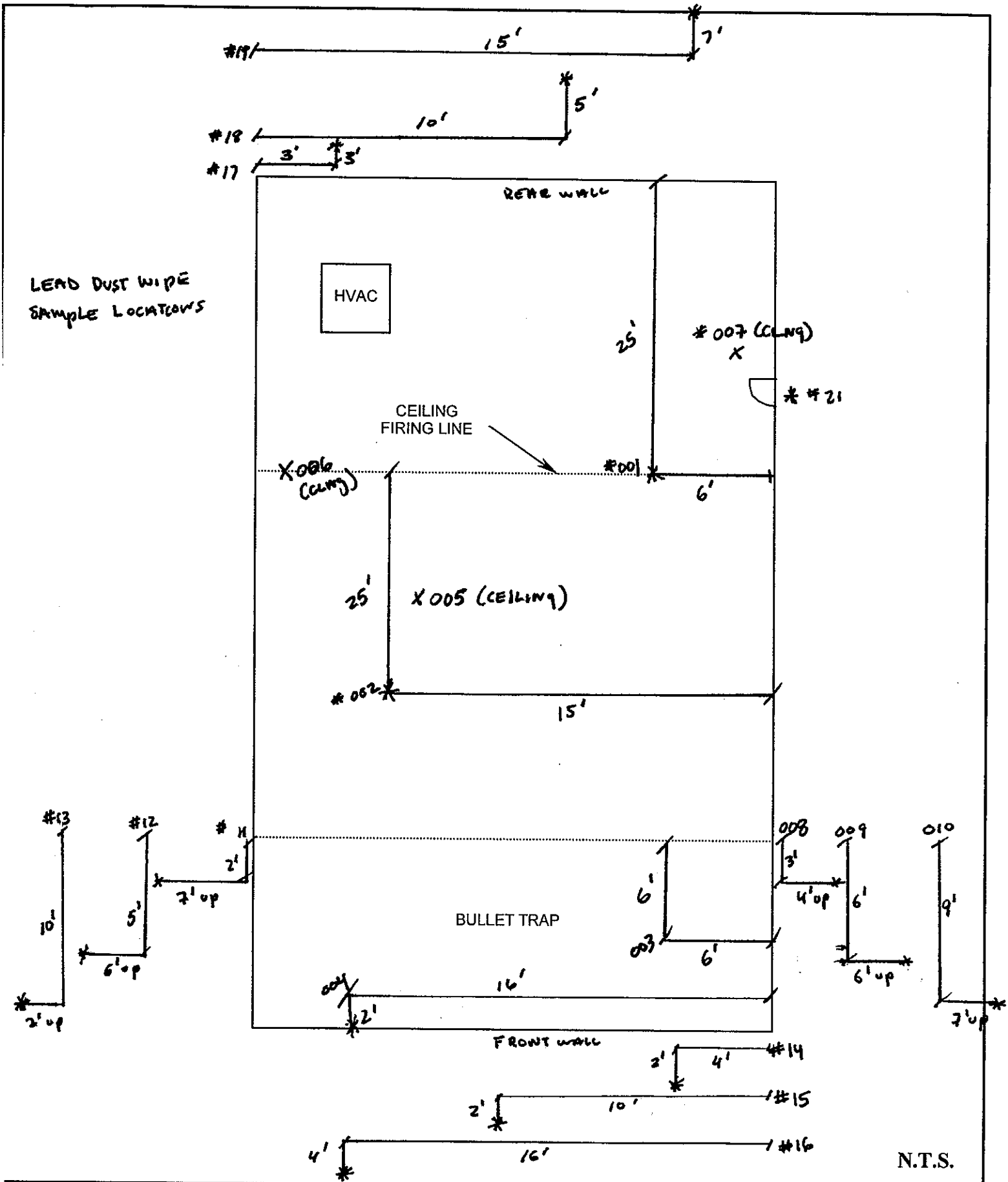
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time
	4/23/03		
Fed Ex	4/24/03 1120		4/24/03 1120

Properly Preserved: (Yes / No) Headspace: (Yes / No)
COC Seals Intact: (Yes / No / NA) Bottles Intact: (Yes / No)
Temp. Upon Receipt (°C): 25 By: JCF
Field Document Attached: (Yes / No)

White Copy - Original (Accompanies Samples) Yellow Copy - Lab Pink Copy - Other Golden Rod - Client

APPENDIX C
CLEARANCE DUST WIPE SAMPLE LOCATIONS

481 NORTH MAIN STREET • UNIT 11 • BRISTOL, CT 06010
PHONE (860) 589-8257 • FAX (860) 585-7034



EAGLE ENVIRONMENTAL, INC. 481 NORTH MAIN STREET BRISTOL, CONNECTICUT 06010 Phone: (860) 589-8257	885 SANDY LANE WARWICK, RHODE ISLAND	**FP1** 4/28/03 | 03-086.12

CERT# L-600 - 525

CHEMSCOPE TRAINING DIVISION

LEAD INSPECTOR/RISK ASSESSOR REFRESHER

8 HOUR TRAINING CERTIFICATE

Peter Folino

481 North Main Street Unit #11, Bristol CT

045-76-5283

Has attended an 8 hour course on the subject discipline on

02/05/03 and has passed a written and hands on skills examination.

The above individual has successfully completed the above training course approved in accordance with the Department of Public Health Standards established pursuant to Section 20-477 of the Connecticut General Statutes.

Course syllabus includes all required topics of State of Connecticut DPH and EPA.

Examination Date: 02/05/03

Expiration Date: 02/05/04

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (U.S.C. 1001 and 15 U.S.C. 2615), I certify that this training complies with all applicable requirements of Title IV of TSCA, 40 CFR part 745 and any other applicable Federal, State, or local requirements.

Ronald D. Arena
Training Director

CHEMSCOPE, INC.
15 Moulthrop Street
North Haven Ct 06473
(203) 865-5605

© GOES 340

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

LEAD INSPECTOR RISK ASSESSOR

CERTIFICATION NO.
000102
CURRENT THROUGH
05/31/03
VALIDATION NO.
02-691250

PETER J. FOLINO

SIGNATURE

COMMISSIONER, DEPT. OF PUBLIC HEALTH

APPENDIX F
Aggressive Air Sampling Analytical Results

PSC ANALYTICAL SERVICES

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

EPA PA-00136 NJ DEP PA020 AIHA ACCREDITATION NO 100439
PA DEP 06-353 CT DPH PH-0238 NC DENR 599
NY DOH/NELAP accredited lab ID# 10903

4418 Pottsville Pike Reading, PA 19605
(Tel) 610-921-8833 (Fax) 610-921-9667

May 22, 2003

Bill Scoville
Shaw Environmental Infrastructure
11499 Chester Road
Cincinnati, OH 45246

TEL: (513) 782-4964
FAX (513) 782-4663

RE: Warwick - RI, 3272001 Order No.: R03050453

Dear Bill Scoville:

PSC Analytical Services received 4 samples on 5/16/03 9:20:00 AM for the analyses presented in the following Certificate of Analytical Results.

The analyses and all data for associated QC met regulatory and/or laboratory specifications. Exceptions will be noted in an enclosed Case Narrative.

The results on the attached Certificate of Analytical results relate only to items tested or to the samples as received by the laboratory. This Certificate of Analytical Results shall not be reproduced, except in full, without the written approval of PSC Analytical, Reading, PA.

Please note that any unused portion of the samples will be disposed of 30 days following issuance of report, unless you have requested otherwise.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Fred Usbeck
Manager, CIH

PSC ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA 19605
(Tel) 610-921-8833 (Fax) 610-921-9667

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

EPA PA-00136 NJ DEP PA020 AIHA ACCREDITATION NO 100439
PA DEP 06-353 CT DPH PH-0238 NC DENR 599
NY DOH/NELAP accredited lab ID# 10903

Certificate of Analytical Results
for
Shaw Environmental Infrastructure

WorkOrder: R03050453

Client Reference: Warwick - RI, 3272001

Analyte	Concentration (ug)	Concentration (mg/m³)	Concentration (ppm)	Limit of Detection (ug)	Test Method	Date Analyzed /Analyst
Client ID: 001AR, 94RIWAR03MAY14	**Lab ID:** -01A	**Date Sampled:** 5/14/03		**Matrix:** Filter		**Air Vol.(L):** 2400
Lead	<0.300	<0.000125	--	0.3	N7300 MCE	05/21/2003 JDC
Client ID: 002AR, 94RIWAR03MAY14	**Lab ID:** -02A	**Date Sampled:** 5/14/03		**Matrix:** Filter		**Air Vol.(L):** 2600
Lead	<0.300	<0.000115	--	0.3	N7300 MCE	05/21/2003 JDC
Client ID: 003AR, 94RIWAR03MAY14	**Lab ID:** -03A	**Date Sampled:** 5/14/03		**Matrix:** Filter		**Air Vol.(L):** 2600
Lead	<0.300	<0.000115	--	0.3	N7300 MCE	05/21/2003 JDC
Client ID: 004AR, 94RIWAR03MAY14	**Lab ID:** -04A	**Date Sampled:** 5/14/03		**Matrix:** Filter		**Air Vol.(L):** 2800
Lead	<0.300	<0.000107	--	0.3	N7300 MCE	05/21/2003 JDC

General Notes:
<: Less than the indicated limit of detection (LOD).
--: Information not available or not applicable.
Concentrations are calculated based on air volumes provided by the client

the igroup

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No. 566680
Page 1 of 1 R03050453

Project Name/No.[1] WARWICK - RI
Sample Team Members[2] K-BAUM
Profit Center No.[3] 3272001
Project Manager[4] Bill Scoville
Purchase Order No.[6] 840829
Required Report Date[11] 5/20/03

Samples Shipment Date[7] 5-14-03
Lab Destination[8] PSC
Lab Contact[9] Solum
Project Contact/Phone[12] Bill Scoville 513-782-4964
Carrier/Waybill No.[13] UPS.

Bill to:[5] SHAW. E & I
312 DIRECTORS DR.
KNOXVILLE TN. 37923

Report to:[10] SHAW E & I
11499 CHESTER RD
CINCINNATI, OH 45246
ATTN: Bill Scoville

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Pre-servative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
94 RI WAR 03 MAY 14 001 AR	AIR	5-14-03 14:15	CASSETTE	0.25 m3 AIR	MA	Lead-NIOSH 7300		
94 RI WAR 03 MAY 14 002 AR	AIR	5-14-03 14:28	CASSETTE	0.26 m3	"		FOR LAB USE ONLY	
94 RI WAR 03 MAY 14 003 AR	AIR	5-14-03 14:20	CASSETTE	0.26 m3	"			
94 RI WAR 03 MAY 14 004 AR.	AIR	5-14-03 14:30	CASSETTE	0.26 m3	"			
							FOR LAB USE ONLY	

Special Instructions:[23]

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25]
Return to Client ☐ Disposal by Lab ☑ Archive _____ (mos.)

Turnaround Time Required:[26]
Normal ☐ Rush ☒ 48 hr TAT

QC Level:[27]
I. ☐ II. ☐ III. ☐ Project Specific (specify): _____

1. Relinquished by[28] (Signature/Affiliation)	Date: 5-14-03 Time:	1. Received by[28] (Signature/Affiliation)	Date: 5/14/03 Time: 1200
2. Relinquished by (Signature/Affiliation)	Date: 5/14/03 Time: 1200	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: 5.16.03 Time: 0920

Comments:[29] FAX DATA TO Bill SCOVILLE 513-782-4663

MCA 3/15/91

White: To accompany samples
Yellow: Field copy
*See back of form for special instructions.

PSC Analytical Services

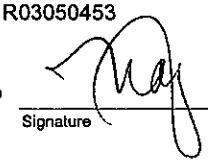
Sample Receipt Checklist

Client Name SHAW_FINDLAY

Date and Time Receive 5/16/2003 9:20:00 AM

Work Order Numbe R03050453

Received by NAG

Checklist completed b  5/16/03
Signature | Date

Reviewed by DK 5.19.03
Initials | Date

Matrix

Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Presen ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Presen ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Presen ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	

Adjusted? _____ Checked b _____

Any No and/or NA (not applicable) response must be detailed in the comments section b

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

APPENDIX G
Post-floor Sealing Wipe Sampling Analytical Results
EnviroData Group
July 3, 2003

Dust Sampling Form

Installation WARWICK, RI RI008 Army POC WARWICK RI

Building Address or Location 885 SAWY LANE

Range Unit No. _____

Date Cleanup Completed _____ Time Cleanup Completed _____ Date and Time Sampling Initiated 6/5/03

Clearance Categories:

1. Interior treatment without containment
2. Interior treatment with containment
3. Exterior work (including soil)
4. Routine Maintenance

Sample No.	Sample Location	Clearance Category No.	Sample Area Dimensions	Sample Area (ft^2)	Lab Results ($\mu g/ft^2$)	Pass or Fail
1RIWARO3JUNK 001 DT	BULLET TRAP WALLSIDE		12X12"	(1) ONE		
002 DT	BULLET TRAP FIRINGSIDE		↓	↓		
003 DT	MID RANGE					
004 DT	FIRING LINE					

Comments _____

Date of Sample Collection 6/5/03 Date Shipped to Lab 6/6/03

(Attach a Copy of the Chain of Custody to this Form) Original chain w/ Brockton

Name of Lab and Phone No. EnviroData

Name of Clearance Examiner (print) Kevin Cote

Certification Title and License Number (EPA, State, or both, if applicable) —

Signature: _____ Date 6/5/03

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Road
Lexington, KY 40503-2921
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
Email: info@envirodatagroup.com
www.envirodatagroup.com

July 3, 2003

Mr. Bill Scoville
Shaw Environmental & Infrastructure
11499 Chester Road
Cincinnati, OH 45246

RE: Data Package and Narrative
Project: 840830
COC 21448

Dear Mr. Scoville:

Enclosed is the case narrative, which summarizes any issues encountered with the analyses for the samples referenced below.

General

EnviroData Group (EDG) received eleven (11) samples on June 9, 2003. The samples were received at 24 °C and intact. The temperature of the samples was measured upon receipt and was noted on the Chain of Custody Form #21448.

The individual client sample ID and laboratory sample number cross-reference list is provided, as follows:

EnviroData Group Lab Number	Client Sample ID
220899	94MABRO03JUNE001DT
220900	94MABRO03JUNE002DT
220901	94MABRO03JUNE003DT
220902	94MABRO03JUNE004DT
220903	94MABRO03JUNE005DT
220904	94RIWAR03JUNE001DT
220905	94RIWAR03JUNE002DT
220906	94RIWAR03JUNE003DT
220907	94RIWAR03JUNE004DT
220908	94MABRO03JUNE006DT
220909	94MABRO03JUNE007DT

Metals- Lead

Samples 220899-220909 were analyzed for total lead by method SW6010B on 06/19/2003.

Instrument Calibration: The calibration criteria were within the corresponding QC limits.

Initial Calibration Verification (ICV): The ICV was within the corresponding QC limits for all project analytes.

Initial Calibration Blanks (ICB): The ICB was below the corresponding reporting limits for all project analytes.

ICS A/ICS AB: The ICS A and AB at the beginning and end of the run were within acceptable limits.

Continuing Calibration Verification (CCV): All CCVs were within the corresponding QC limits for all project analytes.

Continuing Calibration Blanks (CCB): All CCBs were within the corresponding QC limits for all project analytes.

Method Blank (MB): No target analyte was detected in method blank samples.

Laboratory Control Sample (LCS): The LCS percent recovery was within the corresponding QC limits for all project analytes.

Matrix Spike/Matrix Spike Duplicate (MS/MSD): The MS/MSD samples' percent recoveries and relative percent difference were within LCG limits for all project analytes.

Post Digestion Spike (PDS): The PDS percent recoveries were outside the corresponding LCG limits for all prep batches. Since the MS/MSD and LCS were within range, no further action was taken.

If you have any questions regarding the enclosed information, please contact Lisa Sexton at (859) 276-3506 ext. 57.

Sincerely,
EnviroData Group

Lisa Sexton
Project Manager

Cc:
Dr. Maqsud Rahman
Shaw Environmental & Infrastructure
11499 Chester Road
Cincinnati, OH 45246

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Rd
Lexington, KY 40503
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
E-mail: info@envirodatagroup.com

Analytical Results

Shaw Environmental & Infrastructure, Inc.
Attn: Mr. Bill Scoville
11499 Chester Road
Cincinnati, OH 45246

Project Name: Brockton & Warwick
Project Number: 840830
Chain of Custody: 21448

cc:

Date Received: 06/09/2003 Collector: Client Temperature Received: 24
Project Manager: Lisa Sexton

	Result	Units	Client Limit	RL	Qualifiers	Analyzed/Analyst	Extracted
Laboratory Sample #: 220899 Client Sample ID: 94MABR003JUNE001DT						Sampled: 06/05/2003 10:40	
Client Sample #:							
ICP TOTAL	**Method: SW6010B**					**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220900 Client Sample ID: 94MABR003JUNE002DT						Sampled: 06/05/2003 10:45	
Client Sample #:							
ICP TOTAL	**Method: SW6010B**					**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220901 Client Sample ID: 94MABR003JUNE003DT						Sampled: 06/05/2003 10:55	
Client Sample #:							
ICP TOTAL	**Method: SW6010B**					**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220902 Client Sample ID: 94MABR003JUNE004DT						Sampled: 06/05/2003 11:00	
Client Sample #:							
ICP TOTAL	**Method: SW6010B**					**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220903 Client Sample ID: 94MABR003JUNE005DT						Sampled: 06/05/2003 11:05	
Client Sample #:							
ICP TOTAL	**Method: SW6010B**					**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220904 Client Sample ID: 94RIWAR03JUNE001DT						Sampled: 06/05/2003 12:40	
Client Sample #:							
ICP TOTAL	**Method: SW6010B**					**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220905 Client Sample ID: 94RIWAR03JUNE002DT						Sampled: 06/05/2003 12:45	
Client Sample #:							

Results reported on a Wet Weight Basis

	Result	Units	Client Limit	RL	Qualifier	Analyzed/Analyst	Extracted
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**< 2.50**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220906 Client Sample ID: 94RIWAR03JUNE003DT Sampled: 06/05/2003 12:50							
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**4.51**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220907 Client Sample ID: 94RIWAR03JUNE004DT Sampled: 06/05/2003 12:55							
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**6.75**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220908 Client Sample ID: 94MABR003JUNE006DT Sampled: 06/05/2003 11:05							
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**57**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003
Laboratory Sample #: 220909 Client Sample ID: 94MABR003JUNE007DT Sampled: 06/05/2003 11:05							
Client Sample #:							
ICP TOTAL		**Method: SW6010B**				**Prep. Method: SW 3050B**	
Total Lead	**196**	ug/Wipe	N/A	2.50		06/19/2003 / TNT	06/17/2003

All samples were received intact and properly preserved unless otherwise noted.
The results reported relate only to the samples tested.
This report shall not be reproduced except in full, without written approval of this laboratory.

ACCREDITED IN ACCORDANCE WITH nelac
Lab# E87286

A2LA ACCREDITED
Lab#: 100343

Submitted by: Lisa Sexton
Project Manager: Lisa Sexton

Specific tests covered by A2LA and NELAC accreditations are listed in each Scope of Accreditation.

EnviroData Group
Accredited Lab Data for Today's Environment

2520 Regency Rd.
Lexington, KY 40503
Phone: 859-276-3506
Toll Free: 800-489-3506
Fax: 859-278-5665
E-mail: info@envirodatagroup.com

Data Qualifiers

Qualifier	Description
A	E. coli Present.
A'	E. coli absent.
B	Analyte detected in associated Method Blank.
C	Sample Result confirmed.
D	Results reported from dilution.
E	Analyte concentration exceeds calibration range.
F	Unable to analyze due to sample matrix interference.
H	Sample was received or analyzed past the established holding time.
J	Estimated concentration.
K	Sample contained lighter hydrocarbon fractions.
L	Sample contained heavier hydrocarbon fractions.
M	Matrix Spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Presumptive evidence of analyte present.
O	Sample hydrocarbon pattern does not match calibration standard pattern.
P	Percent difference between primary and secondary column concentrations exceeds acceptance limit.
Q	Laboratory Control Sample outside acceptance limits.
R	Data unusable.
S	Surrogate outside acceptance limits on initial and reanalysis.
S'	Surrogates diluted below detection.
T	Sample received improperly preserved.
U	Analyte not detected.
W	Raised Quantitation or Reporting Limit due to limited sample volume.
Y	Replicate/Duplicate precision outside acceptance limits.
Z'	Calibration criteria exceeded but for this situation acceptable by method.
Z	Calibration criteria exceeded.
M'	Result from Method of Standard Additions (MSA).
Q'	LCS/LCD analyzed due to insufficient sample for MS/MSD.

The uncertainty of analytical results can be calculated using the following equation:

$$n = t^*s/1.414$$

where

t=12.706 (Students t value for 95% confidence interval of two replicates)
s= standard deviation of sample and duplicate data
1.414 is square root of the number of replicates (two)

Chain-of-Custody Record

220899-909
CoC 21448

~~375 Paramount Drive~~
~~Raynham, MA 02767~~

~~TEL: (508) 822-9300~~
~~FAX: (508) 822-3288~~

PAGE 1 OF 1

COMPANY INFORMATION	COMPANY'S PROJECT INFORMATION	SHIPPING INFORMATION
Name: Bill Scoville	Regulatory Protocol: LCG	Carrier: UPS
Address: 11499 Chester RD Cincinnati, OH 45246	For the State of: —	Airbill Number: ~~1Z0W881A2210000033~~
Telephone: (513) 782-4964	Project Name: Brockton & Warwick	Date Shipped: 6/5/03
Facsimile: 513-782-4663	Project Number: 840830	Quote #:
Contact Name: Bill Scoville	P.O. # 840830	
	Sampler Name(s): Kevin Cote	

(TAT IS IN BUSINESS DAYS) (IF OTHER NOTE BELOW)
CIRCLE TAT: 10 Day 5 Day 3 Day 48 Hr 24 Hr Other

SAMPLE CONTAINERS (NOTE 4)

	PRESERVATIVE	CONTAINER TYPE	VOLUME
	N/A	P	4oz

WHG LAB #	SAMPLE ID (NOTE 1)	COLLECTION DATE	COLLECTION TIME	COMPOSITE OR GRAB	MATRIX	ANALYSIS/REMARKS (NOTES 2, 3)	SAMPLER(S) INTIALS	NUMBER OF CONTAINERS
	94MABR003JUNE001DT	6/5	10:40	G	DT (DUST)	LEAD / 6010B	KC	1
	94MABR003JUNE002DT	6/5/03	10:45					1
	94MABR003JUNE003DT		10:55					1
	94MABR003JUNE004DT		11:00					1
	94MABR003JUNE005DT		11:05					1
	94RIWAR03JUNE001DT		12:40					1
	94RIWAR03JUNE002DT		12:45					1
	94RIWAR03JUNE003DT		12:50					1
	94RIWAR03JUNE004DT		12:55					1
	94MABR003JUNE006DT	6/5/03	11:05					1
	94MABR003JUNE007DT	6/5/03	11:05					1

Relinquished by: (signature)	DATE	TIME	Received by: (signature)
	6/5/03	13:30	6/6/03
Relinquished by: (signature)	DATE	TIME	Received by: (signature)
	6/6/03	1600	
Relinquished by: (signature)	DATE	TIME	Received for Laboratory by: (signature)
UPS	6/9/03	920	24

NOTES TO SAMPLER(S): (1) Limit Sample Identification to 6 characters, if possible; (2) Indicate designated Lab Q.C. sample and type (e.g.; MS/MSD/REP) and provide sufficient sample; (3) Field duplicates are separate sample; (4) e.g.; 40ml/glass/H_2SO_4

Notes to Lab:
LAB = EnviroDat Group
Contact = Lisa Sexton
Normal TAT

APPENDIX H
Waste Characterization Analytical Results

COMPLETE ENVIRONMENTAL TESTING, INC.

80 Lupes Drive
Stratford, CT 06615

Tel: (203) 377-9984
Fax: (203) 377-9952
e-mail: cet@cetlabs.com

July 29, 2002

Mr. Kevin Hayes
Diversified Technology Corp.
556 Washington Ave.
North Haven, CT 06473-1121

Project: New England
Project #: 01-607-101
CET #: 02070797
Soil: NHCT-1; PRI-1; RMA-1; WMA-1; WRI-1
Collection Date(s): 7/16/02; 7/22/02; 7/23/02; 7/25/02
Solid: CCDBMA-1; CCDBMA-2; CCDNHCT-1; CCDNRI-1; CCDPRI-1; CCDPRI-2; CCDRMA-1; CCDWMA-1; CCDWRI-1
Collection Date(s): 7/16/02; 7/22/02; 7/23/02; 7/25/02

PREP ANALYSIS:

TCLP, Metals [EPA 1311]

	CCDNHCT-1	NHCT-1	CCDPRI-1	CCDPRI-2	PRI-1	CCDWRI-1
TCLP, Metals	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]

TCLP, Metals [EPA 1311]

	WRI-1	CCDNRI-1	CCDRMA-1	RMA-1	CCDBMA-1	CCDBMA-2
TCLP, Metals	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]	Completed [7/27/02]

TCLP, Metals [EPA 1311]

	CCDWMA-1	WMA-1
TCLP, Metals	Completed [7/27/02]	Completed [7/27/02]

NOTES:
[] Indicates Date Prep Test Completed; ND is Not Detected.

Project#: 01-607-101
Cet#: 02070797
Project New England

July 29, 2002

ANALYSIS:

TCLP Metals [EPA 6010] Units: mg/l Analysis Date: 7/29/02

	CCDNHCT-1	NHCT-1	CCDPRI-1	CCDPRI-2	PRI-1	CCDWRI-1
Lead	0.32	1900	0.018	71	2500	0.40

TCLP Metals [EPA 6010] Units: mg/l Analysis Date: 7/29/02

	WRI-1	CCDNRI-1	CCDRMA-1	RMA-1	CCDBMA-1	CCDBMA-2
Lead	320	0.18	0.028	1900	0.042	12

TCLP Metals [EPA 6010] Units: mg/l Analysis Date: 7/29/02

	CCDWMA-1	WMA-1
Lead	0.073	3500

Sincerely,

David Ditta
Laboratory Director

Notes:
[ ]Indicates Date Prep Test Completed; ND is Not Detected.

PAGE 03 3/4

CET

COMPLETE ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY

80 Lupes Drive
Stratford, CT 06615
Tel (203) 377-9984
FAX (203) 377-9952

COMPANY NAME AND ADDRESS

DTC
556 WASHINGTON AVE
NORTH HAVEN, CT 06473

REPORT TO:	PROJECT #:	PROJECT LOCATION:	PURCHASE ORDER #:	SAMPLED BY:
Kevin Hayes	01-607-101	New England		Kevin Hayes

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
KPH	7/26	10:37	[illegible]	7-26	1037
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME

SAMPLE #	SAMPLE LOCATION	DATE	TIME	SAMPLE MATRIX	PRIORITY YES / NO	# OF CONTAINERS	ANALYSIS REQUIRED: TCLP Lead
CCDNHCT-1	New Haven, CT	7/25/02		Solid	NO	1	X
NHCT-1	New Haven, CT	7/25/02		Soil	NO	1	X
CCDPRI-1	Providence RI	7/24/02		Solid	No	1	X
CCDPRI-2	"	"		"	"	"	X
PRI-1	"	"		Soil	"	"	X
CCDWAT-1	Warwick, RI	"		Solid	"	"	X
WRI-1	"	"		Soil	"	"	X
CCDNRI-1	Narragansett RI	"		Solid	"	"	X
CCDRMA-1	Roslindale MA	7/23/02		Solid	"	"	X

SPECIAL INSTRUCTIONS

COMMENTS

COMPLETE AND LEGIBLE

7055-10-007 04.01 7007 267 0

APPENDIX I
Hazardous Waste Management Records

Clean Harbors ENVIRONMENTAL SERVICES, INC.

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH39305

A. GENERAL INFORMATION

GENERATOR EPA ID # *PENDING*

GENERATOR PROFILE No. **CH39305**

GENERATOR CODE (Assigned by Clean Harbors) *SS0024*

GENERATOR NAME: *SSGT Lloyd S Cooper USARC*

ADDRESS *885 Sandy Lane*

CITY *Warwick* STATE *RI* ZIP *02886*

PHONE:

CUSTOMER CODE (Assigned by Clean Harbors) *SH0381*

CUSTOMER NAME: *Shaw Environmental & Infrastru*

ADDRESS *304 Directors Drive*

CITY *Knoxville* STATE *TN* ZIP *37923*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *LEAD CONTAMINATED SOLIDS*

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

UNKNOWN

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- ☑ SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE
  - % FREE LIQUID
  - % SETTLED SOLID
  - % TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS: 1 2 3

% BY VOLUME (Approx.)

TOP

MIDDLE

BOTTOM

VISCOSITY (If liquid present)
- 1 - 100 (e.g. WATER)
- 101 - 500 (e.g. MOTOR OIL)
- 501 - 10,000 (e.g. MOLASSES)
- > 10,000

COLOR: *VARIES*

ODOR
- ☑ NONE
- MILD
- STRONG

Describe:

BOILING POINT
- <= 95 °F
- > 95 °F
- 101 - 129 °F
- >= 130 °F

MELTING POINT
- < 140 °F
- 140-200 °F
- ☑ > 200 °F

TOTAL ORGANIC CARBON
- <= 1%
- ☑ 1-9%
- >= 10%

FLASH POINT
- < 73 °F
- 73 - 100 °F
- 101 -140 °F
- 141 - 200 °F
- > 200 °F

Actual:

pH
- <= 2
- 2.1 - 6.9
- ☑ 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

Actual:

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g Ethanol)
- ☑ 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- ☑ Unknown

Actual:

BTU/LB
- ☑ < 2,000
- 2,000-5,000
- 5,000-10,000
- > 10,000

Actual:

VAPOR PRESSURE (for liquids only) mm Hg

D. COMPOSITION (List the complete composition of the waste, include any inert components and /or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN - MAX	UOM	CHEMICAL	MIN - MAX	UOM
DEBRIS	*1.00 – 70.00*	%			
INSULATION	*1.00 – 70.00*	%			
LEAD	*1.00 – 5.00*	%			

ANY METAL OBJECTS PRESENT? YES ☑ NO

If yes include dimension:

Clean Harbors Environmental Services, Inc.

Clean Harbors Profile No. CH39305

E CONSTITUENTS -- Are these values based on testing or knowledge? ☐ Knowledge ☐ Testing ☐ N/A

If constituent concentrations are base on analytical testing, analysis must be provided. If based on knowledge, basis of knowledge must be provided below.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CADMIUM	1.0		
D007	CHROMIUM	5.0		
D008	LEAD	5.0	8.00	
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		

RCRA	VOLATILE COMPOUNDS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D018	BENZENE	0.5		
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D027	1,4-DICHLOROBENZENE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7		
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		

RCRA	SEMI-VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D023	o-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D030	2,4-DINITROTOLUENE	0.13		
D032	HEXACHLOROBENZENE	0.13		
D033	HEXACHLOROBUTADIENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		

RCRA	PESTICIDES AND HERBICIDE	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D012	ENDRIN	0.02		
D013	LINDANE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008		

OTHER METALS	MIN	MAX	UOM
ALUMINUM			
ANTIMONY			
BERYLLIUM			
CALCIUM			
COPPER			
MAGNESIUM			
MOLYBDENUM			
NICKEL			
POTASSIUM			
SILICON			
SODIUM			
THALLIUM			
TIN			
VANADIUM			
ZINC			

NON-METALS	MIN	MAX	UOM
BROMINE			
CHLORINE			
FLUORINE			
IODINE			
SULFUR			

OTHER NON-METALS	MIN	MAX	UOM
AMMONIA			
REACTIVE SULFIDE			
CYANIDE-TOTAL			
CYANIDE AMENABLE			
CYANIDE REACTIVE			

OTHER CHEMICALS	MIN	MAX	UOM
PHENOL			
Total Petroleum Hydrocarbons			

OTHER

HOCs

☑ NONE
< 1000 PPM
>= 1000 PPM

PCBs

☑ NONE
<50 PPM
>= 50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARD

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

ASBESTOS
DEA REGULATED SUBSTANCES
DIOXIN
EXPLOSIVE
HERBICIDE
FUMING / SMOKING WASTE
NONE OF THE ABOVE

INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT
OXIDIZER
OSHA REGULATED CARCINOGENS
PESTICIDE
POLYMERIZABLE
RADIOACTIVE

REDUCING AGENT
SHOCK SENSITIVE
SPONTANEOUSLY IGNITES WITH AIR
THERMALLY SENSITIVE
WATER REACTIVE

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC. Clean Harbors Profile No. 139305

F. REGULATORY STATUS

☑ YES NO USEPA HAZARDOUS WASTE?
D008

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

☑ YES NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

YES ☑ NO IS THIS A WASTEWATER PER 40 CFR PART 268.2?

YES ☑ NO IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D0011, D012-D017 NON-WASTEWATERS, OR D018- D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT STANDARDS (UTS)?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES ☑ NO IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?
IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 401.

YES ☑ NO IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT RECOVERY, OR PETROLEUM REFINERY PROCESS?)

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES ☑ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN 77 KPa (11.2PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

G. D.O.T INFORMATION: (Include proper shipping name, hazard class and ID number).
US D.O.T. DESCRIPTION: *Hazardous waste, solid, n.o.s., (LEAD) , 9, NA3077, PG III*

H. TRANSPORTATION REQUIREMENTS
ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY ☑ OTHER *WHEN NEEDED*

IF BULK LIQUID OR BULK SOLID PLEASE INICATE THE EXPECTED NUMBER OF LOADS PER SHIPPING FREQUENCY

☑ CONTAINERIZED
1-6 CONTAINERS/SHIPMENT
STORAGE CAPACITY:
CONTAINER TYPE.
CUBIC YARD BOX
PALLET
TOTE TANK
OTHER:
☑ DRUM SIZE. *55*
CONTAINER MATERIAL.
☑ STEEL
FIBER
PLASTIC
OTHER

BULK LIQUID
GALLONS/SHIPMENT. GAL.
FROM TANKS; TANK SIZE GAL.
FROM DRUMS
VEHICLE TYPE:
VAC TRUCK
TANK TRUCK
RAILROAD TANK CAR
CHECK COMPATIBLE STORAGE MATERIALS.
STEEL | STAINLESS STEEL
RUBBER LINED | FIBERGLASS LINED
DERAKANE
OTHER

BULK SOLID
SHIPMENT UOM: TON YARD
PER SHIPMENT: 0.00 MIN 0.00 MAX
STORAGE CAPACITY TON/YD
VEHICLE TYPE:
DUMP TRAILER
ROLL OFF BOX
INTERMODAL ROLLOFF BOX
CUSCO/VACTOR
OTHER

I. SPECIAL REQUEST
SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS:
SPECIAL WASTE HANDLING REQUIREMENTS:
OTHER COMMENTS OR REQUESTS:

J. BIENNIAL/ANNUAL REPORTING INFORMATION
SIC CODE *1000* SOURCE CODE *A99* FORM CODE *B003* ORIGIN CODE *1*

K. SAMPLE STATUS
REPRESENTATIVE SAMPLE HAS BEEN SUPPLIED. YES ☑ NO
SAMPLED BY DATE SAMPLED WHERE SENT

GENERATORS CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy

AUTHORIZED SIGNATURE: X W H Scoville NAME (PRINT): Wm. H Scoville TITLE: Proj. Mgr DATE: 6/6/03

FOR CLEAN HARBORS USE ONLY
CHI REPRESENTATIVE COMPLETING PROFILE:

Clean Harbors ENVIRONMENTAL SERVICES, INC.

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH39303

A. GENERAL INFORMATION

GENERATOR EPA ID # *PENDING*
GENERATOR PROFILE No. **CH39303**
GENERATOR CODE (Assigned by Clean Harbors) *SS0024*
GENERATOR NAME. *SSGT Lloyd S Cooper USARC*
ADDRESS *885 Sandy Lane*
CITY *Warwick* STATE *RI* ZIP 02886
PHONE:
CUSTOMER CODE (Assigned by Clean Harbors) *SH0381*
CUSTOMER NAME: *Shaw Environmental & Infrastru*
ADDRESS *304 Directors Drive*
CITY *Knoxville* STATE *TN* ZIP *37923*

B. WASTE DESCRIPTION

WASTE DESCRIPTION *LEAD CONTAMINATED WATER*
PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):
WASHING OF LEAD ROOM

C. PHYSICAL PROPERTIES (at 25C or 77F)

HYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- ☑ LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE
  - % FREE LIQUID
  - % SETTLED SOLID
  - % TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS: 1 2 3
% BY VOLUME (Approx.)
TOP
MIDDLE
BOTTOM

VISCOSITY (If liquid present)
- ☑ 1 - 100 (e.g. WATER)
- 101 - 500 (e.g. MOTOR OIL)
- 501 - 10,000 (e.g. MOLASSES)
- > 10,000

COLOR: *VARIES*

ODOR
- ☑ NONE
- MILD
- STRONG

Describe:

BOILING POINT
- <= 95 °F
- > 95 °F
- 101 - 129 °F
- ☑ >= 130 °F

MELTING POINT
- < 140 °F
- 140-200 °F
- > 200 °F

TOTAL ORGANIC CARBON
- ☑ <= 1%
- 1-9%
- >= 10%

FLASH POINT
- < 73 °F
- 73 - 100 °F
- 101 -140 °F
- 141 -200 °F
- ☑ > 200 °F

Actual:

pH
- <= 2
- 2.1 - 6.9
- ☑ 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

Actual.

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- ☑ 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- Unknown

Actual:

BTU/LB
- ☑ < 2,000
- 2,000-5,000
- 5,000-10,000
- > 10,000

Actual:

VAPOR PRESSURE (for liquids only) mm Hg

D. COMPOSITION (List the complete composition of the waste, include any inert components and /or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN -- MAX	UOM	CHEMICAL	MIN -- MAX	UOM
LEAD	*1.00 -- 5.00*	%			
WATER	*94.00 -- 99.00*	%			

ANY METAL OBJECTs PRESENT? YES ☑ NO
If yes include dimension:

ENVIRONMENTAL SERVICES, INC.

Clean Harbors Profile # 139303

F CONSTITUENTS – Are these values based on testing or knowledge? ☐ Knowledge ☐ Testing ☐ N/A

If constituent concentrations are base on analytical testing, analysis must be provided. If based on knowledge, basis of knowledge must be provided below.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CADMIUM	1.0		
D007	CHROMIUM	5.0		
D008	LEAD	5.0	8.00	
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		

RCRA	VOLATILE COMPOUNDS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D018	BENZENE	0.5		
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D028	1,2-DICHLOROETHANE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7		
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		

RCRA	SEMI-VOLATILE COMPOUND	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D023	o-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D030	2,4-DINITROTOLUENE	0.13		
D032	HEXACHLOROBENZENE	0.13		
D033	HEXACHLOROBUTADIENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		

RCRA	PESTICIDES AND HERBICIDE	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL ppm
D012	ENDRIN	0.02		
D013	LINDANE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008		

OTHER METALS	MIN	MAX	UOM
ALUMINUM			
ANTIMONY			
BERYLLIUM			
CALCIUM			
COPPER			
MAGNESIUM			
MOLYBDENUM			
NICKEL			
POTASSIUM			
SILICON			
SODIUM			
THALLIUM			
TIN			
VANADIUM			
ZINC			

NON-METALS	MIN	MAX	UOM
BROMINE			
CHLORINE			
FLUORINE			
IODINE			
SULFUR			

OTHER NON-METALS	MIN	MAX	UOM
AMMONIA			
REACTIVE SULFIDE			
CYANIDE-TOTAL			
CYANIDE AMENABLE			
CYANIDE REACTIVE			

OTHER CHEMICALS	MIN	MAX	UOM
PHENOL			
Total Petroleum Hydrocarbons			

OTHER

HOCs
- ☑ NONE
- < 1000 PPM
- >= 1000 PPM

PCBs
- ☑ NONE
- <50 PPM
- >= 50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARD

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

ASBESTOS
DEA REGULATED SUBSTANCES
DIOXIN
EXPLOSIVE
HERBICIDE
FUMING / SMOKING WASTE

INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT
OXIDIZER
OSHA REGULATED CARCINOGENS
PESTICIDE
POLYMERIZABLE
RADIOACTIVE

REDUCING AGENT
SHOCK SENSITIVE
SPONTANEOUSLY IGNITES WITH AIR
THERMALLY SENSITIVE
WATER REACTIVE

NONE OF THE ABOVE

ENVIRONMENTAL SERVICES, INC. Clean Harbors Profile # C-39303

7. REGULATORY STATUS

[x] YES [ ] NO USEPA HAZARDOUS WASTE?
D008

[ ] YES [x] NO DO ANY STATE WASTE CODES APPLY?

[x] YES [ ] NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

[ ] YES [x] NO IS THIS A WASTEWATER PER 40 CFR PART 268.2?

[ ] YES [x] NO IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D0011, D012-DO17 NON-WASTEWATERS, OR D018- D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT STANDARDS (UTS)?

[ ] YES [x] NO DOES TREATMENT OF THIS WASTE GENERATE A F005 OR F019 SLUDGE?

[ ] YES [x] NO IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?
IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 401.

[ ] YES [x] NO IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT RECOVERY, OR PETROLEUM REFINERY PROCESS?)

[ ] YES [x] NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

[ ] YES [x] NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

[ ] YES [x] NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN 77 KPa (11.2PSIA)?

[ ] YES [x] NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

8. D.O.T INFORMATION: (Include proper shipping name, hazard class and ID number).
US D.O.T DESCRIPTION: *Hazardous waste, liquid, n.o.s., (Lead) , 9, NA3082, PG III*

9. TRANSPORTATION REQUIREMENTS
ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY [x] OTHER *WHEN NEEDED*

IF BULK LIQUID OR BULK SOLID PLEASE INICATE THE EXPECTED NUMBER OF LOADS PER SHIPPING FREQUENCY:

[x] CONTAINERIZED
1-6 CONTAINERS/SHIPMENT
STORAGE CAPACITY:
CONTAINER TYPE:
CUBIC YARD BOX
PAIL(S)
TOTE TANK
OTHER:
[x] DRUM SIZE *55*
CONTAINER MATERIAL
[x] STEEL
FIBER
PLASTIC
OTHER

BULK LIQUID
GALLONS/SHIPMENT: GAL.
FROM TANKS: TANK SIZE GAL.
FROM DRUMS
VEHICLE TYPE:
VAC TRUCK
TANK TRUCK
RAILROAD TANK CAR
CHECK COMPATIBLE STORAGE MATERIALS
STEEL | STAINLESS STEEL
RUBBER LINED | FIBERGLASS LINED
DERAKANE
OTHER

BULK SOLID
SHIPMENT UOM: TON YARD
PER SHIPMENT: 0.00 MIN 0.00MAX
STORAGE CAPACITY TON/YD
VEHICLE TYPE.
DUMP TRAILER
ROLL OFF BOX
INTERMODAL ROLLOFF BOX
CUSCO/VACTOR
OTHER

10. SPECIAL REQUEST
SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS:
SPECIAL WASTE HANDLING REQUIREMENTS:
OTHER COMMENTS OR REQUESTS

11. BIENNIAL/ANNUAL REPORTING INFORMATION
SIC CODE *1000* SOURCE CODE *A99* FORM CODE *B003* ORIGIN CODE *1*

12. SAMPLE STATUS
REPRESENTATIVE SAMPLE HAS BEEN SUPPLIED. [ ] YES [x] NO
SAMPLED BY DATE SAMPLED WHERE SENT

GENERATORS CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I aslo certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy

AUTHORIZED SIGNATURE: X [signature] NAME (PRINT): Wm. H. Scoville TITLE: Proj. Mgr. DATE: 6/6/03

FOR CLEAN HARBORS USE ONLY
CHI REPRESENTATIVE COMPLETING PROFILE:

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

CANT
VT 4138
J2678

UNIFORM HAZARDOUS WASTE MANIFEST

Please print or type. (Form designed for use on elite (12-pitch) t

1. Generator's US EPA ID No.: RIP000023748
Manifest Document No.: Q 4906
2. Page 1 of 1
Information in the shaded is not required by Federa

3. Generator's Name and Mailing Address
SSGT Lloyd S Cooper USARC
885 Sandy Lane
Warwick, RI 02886

4. Generator's Phone (419 295-9428

A. State Manifest Document Number: MA Q 264906
B. State Gen ID: SAME

5. Transporter 1 Company Name: Clean Harbors Env Services Inc
6. US EPA ID Number: MAD039322250
C. State Trans. ID: MA 55485

7. Transporter 2 Company Name
8. US EPA ID Number
D. Transporter's Phone (781) 849-
E. State Trans. ID

9. Designated Facility Name and Site Address
Clean Harbors of Braintree Inc
1 Hill Avenue
Braintree, MA 02184-0000
10. US EPA ID Number: MAD053452637
F. Transporter's Phone
G. State Facility's ID: NOT REQUIRE
H. Facility's Phone (781 849-18

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste
a. Hazardous waste, solid, n.o.s., (Lead) , 9, NA3077, PG III	001	CM	08	Y	D008
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a. (S), (E), (ERG#:171)
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a. 5101
b.
c.
d.

15. Special Handling Instructions and Additional Information
11a CH149700B
IN EMERGENCY, CALL CHES 1-800-645-6
Ref RI5711

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment 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 and that I have selected the 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 made a 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	Signature	Date (Month Day)
X WILLIAM R. FLORIG	X William R. Florig	04 16

GENERATOR

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day)
CHARLIE FITZGERALD		04 16

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day)

TRANSPORTER

19. Discrepancy Indication Space
Clean Harbors has appropriate permits for & will accept the waste the generator is ship

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 (Month Day)
BLADIMIRO SANCHEZ	Bladimiro Sanchez	04 10

FACILITY

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

Form approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

4R 573

Please print or type. (Form designed for use on elite (12-pitch) typ

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. RIP000023748	Manifest Document No. Q4513	2. Page 1 of 1
3. Generator's Name and Mailing Address: SSGT Lloyd S Cooper USARC, 885 Sandy Lane, Warwick, RI 02886		A. State Manifest Document Number MA Q 254513
4. Generator's Phone (419 295-9428)		B. [illegible] en ID
5. Transporter 1 Company Name: Clean Harbors Env Services Inc	6. US EPA ID Number: MAD039322250	C. State Trans. ID CH Dxx 9016
7. Transporter 2 Company Name	8. US EPA ID Number	D. Transporter's Phone (781) 849-1
		E. State Trans. ID
9. Designated Facility Name and Site Address: Clean Harbors Of Braintree Inc, 1 Hill Avenue, Braintree, MA 02184	10. US EPA ID Number: MAD053452637	F. Transporter's Phone ( )
		G. State Facility's ID NOT REQUIRED
		H. Facility's Phone (781) 849-180

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste
a. Hazardous Waste, Liquid, n.o.s., (Lead) , 9, NA3082, PG III	004	DM	00175	G	D008
b. Hazardous Waste, Solid, n.o.s., (LEAD) , 9, NA3077, PG III	004	DM	00400	P	D008
c.					
d.					

J. Additional Descriptions for Materials Listed Above (includes physical state and hazard code)
a. (L), (E), (ERG#:171) 4X55
b. (S), (E), (ERG#:171) 4X55

K. Handling Codes for Wastes Listed Above
a. c. b. d.

15. Special Handling Instructions and Additional Information
11a CH39303
11b CH39305
IN EMERGENCY, CALL CHES 1-800-645-8
wo# RI57111

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment 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 practica ble and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the env ronment; OR, if I am a small quantity generator, I have made a 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	Signature	Date (Month Day)
ROBERT GAGNON	Robert J Gagnon	06 24

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day)
Kevin Hurst	Kevin Hurst	06 24

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day)

19. Discrepancy Indication Space

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 (Month Day)
BERNARD SANCHEZ	Bernard Sanchez	06 26

GENERATOR
TRANSPORTER
FACILITY

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

Form approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

APPENDIX J
Non-hazardous Waste Management Records

Job No. 6696-03

SERVICE TRANSPORT GROUP, INC.

58 PYLES LANE, NEW CASTLE, DE 19720 PHONE:(877) 999-9559

№ 119136

WASTE SHIPMENT RECORD

S.T.G. # R8274

GENERATOR

1. Material Origin Site	Generator: Name/Address	Generator: Phone #
US Army Reserve Center 885 Sandy Lane Warwick, RI	Shaw Environmental & Infrastructure 312 Directors Drive Knoxville, TN 37923-4799	865-694-7338

2. Removal Contractor: Name/Address		Contractor: Phone #
Yankee Fiber Control, Inc. 2 Dexter Road East Providence, RI 02914	Contact: Jim Hutzler	401-435-4390

3. Responsible Agency: Name/Address	4. US DOT Class - FRIABLE ASBESTOS ONLY
U.S. EPA Region I JFK Federal Building Boston, MA 02203-2211	RQ ASBESTOS, 9, NA 2212, PG III

5. Description of Materials Specify Friable or Non-Friable	Containers No.	Type	Total Quantity
ACM	2	Drums	
ACM	11	BAGS	

6. Special Handling Instructions: 24-hour emergency spill response no. 800-424-9300

7. Generator Certification:

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transport by highway according to the applicable regulations of the Department of Transportation, US E.P.A., and any other state government agency. I certify that the foregoing is true and correct to the best of my knowledge. If the waste shipment is not as I stated, I accept the RETURN of the COMPLETE LOAD to the generator's service location at the generator's expense.

Printed/Typed Name & Title	Signature	Date
Jim Hutzler, President	J Hutzler	3/31/03

TRANSPORTER

8. Transporter 1 (Acknowledgement of Receipt of Materials) *If blank, Transporter 2 serves as sole transporter.

Company Name & Address		Telephone No.
Yankee Fiber Control, Inc. 2 Dexter Rd. East Providence, RI 02914	Signature: J Hutzler Printed Name: Jim Hutzler Title: President	401-435-4390 Date: 3/31/03

9. Transporter 2 (Acknowledgement of Receipt of Materials)

Company Name & Address		Telephone No.
Service Transport Group, Inc. 58 Pyles Lane New Castle, DE 19720	Signature: [illegible] Printed Name: [illegible] Title: [illegible]	877-999-9559 Date: 4-3-03

DISPOSAL SITE

10. Discrepancy Indication Space:

11. Waste Disposal/Recycling Site Owner or Operator's Certification
(Receipt of above Waste Except as Noted in 10)

Company Name & Address		Telephone No.
BFI Imperial Landfill 11 Boggs Road Imperial, PA 15126 Permit No. 100620	Signature: Printed Name: Title:	724-695-0900 Date 4-4-03

WHITE-Disposal Site • GREEN-S.T.G. • YELLOW-Contractor • PINK-Generator • GOLD - Pick Up Receipt

WEIGHMASTER CERTIFICATE
TRUCK SCALE

** REPRINTED ON 04/11/03 **
TICKET #: TJG937

METALS RECYCLING L.L.C.
89 Celia Street • Johnston, RI 02919
(401) 831-7799 • FAX: (401) 331-9054

PROVIDENCE SCALE

Purchased From: CP000M

Veh # 198 ID # 198

att Tony

COMMODITY	GROSS	TARE	NET	ADJ REASON	PD WT
#1 UNPREPARED HMS	47540A	38680A	8860		8860

ALL WEIGHTS ARE REPORTED IN POUNDS UNLESS OTHERWISE INDICATED

TOTALS	47540	38680	8860	8860

TICKET COMMENT: 58286

WEIGHMASTER SIGNATURE (ROBERT CARLONE) _____
WEIGHMASTER SIGNATURE

CUSTOMER SIGNATURE _____
CUSTOMER SIGNATURE

GRS Date 04/11/03
GRS Time 9:39
TRE Date 04/11/03
TRE Time 9:53

GROSS TONS 3.9553

A=SCALE 1 B=SCALE 2 C=SCALE 3 D=SCALE 4 M=MANUAL WEIGHT

"SUBJECT TO CONDITIONS AND DISCLAIMER ON BACK"

RHODE ISLAND RESOURCE RECOVERY CORPORATION

Clean Harbors
Usually on 885 Sandy Ln. Warwick RI
Final 38

CENTRAL LANDFILL
65 SHUN PIKE
JOHNSTON, RI 02919
JOHNSTON OFFICE 942-1430
CORPORATE FAX NO. 946-5174
SCALEHOUSE FAX NO. 942-0239

RECEIPT DOCUMENT NUMBER
92212576

BILL TO
BFIJ897371
BROWNING-FERRIS INDUSTRIES INC
ATTN: SUSAN TODD
1080 AIRPORT ROAD
FALL RIVER MA 02720-4701

HAULER
BFIJ897371
BROWNING-FERRIS INDUSTRIES
ATTN: SUSAN TODD
1080 AIRPORT ROAD
FALL RIVER

DATE	ENTRY TIME	OPER	EXIT TIME	OPER	GROSS WEIGHT	TARE WEIGHT	NET WEIGHT
04/11/2003	10:55	SF	11:16	KJJ	(39040 LB) Scale 01 (19.52 T)	(32720 LB) Scale 03 (16.36 T)	(6320 LB (3.16 T
02155654	Scale 01		Scale 03				

VEHICLE NUMBER	VEH	VEHICLE TYPE	PLATE NUMBER	TRANSACTION TYPE
M75450		TRUCK-TRU	40/4508421MA	

RHODE ISLAND RESOURCE RECOVERY CORPORATION

CENTRAL LANDFILL
65 SHUN PIKE
JOHNSTON, RI 02919
JOHNSTON OFFICE 942-1430
CORPORATE FAX NO. 946-5174
SCALEHOUSE FAX NO. 942-0239

RECEIPT DOCUMENT NUMBER
92237621

BILL TO
BFIJ897371
BROWNING-FERRIS INDUSTRIES INC
ATTN: SUSAN TODD
1080 AIRPORT ROAD
FALL RIVER MA 02720-4701

HAULER
BFIJ897371
BROWNING-FERRIS INDUSTRIES
ATTN: SUSAN TODD
1080 AIRPORT ROAD
FALL RIVER

DATE	ENTRY TIME	OPER	EXIT TIME	OPER	GROSS WEIGHT	TARE WEIGHT	NET WEIGHT
04/04/2003	14:51	SF	14:59	SF	(40520 LB) Scale 01 (20.31 T)	(33840 LB) Scale 04 (17.92 T)	(4780 LB (2.39 T
02150627	Scale 01		Scale 04				

VEHICLE NUMBER	VEH	VEHICLE TYPE	PLATE NUMBER	TRANSACTION TYPE

WARWICK, RI

APPENDIX K
Lead Monitoring Analytical Results

PSC ANALYTICAL SERVICES

INDUSTRIAL HYGIENE | ENVIRONMENTAL TESTING

•EPA PA-00136 •NY DOH/NELAC 10903 •NJ DEP PA020
•AIHA ACCREDITATION NO. 100439 •PA DEP 06-353 •CT DPH PH-0238
•NC DENR 599

4418 Pottsville Pike Reading, PA 19605
(Tel) 610-921-8833 (Fax) 610-921-9667

April 22, 2003

Bill Scoville
Shaw Environmental Infrastructure
11499 Chester Road
Cincinnati, OH 45246

TEL: (513) 782-4964
FAX (513) 782-4663

RE: Warwick RI 840829 Order No.: R03040404

Dear Bill Scoville:

PSC Analytical Services received 10 samples on 4/16/2003 9:10:00 AM for the analyses presented in the following Certificate of Analytical Results.

The analyses and all data for associated QC met regulatory and/or laboratory specifications. Exceptions will be noted in an enclosed Case Narrative.

The results on the attached Certificate of Analytical results relate only to items tested or to the samples as received by the laboratory. This Certificate of Analytical Results shall not be reproduced, except in full, without the written approval of PSC Analytical, Reading, PA.

Please note that any unused portion of the samples will be disposed of 30 days following issuance of report, unless you have requested otherwise.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Fred Usbeck
Manager, CIH

PSC ANALYTICAL SERVICES
4418 Pottsville Pike Reading, PA 19605
(Tel) 610-921-8833 (Fax) 610-921-9667

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

•EPA PA-00136 •NY DOH/NELAC 10903 •NJ DEP PA020
•AIHA ACCREDITATION NO. 100439 •PA DEP 06-353 •CT DPH PH-0238
•NC DENR 599

Certificate of Analytical Results
for
Shaw Environmental Infrastructure

WorkOrder: R03040404

Client Reference: Warwick RI 840829

Analyte	Concentration (ug)	Concentration (mg/m³)	Concentration (ppm)	Limit of Detection (ug)	Test Method	Date Analyzed /Analyst	
Client ID: 001AR 94 RI WAR 003 APR 02 **Lab ID:** -01A	**Date Sampled:** 4/2/2003			**Matrix:** Filter		**Air Vol.(L):** 220	
Lead	25.3	0.115	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 002AR 94 RI WAR 003 APR 02 **Lab ID:** -02A	**Date Sampled:** 4/2/2003			**Matrix:** Filter		**Air Vol.(L):** 220	
Lead	38.1	0.173	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 001AR 94 RI WAR 003 APR 03 **Lab ID:** -03A	**Date Sampled:** 4/3/2003			**Matrix:** Filter		**Air Vol.(L):** 790	
Lead	655	0.829	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 002AR 94 RI WAR 003 APR 03 **Lab ID:** -04A	**Date Sampled:** 4/3/2003			**Matrix:** Filter		**Air Vol.(L):** 770	
Lead	398	0.517	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 003AR 94 RI WAR 003 APR 03 **Lab ID:** -05A	**Date Sampled:** 4/3/2003			**Matrix:** Filter		**Air Vol.(L):** 790	
Lead	39.2	0.0497	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 004AR 94 RI WAR 003 APR 03 **Lab ID:** -06A	**Date Sampled:** 4/3/2003			**Matrix:** Filter		**Air Vol.(L):** 780	
Lead	20.2	0.0259	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 001AR 94 RI WAR 003 APR 04 **Lab ID:** -07A	**Date Sampled:** 4/4/2003			**Matrix:** Filter		**Air Vol.(L):** 740	
Lead	311	0.420	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 002AR 94 RI WAR 003 APR 04 **Lab ID:** -08A	**Date Sampled:** 4/4/2003			**Matrix:** Filter		**Air Vol.(L):** 750	
Lead	287	0.383	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 003AR 94 RI WAR 003 APR 04 **Lab ID:** -09A	**Date Sampled:** 4/4/2003			**Matrix:** Filter		**Air Vol.(L):** 770	
Lead	31.4	0.0407	--	0.3	N7300 MCE	04/21/2003	AJB
Client ID: 004AR 94 RI WAR 003 APR 04 **Lab ID:** -10A	**Date Sampled:** 4/4/2003			**Matrix:** Filter		**Air Vol.(L):** 790	
Lead	2.96	0.00374	--	0.3	N7300 MCE	04/21/2003	AJB

PSC ANALYTICAL SERVICES

4418 Pottsville Pike Reading, PA 19605
(Tel) 610-921-8833 (Fax) 610-921-9667

INDUSTRIAL HYGIENE ENVIRONMENTAL TESTING

•EPA PA-00136 •NY DOH/NELAC 10903 •NJ DEP PA020
•AIHA ACCREDITATION NO. 100439 •PA DEP 06-353 •CT DPH PH-0238
•NC DENR 599

Certificate of Analytical Results
for
Shaw Environmental Infrastructure

WorkOrder: R03040404
Client Reference: Warwick RI 840829

Analyte	Concentration			Limit of Detection	Test Method	Date Analyzed /Analyst
	(ug)	(mg/m^3)	(ppm)	(ug)		

General Notes:
<: Less than the indicated limit of detection (LOD).
--: Information not available or not applicable.
Concentrations are calculated based on air volumes provided by the client

the igroup

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

R03040404

Reference Document No. 566674

Page 1 of 2

Project Name/No.[1] WARWICK, RI 840829

Sample Team Members[2] K. Baum

Profit Center No.[3] 540178

Project Manager[4] Bill Scoville

Purchase Order No.[6] 840829

Required Report Date[11] 4/23/03

Samples Shipment Date[7] 4/15/03

Lab Destination[8] PSC

Lab Contact[9] Mike Selsam

Project Contact/Phone[12] Bill Scoville 513-782-4964

Carrier/Waybill No.[13] UPS

Bill to:[5] Shaw E&I
312 Directors DR.
Knoxville, TN 37923
Attn: Accounts Payable

Report to:[10] Shaw E&I
11499 Chester RD.
Cincinnati, OH 45246
Attn: Bill Scoville

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
94RI WAR 003 APR 02 001 AR	AIR	4-2-03 2:30	CASSETTE	0.22 m3 AIR	NA	NIOSH-7300-Lead		
94RI WAR 03 APR 02 002 AR	AIR	4-2-03 2:30	CASSETTE	0.22m3 AIR	NA		FOR LAB USE ONLY	
94 RI WAR003 APR03 001 AR		4-3-03 1535		0.79				
94 RI WAR003 APR03 002 AR		4-3-03 1505		0.77				
94 RI WAR003 APR 03 003 AR		4-3-03 1522		0.79			FOR LAB USE ONLY	
94 RE WAR03 APR 03 004 AR		4-3-03 1508		0.78				
94 RI WAR003 APR 04 001 AR		4-4-03 1505		0.74				
94 RI WAR03 APR 04 002 AR		4-4-03 1512		0.75				

Special Instructions:[23]

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:[25] Return to Client ☐ Disposal by Lab ☒ Archive _____ (mos.)

Turnaround Time Required:[26] Normal ☒ Rush ☐ ~~48 HR TAT~~

QC Level:[27] I. ☐ II. ☐ III. ☐ Project Specific (specify): PER CONTRACT SPECS

1. Relinquished by[28] (Signature/Affiliation)	Date: 04-05-03 Time: 1500	1. Received by[28] (Signature/Affiliation)	Date: Time:
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation) UPS	Date: 4/16/03 Time: 9:10

Comments:[29] SEND ALL ANALYTICAL TO Bill Scoville (513) 782-4663

MCA 3/15/91

the igroup

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] K0304044 566674

Page 2 of 2

Project Name WARWICK, RI

Project No. B4/0825

Samples Shipment Date 4/15/03

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
94 RI WAR 03 APR 04 003 AR	Air	4-4-03 1520	Cassette	0.77 m³	NA	NIOSH-7300 Lead		
94 RI WAR 04 APR 04 004 AR		4-4-03 1524	"	0.79	1	"	FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
							FOR LAB USE ONLY	FOR LAB USE ONLY
						TMD	4/16/03 9:10 UPS	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

PSC Analytical Services

Sample Receipt Checklist

Client Name SHAW_FINDLAY | Date and Time Receive 4/16/2003 9:10:00 AM

Work Order Numbe R03040404 | Received by TMH*

Checklist completed by TMH 4/16/03 (Signature / Date) | Reviewed by DK 4.16.03 (Initials / Date)

Matrix: | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Presen ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Presen ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Presen ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	

Adjusted? _____ Checked b _____

Any No and/or NA (not applicable) response must be detailed in the comments section be

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: All Samples were labeled 001AR, 002AR, etc. COC Say 94 RI WAR 003 ARR 02- 001AR, etc.

Corrective Action _____

APPENDIX L
Clearance Certification Letter

IT Corporation
11499 Chester Road
Cincinnati, OH 45246-4012
Tel. 513.782.4700
Fax. 513.782.4807
A Member of The IT Group

June 30, 2003

Bob Gagnon
Regional Facility Manager
PVT Lloyd S. Cooper U.S. Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island 02886

RE: Range Cleaning Clearance Certification – Facility ID RI008, 94th RSC
USARC Nationwide Indoor Rifle Range Cleanup Project
Contract No. DACA 27-99-D-0021, Delivery Order No. 14

Dear Mr. Gagnon:

With this letter, IT Corporation certifies that the recent range cleaning activities have successfully attained the project clearance objectives and the range is approved for your reoccupancy. Range clearance procedures consisted of the following:

- A surface-by-surface visual examination to verify that:
  - The lead hazard control work was completed as required
  - No known or suspected lead-dust surfaces are still present in the range at levels that exceed the project clearance level of 200 µg/sf.

- Clearance sampling consisting of collecting wipe samples from floor, wall, and ceiling surfaces and analyzing the samples for lead.

- Aggressive air sampling, conducted in accordance with the plan entitled *Gun Range Aggressive Air Clearance Sampling Plan* prepared and submitted in January 2003.

- Final floor sealing to achieve the 94th RSC requested level of 40 µg/sf of lead on floor, wall, and ceiling surfaces.

A formal project report for the range cleanup will be submitted upon completion of all waste disposal activities and receipt of disposal certificates.

Please note that although the range has been cleaned to below the project clearance levels, small amounts of lead dust may be present in the range. Any remodeling activities that may cause a release of dust on wall and floor surfaces should be undertaken in consideration of the Occupational Safety and Health Administration (OSHA) Construction Industry Standard for Lead (29 CFR 1926.62). This OSHA standard should be reviewed before any remodeling activities are conducted. The OSHA standard requires certain controls to reduce or maintain

worker exposures less than the Permissible Exposure Limit (PEL) of 50 µg of lead per cubic meter (m^3). The employer must protect the worker from lead.

We appreciated your cooperation and support during the range cleanup. Should you have any questions, please contact the undersigned at (513) 782-4700.

Sincerely,

IT CORPORATION

William H. Scoville, P.E.
Project Manager

cc: David Dierken, U.S. Army Corps of Engineers, Louisville District
Gary Puryear, 94th RSC

RI008
PVT LLOYD S. COOPER III USARC
Warwick, Rhode Island

FLOOR AND STORM DRAIN INVENTORY

AND

NATURAL RESOURCES INVENTORY

Prepared for:

94th Department of the Army
Regional Support Command

Prepared by:

U.S. Army Corps of Engineers
New England Division
Waltham, MA 02254-9149

With Technical Assistance from:

ENSR
Acton, MA 01720

M950217RI008

June, 1996

DOC NO. 9000-025-100
9000-026-100

FILE NAME EXPLANATION FOR FLOOR AND STORM DRAIN, AND NATURAL RESOURCES REPORTS

(EXAMPLE FOR MA009 – BURKE CENTER – FORT DEVENS – MASSACHUSETTS)

INSTRUCTIONS FOR ACCESSING FILES:

ALL NATURAL RESOURCES FILES ARE ACCESSED THROUGH LOTUS 1-2-3 RELEASE 2.4 WITH WYSIWYG.
THE FLOOR AND STORM DRAIN FILES ARE ACCESSED THROUGH LOTUS 1-2-3 RELEASE 5.

THE FIRST FIVE CHARACTERS (MA009) ARE THE FACILITY ID # FOR NATURAL RESOURCES AND FLOOR AND STORM DRAIN REPORTS.

FOR NATURAL RESOURCES:

THE FOLLOWING TWO LETTERS (NR) INDICATE THAT THE TABLE IS A NATURAL RESOURCES TABLE
THE LAST LETTER OR NUMBER INDICATES THE INDIVIDUAL TABLE (5 CORRESPONDS TO TABLE A5 – BIRDS).

GENERAL

FILE NAME	DESCRIPTION
MA009E	EXPLANATION OF FILE NAMES AND ACCESS INFORMATION

A. FLOOR AND STORM DRAIN REPORT

FILE NAME	DESCRIPTION
MA009	FLOOR AND STORM DRAIN SURVEY TABLES AND COMMENTS

B. NATURAL RESOURCES TABLES

FILE NAME	DESCRIPTION
MA009NRC	TABLE OF CONTENTS
MA009NRM	DATA COLLECTION AND REPORTING ISSUES
MA009NRS	MASTER SUMMARY TABLE
MA009NR1	TABLE A1 – WILDLIFE AND VEGETATION OBSERVED AND EXPECTED
MA009NR2	TABLE A2 – PROTECTED SPECIES – VEGETATION AND WILDLIFE
MA009NR3	TABLE A3 – PROTECTED PLANTS
MA009NR4	TABLE A4 – AMPHIBIANS AND REPTILES
MA009NR5	TABLE A5 – BIRDS
MA009NR6	TABLE A6 – MAMMALS
MA009NRF	REFERENCES

NOTE: THE STATE AND FEDERAL PROTECTED SPECIES TABLES AND OTHER DATA ARE NOT ON DISC FILES – THE ONLY COPIES ARE THE ORIGINALS INCLUDED WITH THE REPORT.

NOTE: COMPUTER FILE NAMES ARE AT THE BOTTOM OF EACH TABLE. EXAMPLE: MA009NRC – TABLE OF CONTENTS

US ARMY RESERVE CENTER DRAIN SURVEY
SUMMARY and GENERAL COMMENTS

Facility ID #: RI008 Center Name: PVT Lloyd S. Cooper III USARC

Address: 885 Sandy Lane City: Warwick State: RI

Site Point of Contact: Ms. Marie Normandie Date of Survey: April 5 - 6, 1994

1. Regulatory Compliance Violations:
No regulatory violations were observed during the site visit.

2. Potential Regulatory Compliance Violations:
Floor Drain Number 2 (FD-2), located outside the boiler room by the north door had a visible sheen and a strong odor of fuel oil. There was no obvious source for the sheen or odor. This floor drain releases to the site septic system. This could potentially be a violation of Rhode Island Underground Injection Control Regulations if the amount of what is apparently fuel oil, is sufficient to penetrate the septic system and cause contamination or degradation of the groundwater quality. The drain should be cleaned and observed over a period of time to determine if this release was a "one-time" problem or is a reoccurring problem requiring remediation.

P SUMP PUMP IN BOILER Room PIT,

3. Recommended Actions to Improve Environmental Practices:
All storm drains and the wash rack need to be cleaned out. They are filled with silt and sediment to the extent that inflow and outflow drainage could not be determined. The storm drain flow directions on the enclosed Site Plan are the assumed directions based on site observations. There were no plans of the storm drainage system available.

4. Potential Problems:
a. According to Ms. Normandie, essentially no vehicle maintenance is performed at this facility. Vehicles are taken to the Lincoln AMSA #68 for minor maintenance such as oil changes. For this reason based on ENSR's observations, the site appears to be in compliance with appropriate environmental regulations. If organizational maintenance were to be performed on this site in the future, it would be necessary to repair the brick walls of the wash rack and the oil/water separator (OWS-1) north of the maintenance shop. OWS-1 was reported by site personnel, but was neither on the plans or observed by ENSR personnel. FD-1 in the maintenance shop would also have to be connected to a OWS. During this site visit there was no apparent outfall to FD-1.
b. The inability to discover the OWS-1 may be related to the fact that Storm Drain Number 4 (SD-4) and the manhole directly east was buried under approximately five inches of top soil. It is possible that OWS-1 is likewise buried.
c. The Warwick Department of Public Works (DPW) has a garage and storage area bordering the west side of the USARC. There is overland flow onto the USARC from the DPW on the northwest corner of USARC. There is a potential for contamination from the DPW to enter the USARC, however see paragraph 5.a.

5. Uncompleted Inventory Items:
a. Due to the condition of the storm drain system, it was not possible for ENSR to confirm the actual drainage pattern of the storm drain system. Apparently SD-1 through SD-4

flow underground and enter the DPW storm drain system at a catch basin on DPW property, then discharge off-site from the DPW. The catch basin on DPW property was observed to have considerable POL-type contamination, the exact source of which could not be determined.

b. In the north section of the site was a fenced in area which contained a concrete hub which appeared to be a an underground tank, although it is possible that SD-5 and SD-6 drain into this tank it was not possible to confirm this fact. No one at the USARC had any factual information on the tank.

6. Other Comments:

A hole in the fence at the north corner (very rear) of the site provides access to the site by unauthorized individuals, apparently neighborhood children.

7. Data Gathering Parameters and Limitations

This report contains the results of a survey conducted under a series of agreed constraints and limitations described in Section 7.1 below. In addition, site-specific factors may have affected the quality or completeness of data gathered and these are described in Section 7.2 below.

Section 7.1

Surveys were conducted using plans obtained by the Corps of Engineers New England Division from the 94th Regional Support Command drawing vault at Fort Devens, MA. The best available site and interior plans on which the surveys were based, in many instances, did not contain:

a. up-to-date information;
b. a complete property boundary;
c. storm water drainage data; and/or
d. plumbing information.

In some cases, no site and/or interior plans were provided and information was hand-sketched by the survey team.

Data collection was limited to the information that could be gathered in the assigned time frame (ranging from one to two days). No supplementary data collection was performed.

a. Outfalls to municipal sanitary or storm sewer could not be determined because either manways were located in the middle of streets and could not be safely accessed or a visit to the municipal authorities, which could not be performed within the assigned time frame, would be required to confirm connections.

b. Information about rooms and/or areas which were not made accessible to the survey team was provided by the facility manager or other facility personnel.

c. Drains shown on field maps are shown in their approximate location. Locations were not scaled off.

d. Drainage associated with purely sanitary purposes such as sinks, water bubblers, toilets, or bermed shower drains was not inventoried. Shower drains which were not located in a bermed area and thus could potentially collect drainage other than sanitary were inventoried as floor drains.

e. Slop sinks which were located on the floor in the janitors closets and could potentially collect drainage other than sanitary were inventoried. Slop sinks attached to the wall were not inventoried.

f. Military organizational maintenance (-20 level and above) facilities, within EPA Region I, are considered as industrial facilities and, therefore, require an NPDES storm water permit. Because of this requirement, roof drains were inventoried for buildings in which greater than organizational maintenance is performed because these buildings would be considered industrial facilities.

g. Surrounding property was classified by usage such as residential, industrial, commercial, or woodland according to the visual observations of the survey team. No additional research was performed to confirm this property classification.

h. The status of drains and pretreatment systems was determined by observation only.

i. Surface drainage directions were estimated based on observation of land contours. Drainage directions were not determined by observing water flow.

j. Water meter pits and non-PCB transformers were not inventoried and thus are not depicted on the field map.

k. Features on the map which did not directly affect the drainage survey were considered to be outside the scope of the field survey and thus were not updated to reflect current status.

l. Vehicles parked on the site or equipment stored on site or inside the building were not moved to survey for drains.

m. OMS work pits were inventoried as containing a floor drain based on information from facility personnel. The presence of a floor drain in the work pit could not be confirmed by visual observation because the work pits were either cemented in, covered by equipment, filled with water, or the sump of the work pit was covered by a grate which could not be removed.

Section 7.2

a. The complete property boundary was not shown on the available plans. The facility manager reported that the property line was essentially the same as the fence line.

b. The majority of the pavement in the military vehicle parking area was not visible to the survey team due to equipment and vehicle parking.

c. The Arms Vault and the HD Supply Room were not accessible to the survey team.

d. A large portion of the floor in the OMS Building was not visible to the survey team due to equipment storage.

e. The facility manager reported that no maintenance is performed in the OMS Building.

US ARMY RESERVE CENTER - DRAIN SURVEY

FACILITY ID#: RI008 CENTER NAME: PVT Lloyd S. Cooper III USARC ADDRESS: 885 Sandy Lane

CITY: Warwick COUNTY: Kent STATE: RI SURVEYED BY: W. Kidd, M. Healey, A. Fillip - ENSR

COMMAND: 76th SITE CONTACT(S) (Name/Rank/Title) Marie Normandie / Civilian DATE OF SURVEY: 5-6 APR 94

WEATHER: (Day 1 Sunny, 50-60 deg. F. Day 2 50 deg. F., heavy overcast.)

REFERENCE SITE PLAN - TITLE: Site Plan and Index Dwg. No. 29-06-11

DRAWING DATE: March, 1959 CONTRACTOR: Fontaine and Bohl Assoc. SHEET NUMBER: 1 OTHER: N/A

INDEX ON SITE PLAN	ROOM NUMBER/ LOCATION	DRAIN		OUTFALL		TREATMENT		POTENTIAL CONTAMINANTS	REGULATORY COMPLIANCE STATUS
		STATUS	VERIFIED	TYPE	VERIFIED	TYPE	STATUS		
FLOOR DRAINS									
FD - 1	Maintenance shop, north side(1).	CIU (2)	OBS	NONE		NONE		NONE	IN
FD - 2	Outside boiler room North door.	CIU/BLK	OBS	LCF	PNO	NONE		(3)	POUT
FD - 3	Northeast corner of boiler room.	CIU	OBS	LCF	PNO	NONE		NONE	IN
FD - 4	Northwest corner of boiler room.	CIU	OBS	LCF	PNO	NONE		Rust from boiler blow down.	IN
FD - 5	N.E. corner of 1st floor mens room.	CIU	OBS	LCF	PNO	NONE		JAN	IN
FD - 6	N.E. corner of 2nd floor mens room.	CIU	OBS	LCF	PNO	NONE		JAN	IN
FD - 7	Arms Vault	CIU	REP	LCF	PNO	NONE		JAN,WEP	IN

COMMENTS: (1) FD-1 located at bottom of work pit, reported not used by site personnel. (2) There is no apparent outfall for FD-1. (3) Observed visible sheen and an odor of fuel oil in FD-2.

FACILITY ID#: RI008 CENTER NAME: PVT Lloyd S. Cooper III USARC ADDRESS: 885 Sandy Lane

CITY: Warwick COUNTY: Kent STATE: RI SURVEYED BY: W. Kidd, M. Healey, A. Fillip

COMMAND: 76t SITE CONTACT(S):(Name/Rank/Title) Marie Normandie / Civilian DATE OF SURVEY: 5-6 APR 94

INDEX ON SITE PLAN	ROOM NUMBER/ LOCATION	DRAIN STATUS	DRAIN VERIFIED	OUTFALL TYPE	OUTFALL VERIFIED	TREATMENT TYPE	TREATMENT STATUS	POTENTIAL CONTAMINANTS	REGULATORY COMPLIANCE STATUS
STORM DRAINS									
SD - 1	Northeast of USARC	CIU (4)	OBS	UNK (5)	NOP	UNK		POL (6)	CND
SD - 2	South of maintenance shop	CIU (4)	OBS	UNK (5)	NOP	UNK		POL (6)	CND
SD - 3	East of maintenance shop	CIU (4)	OBS	UNK (5)	NOP	UNK		POL,GAS,ANT,BAT,DEG,DES,OIL,WOL(7	CND
SD - 4	North of maintenance shop	CIU(4),(8)	OBS	UNK (5)	NOP	UNK		NONE	CND
SD - 5	West side of military parking lot	CIU(4)	OBS	UNK (5)	NOP	UNK		POL, ANT (6)	CND
SD - 6	East side of military parking lot	CIU (4)	OBS	UNK (5)	NOP	UNK		POL (6)	CND
WASH RACKS									
WR - 1	North of maintenance shop	CIU(4),(9)	OBS	UNK (10)	NOP	OWS	REP (11)	POL,GAS,OIL,ANT,DES,BAT	CND
FUNNEL DRAIN									
F-1	Southeast corner of boiler room (12)	CIU	OBS	LCF	PNO	NONE		NONE	IN
PRE-TREATMENT SYSTEMS									
GRT-1	Kitchen (13)	CIU	OBS	LCF	PNO			JAN	IN
OWS-1	North of maintenance shop	CIU	REP (11)	UNK	NOP (10)			POL,GAS,OIL,ANT,DES,BAT	CND
OTHER									

COMMENTS: (4) All storm drains and the wash rack need to be cleaned out. They are filled with silt and sediment to the extent that in flow and out flow of drainage could not be determined. (5) SD-5 and SD-6 collect drainage for the new military parking lot and have an unconfirmed ultimate outfall into the Buckeye Brook. SD-1,SD-2,SD-3, and SD-4 have an unconfirmed drainage into the neighboring property of the Warwick Department of Public Works. The Warwick D.P.W. has an ultimate outfall into the Tuscatucket Brook. (6) There is a low potential of POL due to low traffic of civilian and reserve vehicles. (7) SD-3 collects any drainage from the maintenance shop. (8) SD-4 is completely covered with grass and about 5" of top soil. (9) The brick walls of the wash rack catch basin have started to deteriorate. (10) Drainage from the wash rack has an unconfirmed ultimate outfall into the Tuscatucket Brook. (11) Wash rack oil/water separator was reported by site personnel, not on plans, not observed. (12) Funnel Drain (F-1) collects exclusively from the hot water tank. (13) Grease trap is not associated with any particular floor drain. It is a pretreatment system for the kitchen sinks.

Explanations of report codes follow inventory sheets.

US ARMY RESERVE CENTER - DRAIN SURVEY
REPORTING CODE EXPLANATIONS

DRAIN.

TYPE.

CW - A can wash is a hard surfaced area with a drain, outside, usually next to a kitchen used for washing garbage cans.
F - A funnel drain collects drainage through a funnel and does not collect any floor drainage directly. These are often found in the boiler rooms.
FD - A floor drain is a grated drain collecting drainage from the floor.
GP - A grease platform is an elevated structure onto which vehicles are driven for maintenance. A drain is associated with this structure.
OUT An outlet is the defined point where the effluent of a pipe discharges.
RD - A roof drain collects drainage from a roof usually to discharge onto the ground surface or into the storm drainage system.
SD - A storm drain collects outdoor surface drainage usually in the form of a catch basin or drop inlet.
UIC - An underground injection chamber collects drainage to discharge directly into the ground.
WR - A wash rack is a hard surfaced area with a drain designated for washing vehicles.

STATUS.

BLK - The drain is blocked or filled with debris and does not operate properly.
CIU - The drain is currently in use and is operating properly.
OTH - The status of the drain is unique and will be further described with a numbered note.
POT - The drain does not currently operate properly however, it is potentially operational without an extensive amount of work done.
REM - The drain has been purposely removed from service.

VERIFIED.

OBS - The issue has been observed by ENSR personnel during the site visit.
NOP - The issue has not been observed by ENSR personnel from the available plans.
PNO - The issue has not been observed by ENSR personnel during the site visit but has been observed from the available plans.
REP - The issue has been confirmed by a verbal report from the site personnel.

OUTFALL.

TYPE.

GRW - The outfall discharges into the groundwater on site.
LCF - The outfall discharges into a leachfield on site.
SAN - The outfall discharges into a local municipal sanitary system.
STM - The outfall discharges into a local municipal storm drainage system.
UNK - The discharge location is unknown.
WTF - The outfall discharges to a wetlands area off of the site property.
WTN - The outfall discharges to a wetlands area on the site property.
WWTP - The outfall discharges to a waste water treatment plant other than municipal.
DRY - The outfall discharges to a drywell on site.
INF - The outfall discharges to an intermittent stream off of the site property.
INN - The outfall discharges to an intermittent stream on the site property.
SRF - The outfall discharges to a stream or a river off of the site property.
SRN - The outfall discharges to a stream or a river on the site property.
SWF - The outfall discharges to standing water off of the site property.
SWN - The outfall discharges to standing water on the site property.

VERIFIED.

OBS - The issue has been observed by ENSR personnel during the site visit.
NOP - The issue has not been observed by ENSR personnel from the available plans.
PNO The issue has not been observed by ENSR personnel during the site visit but has been observed from the available plans.
REP - The issue has been confirmed by a verbal report from the site personnel.

US ARMY RESERVE CENTER - DRAIN SURVEY
REPORTING CODE EXPLANATIONS

TREATMENT.

TYPE.

ANS - An acid neutralizing sump is a treatment system usually associated with drainage from a battery storage area.
DET - A detention basin is a treatment system to separate sediment from storm drainage.
GRT - A grease trap is a treatment system used to separate grease from the kitchen drainage.
OWS - An oil water separator is a treatment system used to separate oil and other LNAPL materials from drainage.
RT - A running trap is a treatment system used to prevent back flow into drainage pipes.
UNK - It is unknown if the drainage has a treatment system.

STATUS.

CIU - The treatment system is operating but currently in use and is operational.
MAT - The treatment system does not function properly and needs maintenance.
NOT - The treatment system does not operate.
OCC - The treatment system operates occasionally.

POTENTIAL CONTAMINANTS

ANT - Anti-freeze.
BAT - Battery acid.
CBR - Chemical, biological, or radioactive agents.
DEG - Degreasing solvent (product).
DES - Diesel fuel.
FER - Lawn fertilizer.
FLO - Fuel oil.
GAS - Gasoline.
HAZ - Hazardous wastes.
JAN - Janitorial supplies.
OIL - Oil (product).
OTH - The potential contaminant is unique and will be further described with a numbered note.
POL - Any combination of petroleum, oil and lubricants.
UNK - It is unknown if there are any potential contaminants.
WEP - Potential contaminants may occur due to weapons cleaning in the area.
WOL - Waste oil.

REGULATORY COMPLIANCE.

CND - The status of compliance can not be determined based on available information.
IN - The facility is in compliance, based on available information.
OUT - The facility definitely violates regulatory compliance.
POUT - The facility could potentially be out of compliance.

US ARMY RESERVE CENTERS
NATURAL RESOURCES SURVEY TABLES

FACILITY ID#: RI008
CENTER NAME: Warwick,Rhode Island–PVT Lloyd S. Cooper III USARC

TABLE OF CONTENTS

DATA COLLECTION AND REPORTING ISSUES

US ARMY RESERVE CENTER
NATURAL RESOURCE INVENTORY

US ARMY RESERVE CENTER – NATURAL RESOURCE INVENTORY
FACILITY ID #: RI008
CENTER NAME: Warwick,Rhode Island–PVT Lloyd S.Cooper III USARC

A.CONTRACT SCOPE–OF–WORK

– Review federal regulations governing preparation of Natural Resource Management Plans for USAR sites.
– Conduct a site visit and inventory existing natural resources based on review of existing on–site reports and a general site walkover. A formal wetland delineation is not a part of this scope.
– Provide to the 94th RSC two copies of the two (2) page draft spreadsheet and map for review, and two copies of the final spreadsheet and map. The final spreadsheet will also be provided on computer disk.
– Delineate vegetative habitats and land uses on the site map provided by the 94th RSC, in pencil.
– Attend three (3) in–progress review meetings in Waltham or at Ft. Devens.
– The project will be completed in approximately 12 months from award date, which was 29 September, 1993.

B. GENERAL DATA COLLECTION AND REPORTING ISSUES THAT ARE COMMON TO ALL CENTERS

– The site inventory was limited to a one or two day visit.
– The inventory could not be conducted during the optimum season at each Center for the following reasons:

1) Waiting to initiate inventories until the spring (mid–April) would not have permitted completion of surveys at all 43 Centers, provide an adequate review period for the 94th RSC, and allow ENSR to complete the final reports by the delivery date of 30 October 1994.

2) A one or two day survey would not have provided a complete set of natural resource data even if it had been conducted in the spring. For example, amphibian surveys would need to be conducted in April and May, while breeding bird surveys should be conducted in early June.

3) Similarly, surveys for protected plants would need to be conducted over a two to four month period, based on the flowering season for each protected species.

– Access to the Center early in the morning (bird studies) and at night (amphibian surveys) were generally impractical due to on–site military personnel availability.

It should be noted that representative breeding bird data were collected at only a few of the Centers.

– The vegetative mapping and land use delineations were plotted on site plans provided by CENED. At some Centers, accurate or up–to–date maps were not available. For a number of Centers, the site plans provided did not include the entire property.
– Limited information was collected for adjacent properties and habitats.
– Development of Natural Resource Management Plans were not within the scope of this project.
– No attempt was made to identify and map every plant at each Center. If several individuals of the same species occurred on a Center, the average height was indicated on the summary legend on the facility base map.

C. CENTER – SPECIFIC DATA COLLECTION ISSUES

Note : Some site specific data, such as weather, survey dates, contacts, etc. are included on the Summary Table for each Center.

1) The inventory was conducted on 19 May 1994, precluding definitive surveys for breeding birds and flowering plants.

2) The Facility Base Map does not include the entire property to the north–northwest. A new base map should be developed.

US ARMY RESERVE CENTER – NATURAL RESOURCES SURVEY SUMMARY TABLE

FACILITY ID#: RI008 CENTER NAME: Warwick – PVT Lloyd S. Cooper III USARC ADDRESS: 885 Sandy Lane

CITY: Warwick COUNTY: Kent STATE: RI SURVEYED BY: Jim Duncan – ENSR

COMMAND: 76th SITE CONTACT(S):(Name/Rank/Title) Ms. Marie Normandie DATE OF SURVEY: 19 MAY 94

WEATHER: (Day 1 50 deg F, wind 20 mph Day 2 NA

REFERENCE SITE PLAN – TITLE: United States Army Reserve – Army Reserve Center Warwick, RI – Site Plan & Index Dwg. No. 29–06–11

DRAWING DATE: 6 MAR. 1953 CONTRACTOR: Fontaine & Bohl Assoc. Providence, RI SHEET NUMBER: 1 OTHER: Contract No. DA–19–016–ENG 6223

Scale:1"=20'

A. FACILITIES/HABITATS	IMPROVED GROUNDS	SEMI–IMPROVED GROUNDS	UNIMPROVED GROUNDS	COMMENTS
Buildings and Paved Areas (ac)	1.89 acres	\	\	All parking areas paved.
Grassed Areas (ac)	\	1.29 acres	0.60 acres	Primarily lawn; old successional field north of motor pool.
Wooded Areas (ac)	\	\	1.42 acres	Primarily successional; some older oaks along fence.
Water (ac)	\	\	\	\
Total (ac) (5.2 acres)	1.89 acres	1.29 acres	2.02 acres	

B. Human Uses	COMMENTS
Scenic and Natural Areas	None on Center.
Aesthetic Values	None on Center.
Recreational Areas	None on Center. City recreational baseball fields adjacent.
Public Use	No.
Military Use Only	No.

C. MANAGEMENT PLANS	None identified.

C.1 TIMBER Mgmt. Prog.	None identified.
Commercial Forest (ac)	Approximately 10 commercially valuable oaks in fenced area.

C.2 Wildlife Mgmt. Prog.	None identified.
Hunting	None identified.
Fishing	None identified.

C.3 Programs With State or Federal Agencies	None identified.

C.4 Grounds Maintenance	
Landscaping	Yes. Well maintained lawn and landscape species.
Prescribed Burning	Not used.
Weed Control	Subcontracted. Primarily lawn care. Little evidence of mechanical clearing or herbicide use along fences.
Agricultural Activity	None observed.
Pest Control	Occasional ant and fruit fly problems controlled by on–site personnel.

FACILITY ID#: RI008 CENTER NAME: Warwick -- PVT Lloyd S. Cooper III USARC ADDRESS: 885 Sandy Lane

CITY: Warwick COUNTY: Kent STATE: RI SURVEYED BY: Jim Duncan -- ENSR

COMMAND: 76th SITE CONTACT(S):(Name/Rank/Title) Ms. Marie Normandie DATE OF SURVEY: 19 MAY 94

D. NATURAL RESOURCES

D.1 Surface Water Bodies	Pond/Impoundment	Lake	River	Brook	Offsite Discharge
General Occurrence	\	\	\	\	Municipal
Acres (est.)	\	\	\	\	\

D.2 Wetlands	Riverine	Lacustrine	Palustrine	Estuarine	Marine
General Occurrence	\	\	\	\	\
Sub-Type Species (1)	\	\	\	\	\
Floodplains/Riparian Veg.	\	\	\	\	\
Acres (est.)	\	\	\	\	\

D.3 Upland Vegetation	Trees	Shrubs	Grasses	Forbs	
General Occurrence	Yes	\	\	\	
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLES A2 AND A3. SEE ATTACHED LETTER).				
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLES A2 AND A3. SEE ATTACHED LETTER).				
Commercially Valuable	Several oaks.	\	\	\	

D.4 Invertebates					
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLE A2. SEE ATTACHED LETTER).				
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLE A2. SEE ATTACHED LETTER).				

D.5 Fish	Marine	Estuarine	Freshwater					
			Marsh	Pond	Lake	Brook	River	Impoundment
General Occurrence	\	\	\	\	\	\	\	\
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLE A2. SEE ATTACHED LETTER).							
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLE A2. SEE ATTACHED LETTER).							
Sport Fishing	\	\	\	\	\	\	\	\
Commercial Use	\	\	\	\	\	\	\	\

FACILITY ID#: RI008 CENTER NAME: Warwick -- PVT Lloyd S. Cooper III USARC ADDRESS: 885 Sandy Lane

CITY: Warwick COUNTY: Kent STATE: RI SURVEYED BY: Jim Duncan – ENSR

COMMAND: 76th SITE CONTACT(S):(Name/Rank/Title) Ms. Marie Normandie DATE OF SURVEY: 19 MAY 94

D.6 Reptiles and Amphibians	Salamanders	Frogs	Toads	Turtles	Lizards	Snakes
General Occurrence	SEE TABLE A1	\	SEE TABLE A1	\	\	SEE TABLE A1
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLE A2. SEE ATTACHED LETTER).					
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLE A2. SEE ATTACHED LETTER).					

D.7 Birds	Waterbirds (3)	Raptors (4)	Gamebirds (5)	Flycatchers	Swallows	
General Occurrence (2)	\	H,O SEE TABLE A5	\	SEE TABLE A5	SEE TABLE A5	
Nesting	\	H,O SEE TABLE A5	\	SEE TABLE A5	SEE TABLE A5	
Migration	\	H SEE TABLE A5	\	SEE TABLE A5	SEE TABLE A5	
Wintering	\	H,O SEE TABLE A5	\	\	\	
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLE A2. SEE ATTACHED LETTER).					
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLE A2. SEE ATTACHED LETTER).					
Waterfowl Hunting	\	\	\	\	\	
Gamebird Hunting	\	\	\	\	\	

D.7 Birds *(CONT'D)*	Woodpeckers	Wood Warblers	Thrushes	Sparrows	Other Passerines
General Occurrence (2)	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5
Nesting	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5
Migration	\	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5	SEE TABLE A5
Wintering	SEE TABLE A5	\	\	SEE TABLE A5	SEE TABLE A5
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLE A2. SEE ATTACHED LETTER).				
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLE A2. SEE ATTACHED LETTER).				

FACILITY ID#: RI008 CENTER NAME: Warwick – PVT Lloyd S. Cooper III USARC ADDRESS: 885 Sandy Lane

CITY: Warwick COUNTY: Kent STATE: RI SURVEYED BY: Jim Duncan – ENSR

COMMAND: 76th SITE CONTACT(S):(Name/Rank/Title) Ms. Marie Normandie DATE OF SURVEY: 19 MAY 94

D.8 Mammals	Marsupials	Insectivores (6)	Bats	Rodents (7)	Carnivores (8)	Deer/Moose
General Occurrence	SEE TABLE A1	S,M SEE TABLE A1	SEE TABLE A1	R,C,S,J,V,JM SEE TABLE A1	R,W,S SEE TABLE A1	\
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLE A2. SEE ATTACHED LETTER).					
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLE A2. SEE ATTACHED LETTER).					
Game Species	\	\	\	R,S	\	\
Furbearers	SEE TABLE A1	\	\	\	R,W,S SEE TABLE A1	\

D.9 Other Protected Species							
State Protected Species	NONE IDENTIFIED BY THE RHODE ISLAND NATURAL HERITAGE PROGRAM (REFER TO TABLE A2. SEE ATTACHED LETTER).						
Federally Protected Species	NONE IDENTIFIED BY U.S. FISH AND WILDLIFE SERVICE (REFER TO TABLE A2. SEE ATTACHED LETTER).						

SUMMARY AND RECOMMENDATIONS:

SUMMARY:

Lawn and landscape species well maintained.
Fenced area to north is successional; excellent nesting habitat for urban birds; area too small to support most large carnivores and deer (Center surrounded by parks, commercial, and residential areas).
There are several large white pines on the Center (one contains an active crow nest).
Center plans to remove material dumped north of the main fence.

RECOMMENDATIONS:

Develop a "garbage removal and reclamation plan" for the area north of the main fence.
It would be easy to destroy good habitat in this area if heavy equipment is used without supervision.
If trash is removed with heavy equipment, dig 3 depressions in the drainage to retain runoff from adjacent property. This would increase habitat for amphibians.
Erect chickadee/nuthatch/wren/tree swallow nesting boxes in woodland and along fence (18 total).
Erect American robin/house finch/barn swallow/eastern phoebe nesting platforms on Center buildings.
Erect screech owl/gray squirrel nesting boxes in woodland (4 total).

RECOMMENDATIONS ARE ONLY SUGGESTIONS AND ARE NOT MEANT TO SERVE AS A MANAGEMENT PLAN. PERMITS MAY BE REQUIRED FOR SOME OF THESE ACTIONS.

FACILITY ID#: RI008 CENTER NAME: Warwick -- PVT Lloyd S. Cooper III USARC ADDRESS: 885 Sandy Lane

CITY: Warwick COUNTY: Kent STATE: RI SURVEYED BY: Jim Duncan -- ENSR

COMMAND: 76th SITE CONTACT(S):(Name/Rank/Title) Ms. Marie Normandie DATE OF SURVEY: 19 MAY 94

Legend:

"SEE TABLE" indicates that a species or species group is expected based on range and habitat requirements. Refer to the indicated table for a list of species.

\ Indicates species or species group is not expected to occur on the USARC because suitable habitat is not present.

1) Subtype

RIVERINE	LACUSTRINE	PALUSTRINE	ESTUARINE	MARINE
Tidal	Limnetic	Emergent = E	Intertidal	Subtidal
Lower perennial	Littoral	Scrub-Shrub = S/S		Intertidal
Upper perennial		Forested = F		
Intermittent		Open Water = OW		
Unknown Perennial				

2) Observed species are listed in Table A1.

3) WATERBIRDS

Ocean/Marine = O/M
Waterfowl = W
Herons = H
Shorebirds = S

4) RAPTORS

Hawks = H
Owls = O
Eagles = E

5) GAMEBIRDS

Grouse = G
Quail = Q
Pheasant = P
Turkey = T
Woodcock = W

6) INSECTIVORES

Shrews = S
Moles = M

7) RODENTS

Rabbits = R
Hares = H
Beaver = B
Chipmunks = C
Squirrels = S
Mice = M
Rats = RS
Voles = V
Jumping mice = JM

8) CARNIVORES

Canids = CN
Bears = B
Raccoon = R
Weasels = W
Skunks = S
Cats = CT

US ARMY RESERVE CENTER – NATURAL RESOURCES SURVEY

FACILITY ID#: RI008

CENTER NAME: Warwick, Rhode Island – PVT Lloyd S. Cooper III USARC

SURVEYED BY: Jim Duncan ENSR

SURVEY DATE(S): 19 MAY 94

WILDLIFE SPECIES REPORTED: None.

TABLE A1

WILDLIFE AND VEGETATION SPECIES OBSERVED AND EXPECTED TO OCCUR ON THE WARWICK, RHODE ISLAND USARC (1994)

WILDLIFE SPECIES OBSERVED

BIRDS	BIRDS	MAMMALS	AMPHIBIANS	REPTILES
Gray catbird	Common grackle	Eastern gray squirrel	NONE	NONE
American redstart	Northern mockingbird	Eastern cottontail		
Song sparrow	Black–capped chickadee			
European starling	Mourning dove			
Northern cardinal	American goldfinch			
House sparrow	Rock dove			
House finch	American robin			
Common crow	Gull spp.			
	Blue jay			

WILDLIFE SPECIES EXPECTED

BIRDS	MAMMALS	MAMMALS	AMPHIBIANS	REPTILES
	Virginia opossum	Red squirrel	Redback salamander	Northern brown snake
	Common masked shrew	Southern flying squirrel	Eastern American toad	Eastern garter snake
	Northern short–tailed shrew	White–footed mouse		Northern ringneck snake
SEE TABLE A5 FOR A LIST OF EXPECTED BIRDS.	Hairy–tailed mole	Southern red–backed vole		Northern black racer
	Eastern mole	Meadow vole		Smooth green snake
	Star–nosed mole	Woodland vole		Black rat snake
	Little brown myotis	House mouse		Eastern milk snake
	Big brown bat	Meadow jumping mouse		
	Eastern cottontail	Common raccoon		
	Eastern chipmunk	Ermine		
	Woodchuck	Long tailed weasel		
	Eastern gray squirrel	Striped skunk		

VEGETATION SPECIES OBSERVED

	NATIVE SPECIES			ORNAMENTAL SPECIES	
GRASSES/FORBS	SHRUBS	TREES	TREES	SHRUBS	TREES
Poison ivy	Sumac spp.	Red oak	Tree–of–heaven	Yew spp.	Moraine locust
Honeysuckle vine	Honeysuckle shrub	Black cherry	Persimmon	Pfitzer juniper	
Greenbriar	Wild grape	Mulberry	Basswood	Laurel	
Virginia creeper	Multiflora rose	Boxelder	Flowering dogwood	Upright yew	
Grass spp.		Cottonwood	Black locust		
Queen Ann's lace		White pine	Aspen/poplar		
Japanese knotweed		Eastern red cedar			
Mullen		Red maple			
		Hawthorne spp.			

US ARMY RESERVE CENTER – NATURAL RESOURCES SURVEY

FACILITY ID#: RI008

CENTER NAME: Warwick, Rhode Island–PVT Lloyd S.Cooper III USARC

TABLE A2

FEDERAL AND STATE PROTECTED SPECIES POTENTIALLY OCCURRING ON THE WARWICK, RHODE ISLAND USARC (1994)

1)PLANTS	Status	Species
	SEE TABLE A3 FOR A LIST OF PROTECTED PLANT SPECIES POTENTIALLY OCCURRING ON THE CENTER.	

2)INVERTEBRATES	Status	Species
	None identified in Natural Diversity Data Base (Natural Heritage Program)	
	"SOME OF THE 42 STATE AND FEDERAL PROTECTED INVERTEBRATE SPECIES OCCUR IN HABITATS SIMILAR TO THOSE OCCURRING ON THE USARC; A DETAILED ANALYSIS OF THEIR POTENTIAL OCCURRENCE HAS NOT BEEN MADE".	

3)AMPHIBIANS	Status	Species
	NONE	

4)REPTILES	Status	Species
	SI	*BLACK RAT SNAKE*

5)BIRDS	Status	Species
	SC	*COMMON NIGHTHAWK*
	SC	*WORM–EATING WARBLER*
	SC	*ORCHARD ORIOLE*

6)MAMMALS	Status	Species
	NONE	

SI = STATE SPECIES OF INTEREST SC = STATE SPECIES OF CONCERN

TABLE A3
STATE AND FEDERAL PROTECTED PLANT SPECIES POTENTIALLY OCCURRING ON THE WARWICK, RHODE ISLAND USARC (1994)

STATUS	COMMON NAME	SCIENTIFIC NAME	HABITAT	FLOWERING SEASON
SI	Triangle grape–fern	*Botrychium lanceolatum*	Woods.	6/14 – 9/17
SI	Poke mildweed	*Asclepias exaltata*	Edge of woods, thickets.	6/17 – 7/30
SC	Purple milkweed	*Asclepias purpurescens*	Border of fields.	6/22 – 7/31
SC	Large–leaved aster	*Aster macrophyllus*	Dry woods.	7/29 – 9/26
SI	Swamp beggar's–ticks	*Bidens connata*	Dry fields, open woods.	7/31 – 10/11
SI	Woodland sunflower	*Helianthus divaricatus*	Dry thickets.	7/8 – 9/10
SC	Lion's–foot	*Prenanthes serpentaria*	Dry open woods, clearings, thickets.	8/16 – 10/9
SI	Mountain honeysuckle	*Lonicera dioica*	Dry open woods, thickets.	5/9 – 6/8
SE/FC2	Bushy rockrose	*Helianthemum dumosum*	Dry sandy soil in open.	6/25 – 10/5
SI	Low rockrose	*Helianthemum propinquum*	Dry sandy soil in open.	6/30 – 9/19
SI	Golden heather	*Hudsonia ericoides*	Sandy soil in open.	5/28 – 7/16
SE/FC2	Variable sedge	*Carex polymorpha*	Dry sandy woods.	6/12 – 8/31
ST	Wild senna	*Cassia hebecarpa*	Thickets, fields.	7/20 – 10/23
ST	Rattlebox	*Crotalaria sagittalis*	Dry sandy soil in open.	7/22 – 8/17
SI	Goat's–rue	*Tephrosia virginiana*	Dry sandy clearings, roadsides.	6/17 – 7/31
SI	Post oak	*Quercus stellata*	Dry rock woods.	5/1 – 5/30
SC	Dwarf chestnut oak	*Quercus prinoides*	Dry sterile fields, dry woods.	5/12 – 6/10
SC	Pale corydalis	*Corydalis sempervirens*	Ledges, dry woods, clearings.	6/1 – 9/9
ST	Bicknell's geranium	*Geranium bicknellii*	Roadsides, wasteland, dry lidges.	5/30 – 7/25
SI	Smooth gooseberry	*Ribes hirtellum*	Woods, swamps.	5/3 – 6/15
SC	Common yellow flax	*Linum medium var. texanum*	Dry fields, roadsides.	7/15 – 9/14
SE	Grooved flax	*Linum sulcatum*	Dry roadsides.	7/19 – 9/14
SI	Large coralroot	*Corallorhiza maculata*	Dry woods.	7/5 – 8/28
SE	Green adder's mouth	*Malaxis unifolia*	Moist or dry woods.	7/23 – 8/9
SE	Little ladies'–tresses	*Spiranthes tuberosa var grayi*	Dry fields.	8/14 – 9/13
ST	Purple needlegrass	*Aristida purpurascens*	Dry sandy fields.	8/21 – 10/25
SC	Indian grass	*Sorghastrum nutans*	Dry fields, roadsides.	8/15 – 9/28
SC	Tall dropseed	*Sporobolus asper*	Dry, sandy open areas.	7/20 – 9/30
SI	Whorled milkwort	*Polygala verticillata*	Fields, pastures.	7/23 – 9/23
FE	Sandplain gerardia	*Agalinis acuta*	Fields, woods, openings.	8/23 – 9/21
SC	Northeastern beard–tongue	*Penstemon hirsutus*	Dry fields, hillsides.	5/31 – 7/7
SI	Slippery elm	*Ulmus rubra*	Rich woods, along streams.	5/12 – 5/31

SC = STATE SPECIES OF CONCERN
SI = STATE SPECIES OF INTEREST
SE = STATE ENDANGERED
ST = STATE THREATENED
FE = FEDERAL ENDANGERED.
FC2 = FEDERAL CANDIDATE CATEGORY 2

RANGE:

STATE OF RHODE ISLAND, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. DIVISION OF PLANNING AND DEVELOPMENT 1995.
"CONSIDERED TO BE ENTIRE STATE BASED ON LIMITED AVAILABLE INFORMATION".

HABITATS FROM:

SEYMOUR 1993.

TABLE A4

AMPHIBIANS AND REPTILES WHOSE RANGES INCLUDE THE WARWICK, RHODE ISLAND USARC (1994)

MUDPUPPY	*NECTURUS MACULOSUS MACULOSUS*
MARBLED SALAMANDER	*AMBYSTOMA OPACUM*
JEFFERSON SALAMANDER	*AMBYSTOMA JEFFERSONIANUM*
SPOTTED SALAMANDER	*AMBYSTOMA MACULATUM*
RED–SPOTTED NEWT	*NOTOPHTHALMUS VIRIDESCENS VIRIDESCENS*
NORTHERN DUSKY SALAMANDER	*DESMOGNATHUS FUSCUS FUSCUS*
REDBACK SALAMANDER	*PLETHODON CINEREUS*
FOUR–TOED SALAMANDER	*HEMIDACTYLIUM SCUTATUM*
NORTHERN SPRING SALAMANDER *	*GYRINOPHILUS PORPHYRITICUS PORPHYRITICUS*
NORTHERN TWO–LINED SALAMANDER	*EURYCEA BISLINEATA*
EASTERN SPADEFOOT	*SCAPHIOPUS HOLBROOKII HOLBROOKII*
EASTERN AMERICAN TOAD	*BUFO AMERICANUS AMERICANUS*
FOWLER'S TOAD	*BUFO WOODHOUSII FOWLERI*
NORTHERN SPRING PEEPER	*PSEUDACRIS CRUCIFER CRUCIFER*
GRAY TREEFROG	*HYLA VERSICOLOR*
BULLFROG	*RANA CATESBEIANA*
GREEN FROG	*RANA CLAMITANS MELANOTA*
WOOD FROG	*RANA SYLVATICA*
NORTHERN LEOPARD FROG *	*RANA PIPIENS*
PICKEREL FROG	*RANA PALUSTRIS*
COMMON SNAPPING TURTLE	*CHELYDRA SERPENTINA SERPENTINA*
COMMON MUSK TURTLE	*STERNOTHERUS ODORATUS*
SPOTTED TURTLE	*CLEMMYS GUTTATA*
WOOD TURTLE	*CLEMMYS INSCULPTA*
EASTERN BOX TURTLE	*TERRAPENE CAROLINA CAROLINA*
EASTERN PAINTED TURTLE	*CHRYSEMYS PICTA PICTA*
NORTHERN DIAMONDBACK TERRAPIN	*MALACLEMYS TERRAPIN TERRAPIN*
NORTHERN WATER SNAKE	*NERODIA SIPEDON SIPEDON*
NORTHERN BROWN SNAKE	*STORERIA DEKAYI DEKAYI*
NORTHERN REDBELLY SNAKE	*STORERIA OCCIPITOMACULATA OCCIPITOMACULATA*
EASTERN GARTER SNAKE	*THAMNOPHIS SIRTALIS SIRTALIS*
EASTERN RIBBON SNAKE	*THAMNOPHIS SAURITUS SAURITUS*
EASTERN HOGNOSE SNAKE	*HETERODON PLATIRHINOS*
NORTHERN RINGNECK SNAKE	*DIADOPHIS PUNCTATUS EDWARDSII*
NORTHERN BLACK RACER	*COLUBER CONSTRICTOR CONSTRICTOR*
SMOOTH GREEN SNAKE	*OPHEODRYS VERNALIS*
BLACK RAT SNAKE	*ELAPHE OBSOLETA OBSOLETA*
EASTERN MILK SNAKE	*LAMPROPELTIS TRIANGULUM TRIANGULUM*
TIMBER RATTLESNAKE *	*CROTALUS HORRIDUS*

*** Reserve Center is near the edge of the species geographic range.**

NOMENCLATURE FROM:

SOCIETY FOR THE STUDY OF AMPHIBIANS AND REPTILES 1990.

RANGES FROM:

1) STATE OF RHODE ISLAND, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT 1995.
2) DEGRAAF AND RUDIS 1983a.
3) DEGRAAF AND RUDIS 1983b.

TABLE A5
BREEDING BIRDS WHOSE RANGES INCLUDE THE WARWICK, RHODE ISLAND USARC INCLUDING POTENTIAL NESTING SPECIES (1994)

Double–crested cormorant	*Phalacrocorax auritus*
American bittern	*Botaurus lentiginosus*
Least bittern	*Ixobrychus exilis*
Great egret	*Casmerodius albus*
Snowy egret	*Egretta thula*
Little blue heron	*Egretta caerulea*
Cattle egret	*Babulcus ibis*
Green–backed heron	*Butorides striatus*
Black–crowned night heron	*Nycticorax nycticorax*
Glossy ibis	*Plegadis falcinellus*
Mute swan	*Cygnus olor*
Canada goose	*Branta canadensis*
Wood duck	*Aix sponsa*
American black duck	*Anas rubripes*
Mallard	*Anas platyrhynchos*
Blue–winged teal	*Anas discors*
Osprey	*Pandion haliaetus*
Sharp–shinned hawk	*Accipiter striatus*
Broad–winged hawk	*Buteo platypterus*
Red–tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
Ring–necked pheasant	*Phasianus colchicus*
Ruffed grouse	*Bonasa umbellus*
Northern bobwhite	*Colinus virginianus*
Clapper rail	*Rallus longirostris*
King rail	*Rallus elegans*
Virginia rail	*Rallus limicola*
Sora	*Porzana carolina*
Common moorhen	*Gallinula chloropus*
Killdeer	*Charadrius vociferus*
American oystercatcher	*Haematopus palliatus*
Spotted sandpiper	*Actitis macularia*
Upland sandpiper	*Bartramia longicauda*
American woodcock	*Scolopax minor*
Herring gull	*Larus argentatus*
Great black–backed gull	*Larus marinus*
Common tern	*Sterna hirundo*
Least tern	*Sterna antillarum*
Rock dove	*Columba livia*
Mourning dove	*Zenaida macroura*
Black–billed cuckoo	*Coccyzus erythropthalmus*
Yellow–billed cuckoo	*Coccyzus americanus*
Eastern screech owl	*Otus asio*
Great horned owl	*Bubo virginianus*
Barred owl	*Strix varia*
Common nighthawk	*Chordeiles minor*
Whip–poor–will	*Caprimulgus vociferus*
Chimney swift	*Chaetura pelagica*
Ruby–throated hummingbird	*Archilochus colubris*
Belted kingfisher	*Ceryle alcyon*
Red–bellied woodpecker	*Melanerpes carolinus*

TABLE A5 cont.
BREEDING BIRDS WHOSE RANGES INCLUDE THE WARWICK, RHODE ISLAND USARC INCLUDING POTENTIAL NESTING SPECIES (1994)

Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
Northern flicker	*Colaptes auratus*
Eastern wood–pewee	*Contopus virens*
Acadian flycatcher	*Empidonax virescens*
Willow flycatcher	*Empidonax traillii*
Least flycatcher	*Empidonax minimus*
Eastern phoebe	*Sayornis phoebe*
Great–crested flycatcher	*Myiarchus crinitus*
Eastern kingbird	*Tyrannus tyrannus*
Horned lark	*Eremophila alpestris*
Purple martin	*Progne subis*
Tree swallow	*Tachycineta bicolor*
Northern rough–winged swallow	*Stelgidopteryx serripennis*
Bank swallow	*Riparia riparia*
Barn swallow	*Hirundo rustica*
Blue jay	*Cyanocitta cristata*
American crow	*Corvus brachyrhynchos*
Fish crow	*Corvus ossifragus*
Black–capped chickadee	*Parus atricapillus*
Tufted titmouse	*Parus bicolor*
Red–breasted nuthatch	*Sitta canadensis*
White–breasted nuthatch	*Sitta carolinensis*
Brown creeper	*Certhia americana*
Carolina wren	*Thryothorus ludovicianus*
House wren	*Troglodytes aedon*
Marsh wren	*Cistothorus palustris*
Golden–crowned kinglet	*Regulus satrapa*
Blue–gray gnatcatcher	*Polioptila caerulea*
Eastern bluebird	*Sialia sialis*
Veery	*Catharus fuscescens*
Hermit thrush	*Catharus guttatus*
Wood thrush	*Hylocichla mustelina*
American robin	*Turdus migratorius*
Gray catbird	*Dumetella carolinensis*
Northern mockingbird	*Mimus polyglottos*
Brown thrasher	*Toxostoma rufum*
Cedar waxwing	*Bombycilla cedrorum*
European starling	*Sturnus vulgaris*
White–eyed vireo	*Vireo griseus*
Yellow–throated vireo	*Vireo flavifrons*
Warbling vireo	*Vireo gilvus*
Red–eyed vireo	*Vireo olivaceus*
Blue–winged warbler	*Vermivora pinus*
Nashville warbler	*Vermivora ruficapilla*
Northern parula	*Parula americana*
Yellow warbler	*Dendroica petechia*
Chestnut–sided warbler	*Dendroica pensylvanica*
Black–throated green warbler	*Dendroica virens*
Blackburnian warbler	*Dendroica fusca*
Pine warbler	*Dendroica pinus*

TABLE A5 cont.
BREEDING BIRDS WHOSE RANGES INCLUDE THE WARWICK, RHODE ISLAND USARC INCLUDING POTENTIAL NESTING SPECIES (1994)

Prairie warbler	*Dendroica discolor*
Black–and–white warbler	*Mniotilta varia*
American redstart	*Setophaga ruticilla*
Worm–eating warbler	*Helmitheros vermivorus*
Ovenbird	*Seiurus aurocapillus*
Northern waterthrush	*Seiurus noveboracensis*
Louisiana waterthrush	*Seiurus motacilla*
Common yellowthroat	*Geothlypis trichas*
Hooded warbler	*Wilsonia citrina*
Canada warbler	*Wilsonia canadensis*
Scarlet tanager	*Piranga olivacea*
Northern cardinal	*Cardinalis cardinalis*
Rose–breasted grosbeak	*Pheucticus ludovicianus*
Indigo bunting	*Passerina cyanea*
Rufous–sided towhee	*Pipilo erythrophthalmus*
Chipping sparrow	*Spizella passerina*
Field sparrow	*Spizella pusilla*
Savannah sparrow	*Passerculus sandwichensis*
Grasshopper sparrow	*Ammodramus savannarum*
Sharp–tailed sparrow	*Ammodramus caudacutus*
Seaside sparrow	*Ammodramus maritimus*
Song sparrow	*Melospiza melodia*
Swamp sparrow	*Melospiza georgiana*
Bobolink	*Dolichonyx oryzivorus*
Red–winged blackbird	*Agelaius phoeniceus*
Eastern meadowlark	*Sturnella magna*
Common grackle	*Quiscalus quiscula*
Brown–headed cowbird	*Molothrus ater*
Orchard oriole	*Icterus spurius*
Northern oriole	*Icterus galbula*
Purple finch	*Carpodacus purpureus*
House finch	*Carpodacus mexicanus*
American goldfinch	*Carduelis tristis*
House sparrow	*Passer domesticus*

DENOTES SPECIES POTENTIALLY NESTING ON THE USARC BECAUSE SUITABLE HABITAT IS PRESENT.

NOMENCLATURE FROM:
AMERICAN BIRDING ASSOCIATION 1990.

RANGES FROM:
1) DEGRAAF AND RUDIS 1983b.
2) STATE OF RHODE ISLAND, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT 1995.

TABLE A6
MAMMALS WHOSE RANGES INCLUDE THE WARWICK, RHODE ISLAND USARC (1994)

VIRGINIA OPOSSUM	*DIDELPHIS VIRGINIANA*
COMMON MASKED SHREW	*SOREX CINEREUS*
NORTHERN SHORT–TAILED SHREW	*BLARINA BREVICAUDA*
HAIRY–TAILED MOLE *	*PARASCALOPS BREWERI*
EASTERN MOLE	*SCALOPUS AQUATICUS*
STAR–NOSED MOLE	*CONDYLURA CRISTATA*
LITTLE BROWN MYOTIS	*MYOTIS LUCIFUGUS*
KEEN'S MYOTIS	*MYOTIS KEENII SEPTENTRIONALIS*
SILVER–HAIRED BAT	*LASIONYCTERIS NOCTIVAGANS*
EASTERN PIPISTRELLE	*PIPISTRELLUS SUBFLAVUS OBSCURUS*
BIG BROWN BAT	*EPTESICUS FUSCUS*
EASTERN RED BAT	*LASIURUS BOREALIS*
HOARY BAT	*LASIURUS CINEREUS*
EASTERN COTTONTAIL	*SYLVILAGUS FLORIDANUS*
NEW ENGLAND COTTONTAIL	*SYLVILAGUS TRASITIONALIS*
SNOWSHOE HARE	*LEPUS AMERICANUS*
EASTERN CHIPMUNK	*TAMIAS STRIATUS*
WOODCHUCK	*MARMOTA MONAX*
EASTERN GRAY SQUIRREL	*SCIURUS CAROLINENSIS PENNSYLVANICUS*
RED SQUIRREL	*TAMIASCIURUS HUDSONICUS*
SOUTHERN FLYING SQUIRREL	*GLAUCOMYS VOLANS*
AMERICAN BEAVER	*CASTOR CANADENSIS*
WHITE–FOOTED MOUSE	*PEROMYSCUS LEUCOPUS*
SOUTHERN RED–BACKED VOLE	*CLETHRIONOMYS GAPPERI*
MEADOW VOLE	*MICROTUS PENNSYLVANICUS*
WOODLAND VOLE	*MICROTUS PINETORUM SCALOPSOIDES*
COMMON MUSKRAT	*ONDATRA ZIBETHICUS*
SOUTHERN BOG LEMMING	*SYNAPTOMYS COOPERI*
BLACK RAT	*RATTUS RATTUS*
NORWAY RAT	*RATTUS NORVEGICUS*
HOUSE MOUSE	*MUS MUSCULUS*
MEADOW JUMPING MOUSE	*ZAPUS HUDSONIUS*
RED FOX	*VULPES VULPES*
COMMON GRAY FOX	*UROCYON CINEREOARGENTEUS*
COMMON RACCOON	*PROCYON LOTOR*
ERMINE	*MUSTELA ERMINEA CICOGNANII*
LONG–TAILED WEASEL	*MUSTELA FRENATA*
STRIPED SKUNK	*MEPHITIS MEPHITIS*
MINK	*MUSTELA VISON*
NORTHERN RIVER OTTER	*LUTRA CANADENSIS*
BOBCAT	*LYNX RUFUS*
WHITE–TAILED DEER	*ODOCOILEUS VIRGINIANUS BOREALIS*

*** Reserve Center is near the edge of the species geographic range.**

NOMENCLATURE FROM:
JONES et.al. 1992.

RANGES FROM:
1) CRONAN AND BROOKS 1968.

2) DEGRAAF AND RUDIS 1983b.

3) GODIN 1977.

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STATE PROTECTED SPECIES INFORMATION

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
DIVISION OF PLANNING AND DEVELOPMENT
83 Park Street
Providence, R.I. 02903 - 1037
(401) 277-2776
Fax Number: 277-2069

10 February 1994

Jim Duncan
ENSR Consulting and Engineering
35 Nagog Park
Acton, MA 01720

RE: 7 Army Reserve Centers
Statewide, RI

Dear Mr. Duncan,

Thank you for contacting the Rhode Island Natural Heritage Program for information regarding rare species and ecologically significant natural communities in the vicinities of the 7 Army Reserve Centers throughout Rhode Island.

At this time, we are not aware of any rare plants or animals or ecologically significant natural communities in these areas.

As our inventory is ongoing, more information on these areas may become available in the future.

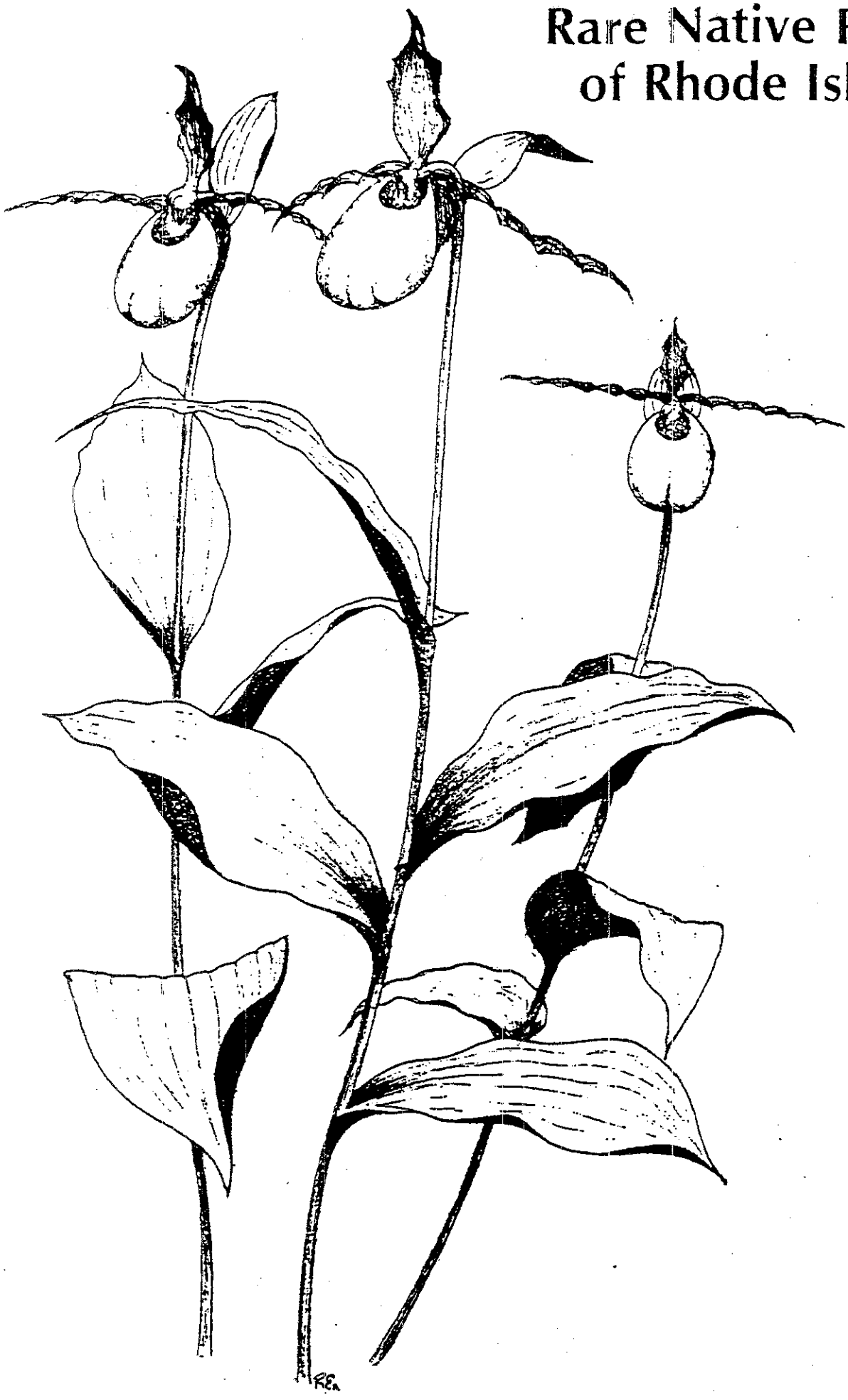
Sincerely,

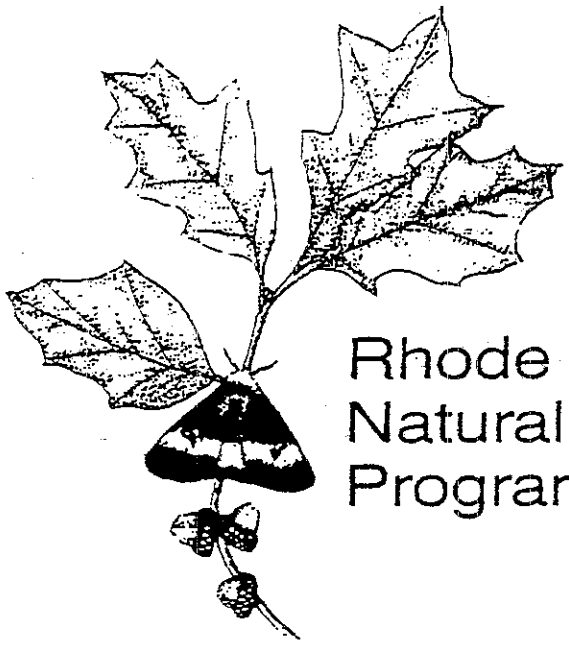
Joanne Michaud

Joanne Michaud
Data Manager/Environmental Planner
Natural Heritage Program

JM/jm

Rare Native Plants of Rhode Island





Rhode Island Natural Heritage Program

Cover: The Large Yellow Lady's-slipper (Cypripedium pubescens) is currently found in Rhode Island at 4 locations in Providence County. Habitat for this showy orchid is generally rich, moist woodlands where other rare plants may also be found. Subject to habitat depletion by land development and collection of individual plants this species is listed as State Threatened in Rhode Island.

RARE NATIVE PLANTS OF RHODE ISLAND - April, 1995

Prepared by

Richard W. Enser
Rhode Island Natural Heritage Program
Rhode Island Department of Environmental Management
Providence, Rhode Island

The flora of Rhode Island includes roughly 1950 plants of which approximately 1500 (77%) are considered to be native. The following list identifies those members of the native flora which are the rarest in Rhode Island and most in need of conservation. All plant taxa listed herein are currently being tracked by the Rhode Island Natural Heritage Program through a comprehensive mapping and computerized database. Information regarding the location and status of rare elements, including plants, animals and natural communities, is used to establish priorities for land preservation and to provide guidance within the environmental review process.

The Rhode Island Natural Heritage Program was established in 1978. During the first year of operation an initial listing of rare plants was derived from two previously published lists. These were "Endangered Plants of Rhode Island", by Dr. Irene Stuckey, and "Rare and Endangered Vascular Plant Species in Rhode Island", by Dr. George L. Church and Richard L. Champlin. The latter publication was the Rhode Island contribution to a regional assessment of rare plants prepared by the New England Botanical Club in cooperation with the U.S. Fish and Wildlife Service.

These initial listings were based primarily on the considerable field experience of the authors, along with some cursory examination of specimens housed at several regional herbaria. Since 1978, the Natural Heritage Program has tapped many sources, particularly additional herbaria and published reports. The author, along with several other professional and amateur botanists, has also spent considerable time verifying the locations and identities of rare plants throughout the state. This combined effort has made the Natural Heritage Program's database the largest repository of rare plant information in Rhode Island.

The rare plant list has been amended annually to reflect the most up-to-date knowledge of plant distribution, status, and taxonomy. Although the number of plants on the rare list has remained relatively constant, certain species have been deleted when found to be more common than originally thought, while others have been added following similar status assessment, or when newly discovered in Rhode Island. (These may be new colonizers or may have been overlooked in the past.) This edition of the "Rare Native Plants of Rhode Island" includes 296 plants, or approximately 19% of the native state flora.

ABOUT THIS LIST

The list is arranged alphabetically by botanical family, genus and species. Trinomials are used to describe certain subspecies and varieties.

Nomenclature

The primary taxonomic authority for scientific names is:

Gleason, Henry A. and Arthur Cronquist. 1991. Manual of vascular plants of Northeastern United States and adjacent Canada, 2nd Edition. New York Botanical Garden. 910p.

Two additional taxonomic treatments have been referenced for the following:

1) Ferns, Fern Allies, and Gymnosperms:

Flora of North America Editorial Committee. 1993. Flora of North America, Volume 2: Pteridophytes and Gymnosperms. Oxford Univ. Press. 320p.

The Flora of North America is a synoptic floristic account of the plants of North America north of Mexico. It is intended to serve both as a means of identifying plants within the region and as a systematic conspectus of the North American flora. Each update of the Rhode Island rare plant list will follow the taxonomic treatment of the Flora of North America as each volume is published.

2) Orchids:

Luer, C.A. 1975. The native orchids of the United States and Canada, excluding Florida. New York Botanical Garden. 361p.

Appropriate synonymy is included in cases where names have changed since the publication of the 8th Edition of Gray's Manual of Botany (Fernald, 1950), or where names differ from more recently published authorities.

Extant Populations

The number refers to extant populations known since 1978. (There are a few instances of populations being destroyed since this date - these have not been included in the count.)

The number of distinct populations of some species, especially aquatics, is often difficult to determine. Population numbers for these species are based on the assumption that single occurrences within the same reach of a river, or separate portions of a pond, lake, or other contiguous wetland system are considered one population.

Status

The status of each species is designated by letter codes as defined below:

(FE) Federally Endangered (2 species currently listed)

(FT) Federally Threatened (No species currently listed)

(SE) State Endangered Native taxa in imminent danger of extirpation from Rhode Island. These taxa meet one or more of the following criteria:

1. A taxon currently under review for listing by the U.S. Fish & Wildlife Service as Federally endangered or threatened. Those identified as C2 (Category 2) are taxa for which information indicates that proposing to list under the Federal Endangered Species Act is possibly appropriate, but for which sufficient data on biological vulnerability and threat are not currently available to support proposed rules.

2. A taxon with 1 or 2 known or estimated total populations in the state.

3. A taxon apparently globally rare or threatened, estimated to occur at approximately 100 or fewer sites range-wide.

Plants listed as State Endangered are protected under the provisions of the Rhode Island State Endangered Species Act, Title 20 of the General Laws of the State of Rhode Island. This law states, in part (20-37-3):

"No person shall buy, sell, offer for sale, store, transport, import, export, or otherwise traffic in any animal or plant or any part of any animal or plant whether living or dead, processed, manufactured, preserved or raw (if) such animal or plant has been declared to be an endangered species by either the United States secretaries of the Interior or Commerce or the Director of the Rhode Island Department of Environmental Management."

(ST) State Threatened Native taxa which are likely to become State Endangered in the future if current trends in habitat loss or other detrimental factors remain unchanged. These taxa meet one or more of the following criteria:

1. A taxon with 3 - 5 known or estimated populations.

2. A taxon with more than 5 known or estimated populations in the state, but especially vulnerable to habitat loss.

(SI) State Interest	Native taxa not considered to be State Endangered or Threatened at the present time, occurring at 6 - 10 sites in the state.
(C) Concern	Native taxa which do not qualify under other categories but are additionally listed due to various factors of rarity and/or vulnerability.
(SH) State Historical	Native taxa which have been documented for the state during the last 150 years but for which no extant populations are known. The year of documented occurrence is included.

Note on Status Designation:

For most listed plants the definitions outlined above have been adhered to when assigning status. In some cases, especially for those species which have not received intensive field inventory, the Concern category is assigned even if only 1-2 populations are known to be extant. These species are targeted for additional inventory and may be assigned to other categories when their actual status in Rhode Island has been clarified. Taxa included in this category are designated with an asterisk (*).

FUTURE REVISIONS

The listing of rare species is an ongoing process requiring annual revisions to reflect the best scientific information available concerning the circumstances of rarity, as well as our increased knowledge of the native flora. Submission of additional data on species currently listed, or on other species which may warrant listing, is encouraged. Information should be sent to:

Rhode Island Natural Heritage Program
Rhode Island Department of Environmental Management
83 Park Street
Providence, Rhode Island 02903
Telephone: (401) 277-2776

ACKNOWLEDGEMENTS

Many people have shared their knowledge of the Rhode Island flora, helping me to provide the most complete assessment of rare plants in the state. In particular I would like to thank the following individuals: Caren A. Caljouw, Richard L. Champlin, Gilbert George, Lisa L. Gould, Julie Lundgren, Joanne Michaud, William Nichols, Christopher Raithel, Thomas Rawinski, Bruce Sorrie, Irene Stuckey, Gordon Tucker.

Species	Extant Pop	Status
Pteridophytes		
Aspleniaceae (Spleenwort Family)		
Asplenium montanum Willd. (Mountain Spleenwort)	1	SE
Asplenium rhizophyllum L. [=Camptosorus rhizophyllus (L.) Link] (Walking Fern)	1	SE
Asplenium trichomanes L. [includes ssp. trichomanes and quadrivalens] (Maidenhair Spleenwort)	9	SI
Equisetaceae (Horsetail Family)		
Equisetum fluviatile L. (Water Horsetail)	3	SI
Equisetum hyemale L. ssp. affine (Engelm.) Calder & R. L. Taylor (Rough Horsetail)	7	C
Equisetum sylvaticum L. (Woodland Horsetail)	10	C
Dryopteridaceae (Wood Fern Family)		
Gymnocarpium dryopteris (L.) Newman [=Dryopteris disjuncta (Ledeb.) Morton] (Oak Fern)	3	ST
Matteuccia struthiopteris (L.) Todaro var. pensylvanica (Willd.) C.V. Morton [=Pteretis pensylvanica (Willd.) Fern.] (Ostrich Fern)	5	C
Woodsia ilvensis (L.) R. Brown (Rusty Woodsia)	0 (1977)	SH
Isoetaceae (Quillwort Family)		
Isoetes engelmannii A. Braun (Engelmann's Quillwort)	4	SI
Isoetes echinospora Dur. [=I. muricata Dur.; I. echinospora var. muricata (Dur.) Engelm.] (Pointed Quillwort)	2	SI

Species	Extant Pop	Status
Isoetes riparia Engelm. ex A. Braun (River Quillwort)	4	SI
Lycopodiaceae (Clubmoss Family)		
Lycopodiella alopecuroides (L.) Cranfill [=Lycopodium alopecuroides L.] (Foxtail Clubmoss)	1	SE
Lycopodium annotinum L. (Stiff Clubmoss)	1	SE
Ophioglossaceae (Adder's-tongue Family)		
Botrychium lanceolatum (Gmel.) Ang. var. angustisegmentum Pease & Moore (Triangle Grape-fern)	2	SI
Botrychium matricariifolium (Doll) A. Braun ex Koch (Daiseyleaf Grape-fern)	4	SI
Botrychium simplex E. Hitchcock (Dwarf Grape-fern)	4	SI
Ophioglossum pusillum Raf. [= O. vulgatum L. var. pseudopodum (S.F. Blake) Farw.] (Adder's-tongue)	1	SE
Pteridaceae (Maidenhair Fern Family)		
Pellaea atropurpurea (L.) Link (Purple Cliff-brake)	1	SE
Schizaeaceae (Curly-grass Fern Family)		
Lygodium palmatum (Bernh.) Swartz. (Climbing Fern)	6	SI
Thelypteridaceae (Marsh Fern Family)		
Phegopteris connectilis (Mich.) Watt [=Thelypteris phegopteris (L.) Slosson; Dryopteris phegopteris (L.) Christens.] (Narrow Beech Fern)	2	ST

Species	Extant Pop	Status
Gymnosperms		
Taxaceae (Yew Family)		
Taxus canadensis Marshall (Ground Hemlock)	3	SI
Pinaceae (Pine Family)		
Larix laricina (DuRoi) K. Koch (American Larch)	3	ST
Picea mariana (Miller) BSP. (Black Spruce)	9	C
Angiosperms		
Aceraceae (Maple Family)		
Acer pensylvanicum L. (Striped Maple)	4	C
Acer spicatum Lam. (Mountain Maple)	1	ST
Alismataceae (Water-Plantain Family)		
Sagittaria graminea Michx. (Grass-leaved Arrowhead)	4	SI
Sagittaria subulata (L.) Buchenau. [includes var. gracillima; = S. stagnorum Small] (River Arrowhead)	0 (1895)	SH
Sagittaria teres S. Watson (Slender Arrowhead)	3	SE
Amaranthaceae (Amaranths)		
Amaranthus pumilus Raf. (Seabeach Amaranth)	0 (1897)	FT/SH

Species	Extant Pop	Status
Apiaceae (Parsley Family)		
Angelica atropurpurea L. (Large Angelica)	1	SE
Angelica lucida L. (Seaside Angelica)	1	SE
Cryptotaenia canadensis (L.) DC. (Honewort)	5	C
Hydrocotyle verticillata Thunb. (Saltpond Pennywort)	0 (1895)	SH
Ligusticum scothicum L. (Scotch Lovage)	10	C
Osmorhiza longistylis (Torr.) DC. (Anise-root)	1	ST
Ptilimnium capillaceum (Michx.) Raf. (Mock Bishop's Weed)	7	C
Taenidia integerrima (L.) Drude (Yellow Pimpernel)	0 (1886)	SH
Zizia aptera (Gray) Fern. (Heart-leaved Golden Alexanders)	0 (1920)	SH
Zizia aurea (L.) W.D.J.Koch (Golden Alexanders)	10	C
Araceae (Arum Family)		
Orontium aquaticum L. (Golden Club)	1	SE
Araliaceae (Ginseng Family)		
Aralia racemosa L. (Spikenard)	5	SI
Panax quinquefolium L. (American Ginseng)	1	SE

Species	Extant Pop	Status
Aristolochiaceae (Birthwort Family)		
Asarum canadense L. (Wild Ginger)	1*	C
Asclepiadaceae (Milkweed Family)		
Asclepias amplexicaulis J.E. Smith (Blunt-leaved Milkweed)	7	C
Asclepias exaltata L. (Poke Milkweed)	4	SI
Asclepias purpurescens L. (Purple Milkweed)	1*	C
Asclepias quadrifolia Jacq. (Four-leaved Milkweed)	2	ST
Asclepias tuberosa L. (Butterfly Milkweed)	8	C
Asclepias verticillata L. (Whorled Milkweed)	4	SI
Asteraceae (Aster Family)		
Artemisia campestris ssp. caudata (Michx.) Hall & Clements [=A. caudata Michx.] (Tall Wormwood)	3	C
Aster concolor L. (Eastern Silvery Aster)	0 (1925)	SH
Aster infirmus Michx. (Cornel-leaved Aster)	0 (1965)	SH
Aster laevis L. (Smooth Blue Aster)	4	C
Aster macrophyllus L. (Large-leaved Aster)	5	C
Bidens connata Muhl. (Swamp Beggar's-ticks)	2	SI

Species	Extant Pop	Status
Bidens coronata (L.) Britt. (Tickseed Sunflower)	3	SI
Chrysopsis falcata (Pursh) Elliott (Sickle-leaved Golden Aster)	8	C
Chrysopsis mariana (L.) Ell. (Maryland Golden Aster)	3	ST
Coreopsis rosea Nutt. (Pink Tickseed)	7	SI
Eupatorium aromaticum L. (Snakeroot)	0 (1979)	SH
Eupatorium leucolepis (DC.) T.& G. var. novae-angliae Fern. (New England Boneset)	5	SE/C2
Gnaphalium purpureum L. (Purple Cudweed)	0 (1913)	SH
Helianthus divaricatus L. (Woodland Sunflower)	2	SI
Liatris scariosa (L.) Willd. var. novae-angliae Lunell [=L. borealis Nutt.; L. novae-angliae] (Northern Blazing Star)	4	SE/C2
Prenanthes serpentaria Pursh (Lion's-foot)	1*	C
Rudbeckia laciniata L. (Green-headed Coneflower)	1	ST
Sclerolepis uniflora (Walter) BSP (Sclerolepis)	1	SE
Solidago elliottii Torr. & Gray (Elliott's Goldenrod)	2	ST
Solidago flexicaulis L. (Zigzag Goldenrod)	1	ST
Solidago rigida L. (Stiff-leaf Goldenrod)	0 (1921)	SH

Species	Extant Pop	Status
Berberidaceae (Barberry Family)		
Caulophyllum thalictroides (L.) Michx. (Blue Cohosh)	2	ST
Boraginaceae (Borage Family)		
Onosmodium virginianum (L.) A.DC. (False Gromwell)	0 (1886)	SH
Brassicaceae (Mustard Family)		
Cardamine longii Fern. (Long's Bitter Cress)	1	SE
Draba reptans (Lam.) Fern. (Carolina Whitlow-Grass)	0 (1902)	SH
Campanulaceae (Bluebell Family)		
Lobelia dortmanna L. (Water Lobelia)	9	C
Caprifoliaceae (Honeysuckle Family)		
Linnaea borealis L. (Twinflower)	0 (1930)	SH
Lonicera dioica L. (Mountain Honeysuckle)	3	SI
Lonicera caerulea L. [=L. villosa (Michx.) Roemer & Schultes] (Mountain Fly-Honeysuckle)	3	SI
Sambucus racemosa L. var. pubens (Michx.) Koehne [=S. pubens Michx.] (Red-berried Elderberry)	1	SI
Triosteum aurantiacum E. Bickn. (Wild Coffee)	5	SI
Triosteum perfoliatum L. (Feverwort)	4	SI

Species	Extant Pop	Status
Viburnum alnifolium Marshall (Hobblebush)	5	C
Viburnum nudum L. (Swamp Haw)	1	ST
Caryophyllaceae (Pink Family)		
Arenaria caroliniana Walter [=Minuartia caroliniana] (Pine Barren Sandwort)	0 (1912)	SH
Arenaria groenlandica (Retz.) Sprengel var. glabra (Michx.) Fern. [=Minuartia groenlandica var. glabra] (Smooth Sandwort)	2	SE
Arenaria stricta Michx. [=Minuartia stricta] (Rock Sandwort)	2	SE
Honckenya peploides (L.) Ehrh. var. robusta (Fern.) House [=Arenaria peploides L. var. robusta Fern.] (Seabeach Sandwort)	6	C
Spergularia canadensis (Pers.) D.Don. (Northern Sand-Spurrey)	2	SI
Chenopodiaceae (Goosefoot Family)		
Atriplex glabriuscula Edmondston (Smooth Orache)	2	SI
Chenopodium leptophyllum Nutt. (Goosefoot)	2	SI
Cistaceae (Rock-rose Family)		
Helianthemum dumosum (E. Bickn.) Fern. (Bushy Rockrose)	6	SE/C2
Helianthemum propinquum E. Bickn. (Low Rockrose)	4	SI
Hudsonia ericoides L. (Golden Heather)	4	SI

Species	Extant Pop	Status
Clusiaceae (St. John's-wort Family)		
Hypericum adpressum Barton. (Creeping St. John's-wort)	4	ST/C2
Cornaceae (Dogwood Family)		
Cornus rugosa Lam. (Round-leaved Dogwood)	4	SI
Cyperaceae (Sedge Family)		
Carex alata Torr. (Winged Sedge)	1*	C
Carex albicans Willd. [=C. artitecta Mackenzie] (Covered Sedge)	2*	C
Carex buxbaumii Wahl. (Buxbaum's Sedge)	1*	C
Carex collinsii Nutt. (Collins' Sedge)	1	SE
Carex cumulata (L. Bailey) Mackenzie (Piled Up Sedge)	1*	C
Carex exilis Dewey (Bog Sedge)	3	SI
Carex limosa L. (Mud Sedge)	0 (1892)	SH
Carex pedunculata Muhl. (Long-stalked Sedge)	2	ST
Carex polymorpha Muhl. (Variable Sedge)	1	SE/C2
Carex schweinitzii Dewey (Schweinitz's Sedge)	0 (1895)	SH
Carex sparganioides Muhl. (Burreed-like Sedge)	1*	ST

Species	Extant Pop	Status
Carex sterilis Willd. (Sterile Sedge)	0 (1878)	SH
Carex striata Michx. var. brevis L. Bailey [=C. walteriana] (Walter's Sedge)	1	SE
Cyperus squarrosus L. [=C. inflexus Muhl.; C. aristatus Rottb.] (Awned Umbrella-Sedge)	0 (1914)	SH
Eleocharis equisetoides (Ell.) Torr. (Horsetail Spike-rush)	8	SI
Eleocharis melanocarpa Torr. (Black-fruited Spike-rush)	1	SE
Eleocharis rostellata (Torr.) Torr. (Small-beaked Spike-rush)	2	SI
Eleocharis tricostata Torr. (Three-angled Spike-rush)	0 (1935)	SH
Eriophorum gracile W.D.J. Koch (Slender Cotton-grass)	2	ST
Eriophorum vaginatum L. var. spissum (Fern.) B. Boivin. [=E. spissum Fern.] (Hare's Tail)	0 (1904)	SH
Eriophorum viridicarinatum (Engelm.) Fern. (Bog Cotton-grass)	3	SI
Fuirena pumila (Torr.) Sprengel (Umbrella Grass)	2	SE
Hemicarpha micrantha (Vahl) Britton (Tiny-flowered Sedge)	0 (1892)	SH
Rhynchospora inundata (Oakes) Fern. (Inundated Horned Rush)	4	SE
Rhynchospora macrostachya Torr. (Tall Beaked Rush)	5	ST
Rhynchospora scirpoides (Vahl) Griseb. [=Psilocarya scirpoides Torr.] (Long-beaked Bald Rush)	2	SE
Rhynchospora torreyana A. Gray (Torrey's Beaked Rush)	2	SE

Species	Extant Pop	Status
Scirpus etuberculatus (Steudel) Kuntze (Swamp Bulrush)	1	SE
Scirpus hudsonianus (Michx.) Fern. [=Eriophorum alpinum] (Northern Cotton-grass)	0 (1907)	SH
Scirpus longii Fern. (Long's Bulrush)	1	SE/C2
Scirpus maritimus L. [=S. maritimus var. fernaldii (Bickn.) Beetle] (Saltmarsh Bulrush)	4	SI
Scirpus smithii A. Gray (Smith's Bulrush)	3	ST
Scirpus torrevi Olney (Torrey's Bulrush)	3	SI
Scleria pauciflora Muhl. (Carolina-whipgrass)	3	ST
Scleria reticularis Michx. (Reticulated Nut-rush)	3	ST
Scleria triglomerata Michx. (Whipgrass)	2	ST
Droseraceae (Sundew Family)		
Drosera filiformis Raf. (Thread-leaved Sundew)	1	SE
Elatinaceae (Waterwort Famnily)		
Elatine triandra Schkuhr. var. americana (Pursh) Fassett [= E. americana (Pursh) Arn.] (American Waterwort)	2	SI

Species	Extant Pop	Status
Ericaceae (Heath Family)		
Andromeda glaucophylla Link (Bog Rosemary)	1	SE
Gaultheria hispidula (L.) Muhl. (Creeping Snowberry)	3	SI
Gaylussacia dumosa (Andr.) Torr. & Gray var. bigeloviana Fern. (Dwarf Huckleberry)	4	C
Kalmia polifolia Wang. (Pale Laurel)	2	ST
Lyonia mariana (L.) D. Don. (Staggerbush)	1*	C
Rhododendron periclymenoides (Michx.) Shinners [=R. nudiflorum (L.) Torr.] (Pinxter-flower)	1*	C
Fabaceae (Bean Family)		
Arabis drummondii A. Gray (Rock-cress)	1*	C
Cassia hebecarpa Fern. (Wild Senna)	1	ST
Crotalaria sagittalis L. (Rattlebox)	1	ST
Desmodium ciliare (Muhl.) DC. (Small-leaved Tick-trefoil)	2	ST
Desmodium sessilifolium (Torr.) Torr. & Gray (Sessile-leaved Tick-trefoil)	1	SE
Lupinus perennis L. (Wild Lupine)	8	C
Strophostyles umbellata (Muhl.) Britt. (Pink Wild Bean)	1*	C
Tephrosia virginiana (L.) Pers. (Goat's-Rue)	5	SI

Species	Extant Pop	Status
Fagaceae (Oak Family)		
Quercus stellata Wangenh. (Post Oak)	2	SI
Quercus prinoides Willd. [=Q. prinoides Willd. var. rufescens Rehd.] (Dwarf Chestnut Oak)	7	C
Fumariaceae (Fumitory Family)		
Adlumia fungosa (Aiton) Greene (Climbing Fumitory)	2	SE
Corydalis sempervirens (L.) Pers. (Pale Corydalis)	10	C
Gentianaceae (Gentian Family)		
Gentiana andrewsii Griseb. (Closed Gentian)	0 (1915)	SH
Gentianopsis crinita (Froelich)Ma. (Fringed Gentian)	5	SI
Sabatia kennedyana Fern. (Plymouth Gentian)	4	SE
Sabatia stellaris Pursh. (Sea-Pink)	4	ST
Geraniaceae (Geranium Family)		
Geranium bicknellii Britt. (Bicknell's Geranium)	1	ST
Geranium robertianum L. (Herb-Robert)	3	ST
Grossulariaceae (Gooseberry Family)		
Ribes hirtellum Michx. (Smooth Gooseberry)	4	SI

Species	Extant Pop	Status
Haloragaceae (Water-milfoil Family)		
Myriophyllum alterniflorum DC. (Alternate-flowered Water-Milfoil)	0 (1864)	SH
Myriophyllum pinnatum (Walter) BSP (Pinnate Water-Milfoil)	1*	ST
Proserpinaca pectinata Lam. (Comb-like Mermaid-weed)	1*	C
Haemodoraceae (Bloodwort Family)		
Lachnanthes caroliana (Lam.) Dandy [=L. tinctoria (Walt.) Ell.] (Carolina Redroot)	4	ST
Iridaceae (Iris Family)		
Sisyrinchium fuscatum E. Bickn. [=S. arenicola Bickn. (Sandplain Blue-eyed Grass)	0 (1900)	SH
Juncaceae (Rush Family)		
Juncus debilis A. Gray (Weak Rush)	3	SI
Juncaginaceae (Arrow-grass Family)		
Triglochin palustre L. (Arrow-grass)	0 (1878)	SH
Lamiaceae (Mint Family)		
Hedeoma pulegioides (L.) Pers. (American Pennyroyal)	4	SI
Monarda fistulosa L. (Wild Bergamot)	0 (1965)	SH
Physostegia virginiana (L.) Benth. (False Dragonhead)	2	SI

Species	Extant Pop	Status
Stachys hyssopifolia Michx. (Hyssop-leaved Hedge-Nettle)	2	SE
Lentibulariaceae (Bladderwort Family)		
Utricularia biflora Lam. (Two-flowered Bladderwort)	2	ST
Utricularia geminiscapa Benj. (Paired Bladderwort)	5	SI
Utricularia gibba L. (Humped Bladderwort)	3	SI
Utricularia intermedia Hayne (Flat-leaved Bladderwort)	1	SI
Utricularia minor L. (Small Bladderwort)	0 (1920)	SH
Utricularia resupinata B.D.Greene (Reversed Bladderwort)	2	ST
Utricularia subulata L. (Zigzag Bladderwort)	3	ST
Liliaceae (Lily Family)		
Aletris farinosa L. (Colicroot)	8	C
Allium tricoccum Aiton. (Wild Leek)	3	SI
Lilium canadense L. (Canada Lily)	3	ST
Lilium philadelphicum L. (Wood Lily)	9	C
Smilacina trifolia (L.) Desf. (Three-leaved False Solomon's Seal)	0 (1960)	SH
Streptopus roseus Michx. (Rose Twisted-stalk)	2	ST

Species	Extant Pop	Status
Trillium erectum L. (Purple Trillium)	2	ST
Linaceae (Flax Family)		
Linum intercursum E. Bickn. (Sandplain Flax)	1	SE
Linum medium (Planchon) Britton var. texanum (Planchon) Fern. (Common Yellow Flax)	1*	C
Linum sulcatum Riddell (Grooved Flax)	1	SE
Lythraceae (Loosestrifes)		
Rotala ramosior (L.) Koehne (Toothcup)	1	SE
Najadaceae (Water-nymph Family)		
Naias guadalupensis (Spreng.) Magnus (Naiad)	1*	C
Oleaceae (Ash Family)		
Fraxinus nigra Marshall (Black Ash)	7	C
Onagraceae (Evening-primrose Family)		
Circaea alpina L. (Small Enchanter's Nightshade)	4	C
Epilobium palustre L. (Marsh Willow-herb)	2	SI
Ludwigia sphaerocarpa Elliott (Round-fruited False Loosestrife)	1	SE

Species	Extant Pop	Status
Orchidaceae (Orchids)		
Arethusa bulbosa L. (Swamp Pink)	5	SE
Calopogon tuberosus (L.) BSP [=C. pulchellus (Salisb.) R.Br.] (Grass Pink)	7	C
Coeloglossum viride (L.) Hartman var. virescens (Muhl. ex Willd.) Luer [=Habenaria bracteata (Muhl. ex Willd.) R.Br.] (Long-bracted Green Orchis)	2	ST
Corallorhiza maculata (Raf.) Raf. (Large Coralroot)	7	SI
Corallorhiza odontorhiza (Willd.) Nutt. (Autumn Coralroot)	3	ST
Corallorhiza trifida Chatelain (Early Coralroot)	4	SI
Cypripedium calceolus L. var. pubescens (Willd.) Correll [=C. pubescens] (Large Yellow Lady-slipper)	4	ST
Cypripedium calceolus L. var. parviflorum (Salisb.) Fern. [=C. parviflorum Salisb.] (Small Yellow Lady-slipper)	2	ST
Orchis spectabilis L. [=Galearis spectabilis (L.) Raf.] (Showy Orchis)	1	SE
Isotria medeoloides (Pursh) Raf. (Small Whorled Pogonia)	1	FT
Liparis lilifolia (L.) L.C. Rich. (Lily-leaved Twayblade)	4	ST
Liparis loeselii (L.) L.C. Rich. (Yellow Twayblade)	2	ST
Listera cordata (L.) R.Br. (Heartleaf Twayblade)	0 (1897)	SH
Malaxis unifolia Michx. (Green Adder's mouth)	1	SE

Species	Extant Pop	Status
Platanthera blephariglottis (Willd.) Lindl. [=Habenaria blephariglottis (Willd.) Hook.] (White Fringed Orchid)	3	ST
Platanthera ciliaris (L.) Lindl. [=Habenaria ciliaris (L.) R.Br.] (Yellow Fringed Orchid)	2	SE
Platanthera flava (L.) Lindl. var. herbiola (R.Br.) Luer [=Habenaria flava (L.) R.Br. var. herbiola (R.Br.) Ames & Correll] (Pale Green Orchid)	3	SE
Platanthera hookeri (Torr. ex Gray) Lindl. [=Habenaria hookeri Torr. ex Gray] (Hooker's Orchid)	1	SE
Platanthera hyperborea (L.) Lindl. [=Habenaria hyperborea (L.) R.Br.] (Northern Green Orchid)	2	ST
Platanthera orbiculata (Pursh) Lindl. [=Habenaria orbiculata (Pursh) Torr.] (Round-leaved Orchid)	3	ST
Platanthera orbiculata (Pursh) Lindl. var. macrophylla (Goldie) Luer [=Habenaria macrophylla Goldie] (Large Round-leaved Orchid)	1	ST
Platanthera psycodes (L.) Lindl. [=Habenaria psycodes (L.) Spreng] (Small Purple Fringed Orchid)	9	C
Spiranthes lucida (H. Eaton) Ames (Shining Ladies'-tresses)	0 (1960)	SH
Spiranthes tuberosa Raf. [includes var. gravi (Ames) Fern.] (Little Ladies'-tresses)	1	SE
Spiranthes vernalis Engelm. & A. Gray (Spring Ladies'-tresses)	3	SI
Orobanchaceae (Broom-rape Family)		
Conopholis americana (L.) Wallr. (Squaw-root)	8	C

Species	Extant Pop	Status
Oxalidaceae (Wood sorrel Family)		
Oxalis violacea L. (Violet Wood-Sorrel)	1	SE
Papaveraceae (Poppy Family)		
Sanguinaria canadensis L. (Bloodroot)	6	C
Poaceae (Grass Family)		
Aristida longespica Poiret. (Slim-spike Three-awn)	6	C
Aristida purpurascens Poiret. (Purple Needlegrass)	2	ST
Diplachne maritima Bickn. (Saltpond Grass)	0 (1913)	SH
Elymus villosus Muhl. (Downy Wild Rye)	1*	C
Oryzopsis pungens (Torr.) A. Hitchc. (Northern Ricegrass)	1*	C
Panicum amarum Elliott (Panic-grass)	1*	C
Panicum philadelphicum Bernh. (Philadelphia Panic-grass)	3	SI
Panicum rigidulum Nees [=P. agrostoides Spreng.] (Long-leaved Panic-grass)	3	SI
Panicum wrightianum Scribn. (Wright's Panic-grass)	2	SI
Poa languida A. Hitchc. (Weak Bluegrass)	1*	C

Species	Extant Pop	Status
Puccinellia pumila (Vasey) A. Hitchc. [=P. langeana (Berlin) Sorensen var. alaskana (Scribn. & Merr.) Fern. & Weath.] (Goosegrass)	0 (1917)	SH
Setaria geniculata (Lam.) P. Beauv. (Bristly Foxtail)	1	C
Sorghastrum nutans (L.) Nash (Indian Grass)	4	C
Spartina cynosuroides (L.) Roth (Salt Reed Cordgrass)	2	SI
Sphenopholis nitida (Biehler) Scribn. (Shining Sphenopholis)	1*	C
Sphenopholis obtusata (Michx.) Scribn. (Prairie Wedgegrass)	1*	C
Sphenopholis pensylvanica (L.) Hitchc. [=Trisetum pensylvanicum (L.) Beauv.] (Swamp Oats)	1*	C
Sporobolus asper (Michx.) Kunth (Tall Dropseed)	1*	C
Tripsacum dactyloides (L.) L. (Northern Gama-grass)	6	C
Zizania aquatica L. (Wild Rice)	6	C
Podostemaceae (River-weed Family)		
Podostemum ceratophyllum Michx. (Riverweed)	0 (1890)	SH
Polygalaceae (Milkwort Family)		
Polygala cruciata L. (Cross-leaved Milkwort)	3	SI

Species	Extant Pop	Status
Polygala verticillata L. (Whorled Milkwort)	3	SI
Polygonaceae (Buckwheat Family)		
Polygonum glaucum Nutt. (Seabeach Knotweed)	3	ST
Polygonum hydropiperoides Michx. var. setaceum (Baldw.) Gleason [= P. setaceum Baldw. var. interjectum Fern.] (Strigose Knotweed)	0 (1924)	SH
Portulaceae (Purslanes)		
Claytonia virginica L. (Meadow Beauty)	0 (1838)	SH
Primulaceae (Primrose Family)		
Glaux maritima L. (Sea Milkwort)	0 (1917)	SH
Hottonia inflata Elliott (Featherfoil)	5	SI
Pyrolaceae (Shinleaf Family)		
Moneses uniflora (L.) A. Gray (One-flowered Wintergreen)	2	ST
Pyrola secunda L. [=Orthilia secunda (L.) House] (One-sided Pyrola)	2	ST
Pyrola chlorantha Sw. [=Pyrola virens Schweig.] (Green Pyrola)	4	SI

Species	Extant Pop	Status
Ranunculaceae (Buttercup Family)		
Actaea rubra (Aiton) Willd. (Red Baneberry)	5	SI
Anemone cylindrica A. Gray (Long-fruited Anemone)	3	SI
Anemone virginiana L. [=A. riparia Fern.] (Large Anemone)	0 (1950)	SH
Anemonella thalictroides (L.) Spach. (Rue Anemone)	4	C
Clematis occidentalis (Hornem.) DC. [=C. verticillaris DC.] (Purple Clematis)	1	SE
Hepatica americana (DC.) KerGawler (Hepatica)	5	C
Ranunculus allegheniensis Britt. (Allegheny Crowfoot)	1*	C
Ranunculus ambigens S. Wats (Water-plantain Spearwort)	1*	C
Ranunculus cymbalaria Pursh. (Seaside Buttercup)	0 (1948)	SH
Ranunculus flabellaris Raf. (Yellow Water-Crowfoot)	4	SI
Ranunculus micranthus Nutt. (Small-flowered Crowfoot)	1	ST
Ranunculus scleratus L. (Cursed Crowfoot)	2*	C
Ranunculus trichophyllus Chaix. var. calvescens W.Drew [=R. aquatilis var. capillaceus] (White Water-Crowfoot)	0 (1963)	SH
Thalictrum revolutum DC. (Purple Meadow-Rue)	0 (1900)	SH

Species	Extant Pop	Status
Rosaceae (Rose Family)		
Agrimonia pubescens Wallr. (Hairy Agrimony)	0 (1912)	SH
Dalibarda repens L. (Dewdrop)	1	SE
Geum laciniatum Murray. (Hairy Herb-Bennet)	0 (1920)	SH
Potentilla tridentata Sol. (Three-toothed Cinquefoil)	0 (1979)	SH
Prunus pumila L. var. cuneata (Raf.)L.H. Bailey [=P. susquehanae Willd.] (Sand Cherry)	3	SI
Sanguisorba canadensis L. (Canadian Burnet)	1	SE
Rubiaceae (Madder Family)		
Hedyotis longifolia (Gaertn.) Hook. [=Houstonia longifolia Gaertn.] (Long-leaved Bluets)	0 (1966)	SH
Salicaceae (Willow Family)		
Populus heterophylla L. (Swamp Cottonwood)	1	SI
Salix pedicellaris Pursh (Bog Willow)	0 (1970)	SH
Saururaceae (Lizard's-tail Family)		
Saururus cernuus L. (Lizard's-tail)	1	SE

Species	Extant Pop	Status
Saxifragaceae (Saxifrage Family)		
Parnassia glauca Raf. (Grass-of-Parnassus)	0 (1980)	SH
Penthorum sedoides L. (Ditch Stonecrop)	7	C
Saxifraga pensylvanica L. (Swamp Saxifrage)	5	SI
Saxifraga virginiensis Michx. (Early Saxifrage)	10	C
Scheuchzeriaceae (Pod-grass Family)		
Scheuchzeria palustris L. (Pod-grass)	1	SE
Scrophulariaceae (Figwort Family)		
Agalinis acuta Pennell [=Gerardia acuta (Pennell) Pennell] (Sandplain Gerardia)	1	FE
Agalinis tenuifolia (Vahl) Raf. [=Gerardia tenuifolia Vahl] (Slender Gerardia)	5	SI
Castilleia coccinea (L.) Spreng. (Painted Cup)	0 (1908)	SH
Gratiola virginiana L. (Virginia Hedge-hyssop)	2	C
Limosella subulata Ives (Mudwort)	5	C
Penstemon digitalis Nutt. (Tall White Beard-tongue)	2*	C
Penstemon hirsutus (L.) Willd. (Northeastern Beard-tongue)	1*	C

Species	Extant Pop	Status
Scrophularia lanceolata Pursh. (Hare Figwort)	4	SI
Scrophularia marilandica L. (Maryland Figwort)	2	ST
Ulmaceae (Elm Family)		
Ulmus rubra Muhl. (Slippery Elm)	2	SI
Violaceae (Violet Family)		
Viola canadensis L. (Canada Violet)	0 (1920)	SH
Viola pubescens Aiton [=V. pensylvania Michx.] (Smooth Yellow Violet)	2	SI
Viola rotundifolia Michx. (Round-leaved Yellow Violet)	6	SI
Viscaceae (Christmas-mistletoe Family)		
Arceuthobium pusillum M.E. Peck (Dwarf Mistletoe)	1	SE
Xyridaceae (Yellow-eyed Grass Family)		
Xyris montana H. Ries (Northern Yellow-eyed Grass)	3	ST

INDEX OF GENERA

(Names in parentheses are no longer in use, but refer to synonym entries.)

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Arabis	Fabaceae
Arceuthobium	Viscaceae
Arenaria	Caryophyllaceae
Arethusa	Orchidaceae
Aristida	Poaceae
Artemisia	Asteraceae
Asarum	Aristolochiaceae
Asclepias	Asclepiadaceae
Aster	Asteraceae
Atriplex	Chenopodiaceae
Bidens	Asteraceae
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Cardamine	Brassicaceae
Carex	Cyperaceae
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Cyperus	Cyperaceae
Cypripedium	Orchidaceae
Dalibarda	Rosaceae
Desmodium	Fabaceae
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Drosera	Droseraceae
Elatine	Elatinaceae
Eleocharis	Cyperaceae
Elymus	Poaceae
Epilobium	Onagraceae
Eriophorum	Cyperaceae
Eupatorium	Asteraceae

Fraxinus	Oleaceae
Fuirena	Cyperaceae
(Galearis)	Orchidaceae
Gaultheria	Ericaceae
Gaylussacia	Ericaceae
Gentiana	Gentianaceae
Gentianopsis	Gentianaceae
Geranium	Geraniaceae
(Gerardia)	Scrophulariaceae
Geum	Rosaceae
Glaux	Primulaceae
Gnaphalium	Asteraceae
Gratiola	Scrophulariaceae
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Hedeoma	Lamiaceae
Hedyotis	Rubiaceae
Helianthemum	Cistaceae
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Linnaea	Caprifoliaceae
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Listera	Orchidaceae
Lobelia	Campanulaceae
Lonicera	Caprifoliaceae
Ludwigia	Onagraceae
Lupinus	Fabaceae
Lyonia	Ericaceae
Malaxis	Orchidaceae
(Minuartia)	Caryophyllaceae
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Moneses	Pyrolaceae
Myriophyllum	Haloragaceae
Najas	Najadaceae
Onosmodium	Boraginaceae
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Orontium	Araceae
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Penthorum	Saxifragaceae
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(Psilocarya)	Cyperaceae
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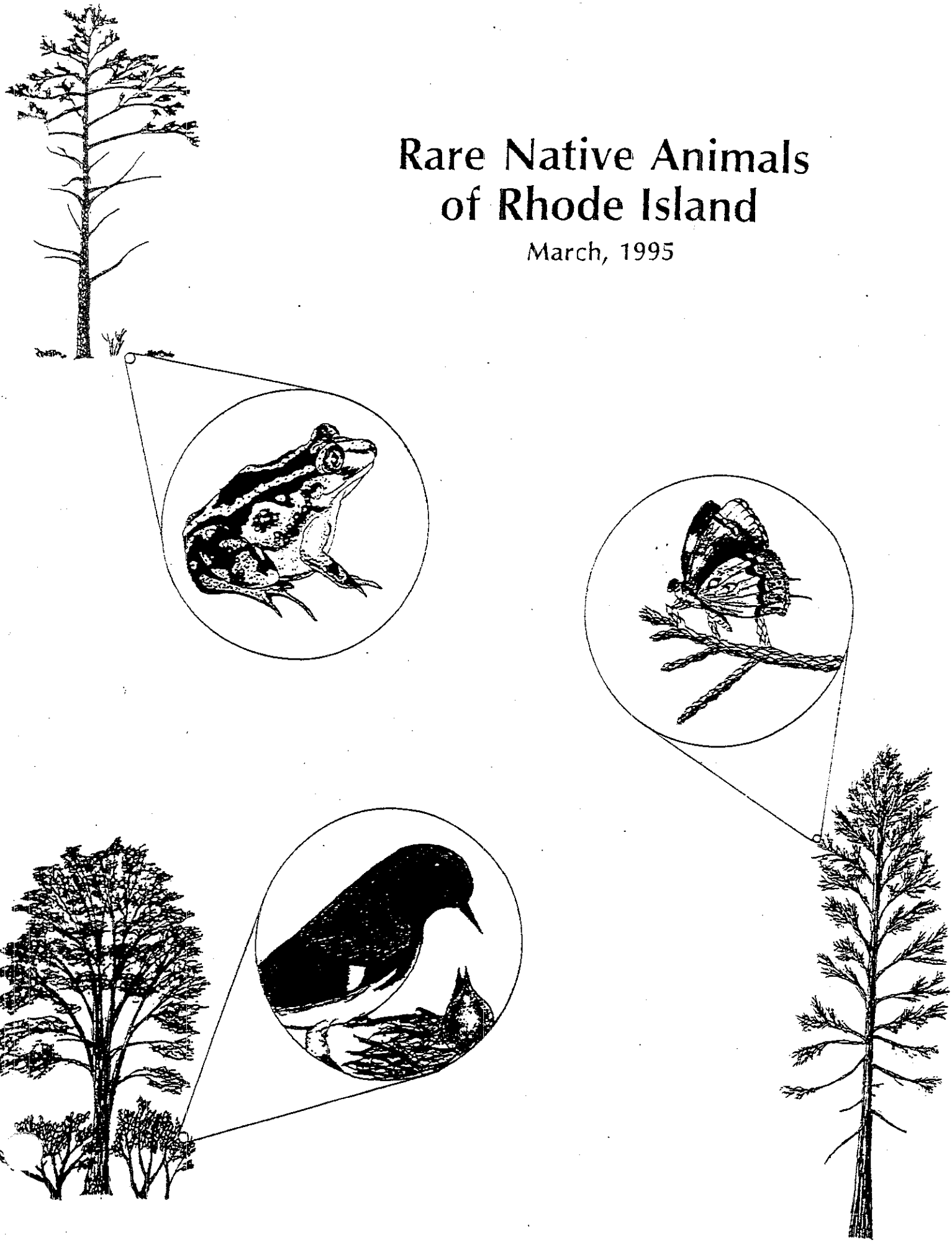
Sambucus	Caprifoliaceae
Sanguinaria	Papaveraceae
Sanguisorba	Rosaceae
Saururus	Saururaceae
Saxifraga	Saxifragaceae
Scheuchzeria	Scheuchzeriaceae
Scirpus	Cyperaceae

Scleria	Cyperaceae
Sclerolepis	Asteraceae
Scrophularia	Scrophulariaceae
Setaria	Poaceae
Sisyrinchium	Iridaceae
Smilacina	Liliaceae
Solidago	Asteraceae
Sorghastrum	Poaceae
Spartina	Poaceae
Sphenopholis	Poaceae
Spiranthes	Orchidaceae
Sporobolus	Poaceae
Stachys	Lamiaceae
Streptopus	Liliaceae
Strophostyles	Fabaceae
Suaeda	Chenopodiaceae
Taenidia	Apiaceae
Tephrosia	Fabaceae
Thalictrum	Ranunculaceae
Triglochin	Juncaginaceae
Trillium	Liliaceae
Triosteum	Caprifoliaceae
Tripsacum	Poaceae
(Trisetum)	Poaceae
Ulmus	Ulmaceae
Utricularia	Lentibulariaceae
Viburnum	Caprifoliaceae
Viola	Violaceae
Xyris	Xyridaceae
Zizania	Poaceae
Zizia	Apiaceae

Rare Native Animals of Rhode Island

March, 1995



ABOUT THIS LIST

The list is divided by vertebrates and invertebrates and is arranged taxonomically according to the recogized authority cited before each group. Appropriate synonomy is included where names have changed since publication of the cited authority.

The Natural Heritage Program's Rare Native Plants of Rhode Island includes an estimate of the number of "extant populations" for each listed plant species, a figure which has been helpful in assessing the health of species over their entire range. Because animals are mobile, some exhibiting annual long-distance migrations, it is not possible to derive a population index which can be applied to all animal groups. The status assigned to each species (see definitions in next section) provides some indication of its range and relative abundance. More specific and pertinent data is available from the Natural Heritage Program and the Rhode Island Endangered Species Program.

STATUS

The status of each species is designated by letter codes as defined below:

(FE) **Federally Endangered** (7 species currently listed)

(FT) **Federally Threatened** (2 species currently listed)

(SE) **State Endangered** Native species in imminent danger of extirpation from Rhode Island. These taxa meet one or more of the following criteria:

1. A species currently under review for listing by the U.S. Fish and Wildlife Service as Federally endangered or threatened. Those identified as C2 (Category 2) are taxa for which information indicates that proposing to list under the Federal Endangered Species Act is possibly appropriate, but for which sufficient data on biological vulnerability and threat are not currently available to support proposed rules. Designation of C2 status by the Federal government does not automatically warrant an SE rank in Rhode Island unless one of the following criteria also apply.

2. A species with 1 or 2 known or estimated total populations in the state.

3. A species apparently globally rare or threatened, and estimated to occur as approximately 100 or fewer populations range-wide.

Animals listed as State Endangered are protected under the provisions of the Rhode Island State Endangered Species Act, Title 20 of the General Laws of the State of Rhode Islands. This law states, in part (20-37-3):

"No person shall buy, sell, offer for sale, store, transport, export, or otherwise traffic in any animal or plant or any part of any animal or plant whether living or dead, processed, manufactured, preserved or raw (if) such animal or plant has been declared to be an endangered species by either the United States secretaries of the Interior or Commerce or the Director of the R. I. Department of Environmental Management."

(ST) State Threatened

Native species which are likely to become state endangered in the future if current trends in habitat loss or other detrimental factors remain unchanged. These species meet one or more of the following criteria:

1. A species with 3 to 5 known or estimated populations in the state.

2. A species with more than 5 known or estimated populations in the state, but exhibiting particular vulnerability to habitat loss.

(SI) State Interest

Native species not considered to be State Endangered or State Threatened at the present time, but occur in 10 or fewer sites in the state.

(C) Concern

Native species which do not apply under the above categories but are additionally listed due to various factors of rarity and/or vulnerability; or, species which may warrant listing in higher categories but status information is presently not well known.

(SH) State Historical

Native species which have been documented for the state during the last 100 years but for which current occurrences are unknown. When known, the year of the last documented occurrence is included.

FUTURE REVISIONS

The listing of rare species is an ongoing process requiring annual revisions to reflect the best scientific information available concerning the circumstances of rarity, as well as our increased knowledge of the native fauna. Submission of additional data on species currently listed, or on other species which may warrant listing, is encouraged. Information should be sent to:

Rhode Island Natural Heritage Program
Rhode Island Department of Environmental Management
Division of Planning & Development
83 Park Street
Providence, Rhode Island 02903
Telephone: (401) 277-2776

Rhode Island Endangered Species Program
Rhode Island Department of Environmental Management
Division of Fish, Wildlife & Estuarine Resources
Great Swamp Management Area
West Kingston, Rhode Island 02892
Telephone: (401) 789-0281

INVERTEBRATES

The task of evaluating the status of invertebrates in Rhode Island has been initiated for selected groups. At this time the list primarily includes freshwater bivalves (clams and mussels) and the following insect groups: lepidopterans (moths and butterflies), odonates (dragonflies and damselflies), silphids (burying beetles), and cicindelids (tiger beetles). Additional taxa will be added in the future upon the completion of further research and inventory. The following publications are a partial listing of taxonomic references:

Hodges, R.W., et. al. 1983. Check list of the Lepidoptera of America north of Mexico. E.W. Classey Ltd. and Wedge Entomological Research Foundation. 1-284.

Johnson, R.I. 1980. Zoogeography of North American Unionacea (Mollusca: Bivalvia) north of the maximum Pleistocene glaciation. Bull. Museum Comparative Zoology. 149:77-189.

BIVALVE MOLLUSKS

Unionoida (freshwater mussels)

Margaritiferidae (pearlshells)

Margaritifera margaritifera	Eastern Pearlshell	C

Unionidae (unionid mussels)

Alismidonta varicosa	Brook Floater	SH (1897)/C2
Lampsilis radiata	Lampmussel	C
Ligumia nasuta	Eastern Pond Mussel	C
Strophitus undulatus	Squawfoot	SI

CRUSTACEANS

Amphipoda (amphipods)

Crangonyctidae (freshwater amphipods)

Synurella chamberlaini	Coastal Swamp Amphipod	C

INSECTS

Coleoptera (beetles)

Cicindelidae (tiger beetles)

Cicindela dorsalis dorsalis	Northeastern Beach Tiger Beetle	FT/SH (1978)
Cicindela formosa generosa	Pine Barrens Tiger Beetle	C
Cicindela limbalis	Claybanks Tiger Beetle	SI
Cicindela marginata	Salt Marsh Tiger Beetle	C
Cicindela patruela	Barrens Tiger Beetle	SH
Cicindela purpurea	Purple Tiger Beetle	C
Cicindela rufiventris	Red-bellied Tiger Beetle	C

Silphidae (burying beetles)

Nicrophorus americanus	American Burying Beetle	FE

Staphylinidae (rove beetles)

Lordithon niger	Black Lordithon Rove Beetle	C/C2

Lepidoptera (butterflies and moths)

Lycaenidae (coppers, hairstreaks, elfins, & blues)

Lycaena epixanthe	Bog Copper	C
Satyrium acadica	Acadian Hairstreak	C
Satyrium carvaevorum	Hickory Hairstreak	C
Mitoura hesseli	Hessel's Hairstreak	C
Incisalia henrici	Henry's Elfin	SI
Incisalia irus	Frosted Elfin	SI
Incisalia polia	Hoary Elfin	SI
Fixenia favonius ontario	Northern Hairstreak	C
Parrhasius m-album	White M Hairstreak	C

Nymphalidae (brush-footed butterflies)

Speyeria idalia	Regal Fritillary	SH (1990)/C2
Boloria bellona	Meadow Fritillary	C
Enodia anthedon	Northern Pearly Eye	C

Hesperiidae (skippers)

Erynnis brizo	Sleepy Duskywing	C
Erynnis persius	Persius Duskywing	SH
Poanes massasoit	Mulberry Wing	C
Poanes viator zizaniae	Broad Winged Skipper	C
Atrytonopsis hianna	Dusted Skipper	C

Noctuidae (noctuid moths)

Abagrotis crumbi benjamini	Benjamin's Abagrotis	C
Acronicta lanceolaria	A Noctuid Moth	SI
Apharetra purpurea	Blueberry Sallow	SI
Aplectoides condita	A Noctuid Moth	SI
Lithophane viridipallens	Pale Green Pinion Moth	SI
Papaipema leucostigma	Columbine Borer	SH
Spartiniphaga inops	Spartina Borer	C
Zale sp. (*)	Pine Barrens Zale	SI
Zale submediana	A Noctuid Moth	C

(*) a full scientific name for this species has not been published.

Saturniidae (saturnid moths)

Citheronia regalis	Royal Walnut Moth	SH (1939)
Citheronia sepulcralis	Pine Devil	SH
Hemileuca maia maia	Barrens Buckmoth	SI

Odonata (dragonflies and damselflies)

Aeshnidae (darners)

Aeshna mutata	Spatterdock Darner	SI

Gomphidae (clubtails)

Ophiogomphus aspersus	Brook Snaketail	SI

Corduliidae (emeralds)

Dorocordulia libera	Racket-tailed Emerald	C
Williamsonia lintneri	Ringed Boghaunter	SI/C2

Coenagrionidae (pond damselflies)

Enallagma laterale	New England Bluet	C/C2
Enallagma pictum	Scarlet Bluet	C
Enallagma recurvatum	Pine Barrens Bluet	SI
Nehalennia irene	Sedge Sprite	SI

Libellulidae (common skimmers)

Nannothemis bella	Bluebell	C

VERTEBRATES

The following references have been used as taxonomic authorities for vertebrate groups.

Robins, C.R., R.M. Bailey, C.E. Bond, J.R. Brooker, E.A. Lachner, R.E. Lea, and W.B. Scott. 1980. A list of common and scientific names of fishes of the United States and Canada. 4th edition. Amer. Fish. Soc., Spec. Publ. 12. 1-174.

Collins, J.T., J.E. Huheey, J.L. Knight, and H.M. Smith. 1978. Standard and scientific names for North American amphibians and reptiles. Herp. Circular No. 7. 1-36.

American Ornithologist's Union. 1983. Check-list of North American birds. (Including periodic supplements published in the journal Auk).

Jones, J.K., Jr., D.C. Carter, and H.H. Genoways. 1979. Revised checklist of North American mammals north of Mexico, 1979. Occas. Papers, Mus. Texas Tech. Univ., 62. 1-17.

FISH

Petromyzontidae (lampreys)		
Lampetra appendix	American Brook Lamprey	SI
Acipenseridae (sturgeons)		
Acipenser oxyrhynchus	Atlantic Sturgeon	SH

AMPHIBIANS

Plethodontidae (lungless salamanders)		
Gyrinophilus porphyriticus	Northern Spring Salamander	SI
Pelobatidae (spadefoot toads)		
Scaphiopus holbrookii	Eastern Spadefoot	ST
Ranidae (true frogs)		
Rana pipiens	Northern Leopard Frog	SI

REPTILES

Note: Several reptiles are protected by regulations of the Rhode Island Division of Fish and Wildlife, which identifies those species as "protected", and that possession without permit is prohibited at all times. Those species protected under these regulations are indicated by "P" in the status column.

Cheloniidae (sea turtles) *

Caretta caretta	Atlantic Loggerhead	FT
Chelonia m. mydas	Atlantic Green Turtle	FT
Lepidochelys kempii	Atlantic Ridley	FE

Dermochelvidae (leatherback turtles) *

Dermochelys c. coriacea	Atlantic Leatherback	FE

* occur as transients in offshore waters only.

Emydidae (turtles)

Clemmys guttata	Spotted Turtle	P
Clemmys insculpta	Wood Turtle	SI/P
Malaclemys t. terrapin	Northern Diamondback Terrapin	SE/C2/P
Terrapene carolina	Eastern Box Turtle	P

Colubridae (colubrid snakes)

Carphophis amoenus	Eastern Worm Snake	SI
Elaphe obsoleta	Black Rat Snake	SI
Heterodon platirhinos	Eastern Hognose Snake	C
Thamnophis sauritus	Eastern Ribbon Snake	C

Viperidae (vipers)

Crotalus horridus	Timber Rattlesnake	SH (1972)/P

BIRDS

Note: Except in the case of the Federally listed Bald Eagle and Peregrine Falcon, birds are listed based on their breeding status in Rhode Island.

Podicipedidae (grebes)

Podilymbus podiceps	Pied-billed Grebe	SE

Ardeidae (herons)

Botaurus lentiginosus	American Bittern	SE
Ixobrychus exilis	Least Bittern	C
Ardea herodias	Great Blue Heron	SI
Casmerodius albus	Great Egret	SI
Egretta caerulea	Little Blue Heron	SI
Egretta thula	Snowy Egret	SI
Bubulcus ibis	Cattle Egret	SI
Nycticorax nycticorax	Black-crowned Night Heron	SI
Nyctanassa violacea	Yellow-crowned Night Heron	SI

Threskiornithidae (ibises)

Plegadis falcinellus	Glossy Ibis	SI

Anatidae (swans, geese, ducks)

Anas crecca	Green-winged Teal	C
Anas discors	Blue-winged Teal	SI
Anas strepera	Gadwall	C
Lophodytes cucullatus	Hooded Merganser	C

Accipitridae (eagles, hawks)

Haliaeetus leucocephalus	Bald Eagle	FT
Pandion haliaetus	Osprey	C
Circus cyaneus	Northern Harrier	SE
Accipiter striatus	Sharp-shinned Hawk	SH (1939)
Accipiter cooperii	Cooper's Hawk	SI
Accipiter gentilis	Northern Goshawk	SI/C2
Falco peregrinus	Peregrine Falcon	FE

Rallidae (rails, gallinules)

Rallus elegans	King Rail	SI
Rallus longirostris	Clapper Rail	SI
Porzana carolina	Sora	SI
Gallinula chloropus	Common Moorhen	SI

Charadriidae (plovers)

Charadrius melodus	Piping Plover	FT

Haematopodidae (oystercatchers)

Haematopus palliatus	American Oystercatcher	SI

Scolopacidae (sandpipers)

Catoptrophorus semipalmatus	Willet	C
Bartramia longicauda	Upland Sandpiper	SE

Laridae (gulls, terns)

Sterna dougallii	Roseate Tern	FE/SH (1979)
Sterna antillarum	Least Tern	ST

Tytonidae (barn owls)

Tyto alba	Barn Owl	SE

Strigidae (owls)

Asio otus	Long-eared Owl	C
Aegolius acadicus	Northern Saw-whet Owl	C

Caprimulgidae (goatsuckers)

Chordeiles minor	Common Nighthawk	C

Picidae (woodpeckers)

Melanerpes erythrocephalus	Red-headed Woodpecker	C
Dryocopus pileatus	Pileated Woodpecker	SI

Tyrannidae (flycatchers)		
Empidonax virescens	Acadian Flycatcher	SI
Alaudidae (larks)		
Eremophila alpestris	Horned Lark	SI
Hirundinidae (swallows)		
Hirundo pyrrhonota	Cliff Swallow	SH (1991)
Corvidae (crows)		
Corvus ossifragus	Fish Crow	C
Troglodytidae (wrens)		
Troglodytes troglodytes	Winter Wren	C
Cistothorus palustris	Marsh Wren	C
Muscicapidae (kinglets)		
Regulus satrapa	Golden-crowned Kinglet	C
Emberizidae (warblers, sparrows)		
Vermivora chrysoptera	Golden-winged Warbler	SH (1960)
Parula americana	Northern Parula	ST
Dendroica caerulescens	Black-throated Blue Warbler	SE
Dendroica cerulea	Cerulean Warbler	ST/C2
Dendroica fusca	Blackburnian Warbler	ST
Protonotaria citrea	Prothonotary Warbler	SI
Helmitheros vermivorus	Worm-eating Warbler	C
Icteria virens	Yellow-breasted Chat	SH (1990)
Pooecetes gramineus	Vesper Sparrow	SH (1984)
Ammodramus henslowii	Henslow's Sparrow	SH (1940)/C2
Ammodramus savannarum	Grasshopper Sparrow	ST
Ammodramus maritimus	Seaside Sparrow	C
Zonotrichia albicollis	White-throated Sparrow	C
Junco hyemalis	Dark-eyed Junco	C
Icterus spurius	Orchard Oriole	C

MAMMALS

Soricidae (shrews)		
Sorex fumeus	Smoky Shrew	C
Sorex palustris	Water Shrew	SI
Leporidae (rabbits, hares)		
Sylvilagus transitionalis	New England Cottontail	C/C2
Muridae (mice)		
Microtus pennsylvanicus provectus	Block Island Meadow Vole	C/C2
Synaptomys cooperi	Southern Bog Lemming	C
Mustelidae (weasels)		
Martes pennanti	Fisher	SI
Felidae (cats)		
Lynx rufus	Bobcat	ST

FEDERAL PROTECTED SPECIES INFORMATION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Field Offices
22 Bridge Street, Unit #1
Concord, New Hampshire 03301-4986

March 16, 1994

Jim Duncan
ENSR Consulting and Engineering
35 Nagog Park
Acton, MA 01720

Dear Mr. Duncan:

This responds to your letter dated January 21, 1994 requesting information on the presence of Federally listed and proposed endangered or threatened species in relation to 39 Army Reserve Centers in New England. The centers reviewed occur in: Connecticut (8), Maine (3), Massachusetts (12), New Hampshire (5), Rhode Island (7) and Vermont (4).

Based on information currently available to us, no Federally listed or proposed threatened and endangered species under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area, with the exception of occasional transient endangered bald eagles (Haliaeetus leucocephalus) or peregrine falcons (Falco peregrinus anatum). However, we suggest that you contact the following for information on state listed species that may be present:

Nancy Murray
Connecticut Natural Diversity Data Base
79 Elm St., P.O. Box 5066
Hartford, CT 06106-5066
203-566-3540

Sue Gawler
Maine Natural Areas Program
State House Station 130
Augusta, Maine 04333
(207) 289-6800

Pat Huckery
Massachusetts Natural Heritage Program
Division of Fisheries and Wildlife
100 Cambridge St., Boston, MA 02202
(617) 727-9194

David Moore
New Hampshire Natural Heritage Inventory Program
P.O. Box 856, Concord, New Hampshire 03302-0856
(603) 271-3623

Rick Enser
Rhode Island Natural Heritage Program
83 Park St.
Providence, RI 02903
(401) 277-2776,

Chris Fichtel
Vermont Natural Heritage Program
Agency of Natural Resources
10 South, 103 S. Main St.
Waterbury, VT 05676
(802) 244-7331

Lists of Federally designated endangered and threatened species in all of the New England state are included for your information. Thank you for your cooperation and please contact Susi von Oettingen of this office at (603) 225-1411 if we can be of further assistance.

Sincerely yours,

for Gordon E. Beckett
Supervisor
New England Field Offices

Enclosures

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN RHODE ISLAND

Common Name	Scientific Name	Status	Distribution
FISHES:			
Sturgeon, shortnose*	Acipenser brevirostrum	E	Atlantic coastal waters and rivers
REPTILES:			
Turtle, green*	Chelonia mydas	T	Oceanic straggler in southern New England
Turtle, hawksbill*	Eretmochelys imbricata	E	Oceanic straggler in southern New England
Turtle, leatherback*	Dermochelys coriacea	E	Oceanic summer resident
Turtle, loggerhead*	Caretta caretta	T	Oceanic summer resident
Turtle, Atlantic ridley*	Lepidochelys kempii	E	Oceanic summer resident
BIRDS:			
Eagle, bald	Haliaeetus leucocephalus	E	Entire state, occasional
Falcon, American peregrine	Falco peregrinus anatum	E	No current nesting; entire state-migratory
Falcon, Arctic peregrine	Falco peregrinus tundrius	T	No nesting; entire state-migratory
Plover, Piping	Charadrius melodus	T	Atlantic coast, Washington and Newport Counties
Roseate Tern	Sterna dougallii dougallii	E	Atlantic coast
MAMMALS:			
Whale, blue*	Balaenoptera musculus	E	Oceanic
Whale, finback*	Balaenoptera physalus	E	Oceanic
Whale, humpback*	Megaptera novaeangliae	E	Oceanic
Whale, right*	Eubalaena spp. (all species)	E	Oceanic
Whale, sei*	Balaenoptera borealis	E	Oceanic
Whale, sperm*	Physeter catodon	E	Oceanic
MOLLUSKS:			
NONE			
INSECTS:			
Beetle, American burying	Nicrophorus americanus	E	Washington
Beetle, northeastern beach tiger	Cicindela dorsalis dorsalis	T	Washington, probably extirpated
Beetle, Puritan tiger	Cicindela puritana	T	Extirpated
PLANTS:			
Small Whorled Pogonia	Isotria medeoloides	E	Providence, Kent Counties
Gerardia, Sandplain	Agalinus acuta	E	Washington

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service

Rev. 11-12-92

FINAL

ASBESTOS SURVEY REPORT
AND OPERATIONS AND MAINTENANCE PLAN
PRIVATE LLOYD S. COOPER III
ARMY RESERVE CENTER, 885 SANDY LANE
WARWICK, RHODE ISLAND

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

JUNE 1998

ASBESTOS SURVEY REPORT

AND

OPERATIONS AND MAINTENANCE PLAN

PRIVATE LLOYD S. COOPER III ARMY RESERVE CENTER

WARWICK, RHODE ISLAND

CONTRACT NO. DACA33-91-D-0006

DELIVERY ORDER NO. 42

ASBESTOS SURVEY REPORT

AND

OPERATIONS AND MAINTENANCE PLAN

PRIVATE LLOYD S. COOPER III ARMY RESERVE CENTER

885 SANDY LANE

WARWICK, RHODE ISLAND

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 94.01163.36

CONTENTS

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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, November, and December 1994. ABB-ES sub-contracted 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 Pvt. Lloyd S. Cooper. III ARC, Sandy Lane, Warwick, Rhode Island. 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 a drill hall. The heating, ventilation, and air conditioning (HVAC) system includes a combination of radiators and air handlers supplied by an oil-fired boiler. The Main Building, which was constructed in 1958, contains 22,524 square feet of floor space.

The OMS is used for maintenance. The date of construction of the OMS is unknown. The OMS contains 3,850 square feet of space. The only HVAC in the building are gas-fired, ceiling-mounted blower units.

Michael Hickey and Glenn Nelson of CEC conducted the survey on October 12, 1994. The CEC inspectors 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 about 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. Friable ACBM identified included gray mudded pipe fitting insulations, thermal system pipe insulation, and thermal system water tank insulation. Nonfriable ACBM included floor tiles, underlying mastic adhesive, roof flashing, slateboards, and asbestos-cement (transite) board.

CEC's assessment of the Warwick site is that the condition of most ACBM presents limited potential hazard. However, some thermal system pipe insulation and associated mudded fittings located in the boiler room and kitchen of the Main Building are damaged. At a minimum these friable materials should be repaired, removed and replaced. To minimize potential hazards, the O&M plan (Appendix F) should be implemented.

In addition, a representative of CEC returned to the site on July 10, 1996 to perform a quality control visual inspection. Samples of the boiler room ceiling and suspect boiler door gasket material were collected and analyzed. Analytical results indicated that no additional asbestos was identified in these materials.

For informational purposes only, cost estimates have been provided for removing and replacing ACBM (Table 3). The total estimated cost for removing and replacing friable ACBM is $49,625. The total estimated cost for removing and replacing nonfriable ACBM is $69,635.

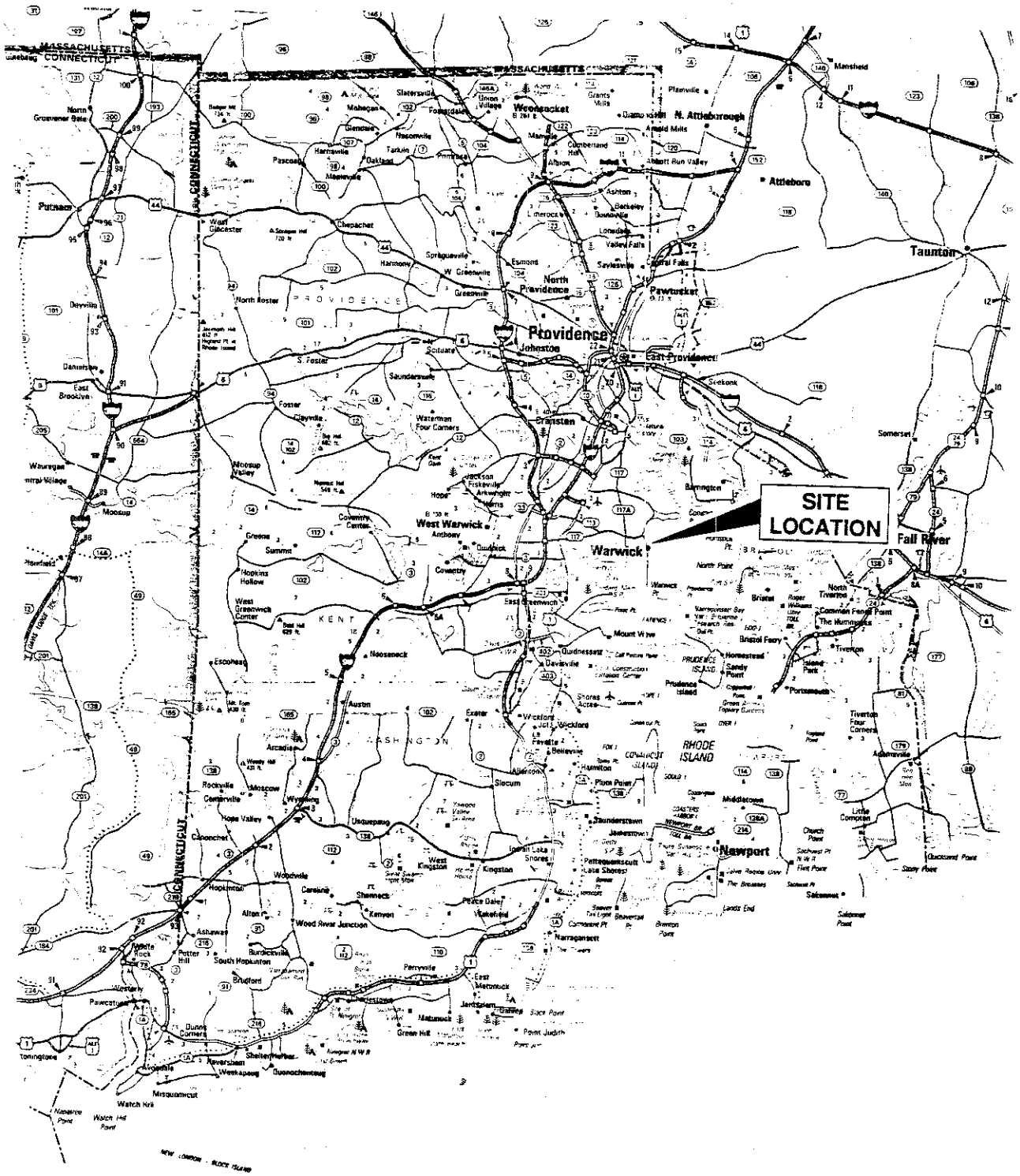
LIMITATIONS

Although the survey was fairly comprehensive in scope, 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.

ABB Environmental Services, Inc.

FIGURE 1
VICINITY MAP
ASBESTOS SURVEY REPORT
PVT. LLOYD S. COOPER III USARC
WARWICK, RI

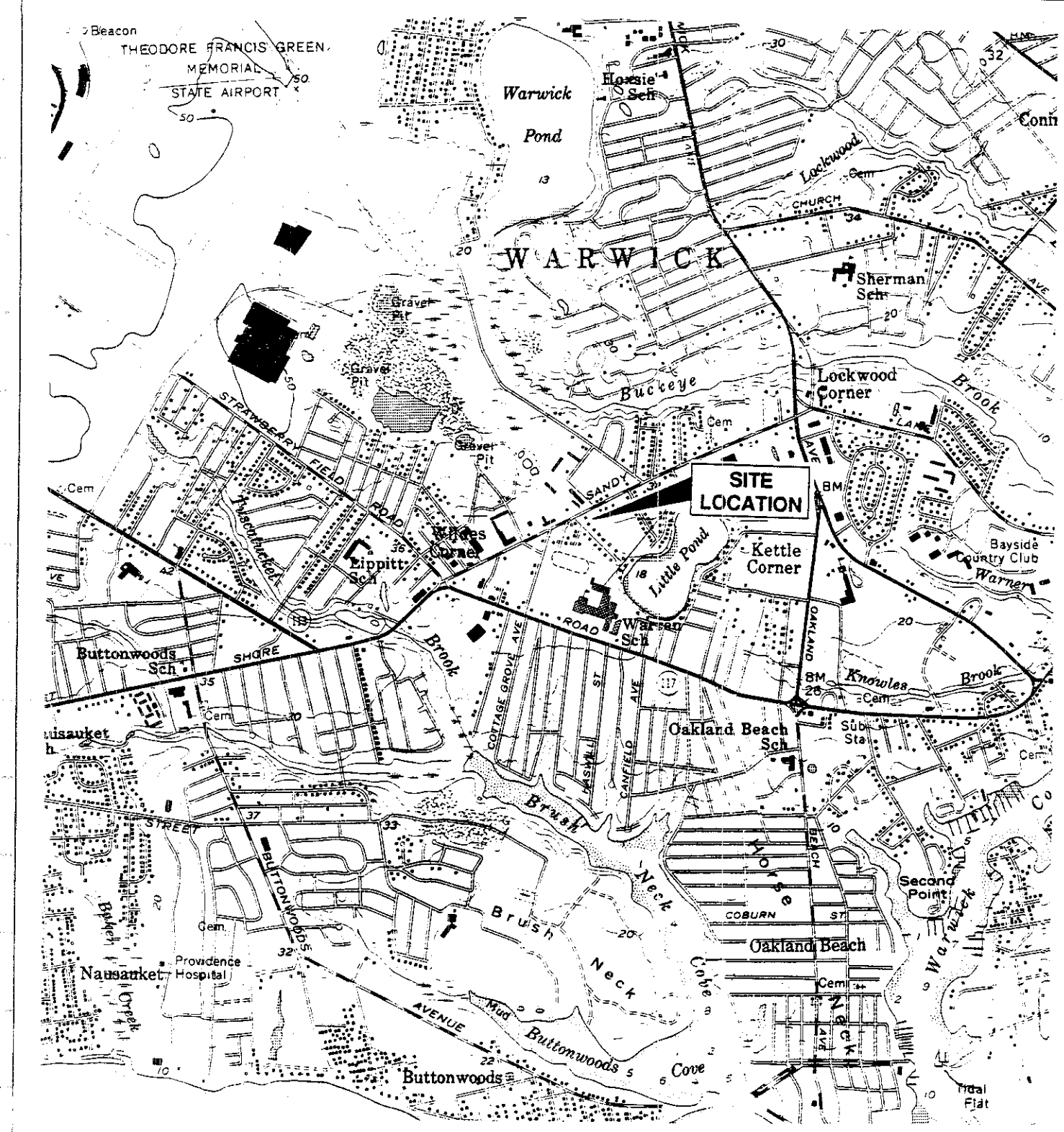


ABB Environmental Services, Inc.

FIGURE 2
SITE LOCATION MAP
ASBESTOS SURVEY REPORT
PVT. LLOYD S. COOPER III USARC
WARWICK, RI

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.

GLOSSARY (cont.)

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.

14. Resinously Bound Material - A material which is held together in a resinous matrix (e.g., 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, November, and December 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 12, 1994, two inspectors representing CEC performed an asbestos survey of the Pvt. Lloyd S. Cooper III ARC located at 885 Sandy Lane, Warwick, Rhode Island.

Michael Hickey (Rhode Island Health and Safety Department, Certification #AAC-275IS) performed the survey assisted by Glenn Nelson (AAC-468IS). The certification of these CEC representatives as Asbestos Inspectors is required and regulated in accordance with Chapter 24.5 of Title 23 General Laws entitled Health and Safety. In addition, each 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, Sgt. Perry, who provided information regarding the site as well as access to the buildings.

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 recommendations (section 4).

The results of the survey are summarized in tabular form (section 3). Table 1, the Inventory of Suspect ACBM, 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 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.

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 locations of samples and of ACBM, photographic documentation, asbestos prioritizations

INTRODUCTION (cont.)

forms, personnel and laboratory certifications, the operations and maintenance plan, and the Army Corps of Engineers, Asbestos Abatement Survey, 1990.

1. SITE DESCRIPTION

The Pvt. Lloyd S. Cooper III Army Reserve Center in Warwick, Rhode Island consists of a Main Building and a Maintenance Building (OMS). Facility plans indicate that the Main Building was constructed in 1958. No plans are available for the OMS.

The Main Building has two floors, with 22,524 square feet of floor space, and a perimeter crawlspace below grade. The first floor is used primarily for offices, storage rooms, and classrooms, and it also contains an assembly hall, rifle range, and armory. The second floor contains additional office space and a locker room. The building is a concrete structure with brick exterior. The first level has a concrete floor; the second level has a concrete floor in the rifle range, and hardwood floors in all other areas. Building finishes include plaster walls and ceilings in bathrooms and locker rooms, and gypsum-board suspended ceilings throughout most of the remaining areas. Floor finishes are vinyl and ceramic tile.

Heating is supplied in the Main Building by a boiler located in a boiler room on the first floor and distributed through forced hot water supply-and-return piping to perimeter radiators. Additional heating for the assembly hall is supplied by air handlers.

Both friable and nonfriable ACBM were identified within the Main Building. Friable thermal system pipe insulation and associated mudded fittings were located throughout the first floor and boiler room. In addition three utility trenches with insulated hot and chilled water supply-and-return pipes could be accessed from the boiler room. Thermal system water tank insulation was also identified in the boiler room. Mudded fittings on fiberglass pipe runs were observed in the back room, drill hall, kitchen, and utility trenches. Nonfriable ACBM included roof flashing on the perimeter of the roof and around vents extruding from the top of the roof, slateboards, and floor tiles and underlying mastic predominantly throughout.

The OMS is a one-story structure used for maintenance work. It contains 3,850 square feet of floor space. The building is a wood-frame structure with concrete block walls and concrete floors. The building is heated by two ceiling mounted blower units.

Friable ACBM observed in the OMS included thermal system pipe insulation and associated mudded fittings. Nonfriable ACBM included transite board above the ceiling-mounted blower units.

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.

Bulk samples of asphaltic roofing materials were collected so as not to compromise the integrity of the roofing system. Therefore, a core sample through the entire thickness of the roofing system was not collected. Only samples of flashings, shingles, or the surface layer were collected. 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 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.)

A. Surfacing Material

1. At least three (3) RBS per type of material in each homogeneous area less than or equal to one thousand square feet (1,000 ft^2).

2. At least five (5) RBS per type of material in each homogeneous area greater than one thousand square feet (1,000 ft^2), but less than or equal to five thousand square feet (5,000 ft^2).

3. At least seven (7) RBS per type of material in each homogeneous area greater than five thousand square feet (5,000 ft^2).

B. Thermal System Insulation

1. At least three (3) RBS per type of homogeneous material.

2. At least one (1) RBS per type of patched thermal system insulation if the patched section is less than six linear or square feet (6 lf or 6 ft^2).

3. In a manner sufficient to determine whether the material is or is not ACBM, RBS from each mechanical system where cement or plaster is used on fittings such as tees, elbows, or valves.

4. Bulk samples were not collected of materials determined by visual and tactile inspection to be fiberglass, foam glass, rubber, or other materials because with their unique textures and colors, they may be visually identified as non-ACBM. However, these materials are inspected to determine whether a layer of asbestos may be underneath the top layer of insulating material or whether an external skim coat exists.

C. Miscellaneous Material

Samples were collected in a manner sufficient to determine whether the materials are ACBM or non-ACBM. The number of samples collected was influenced by the type and quantity of the suspect material.

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 the CEC laboratory in Woburn, Massachusetts for microscopic analysis.

3. LABORATORY ANALYTIC METHODS AND RESULTS

The initial laboratory analyses were conducted on October 18, 1994, within ten working days of the site visit.

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 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. To positively identify the asbestos content of these types of materials, Transmission Electron Microscopy (TEM) is the preferred method. TEM provides greater resolution along with an elemental analysis of suspect fibers to identify asbestos.

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. Briggs Associates, Inc. of Atlanta, Georgia conducted the TEM analysis using a semi-quantitative analysis. Results are reported as no asbestos detected, or as a light, moderate or heavy concentration of asbestos. If any asbestos is detected using this method, the material is assumed to be 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

3. LABORATORY ANALYTIC METHODS AND RESULTS (cont.)

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.

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

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of Suspect Material MAIN BUILDING	Material Location	Material Classification	Friability	Sample Number(s)	Asbestos Content and Type
Red from checker-board pattern 9" x 9" floor tile and underlying mastic adhesive	Throughout halls and in various rooms of first and second floors	M	Nonfriable	36-01-01(tile) 36-02-01(mastic)	5% Chrysotile <01% Chrysotile [1] (moderate Chrysotile)
Brown 9" x 9" floor tile from checkerboard pattern	Throughout halls and in various rooms of first and second floors	M	Nonfriable	36-03-01	5% Chrysotile
Gray from checker-board pattern 9" x 9" floor tile	Throughout building in various rooms	M	Nonfriable	36-04-01	3% Chrysotile

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

NOTE: [1] Sample analyzed using Transmission Electron Microscopy

TABLE 1

INVENTORY OF SUSPECT ACBM

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of Suspect Material	**Material Location**	**Material Classification**	**Friability**	**Sample Number(s)**	**Asbestos Content and Type**
MAIN BUILDING					
Brown 9" x 9" floor tile checker-board pattern and underlying mastic adhesive	Throughout building in various rooms	M	Nonfriable	36-05-01(tile) 36-06-01(mastic)	2% Chrysotile None detected TEM none detected
Wall/ceiling plaster	Throughout	M	Moderately friable	36-07-01 36-07-02 36-07-03 36-07-04 36-07-05	None detected None detected None detected None detected None detected
Sheetrock/ceiling	Room #37, second floor	M	Moderately friable	36-08-01	None detected
Gray floor grout	Bathrooms	M	Nonfriable	36-09-01	None detected
Resinous roof tar	Roof	M	Nonfriable	36-10-01	None detected
Acoustical 1' x 1' ceiling and wall tile	Firing range Lead ??	M	Friable	36-11-01	None detected

TABLE 1

INVENTORY OF SUSPECT ACBM

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of Suspect Material	Material Location	Material Classification	Friability	Sample Number(s)	Asbestos Content and Type
MAIN BUILDING					
Brown 2' x 2' pegboard (small holes)	Firing range	M	Nonfriable	36-12-01	None detected
Brown 2' x 2' pegboard (large holes)	Firing range	M	Nonfriable	36-13-01	None detected
White water tank thermal insulation covering	Boiler Room	T	Friable	36-14-01	25% Amosite 30% Chrysotile
Breeching insulation	Boiler Room	T	Friable	36-15-01	None detected
Roof flashing material	Roof	M	Nonfriable	36-16-01	20% Chrysotile
HVAC vibration dampener cloth	Drill hall	M	Friable	Not Sampled	Assumed

TABLE 1

INVENTORY OF SUSPECT ACBM

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of Suspect Material MAIN BUILDING	Material Location	Material Classification	Friability	Sample Number(s)	Asbestos Content and Type
Brown gasket rope located around boiler room door	Boiler Room	T	Friable	***W-01	None Detected
White gypsum board ceiling material	Boiler Room	M	Friable	***W-02, ***W-03	None detected

*** These samples were collected during the quality control site visit conducted in July 1996.

TABLE 1

INVENTORY OF SUSPECT ACBM

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of Suspect Material	Material Location	Material Classification	Friability	Sample Number(s)	Asbestos Content and Type
MAIN BUILDING					
Thermal system pipe insulation and associated mud fittings	Throughout	T	Friable	* Not sampled	Assumed
Slate boards located throughout classrooms	Classrooms	M	Nonfriable	** Not sampled	Assumed
OMS					
Thermal system insulation and associated mud fittings	Along walls and ceiling	T	Friable	* Not sampled	Assumed
Transite cement board heaters	Above ceiling	M	Nonfriable	* Not sampled	Assumed

* Thermal system pipe insulation and mudded fittings were not sampled due to previous analytical results acquired from Army Corp. of Engineers (ACOE) survey conducted in 1990.

** The slate boards were not sampled so as not to disturb their physical integrity.

TABLE 2

INVENTORY OF ACBM

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of ACBM	ACBM Location	Material Classification	Approximate Quantity	Condition	Accessibility	Material Exposure Assessment Rating*
MAIN BUILDING						
Red and brown checker-board pattern 9" x 9" floor tile, and underlying mastic adhesive	Throughout halls and various rooms	M	5,865ft^2	Good	High	D
Gray and brown checker-board pattern 9" x 9" floor tile	Throughout	M	4,780ft^2	Good	High	D
Water tank thermal insulation	Boiler room	T	125ft^2	Fair	Low	D
Roof flashing material	Roof	M	832ft^2	Good	Low	D

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

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of ACBM MAIN BUILDING	ACBM Location	Material Classification	Approximate Quantity	Condition	Accessibility	Material Exposure Assessment Rating*
Thermal system pipe insulation	Throughout	T	2,000 lf	Fair-Good	Medium	D**
Mudded fittings on thermal system pipe runs	Throughout	T	180	Fair-Good	Medium	D**
Slateboards	Classrooms	M	80 ft^2	Good	High	F

** Thermal system pipe insulation and mudded fittings were not sampled due to previous analytical results acquired from Army Corp. of Engineers (ACOE) survey conducted in 1990.

TABLE 2

INVENTORY OF ACBM

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

October 12, 1994

Description of ACBM OMS	ACBM Location	Material Classification	Approximate Quantity	Condition	Accessibility	Material Exposure Assessment Rating*
Thermal system pipe insulation and associated mud fittings	Along walls and ceiling	T	150 lf	Fair-Good	M	D
Asbestos-cement transite board	Above ceiling heaters	M	128ft^2	Good	L	F

4. CONCLUSIONS AND RECOMMENDATIONS

On the basis of CEC's inspection of the Main Building and the Maintenance Building of the Private Lloyd S. Cooper III Army Reserve Center in Warwick, Rhode Island, and of CEC's collection of random bulk samples of friable and nonfriable suspect asbestos-containing building materials and their analyses by CEC's laboratory, CEC concludes as follows:

(1) Friable thermal system pipe insulation and associated mudded fitting in the Main Building, including utility trenches and boiler room, are damaged in various areas.

(2) Friable mudded pipe fitting insulations on fiberglass pipe runs in the assembly hall, boiler room, kitchen and utility trenches of the Main Building are slightly damaged in various areas.

(3) Friable thermal system pipe insulation and associated mudded fittings in the OMS building display minor damage.

(4) Friable thermal insulation on the water tank in the boiler room is in fair condition.

Therefore, CEC recommends that the following minor remedial actions are needed at this site at the present time.

(1) Damaged friable thermal system pipe insulation and associated mudded fittings in the Main Building, including utility trenches and boiler room, and in the OMS should be repaired or removed and replaced.

(2) Damaged friable mudded pipe fitting insulations on fiberglass pipe runs in the Main Building should be repaired.

(3) Friable thermal system water tank insulation in the boiler room of the Main Building should be maintained in good condition.

(4) Friable HVAC vibration dampener cloth in the Drill Hall is assumed to be asbestos-containing and is in good condition.

(5) Nonfriable roof flashing on the Main Building is in good condition. However, a licensed Asbestos Contractor should be used to remove these materials if roof renovations become necessary.

(6) The nonfriable transite boards above the ceiling-mounted blower units in the OMS should be maintained in good condition.

4. CONCLUSIONS AND RECOMMENDATIONS (cont.)

(7) The nonfriable slateboards located in classrooms and 9" x 9" floor tiles, and underlying mastic adhesive located throughout the Main Building are in good condition. They should not be cut, sanded, sawed, or disturbed in any manner that may cause fiber release.

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 $63,531. The estimated cost to replace the ACBM with materials that do not contain asbestos is $55,729. The estimated cost for total removal and replacement of ACBM is $119,260.

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

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

Type of ACBM	Total Quantity	Unit Cost for Removal	Removal Cost	Unit Cost For Replacement	Replacement Cost
MAIN BUILDING					
Red/brown, 9" x 9" floor from checkerboard pattern, and underlying mastic adhesive	5,865ft^2	\$3/ft^2	\$17,595	\$1.5/ft^2	\$8,798
Thermal system insulation, water tank covering	125ft^2	\$12/ft^2	\$ 1,500	\$15	\$1,875
Gray/brown 9" x 9" floor tile from checkerboard pattern	4,780 ft^2	\$2/ft^2	\$ 9,560	\$1.5	\$7,170
Roof material, asphalt flashing	832 ft^2	\$4/ft^2	\$ 3,328	\$20/ft^2	\$16,640
Thermal system pipe insulation	2,000 lf	\$10/lf	\$20,000	\$7/ft^2	\$14,000
Green slate chalkboards	80 ft^2	\$7/ft^2	\$ 560	\$50/ft^2	\$4,000

TABLE 3. COST ESTIMATES FOR REMOVAL AND REPLACEMENT OF ACBM

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

Type of ACBM OMS	Total Quantity	Unit Cost for Removal	Removal Cost	Unit Cost For Replacement	Replacement Cost
Thermal system pipe insulation	150 lf	$10/lf	$1,500	$7/lf	$1,050
Mudded fittings on pipe runs	14	$40	$560	$10	$140
Asbestos-cement transite board	128 ft^2	$ 7/ft^2	$ 896	$2/$ft^2$	$ 256
		TOTAL	**$ 63,531**	**TOTAL**	**$ 55,729**
		TOTAL REMOVAL AND REPLACEMENT COST		**$119,260**	

LOCATION: **MAIN BUILDING**
WARWICK, RHODE ISLAND

PROJECT : 94.01163.36
PAGE : A-1

ANALYTICAL RESULTS OF BULK SAMPLES

SAMPLE DESCRIPTION	ANALYTICAL RESULTS		
36-01-01 RED TILE FROM RED AND BROWN CHECKERBOARD PATTERN 9" X 9" FLOOR TILE, SECOND FLOOR HALL	ASBESTOS-CHRYSOTILE CELLULOSE NON-FIBROUS MATERIAL	: : :	05% < 01% 95%
36-02-01 BLACK MASTIC FROM SAMPLE #01-01	ASBESTOS-CHRYSOTILE CELLULOSE OTHER FIBROUS MATERIAL - SYNTHETIC NON-FIBROUS MATERIAL	: : : :	< 01% 01% 01% 98%
36-03-01 BROWN TILE FROM RED AND BROWN CHECKERBOARD PATTERN 9" X 9" FLOOR TILE, SECOND FLOOR HALL	ASBESTOS-CHRYSOTILE CELLULOSE OTHER FIBROUS MATERIAL - SYNTHETIC NON-FIBROUS MATERIAL	: : : :	05% < 01% < 01% 95%
36-04-01 GRAY TILE FROM GRAY AND BROWN CHECKERBOARD PATTERN 9" X 9" FLOOR TILE, SECOND FLOOR, ROOM #30	ASBESTOS-CHRYSOTILE CELLULOSE NON-FIBROUS MATERIAL	: : :	03% < 01% 97%
36-05-01 BROWN TILE FROM GRAY AND BROWN CHECKERBOARD PATTERN 9" X 9" FLOOR TILE, SECOND FLOOR, ROOM #30	ASBESTOS-CHRYSOTILE NON-FIBROUS MATERIAL	: :	02% 98%
36-06-01 BLACK MASTIC FROM SAMPLE #05-01	NO ASBESTOS DETECTED CELLULOSE NON-FIBROUS MATERIAL	: :	< 01% 100%
36-07-01 WALL PLASTER, SECOND FLOOR, ROOM #33 (MEN'S ROOM)	NO ASBESTOS DETECTED CELLULOSE NON-FIBROUS MATERIAL	: :	01% 99%
36-07-02 CEILING PLASTER, SECOND FLOOR, ROOM #33 (MEN'S ROOM)	NO ASBESTOS DETECTED OTHER FIBROUS MATERIAL - UNSPECIFIED NON-FIBROUS MATERIAL	: :	< 01% 100%

LOCATION: MAIN BUILDING
WARWICK, RHODE ISLAND

PROJECT : 94.01163.36
PAGE : A-2

ANALYTICAL RESULTS OF BULK SAMPLES

SAMPLE DESCRIPTION	ANALYTICAL RESULTS	
36-07-03 CEILING PLASTER, FIRST FLOOR, ROOM #5 (MEN'S ROOM)	NO ASBESTOS DETECTED CELLULOSE NON-FIBROUS MATERIAL	: : < 01% : 100%
36-07-04 CEILING PLASTER, KITCHEN	NO ASBESTOS DETECTED FIBROUS GLASS OTHER FIBROUS MATERIAL - UNSPECIFIED NON-FIBROUS MATERIAL	: : < 01% : < 01% : 100%
36-07-05 WALL PLASTER, FIRST FLOOR, LADIES ROOM (ROOM #14)	NO ASBESTOS DETECTED CELLULOSE OTHER FIBROUS MATERIAL - UNSPECIFIED NON-FIBROUS MATERIAL	: : < 01% : < 01% : 100%
36-08-01 CEILING SHEETROCK MATERIAL, SECOND FLOOR, ROOM #37	NO ASBESTOS DETECTED CELLULOSE OTHER FIBROUS MATERIAL - SYNTHETIC - UNSPECIFIED NON-FIBROUS MATERIAL	: : 20% : < 01% : 80%
36-09-01 GRAY FLOOR GROUT, SECOND FLOOR, MEN'S ROOM (ROOM #33)	NO ASBESTOS DETECTED CELLULOSE NON-FIBROUS MATERIAL	: : 01% : 99%
36-10-01 BLACK ROOF TAR	NO ASBESTOS DETECTED CELLULOSE NON-FIBROUS MATERIAL	: : < 01% : 100%
36-11-01 1'X 1' ACOUSTICAL CEILING AND WALL TILE, FIRING RANGE	NO ASBESTOS DETECTED FIBROUS GLASS CELLULOSE NON-FIBROUS MATERIAL	: : 60% : 20% : 20%
36-12-01 BROWN 24" X 24" PEGBOARD WALL, FIRING RANGE (PEGBOARD #1)	NO ASBESTOS DETECTED CELLULOSE NON-FIBROUS MATERIAL	: : 80% : 20%

LOCATION: MAIN BUILDING
WARWICK, RHODE ISLAND

PROJECT : 94.01163.36
PAGE : A-3

ANALYTICAL RESULTS OF BULK SAMPLES

SAMPLE DESCRIPTION	ANALYTICAL RESULTS		
36-13-01 BROWN PEGBOARD WALL PANELS, FIRING RANGE (PEGBOARD #2)	NO ASBESTOS DETECTED NON-FIBROUS MATERIAL	: :	 100%
36-14-01 WHITE TANK INSULATION, BOILER ROOM	ASBESTOS-AMOSITE ASBESTOS-CHRYSOTILE NON-FIBROUS MATERIAL	: : :	25% 30% 45%
36-15-01 BREECHING INSULATION, BOILER ROOM	NO ASBESTOS DETECTED FIBROUS GLASS CELLULOSE OTHER FIBROUS MATERIAL - SYNTHETIC - MINERAL WOOL NON-FIBROUS MATERIAL	: : : :	 < 01% 30% < 01% 70%
36-16-01 BLACK ROOFING MATERIAL (FLASHING) AROUND VENT, ROOFTOP	ASBESTOS-CHRYSOTILE FIBROUS GLASS CELLULOSE NON-FIBROUS MATERIAL	: : : :	20% 02% 02% 76%

ALL SAMPLES ARE STORED AT THE CEC LABORATORY FOR A PERIOD OF THREE MONTHS. FURTHER ANALYSIS OR RETURN OF SAMPLES MUST BE REQUESTED WITHIN THIS THREE MONTH PERIOD TO GUARANTEE THEIR AVAILABILITY.

LABORATORY CERTIFICATION # MA #AA000006

LABORATORY SUPERVISOR

CLIENT : MR. HERB COLBY
ABB ENVIRONMENTAL SERVICES
CORPORATE PLACE 128
107 AUDUBON ROAD
WAKEFIELD, MA 01880

PROJECT : 51542
BATCH : 9607.083
DATE RECEIVED : 07/22/96
DATE ANALYZED : 07/24/96

LOCATION: WARWICK ARC
WARWICK, RI

ANALYTICAL RESULTS OF BULK SAMPLES

SAMPLE DESCRIPTION		ANALYTICAL RESULTS		
001B	W-01, BROWN ROPE LOCATION AROUND BOILER DOOR, BOILER ROOM	NO ASBESTOS DETECTED		
		FIBROUS GLASS	:	87%
		OTHER FIBROUS MATERIAL - SYNTHETIC	:	10%
		NON-FIBROUS MATERIAL	:	03%
002B	W-02, WHITE GYPSUM BOARD CEILING MATERIAL, BOILER ROOM	NO ASBESTOS DETECTED		
		FIBROUS GLASS	:	10%
		CELLULOSE	:	05%
		NON-FIBROUS MATERIAL	:	85%
003B	W-03, WHITE GYPSUM BOARD CEILING MATERIAL, BOILER ROOM	NO ASBESTOS DETECTED		
		FIBROUS GLASS	:	10%
		CELLULOSE	:	10%
		NON-FIBROUS MATERIAL	:	80%

ANALYSIS METHOD: POLARIZED LIGHT MICROSCOPY WITH DISPERSION STAINING (PLM/DS) BY EPA-600/M4-82-020

PLEASE SEE ATTACHMENT FOR FURTHER INTERPRETATION OF RESULTS.

LABORATORY CERTIFICATION # MA #AA000006

Diane L Wathen
LABORATORY SUPERVISOR

CEC
Covino Environmental Consultants, Inc. 300 Wildwood Avenue, Woburn, MA 01801 (617) 933-2555, FAX (617) 932-9402

THESE SAMPLES WERE ANALYZED BY POLARIZED LIGHT MICROSCOPY WITH DISPERSION STAINING (PLM/DS) ACCORDING TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (US EPA) "INTERIM METHOD FOR THE DETERMINATION OF ASBESTOS IN BULK INSULATION SAMPLES" (EPA-600/M4-82-020). THIS METHOD IS GENERALLY CONSIDERED SENSITIVE TO THE PRESENCE OF ASBESTOS AT LESS THAN ONE PERCENT. THIS REPORT RELATES ONLY TO THOSE SAMPLES ANALYZED, AND MAY NOT BE INDICATIVE OF OTHER SIMILAR APPEARING MATERIALS EXISTING AT THIS, OR OTHER SITES.

FLOOR TILES AND RESINOUSLY BOUND MATERIALS ANALYZED BY EPA METHOD 600/M4-82-020, INTERIM METHOD FOR THE DETERMINATION OF ASBESTOS IN BULK INSULATION SAMPLES, MAY YIELD FALSE NEGATIVE RESULTS DUE TO DIFFICULTIES IN ISOLATING SUSPECT FIBERS AND SUBSEQUENTLY IDENTIFYING THEM BENEATH THE MATRIX MATERIAL WHICH ENCAPSULATES THEM. SHEARING DURING THE MANUFACTURE OF VINYL TILE DECREASES THE FIBER SIZE OF THE ASBESTOS COMPONENT; THEREFORE, THE FIBERS MAY NOT BE READILY DETECTABLE USING POLARIZED LIGHT MICROSCOPY. AS A RESULT, LABORATORY ANALYSIS CANNOT ALWAYS BE ACCOMPLISHED USING STANDARD TECHNIQUES. WHEN THE EPA METHOD YIELDS A "NO ASBESTOS DETECTED" RESULT FOR FLOOR TILES AND RESINOUSLY BOUND MATERIALS, TUNDRA AIR CONSULTANTS RECOMMENDS FURTHER ANALYSIS USING SEM OR TEM TECHNIQUES FOR THE IDENTIFICATION OF ASBESTOS.

THE AMOUNT OF ASBESTOS PRESENT AT OR BELOW THE QUANTITATION LIMIT IS DETERMINED USING PREPARED SLIDES OF KNOWN WEIGHT PERCENTS AS CALIBRATION STANDARDS.

THE EPA NOW REQUIRES THAT FRIABLE SAMPLES WITH ASBESTOS CONTENTS OF LESS THAN 10%, DETERMINED BY A VISUAL ESTIMATION, BE VERIFIED USING THE POINT COUNTING TECHNIQUE OR OTHERWISE BE ASSUMED TO CONTAIN GREATER THAN 1% ASBESTOS BY THE BUILDING OWNER OR OPERATOR. IF ANALYTICAL RESULTS INDICATE THE PRESENCE OF 1% OR LESS ASBESTOS IN A FRIABLE MATERIAL, THAT MATERIAL MUST BE TREATED AS ASBESTOS-CONTAINING MATERIAL UNLESS THESE QUANTITIES ARE VERIFIED USING THE POINT COUNTING TECHNIQUE. POINT COUNTING IS A SYSTEMATIC TECHNIQUE FOR ESTIMATING CONCENTRATION, ALSO USING PLM. IF YOU WOULD LIKE ANY OF YOUR FRIABLE SAMPLES WITH ASBESTOS CONTENTS OF LESS THAN 10% TO BE POINT COUNTED, PLEASE CALL OUR OFFICE. POINT COUNTING IS NOT REQUIRED FOR THOSE SAMPLES IN WHICH NO ASBESTOS IS DETECTED DURING ANALYSIS BY PLM.

ALL SAMPLES ARE STORED AT THE TUNDRA LABORATORY FOR A PERIOD OF THREE MONTHS. FURTHER ANALYSIS OR RETURN OF SAMPLES MUST BE REQUESTED WITHIN THIS THREE MONTH PERIOD TO GUARANTEE THEIR AVAILABILITY.

CEC
Covino Environmental Consultants, Inc. 300 Wildwood Avenue, Woburn, MA 01801, (617) 933-2555, FAX (617) 932-9402

Briggs Associates, Inc.

ASBESTOS ANALYSIS BY TRANSMISSION ELECTRON MICROSCOPY (TEM), SELECTED AREA ELECTRON DIFFRACTION (SAED), AND ENERGY DISPERSIVE X-RAY MICROANALYSIS (EDXA)

SAMPLE DATA

CLIENT PROJECT: CEC Job 94.01163

Sample Location: #36, Warwick, RI

CLIENT: Covino Environmental Consultants, Inc.

DATE RECEIVED: 1/12/95

ANALYSIS: Floor Tile Asbestos Analysis by Modified Chatfield Method (Qualitative)

ANALYTICAL RESULTS

Lab ID No.	Client ID No.	Approximate Asbestos Content	Asbestos Type
1.17844	36-02-01	MA	CHR
2.17845	36-06-01	NAD	

Notes: CHR=Chrysotile, AMP=Amphibole
NAD=No Asbestos Detected
SA=Slight Amount of Asbestos, MA=Moderate Amount of Asbestos, HA=High Amount of Asbestos

Analytical Method: The floor tile samples and their underlying mastic are analyzed in accordance with recommended protocol (modified Chatfield). The TEM analysis was performed using JEOL 100CX II with KEVEX energy dispersive X-ray spectrometer at a magnification of 19,000.

2001 Marietta Road, Atlanta, Georgia 30318
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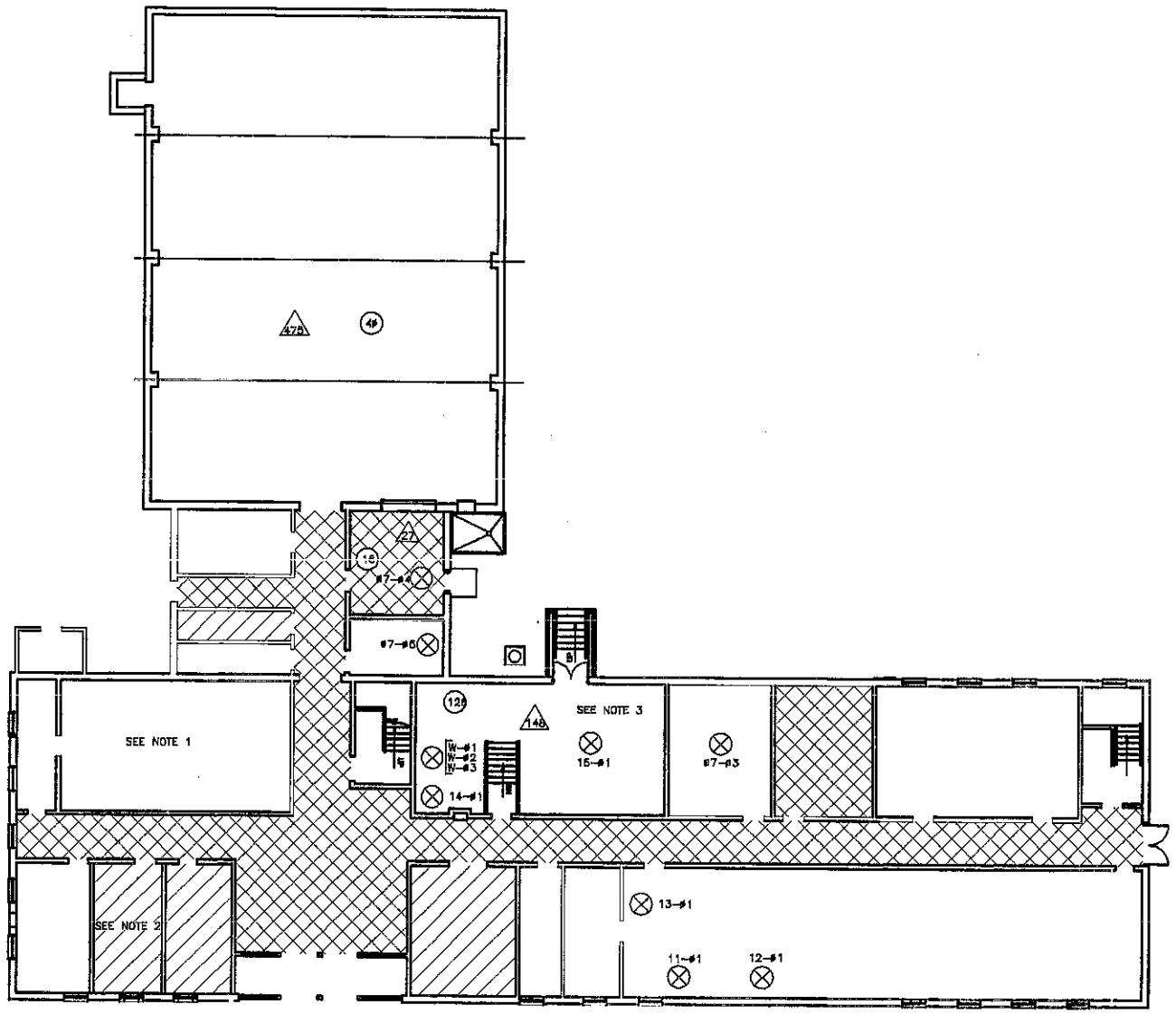
APPENDIX B

DRAWINGS DEPICTING SAMPLE AND ACBM LOCATIONS



FIRST FLOOR PLAN

LEGEND

⊗	BULK SAMPLE LOCATION
NA	NOT ACCESSIBLE
T	TRANSITE
AA–BB	SAMPLE DESCRIPTION: HOMOGENEOUS MATERIAL – SPECIFIC SAMPLE NUMBER
ACBM	ASBESTOS–CONTAINING BUILDING MATERIAL
(X)	NUMBER OF ACBM FITTINGS ON NON–ACBM INSULATED PIPE
△X	LINEAR FEET OF ACBM PIPE INSULATION
(XX)	NUMBER OF MUDDED PIPE FITTINGS, INCLUDES FIBERGLASS AND PAPER INSULATED PIPE RUNS.
⊙	VERTICAL ACBM INSULATED PIPE RISER
▨	ACBM FLOOR TILE
▩	ACBM FLOOR TILE & MASTIC
▨	ACBM MASTIC

DRAWING NOTES

1. ARMS VAULT NO ACCESS AVAILABLE
2. THREE UTILITY TRENCHES ARE ACCESSIBLE FROM THE BOILER ROOM (REFERENCE USACOE 199# REPORT)
3. THERMAL SYSTEM TANK INSULATION 125 SQ FT

Revisions			
Symbol	Descriptions	Date	Approved

COVINO ENVIROMENTAL CONSULTANTS, INC.
3## WILDWOOD AVENUE
WOBURN, MASSACHUSETTS #18#1

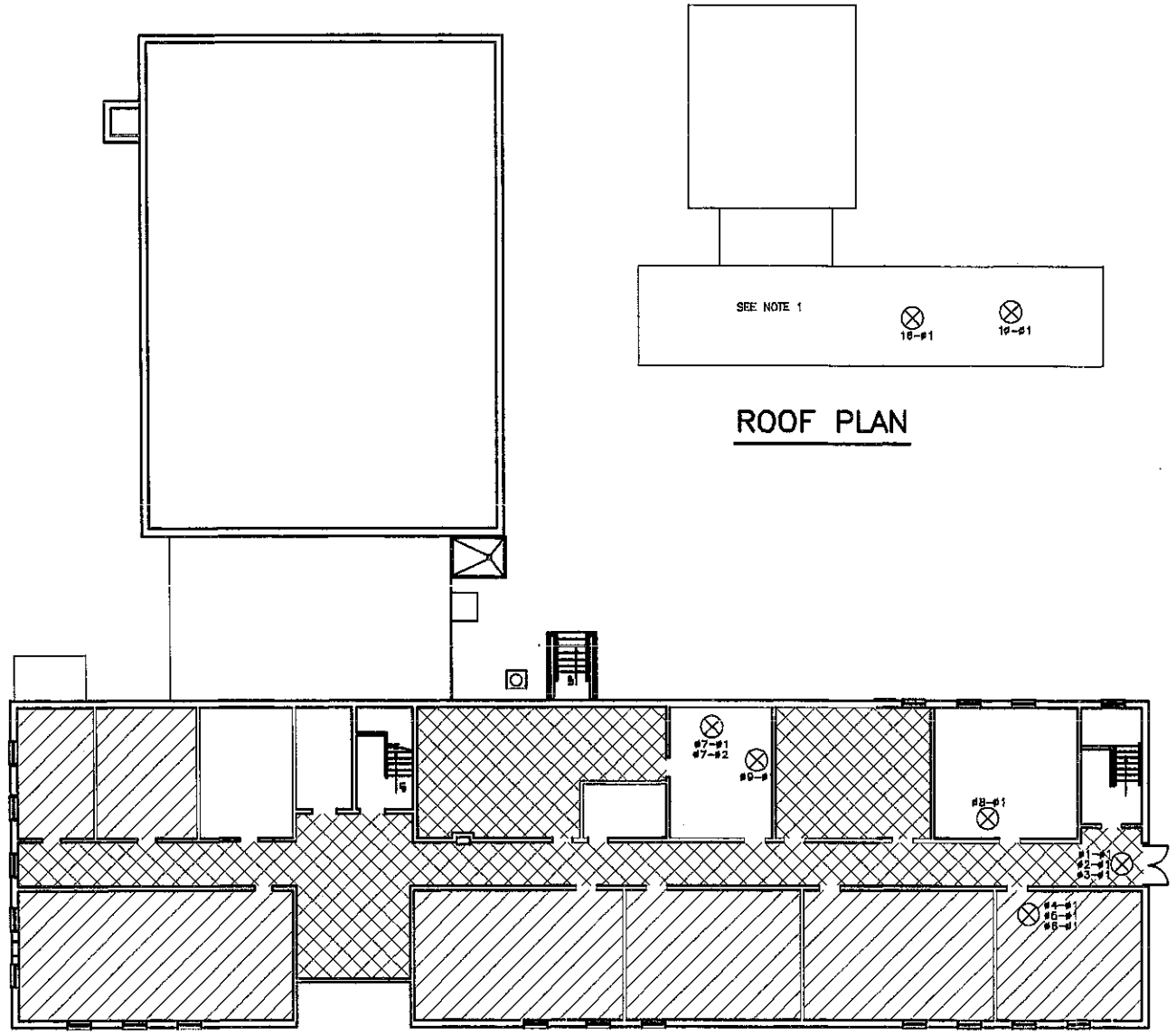
ARMY RESERVE CENTER
ROCHESTER, N.H.

Designed by:
Drawn by:
Checked by:
Reviewed by:
Approved by:

ASBESTOS SURVEY PLAN
PVT LLOYD S. COOPER III
USARC
885 SANDY LANE
WARWICK, R.I. #2886

Scale: NONE
Date: OCT. 1998
Drawing Code:
Sheet reference number:
Sheet ____ of ____

Plot Date:



ROOF PLAN

SECOND FLOOR PLAN

LEGEND

- ⊗ BULK SAMPLE LOCATION
- NA NOT ACCESSIBLE
- T TRANSITE
- AA–BB SAMPLE DESCRIPTION: HOMOGENEOUS MATERIAL – SPECIFIC SAMPLE NUMBER
- ACBM ASBESTOS–CONTAINING BUILDING MATERIAL
- (X) NUMBER OF ACBM FITTINGS ON NON–ACBM INSULATED PIPE
- XX LINEAR FEET OF ACBM PIPE INSULATION
- (XX) NUMBER OF MUDDED PIPE FITTINGS, INCLUDES FIBERGLASS AND PAPER INSULATED PIPE RUNS.
- VERTICAL ACBM INSULATED PIPE RISER
- ACBM FLOOR TILE
- ACBM FLOOR TILE & MASTIC
- ACBM MASTIC

DRAWING NOTES

1. ROOF MATERIAL SAMPLED AND DETERMINED TO BE ACBM APPROXIMATELY 832 SQ. FT.

Revisions			
Symbol	Descriptions	Date	Approved

COVINO ENVIROMENTAL CONSULTANTS, INC.
3ØØ WILDWOOD AVENUE
WOBURN, MASSACHUSETTS Ø18Ø1

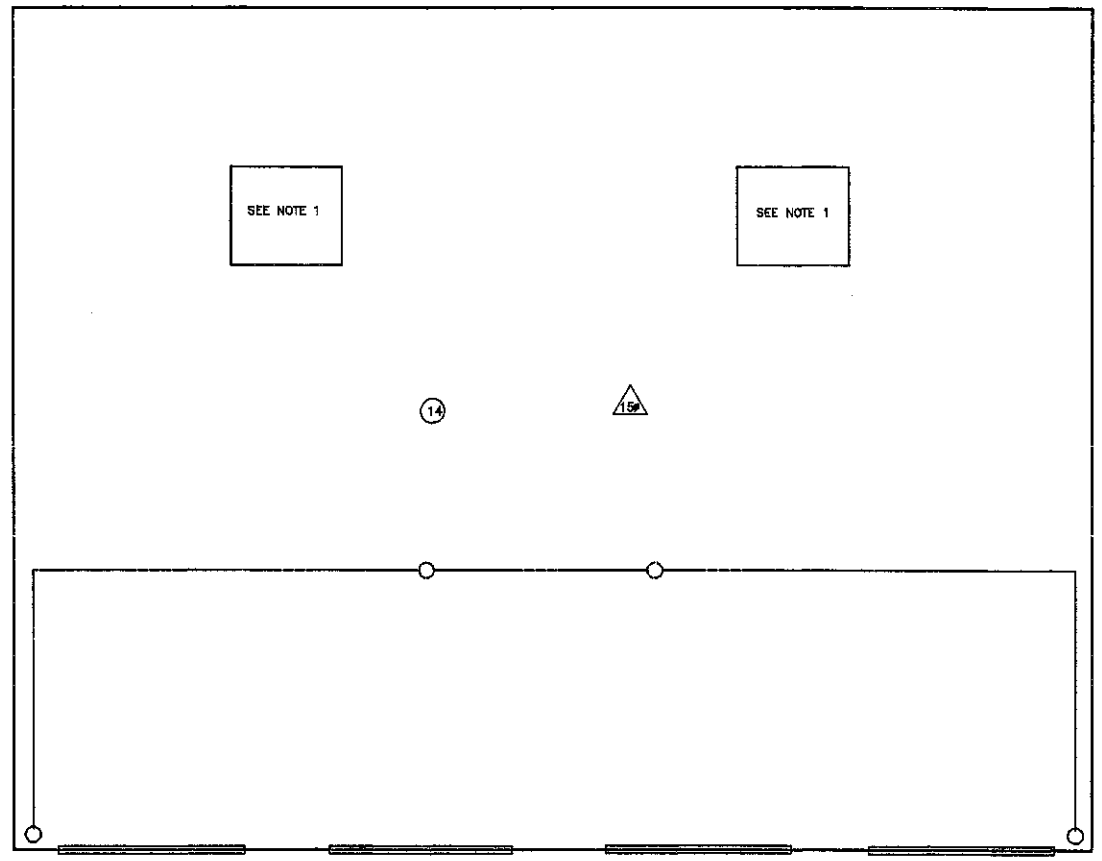
ARMY RESERVE CENTER
WARWICK, R.I.

Designed by:
Drawn by:
Checked by:
Reviewed by:
Approved by:

ASBESTOS SURVEY PLAN
PVT LLOYD S. COOPER III
USARC
885 SANDY LANE
WARWICK, R.I. Ø2886

Scale: NONE
Date: OCT. 1995
Drawing Code:
Sheet reference number:
Sheet ____ of ____

Plot Date:



OMS BUILDING

LEGEND

- ⊗ BULK SAMPLE LOCATION
- NA NOT ACCESSIBLE
- T TRANSITE
- AA–BB SAMPLE DESCRIPTION: HOMOGENEOUS MATERIAL – SPECIFIC SAMPLE NUMBER
- ACBM ASBESTOS–CONTAINING BUILDING MATERIAL
- (X) NUMBER OF ACBM FITTINGS ON NON–ACBM INSULATED PIPE
- △X LINEAR FEET OF ACBM PIPE INSULATION
- (XX) NUMBER OF MUDDED PIPE FITTINGS, INCLUDES FIBERGLASS AND PAPER INSULATED PIPE RUNS.
- ⊙ VERTICAL ACBM INSULATED PIPE RISER
- ACBM FLOOR TILE
- ACBM FLOOR TILE & MASTIC
- ACBM MASTIC

DRAWING NOTES

1. ASBESTOS–CEMENT (TRANSITE) BOARD (128 SQ. FT.)

Revisions			
Symbol	Descriptions	Date	Approved

COVINO ENVIROMENTAL CONSULTANTS, INC.
300 WILDWOOD AVENUE
WOBURN, MASSACHUSETTS 01801

ARMY RESERVE CENTER
WARWICK, R.I.

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USARC
885 SANDY LANE
WARWICK, R.I. 02886

Scale: NONE
Date: OCT. 1995
Drawing Code:
Sheet reference number:
Sheet ____ of ____

Plot Date:

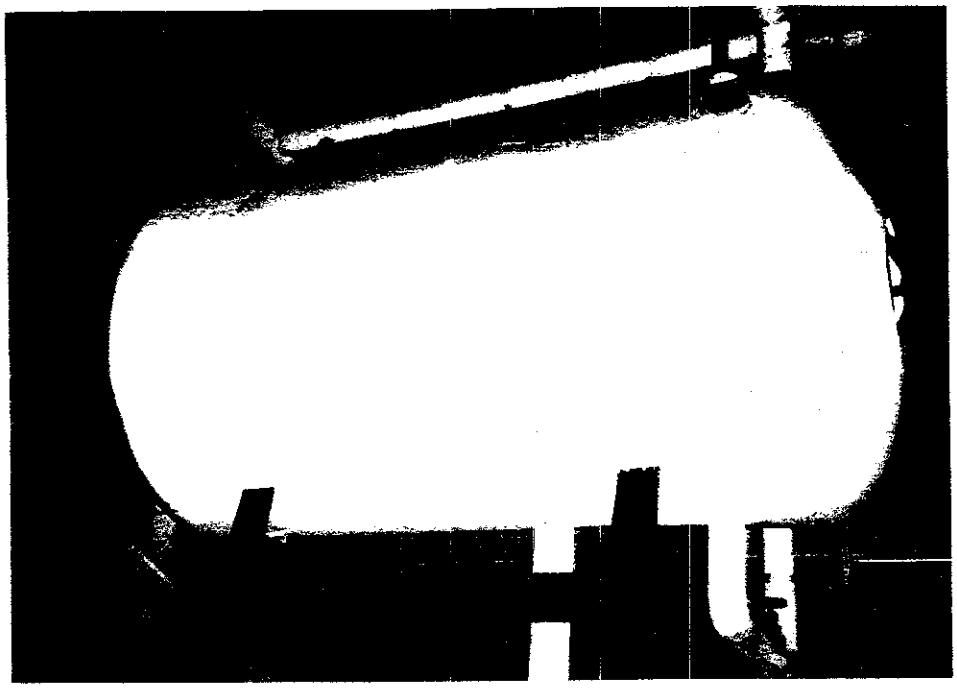

Photo 36-01. Thermal system tank insulation, boiler room, main building

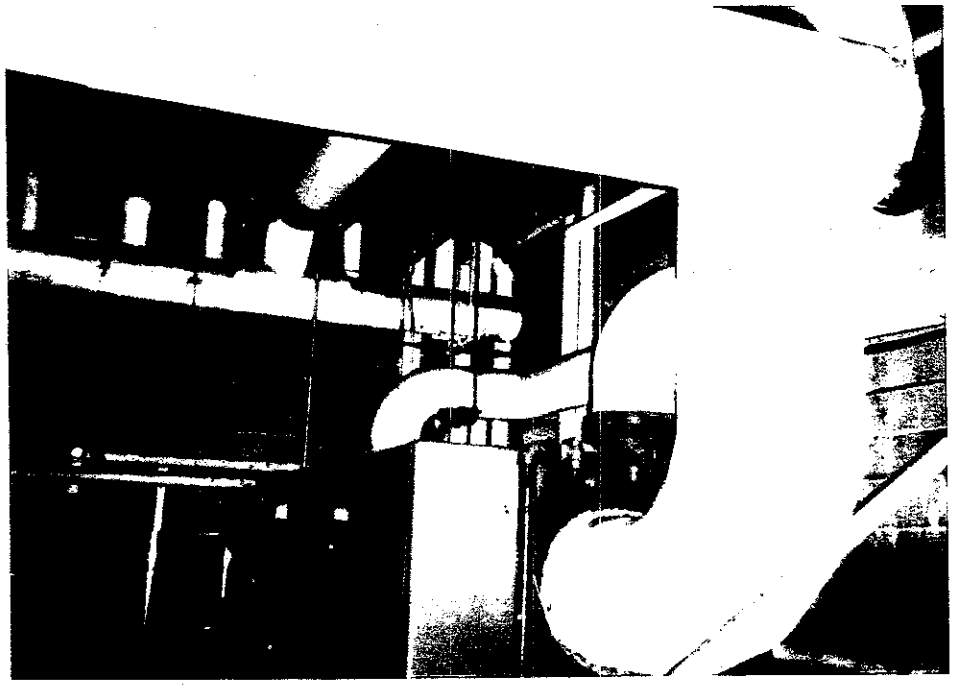

Photo 36-02. Thermal system insulation, boiler room, main building

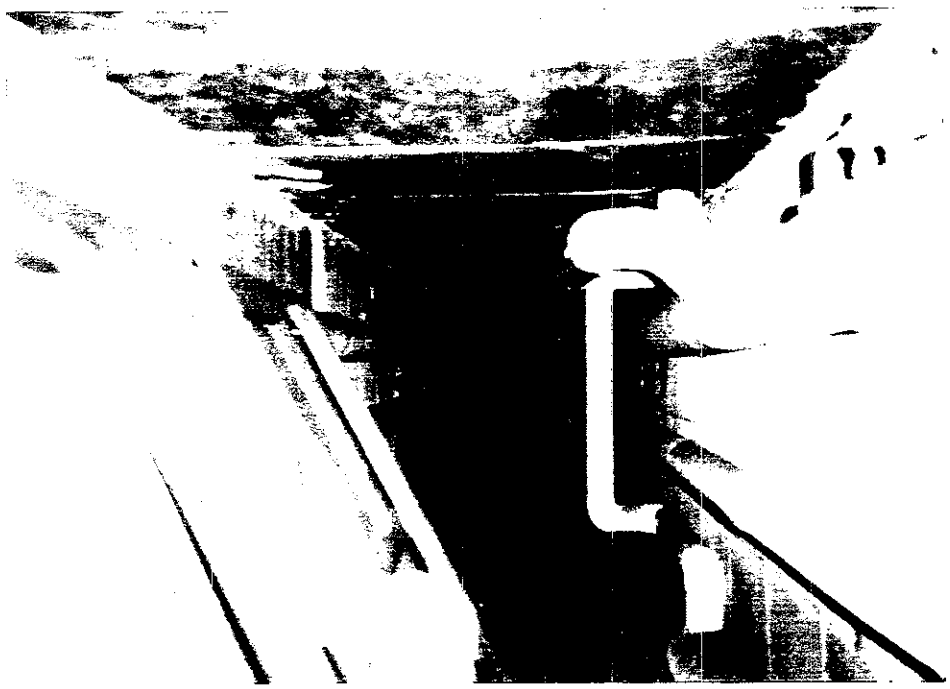

Photo 36-03. Thermal system pipe insulation, utility trench

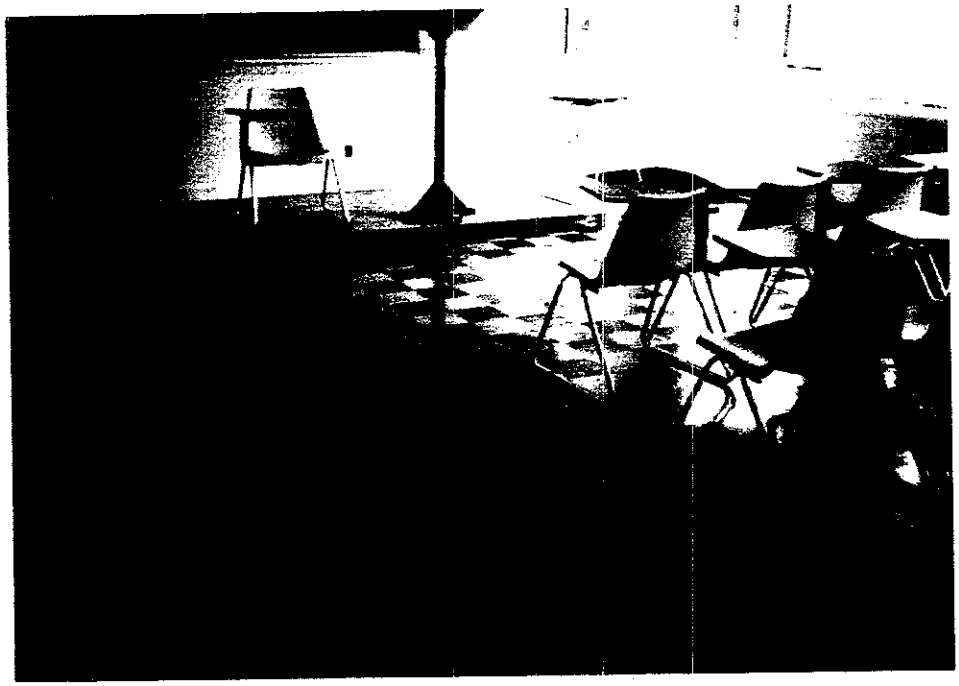

Photo 36-04. Vinyl floor tile, located in classrooms

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:

$$\text{Average Occupancy} = \text{Outside Visitors} \times \frac{\text{Ave. Hours Spent}}{\text{8 Hrs.}} + \text{No. Full-time 8-Hr. Building Occupants}$$

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

01-01

SITE CODE: 36
AREA/ROOM:
EVALUATORS: MH - GW
MATERIAL QUANTITY:
MATERIAL DESCRIPTION: Floor Tile RED/BRN checkerboard (RED)

BUILDING NAME: Main
SAMPLE NO(S).: 36-01-01
DATE: 10/12/94
THICKNESS/SIZE & COLOR: 9x9' RED

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A 0 Friable: H=3, M=2, L=1 Non-friable=0	
B 0 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 3 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 3 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 1 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 10 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 10	

DAMAGE ASSESSMENT

A 1 Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B 0 Water: None = 0, Minor = 1, Major = 2	
C 3 Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D 1 Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E 1 Asbestos Content (%): < 1% = 0, > 1 to < 30 =1, > 30 to < 50 = 2, > 50 = 3	
F 6 Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = 6	G ASSESSMENT INDEX (Priority Ranking Value) = D

ASBESTOS PRIORITIZATION FORM 03-01

SITE CODE: 36
AREA/ROOM:
EVALUATORS: MH - GN
MATERIAL QUANTITY:
MATERIAL DESCRIPTION: Chicken Head Floor Tile (Brown)

BUILDING NAME: Main
SAMPLE NO(S).: 36-03-01
DATE: 10/12/94
THICKNESS/SIZE & COLOR: Brown 9x9

MATERIAL TYPE	COMMENTS
RELEASE ASSESSMENT	
A 0 Friable: H=3, M=2, L=1 Non-friable=0	
B 0 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 3 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 3 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 1 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 10 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 10	
DAMAGE ASSESSMENT	
A 1 Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B 0 Water: None = 0, Minor = 1, Major = 2	
C 3 Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D 1 Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E 1 Asbestos Content (%): < 1% = 0, > 1 to < 30 =1, > 30 to < 50 = 2, > 50 = 3	
F 6 Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = 6	G ASSESSMENT INDEX (Priority Ranking Value) = D

ASBESTOS PRIORITIZATION FORM

04-01

SITE CODE: 36
AREA/ROOM:
EVALUATORS: MH - GW
MATERIAL QUANTITY:
MATERIAL DESCRIPTION: Floor Tile (From Checkerboard) 9x9" Grey

BUILDING NAME: Main
SAMPLE NO(S).: 36-04-01
DATE: 10/12/94
THICKNESS/SIZE & COLOR: 9x9 Grey

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A 0 Friable: H=3, M=2, L=1 Non-friable=0	
B 0 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 3 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 3 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 1 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 10 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 10	

DAMAGE ASSESSMENT

A 0 Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B 0 Water: None = 0, Minor = 1, Major = 2	
C 3 Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D 1 Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E 1 Asbestos Content (%): < 1% = 0, > 1 to < 30 =1, > 30 to < 50 = 2, > 50 = 3	
F 5 Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = 5	G ASSESSMENT INDEX (Priority Ranking Value) = 15

ASBESTOS PRIORITIZATION FORM 05-01

SITE CODE: 36
AREA/ROOM:
EVALUATORS: MH - GN
MATERIAL QUANTITY:
MATERIAL DESCRIPTION: 9X9 FT Brown (checkerboard)

BUILDING NAME: Main
SAMPLE NO(S).: 36-05-01
DATE: 12/12/94
THICKNESS/SIZE & COLOR: Brown 9X9

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A 0 Friable: H=3, M=2, L=1 Non-friable=0	
B 0 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 3 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 3 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 1 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 10 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 10	

DAMAGE ASSESSMENT

A 1 Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B 0 Water: None = 0, Minor = 1, Major = 2	
C 3 Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D 1 Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E 1 Asbestos Content (%): < 1% = 0, > 1 to < 30 =1, > 30 to < 50 = 2, > 50 = 3	
F 6 Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = 6	G ASSESSMENT INDEX (Priority Ranking Value) = D

ASBESTOS PRIORITIZATION FORM 14-01

SITE CODE: 36
AREA/ROOM: Boiler Room
EVALUATORS: MH - GM
MATERIAL QUANTITY: ~~125~~ 450
BUILDING NAME: Main
SAMPLE NO(S).: 36 14-01
DATE: 10/12/94
THICKNESS/SIZE & COLOR: White
MATERIAL DESCRIPTION: Hot Water Tank Insulation

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A 2 Friable: H=3, M=2, L=1 Non-friable=0	
B 1 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 1 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 1 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 1 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 3 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 10 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 10	

DAMAGE ASSESSMENT

A 1 Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B 0 Water: None = 0, Minor = 1, Major = 2	
C 2 Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D 2 Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E 3 Asbestos Content (%): < 1% = 0, > 1 to < 30 =1, > 30 to < 50 = 2, > 50 = 3	
F 8 Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = 8	G ASSESSMENT INDEX (Priority Ranking Value) = D

ASBESTOS PRIORITIZATION FORM 16-01

SITE CODE: 36
AREA/ROOM: Roof
EVALUATORS: MH - GM
MATERIAL QUANTITY:
MATERIAL DESCRIPTION: Roof Flashing

BUILDING NAME: Main
SAMPLE NO(S).: 36-16-01
DATE: 10/12/94
THICKNESS/SIZE & COLOR: Black

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A 1 Friable: H=3, M=2, L=1 Non-friable=0	
B 0 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 1 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 3 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 3 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 1 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 1 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 10 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 10	

DAMAGE ASSESSMENT

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

ASBESTOS PRIORITIZATION FORM

SITE CODE: 36 BUILDING NAME: Main
AREA/ROOM: Chris Room SAMPLE NO(S).: N/S
EVALUATORS: MH GN DATE: 10/12/94
MATERIAL QUANTITY: 50 SF THICKNESS/SIZE & COLOR: Green
MATERIAL DESCRIPTION: Stucco board

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A 0 Friable: H=3, M=2, L=1 Non-friable=0	
B 0 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 2 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 1 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 1 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 7 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 7	

DAMAGE ASSESSMENT

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

ASBESTOS PRIORITIZATION FORM

SITE CODE: 36 BUILDING NAME: Main & OMS
AREA/ROOM: _____ SAMPLE NO(S).: _____
EVALUATORS: MH GW DATE: 10/12/94
MATERIAL QUANTITY: _____ THICKNESS/SIZE & COLOR: _____
MATERIAL DESCRIPTION: Thermal system insulated fitting

MATERIAL TYPE	COMMENTS
A 3 Friable: H=3, M=2, L=1 Non-friable=0	These analytical results were available from a 1992 HCOE report
B 1 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 1 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 3 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 3 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 14 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 14	

RELEASE ASSESSMENT

A 2 Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B 0 Water: None = 0, Minor = 1, Major = 2	
C 2 Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D 2 Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E 1 Asbestos Content (%): < 1% = 0, > 1 to < 30 =1, > 30 to < 50 = 2, > 50 = 3	
F 7 Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = 7	G ASSESSMENT INDEX (Priority Ranking Value) = D

DAMAGE ASSESSMENT

ASBESTOS PRIORITIZATION FORM

SITE CODE: 36 BUILDING NAME: Main & CMS
AREA/ROOM: _____ SAMPLE NO(S).: N/S
EVALUATORS: GW MH DATE: 10/12/94
MATERIAL QUANTITY: _____ THICKNESS/SIZE & COLOR: _____
MATERIAL DESCRIPTION: Thermal System Pipe insulation
Thin

MATERIAL TYPE	COMMENTS
A 3 Friable: H=3, M=2, L=1 Non-friable=0	This material was not sampled analytical results were available from a 1990 HCCC report
B 1 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 1 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 3 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 3 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 14 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 14	

RELEASE ASSESSMENT

A 2 Physical: None = 0, Minimal = 1, Low = 2, Moderate = 3, High = 5	
B 0 Water: None = 0, Minor = 1, Major = 2	
C 2 Potential for Contact by Maintenance Activity Low = 0, Moderate = 2, High = 3	
D 2 Type of Material: Surfacing Material = 4, HVAC = 3, Pipe or Boiler = 2, Ceilings/Walls = 1, Other = 0 to 1	
E 1 Asbestos Content (%): < 1% = 0, > 1 to < 30 =1, > 30 to < 50 = 2, > 50 = 3	
F 7 Damage Factor Total (D) Max = 17, Min = 0 TOTAL D FACTOR = 7	G ASSESSMENT INDEX (Priority Ranking Value) = 12

DAMAGE ASSESSMENT

ASBESTOS PRIORITIZATION FORM

SITE CODE: 36
AREA/ROOM: OMS Bath
EVALUATORS: MH CN
MATERIAL QUANTITY: 125 sq ft
MATERIAL DESCRIPTION: Transite Board

BUILDING NAME: OMS
SAMPLE NO(S).: N/S
DATE: 11/2/17
THICKNESS/SIZE & COLOR: Gray

RELEASE ASSESSMENT

MATERIAL TYPE	COMMENTS
A 0 Friable: H=3, M=2, L=1 Non-friable=0	
B 0 Occupants Accessibility to ACBM Fibers Low = 0, Moderate = 1, High = 4	
C 1 Activity - None - 0, Low = 1, Moderate = 2, High = 3	
D 1 Air Movement/Plenum - None - 0, Low = 1, Moderate = 2, High = 3	
E 1 Amount of Visible Surface Area (ft^2): <10=0: 10 to <100=1: 100 to ≤1,000=2: >1,000=3	
F 2 Population: 1 to 9 or hall = 1: 10 to 200 = 2: 201 to 500 = 3: 501 to 1,000 = 4: > 1,000 = 5	
G 1 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 5 Release Factor Total (R) Max = 26: Min = 1 TOTAL R FACTOR = 5	

DAMAGE ASSESSMENT

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

APPENDIX E

PERSONNEL AND LABORATORY CERTIFICATES

CERTIFICATION

Rhode Island Department of Health

Division of Occupational and Radiological Health

Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the General Laws entitled "Health and Safety" as amended, and the Rules and Regulations for Asbestos Control, this Certificate is hereby issued as designated below. This Certificate is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in effect and to any conditions specified below.

Certificate Holder

1. Michael J. Hickey

2. 300 Wildwood Street
   Woburn, MA 01801

3. Certificate No.: AAC-275IS
   Amendment No.: 01-Reactivation

4. Expiration Date: 31 August 1995

5. Type of Certification: Asbestos Consultant Service

---

6. Services/Conditions:

A. Inspection Services.

B. Except as specifically provided otherwise in this Certificate, Certificate holders shall conduct their program in accordance with statements, procedures and representations contained in the documents, including any enclosures, listed below. The Rhode Island Rules and Regulations for Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and correspondence are more restrictive than the regulations.

   1) Application dated 11 August 1994.

For the Rhode Island Department of Health

Date: 8/22/94

by Roger P Marinelli

FORM ASB-8 (10/88)

REPLACES FORM ASB-8 (3/86) WHICH IS OBSOLETE

IEE

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

Michael Hickey

has successfully completed the 8 hour course

Asbestos Inspector/Management Planner Annual Refresher

March 24, 1994	March 24, 1994
Course Date	Examination Date
94-212-136-106	March 24, 1995
Certificate Number	Expiration Date
004-62-5622	
Social Security Number	President / Director of Training

CERTIFICATION

Rhode Island Department of Health

Division of Occupational and Radiolcgical Health

Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the General Laws entitled "Health and Safety" as amended, and the Rules and Regulations for Asbestos Control, this Certificate is hereby issued as designated below. This Certificate is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in effect and to any conditions specified below.

Certificate Holder

1. Glenn D. Nelson

2. 300 Wildwood Avenue
Woburn, MA 01801

3. Certificate No.: AAC-468IS
Amendment No.: Original

4. Expiration Date: 31 August 1995

5. Type of Certification: Asbestos Consultant Service

---

6. Services/Conditions:

A. Inspection Services.

B. Except as specifically provided otherwise in this Certificate, Certificate holders shall conduct their program in accordance with statements, procedures and representations contained in the documents, including any enclosures, listed below. The Rhode Island Rules and Regulations for Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and correspondence are more restrictive than the regulations.

1) Application dated 12 August 1994.

For the Rhode Island Department of Health

Date: 8/22/94

by Roger P Marinelli

FORM ASB-8 (10/88)

REPLACES FORM ASB-8 (3/86) WHICH IS OBSOLETE

IEE

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

Glenn Nelson

has successfully completed the 24 hour course

Asbestos Inspection Training

March 21-23, 1994	March 23, 1994
Course Date (s)	Examination Date
94-206-102-111	March 23, 1995
Certificate Number	Expiration Date
032-48-1661	
Social Security Number	President / Director of Training

CERTIFICATION

Rhode Island Department of Health
Division of Occupational and Radiological Health

Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the General Laws entitled "Health and Safety" as amended, and the Rules and Regulations for Asbestos Control, this Certificate is hereby issued as designated below. This Certificate is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in effect and to any conditions specified below.

Certificate Holder

1. Covino Environmental Consultants, Inc.

2. 300 Wildwood Avenue
Woburn, MA 01808

3. Certificate No.: AAL-025C3
Amendment No.: 07-Renewal

4. Expiration Date: 31 May 1995

5. Type of Certification: Asbestos Analytical Service

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6. Services/Conditions:

A. Analysis of bulk samples for type and percentage of asbestos via Polarized Light Microscopy.

B. Analysis of air samples for asbestos via Phase Contrast Microscopy.

C. Analytical results may only be certified by: Samuel J. Covino, Kenneth J. Warren, William C. Wessel, Robert M. Pelletier, Robert Sarazen, Timothy M. Downey, Brent Morgenstern, Katherine B. Straus, William B. Jones, Stephan F. Janas, Diane Montgomery, Daniel K. Smith, Christopher Strickler, Donna M. Johnson, Kevin Donovan, Mike Hickey, Eugene Koehler or Benjamin Lombard.

D. Except as specifically provided otherwise in this Certificate, Certificate Holders shall conduct their program in accordance with statements, procedures and representations contained in the documents, including any enclosures, listed below. The Rhode Island Rules and Regulations for Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and correspondence are more restrictive than the regulations.

1) Renewal application dated 26 April 1994.

For the Rhode Island Department of Health

Date: 5/26/94 by Roger P Marinelli

FORM ASB-8 (10/88) REPLACES FORM ASB-8 (3/86) WHICH IS OBSOLETE

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

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

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

NVLAP LAB CODE: 1781

OPERATIONS AND MAINTENANCE PROGRAM

FOR

ASBESTOS-CONTAINING MATERIALS

AT

PRIVATE LLOYD S. COOPER III ARMY RESERVE CENTER

885 SANDY LANE

WARWICK, RHODE ISLAND

TABLE OF CONTENTS

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 results 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 area signed 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.

Figure 3 - 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 Private Lloyd S. Cooper III Army Reserve Center in Warwick, Rhode Island as further described herein. The undersigned agrees to avoid any contact with, or disturbance, of ACBM 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, ACBM have been identified in the building as described below:

A. **Main Building**

1. Thermal system water tank insulation in the boiler room.
2. Mudded fitting insulations on plumbing and heating pipes insulated with fiberglass, located in the assembly hall, boiler room, kitchen and utility trenches.
3. Thermal system pipe insulation and associated mudded fittings throughout the Main Building.
4. Nonfriable 9" x 9" checkerboard floor tiles and underlying mastic adhesive throughout the main building.
5. Roof asphalt flashing material.
6. Slate boards in classrooms.

B. **Maintenance Building (OMS)**

1. Asbestos-cement (transite) board on ceiling above blower units.
2. Thermal system pipe insulation and associated mudded fittings throughout.

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 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 and 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 identify 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 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 t he 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.

4. OPERATIONS AND MAINTENANCE ACTIVITIES (cont.)

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.

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 hall 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)

Private Lloyd S. Cooper III Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

Checklist

Name of Inspector _____

Date of Inspection _____

ACBM	LOCATION	CHANGE	NO CHANGE	COMMENTS
Main Building				
Water tank insulation	Boiler room			
Pipe insulation and associated mud fittings OMS Buildings	Throughout			
Mud fittings on fiberglass lines	Throughout			
Slate boards	classrooms			
Checkerboard pattern 9" x 9" floor tiles and underlying mastic adhesive	Throughout			
Roof flashing throughout	Throughout			
OMS				
Pipe insulation and associated mud fittings	Throughout			
Transite cement board in OMS	Above ceiling-mounted heaters			

APPENDIX G

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

CEB Files

ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
WARWICK, RHODE ISLAND

Submitted To:

Directorate of Engineering and Housing
Fort Devens, Massachusetts

Prepared by:

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

September 1990

ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
WARWICK, RHODE ISLAND

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ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
WARWICK, RHODE ISLAND

PROJECT SCOPE:

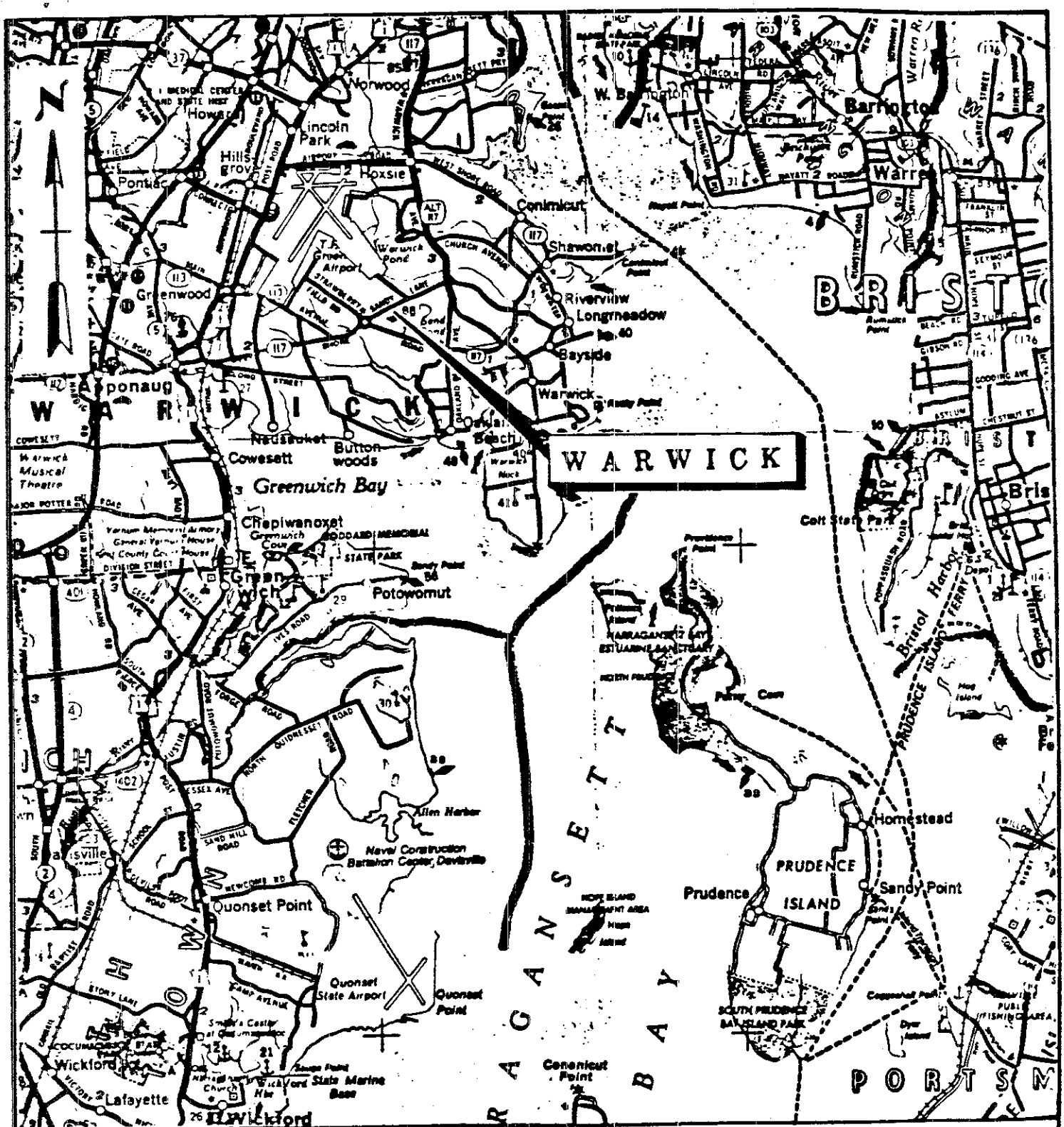
This survey report presents the results of the site inspection, sampling, analysis, and assessment of asbestos-containing materials (ACMs) at the United States Army Reserve Center (USARC), in Warwick, Rhode Island, conducted under the Installation Support Program of Fort Devens.

On 18 August 1988 and 14 February 1990, sampling was performed by Nancy Amidon, Paul Spano and David Leclair of the Water Quality and Environmental Laboratory, USACE, New England Division (NED). Site inspections were conducted on 18 September 1990 by Ben Piteo and Jenny Tan of Civil Engineering Branch, USACE, NED.

SITE DESCRIPTION:

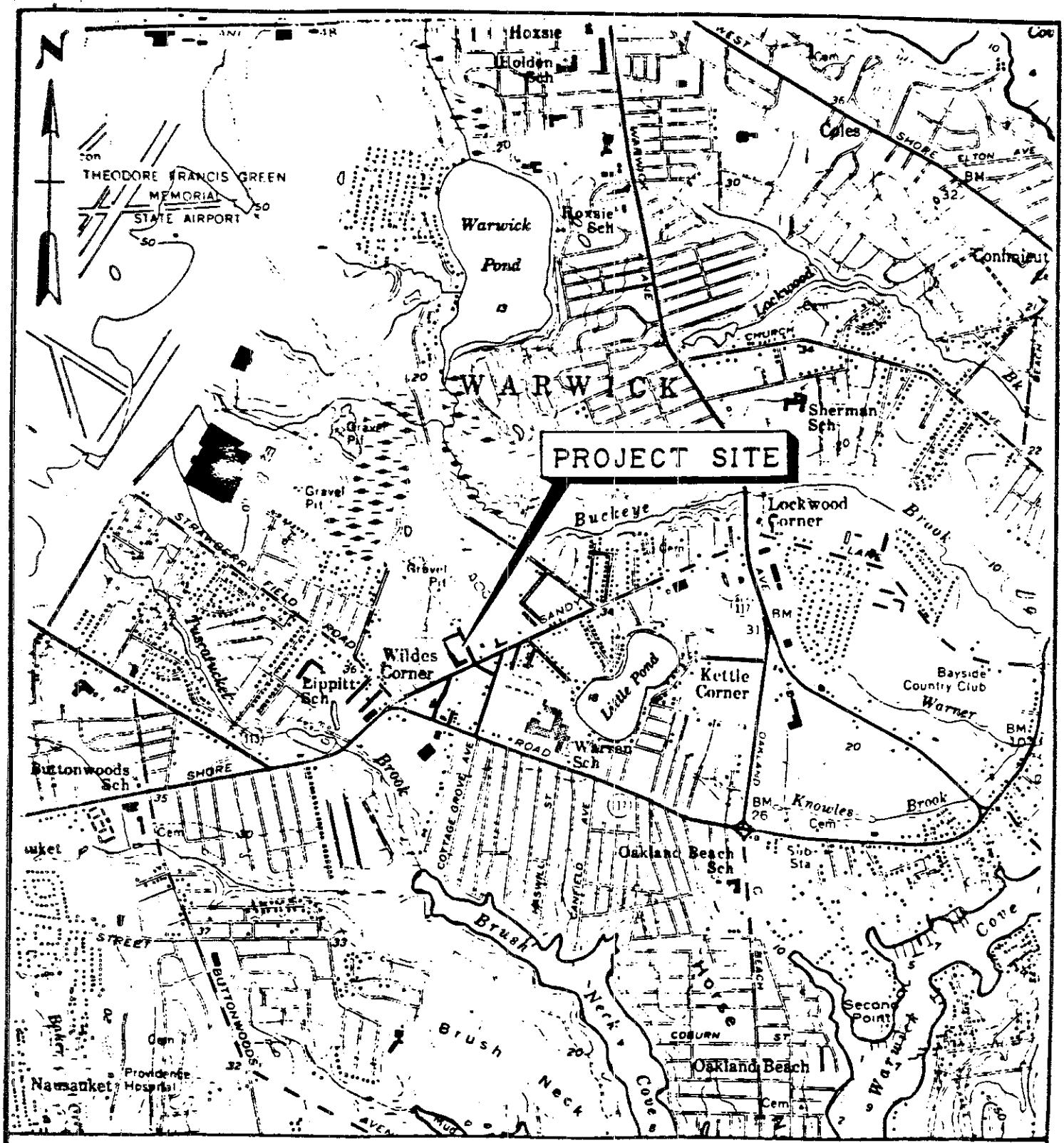
The USARC in Warwick, Rhode Island consists of two buildings constructed from 1958 to 1960 (See Plate 1 - Location Map and Plate 2 - Vicinity Map). The main building is used primarily as an administration and training building. A separate maintenance garage, which was requested not to be included in this report, is located north-west of the main building.

The total floor area of the main building is approximately 23,000 square feet, divided as follows: First Floor - 14,000 sf; Second Floor 9,000 sf (See Plates 3 & 4 - Floor Plans). Record Drawings of the building 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 WARWICK, R.I.	PLATE 1



VICINITY MAP

DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORPS OF ENGINEERS WALTHAM, MASS.	ASBESTOS ABATEMENT SURVEY UNITED STATES ARMY RESERVE CENTER WARWICK, R. I.	PLATE 2

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 utility trenches located under the first floor and utility spaces above the false ceilings, however, were inaccessible and therefore not investigated.

The condition and accessibility of the suspect material were 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 different homogeneous groups. A homogeneous group is defined as a group of suspect ACBM's that are uniform in color, texture, and appearance and were installed at the same time. To the degree possible, the specific material comprising each homogeneous group was identified. A particular homogeneous 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).

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. The sample numbers, locations, and test results are given in APPENDIX B: SAMPLE INFORMATION AND TEST RESULTS.

3. Analysis and Survey Results

The purpose of this survey is to ensure the detection, identification and extent of the ACBM present in the Reserve Center, Warwick, RI. The asbestos abatement survey results were determined by analyzing the inspection data and the sampling and testing results. The survey results are based on the assumption that if at least one sample from each homogeneous group contains asbestos then the entire homogeneous group is considered to be asbestos-containing material. If all samples from a homogeneous group do not contain asbestos, then the entire homogeneous group appears to be free of asbestos.

Since the utility trenches and utility spaces were not inspected, it is assumed that the pipe and fitting insulation is the same material as that in the boiler room, kitchen, and drill floor (See Table 1, note 3).

ASBESTOS ABATEMENT SURVEY RESULTS:

Of the thirteen homogeneous groups (GROUPS 1 through 13, as described in APPENDIX A) of suspect material present in the building, three were found to contain asbestos, one was classified as asbestos free, and the remaining nine were not sampled. Results of the survey are as follows:

Asbestos Detected:

GROUP 2 - 9" X 9" VINYL FLOOR TILES

GROUP 8 - THERMAL SYSTEMS INSULATION - PIPE COVERING (PAPER)

GROUP 10 - THERMAL SYSTEM INSULATION - PIPE FITTINGS

Asbestos was detected in all samples taken from the homogeneous groups identified above. The results, describing the integrity of these ACBMs, are presented in Table 1.

Asbestos Not Detected:

GROUP 9 - THERMAL SYSTEM INSULATION - PIPE COVERING(FIBERGLASS)

Asbestos was not detected in any of the samples taken from this group so it is considered to be free of asbestos.

Groups Not Sampled:

The materials listed below often contain asbestos and thus are suspect unless tested and proven otherwise.

GROUP 1 - GYPSUM WALLBOARD (WALL AND CEILING)

GROUP 3 - FOUR INCH VINYL BASE

GROUP 4 - ACOUSTICAL TILES

GROUP 5 - MASONITE PEG BOARD

GROUP 7 - PLASTER WALL

GROUP 11 - FLEXIBLE JOINT MATERIAL

GROUP 12 - THERMAL SYSTEM INSULATION - TANK COVERING

The materials listed below are non-friable and are assumed to be ACBM.

GROUP 6 - CEMENT-ASBESTOS BOARD

GROUP 13 - CHALK BOARD: Labels with the Beckley Cardy Co. name were found on the chalkboards that were in the class rooms. The labels noted Slatebestos, Vidioplate, Slatoplate, Nubestos and Slatosteel.

ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
WARWICK, RHODE ISLAND

TABLE 1: SURVEY RESULTS

HOMOGENEOUS GROUP	LOCATION Rm #	Name	QUANTITY		CONDITION	ACCESSIBILITY Damage Potent'l	Hgt above Floor	SAMPLE NO.	ASBESTOS CONTENT(%) TYPE	FRIABILITY
2. 9"x9" Floor Tile		Lobby & Corridor #1 & #3	1707 SF		NSD	HIGH	0'			
	4	Commander Office	257 SF		NSD	HIGH	0'			
	6	Technician Office	266 SF		NSD	HIGH	0'			
	7	Office	400 SF		NSD	HIGH	0'			
	8	Technician Office	600 SF		NSD	HIGH	0'			
	14a	Female Locker	80 SF		NSD	HIGH	0'			
	15	Mess	128 SF		NSD	HIGH	0'			
	16	Kitchen	256 SF		NSD	HIGH	0'	4700	4% Chrysotile	Non-friable
		Passage	165 SF		NSD	HIGH	0'			
		Corridor #2	375 SF		NSD	HIGH	0'			
	20	Library	195 SF		NSD	HIGH	0'			
	21	Office	228 SF		NSD	HIGH	0'			
	22	Class Room	556 SF		NSD	HIGH	0'			
	23	Office	228 SF		NSD	HIGH	0'			
	24	Admin. Office	605 SF		NSD	HIGH	0'			
	26	Class Room	556 SF		NSD	HIGH	0'			
	28	Office	624 SF		NSD	HIGH	0'			
	29	Office	543 SF		NSD	HIGH	0'			
	30	Class Room	624 SF		NSD	HIGH	0'			
		Foyer & Corridor 485	1645 SF		NSD	HIGH	0'			
			Length	O.D.						
8. Thermal Systems Ins.-Pipe Covering (Paper)	3	Boiler Room	36'	3.5"	SD	HIGH	2'-12'	4695	25% Chrysotile	Friable
		See Note 3 on	63'	4"	SD	HIGH	2'-12'			
		Next Page	13'	5"	MD	MED	10'			
			21'	6"	MD	MED	10'	4697	30% Chrysotile	Friable
			15'	12"	NSD	LOW	10'			
	16	Kitchen	18'	3"	NSD	HIGH	3'-8'			
			21'	6"	NSD	HIGH	8'	4698	35% Chrysotile	Friable
		Drill Floor	126'	3"	NSD	LOW	20'			
			203'	4"	NSD	LOW	12'			
			174'	6"	MD	LOW	14'			

Notes: 1. O.D. - Outside diameter of pipe or fitting insulation.

2. Condition: NSD - No Significant Damage
MD - Moderate Damage
SD - Significant Damage

ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
WARWICK, RHODE ISLAND

TABLE 1 (cont'd): SURVEY RESULTS

HOMOGENEOUS GROUP	LOCATION Rm # Name	QUANTITY No.	QUANTITY O.D.	CONDITION	ACCESSIBILITY Damage Potent'l	ACCESSIBILITY Hgt above Floor	SAMPLE NO.	ASBESTOS CONTENT(%) TYPE	FRIABILITY
9. Thermal Systems Insulation - Pipe Fittings	1a Arms Foyer	9	2"	MD	MED	8'			
	1b Arms Vault	4	2"	NSD	MED	8'			
	3 Boiler room See Note 3	23	3.5"	SD	HIGH	2'-12'	4696	25% Amosite & Chrysotile	Friable
		34	4"	SD	HIGH	2'-12'			
		33	5"	MD	MED	10'			
		22	6"	MD	MED	10'			
		1	12"	NSD	MED	10'			
	16 Kitchen	5	3"	NSD	HIGH	8'			
		2	6"	SD	HIGH	8'	4699	30% Amosite & Chrysotile	Friable
	Drill Floor	13	3"	NSD	LOW	20'			
		26	4"	NSD	LOW	12'			
		14	6"	NSD	LOW	14'			

Notes: 1. O.D. - Outside diameter of pipe or fitting insulation.

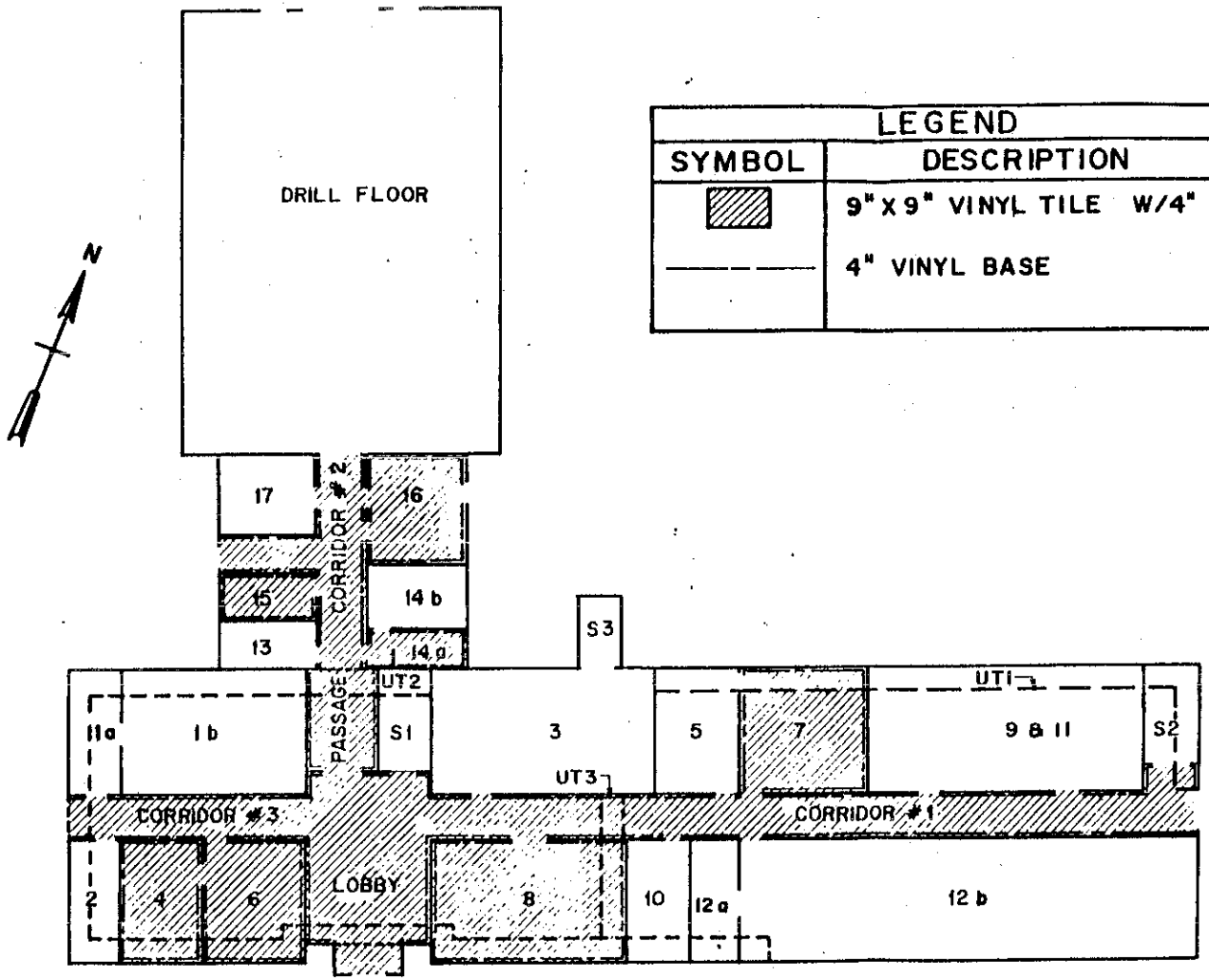
2. Condition: NSD - No Significant Damage
MD - Moderate Damage
SD - Significant Damage

3. Three utility trenches (UT1, UT2, and UT3) are accessable from the boiler room. These trenches, located on Plate 3, are described as follows:

UT1: The trench extends a length of approximately 110 LF and contains a 2 1/2" Hot & Chilled Water Supply (HCWS) pipe and a 1 1/2" Hot & Chilled Water Return (HCWR) pipe.

UT2 and UT3: These are connected forming a total length of approximately 250 LF. Included are HCWS pipe sizes 3/4", 1", 1 1/2", 2", 2 1/2" and 3", HCWR pipe sizes 3/4" 1", 1 1/2", 2" and 2 1/2", and Cooling condensate drain pipe sizes 3/4" and 1 1/4".

A detailed survey is recommended before the commencement of any abatement action.



LEGEND	
SYMBOL	DESCRIPTION
	9" X 9" VINYL TILE W/4"
	4" VINYL BASE

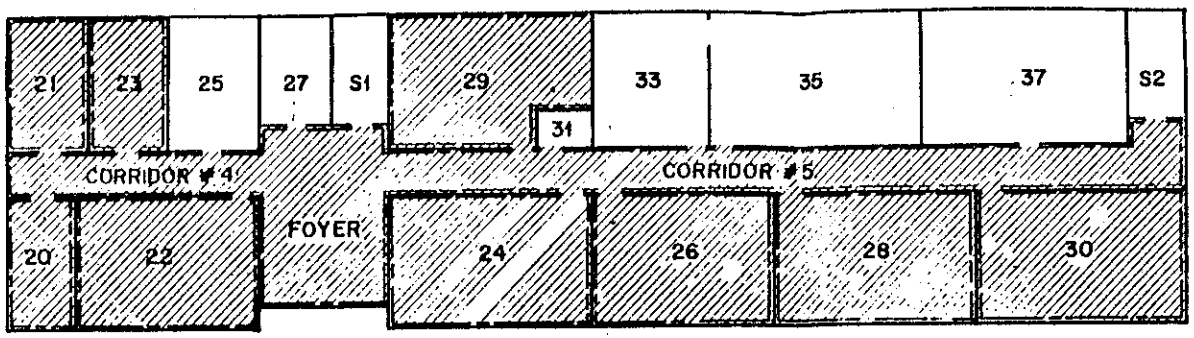
1a Arms Room Foyer
1b Arms Vault
2 Office
3 Boiler Room
4 443D CA CO Commander office
5 Male Officer Latrine
6 443D CA CO Technician
7 Office
8 2 BN 76th. Reg. Technician
9 Unit Storage
10 Center Room
11 Unit Storage
12a Range Storage
12b Rifle Range
13 Utility Room
14a Female Locker
14b Female Latrine
15 Mess 2 BN 76th.
16 Kitchen
17 ist. Sg. Office
S1 Stair case 1
S2 Stair case 2
S3 Stair case 3
UT1 Utility Trench 1
UT2 Utility Trench 2
UT3 Utility Trench 3

FIRST FLOOR PLAN
N. T. S.

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

ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
WARWICK, R.I.
FIRST FLOOR PLAN

1990 | PLATE: 3



SECOND FLOOR PLAN
N. T. S.

20 Library
21 Office
22 Class Room
23 Office
24 Admin. Office
25 Office
26 Class Room
27 Office
28 Office
29 Office
30 Class Room & Conference Room
31 Utility
33 E M Latrine
35 Supply Room 2 D BN 76th. reg.
37 Supply

LEGEND	
SYMBOL	DESCRIPTION
▨	9" X 9" VINYL TILE W/4"
———	4" VINYL BASE

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

ASBESTOS ABATEMENT SURVEY
UNITED STATES ARMY RESERVE CENTER
WARWICK, R. I.
SECOND FLOOR PLAN

1990 | PLATE: 4

APPENDIX A

SITE INSPECTION DATA (By Homogeneous Group):

The thirteen homogeneous groups identified at the Warwick 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. For locations, see Floor Plans (Plates 3 & 4).

GROUP 1a. GYPSUM WALLBOARD (WALL):
Location: Rooms 2, 4, 6, 7, 9, 10, 15, 17, 20, 21, 22, 23, 25, 26, 28, 30, 35, 37 and coridor #2
Condition: No significant damage
Accessibility: High
Sample No.: No Sample

1b. GYPSUM WALLBOARD (CEILING):
Location: Rooms, All the following rooms and halls except the following: Drill Floor and 12b Rifle Range
Condition: No significant damage
Accessibility: Medium
Sample No.: No Sample

GROUP 2. 9" X 9" FLOOR TILES (BLACK/RED):
Location: Shown on first and second floor plan See Plates 3 & 4
Condition: No significant damage
Accessibility: High
Sample No.: 4700

GROUP 3. 4" VINYL BASEBOARD MOLDING (BLACK):
Location: Shown on first and second floor plan See Plates 3 & 4
Condition: No significant damage.
Accessibility: High
Sample No.: No Sample

GROUP 4. ACOUSTICAL TILES (12" X 12"):
Location: Room 12b Rifle Range
Condition: Significant damage
Accessibility: High
Sample No.: No Sample

GROUP 5. MASONITE PEGBOARD:
Location: Room 12b Rifle Range
Condition: Significant damage
Accessibility: High
Sample No.: No Sample

GROUP 6. CEMENT ASBESTOS BOARD:
Location: Utility Room 13
Condition: No significant damage
Accessibility: High
Sample No.: No Sample

GROUP 7. PLASTER WALL:
Location: Rooms 5, 14b and 33
Condition: Moderate damage
Accessibility: High
Sample No.: No Sample

GROUP 8. THERMAL SYSTEM INSULATION - PIPE COVERING (PAPER)
Location: Rooms 3 and 16, Drill floor, utility spaces and trenches
Condition: No significant to significant damage
Accessibility: Low to High
Sample No.: 4695, 4697, 4698

GROUP 9. THERMAL SYSTEM INSULATION - PIPE COVERING (FIBERGLASS):
Location: Drill floor, utility spaces and trenches, Rooms 1a, 1b, 3 (boiler room), 16 (kitchen)
Condition: No significant to significant damage
Accessibility: Low to high
Sample No.: 4694, 7960

GROUP 10. THERMAL SYSTEM INSULATION - PIPE FITTINGS:
Location: Rooma 1a, 1b, 2, 3, 16, Drill floor, and utility spaces and trenches
Condition: No significant to significant damage
Accessibility: Low to high
Sample No.: 4696, 4699

GROUP 11. FLEXIBLE JOINT MATERIAL:
Location: Drill floor
Condition: No significant damage
Accessibility: Low
Sample No.: No Sample

GROUP 12. THERMAL SYSTEM INSULATION - TANK COVERING:
Location: Room 3 (boiler room)
Condition: Moderate damage
Accessibility: High
Sample No.: No Sample

GROUP 13. BLACK BOARD (4' x 4' GREEN)
Location: Rooms, 22, 24, 26, 28, and 30
Condition: No significant damage
Accessibility: High
Sample No.: No Sample

APPENDIX B

SAMPLE INFORMATION AND TEST RESULTS:

USARC

SAMPLE NO.	MATERIAL	LOCATION	TEST RESULTS
4694	Pipe Insulation	BR-1, Boiler room	NEGATIVE
4695	Pipe Insulation	BR-2, Boiler room	POSITIVE
4696	Elbow Insulation	BR-3, Boiler room	POSITIVE
4697	Pipe Insulation	BR-6, Boiler room	POSITIVE
4698	Pipe Insulation	K-4, Kitchen	POSITIVE
4699	Elbow Insulation	K-5, Kitchen	POSITIVE
4700	9"x9" Floor Tile	K-7, Kitchen	POSITIVE
7960	Pipe Insulation	D8-1, Arms Foyer	NEGATIVE

Complete laboratory results of the samples listed above are provided on the following eighteen pages by Eastern Analytical Laboratories, INC..

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

02-28-1990 EAL JOB# 11407 W K B

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

SAMPLE NO.: 7960 LOCATION: D8-1, ARMS ROOM FOYER LAGGING, WARWICK
SAMPLE GROSS APPEARANCE: MIXED FIBROUS & NON-FIBROUS, FRIABLE
COLOR, TEXTURE, ETC.: PAINT COVERED FABRIC

NO ASBESTOS DETECTED

Immersion Media:..... 1.550HD

60 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE FIBERGLASS

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

DATE: 02-28-1990 SIGNED: W K Bartlett

Eastern Analytical Laboratories is accredited by the National Bureau of Standards, NVLAP (Lab 1005) for asbestos analysis of bulk samples by Polarized Light Microscopy with optional Dispersion Staining (PLM/DS) and meets requirements of AHERA 40 CFR 763.87(a).

Accreditation in no way constitutes or implies product certification, approval or endorsement by NBS.

4/24/08

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES,INC.
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
09-20-1988 JOB# 8038 EJB
WQL# 4694 BR-1 NED CORPS OF ENGINEERS (WATER QUALITY LABORATORY)
FIBROUS YELLOW BATTING
NO ASBESTOS DETECTED
:
95 PERCENT TOTAL NON-ASBESTOS FIBER
: GLASS
5 PERCENT TOTAL NON-FIBER MATTER
: RESINS/ASPHALT

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES,INC.
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
09-20-1988 JOB# 8038 EJB
WQL# 4695 BR-2 NED CORPS OF ENGINEERS (WATER QUALITY LABORATORY)
FIBROUS GRAY INSULATION
25 PERCENT TOTAL ASBESTOS
: CHRYSOTILE
70 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE
5 PERCENT TOTAL NON-FIBER MATTER
: BINDER

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES,INC.
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
09-20-1988 JOB# 8038 EJB
WQL# 4696 BR-3 NED CORPS OF ENGINEERS (WATER QUALITY LABORATORY)
MIXED FIBROUS & NON-FIBROUS WHITE FRIABLE CEMENT
25 PERCENT TOTAL ASBESTOS
: AMOSITE CHRYSOTILE
5 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE
70 PERCENT TOTAL NON-FIBER MATTER
: CLAY/LIME CEMENT/GYPSUM

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES,INC.
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
09-20-1988 JOB# 8038 EJB
WQL# 4698 K-4 NED CORPS OF ENGINEERS (WATER QUALITY LABORATORY)
FIBROUS GRAY INSULATION
35 PERCENT TOTAL ASBESTOS
: CHRYSOTILE
50 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE
15 PERCENT TOTAL NON-FIBER MATTER
: BINDER

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES,INC.
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
09-20-1988 JOB# 8038 EJB
WQL# 4699 K-5 NED CORPS OF ENGINEERS (WATER QUALITY LABORATORY)
MIXED FIBROUS & NON-FIBROUS WHITE FRIABLE INSULATION
30 PERCENT TOTAL ASBESTOS
: AMOSITE CHRYSOTILE
5 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE
65 PERCENT TOTAL NON-FIBER MATTER
: CLAY/LIME CEMENT/GYPSUM

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES,INC.
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
09-20-1988 JOB# 8038 EJB
WQL# 4697 BR-6 NED CORPS OF ENGINEERS (WATER QUALITY LABORATORY)
FIBROUS GRAY INSULATION
30 PERCENT TOTAL ASBESTOS
: CHRYSOTILE
55 PERCENT TOTAL NON-ASBESTOS FIBER
: CELLULOSE
15 PERCENT TOTAL NON-FIBER MATTER
:BINDER

BULK ASBESTOS ANALYSIS BY EASTERN ANALYTICAL LABORATORIES,INC.
PLM-DS (Polarized Light Microscopy with optional Dispersion Staining)
09-20-1988 JOB# 8038 EJB
WQL# 4700 K-7 NED CORPS OF ENGINEERS (WATER QUALITY LABORATORY)
NON-FIBROUS RED-BROWN FLOOR TILE
4 PERCENT TOTAL ASBESTOS
: CHRYSOTILE
NO NON-ASBESTOS FIBER DETECTED
:
96 PERCENT TOTAL NON-FIBER MATTER
:POLYMER, MINERAL FILLER AND PIGMENT

FINAL

UNDERGROUND STORAGE TANK CLOSURE REPORT
1,000 GALLON No. 2 FUEL OIL UST AND 12,000 GALLON No. 2 FUEL OIL UST
LLOYD COOPER U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

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Prepared for:

U.S. Army Corps of Engineers
New England District
North Central Resident Office
Devens, Massachusetts

USACE Contract No. DACA33-98-D-0004
Delivery Order No. 0003
Nobis Project No. 67003

May 3, 2000

FINAL

UNDERGROUND STORAGE TANK CLOSURE REPORT
U. S. ARMY RESERVE CENTER
WARWICK, RHODE ISLAND
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FINAL

UNDERGROUND STORAGE TANK CLOSURE
LLOYD COOPER U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

1.0 PLAN IDENTIFICATION AND APPROVALS

Project Title:	Underground Storage Tank Closure Report
Project Location:	Lloyd Cooper USAR Center, 885 Sandy Lane, Warwick, RI
Delivery Order No.:	0003
Nobis Project No.:	67003
Prepared By:	Scott Harding / Dan Michaud
Date Prepared:	05/03/00
Revision No.:	02

APPROVALS:

Scott Harding, Site Remediation Manager — Date: 05/03/00

Peter Delano, P.E., Delivery Order Manager — Date: 05/03/00

2.0 INTRODUCTION

Nobis Engineering, Inc. (*NOBIS*) has prepared this Closure Report summarizing the results of the underground storage tank (UST) removal conducted at the Lloyd Cooper U.S. Army Reserve Center (USARC) located in Warwick, Rhode Island. The UST removal activities were performed under Delivery Order No. 0003 of U.S. Army Corps of Engineers (USACE) New England District Contract No. DACA33-98-D-0004. This work was conducted in accordance with *NOBIS'* approved Work Plan dated April 2, 1999, the USACE's September 21, 1998 Statement of Work (SOW), and UST Removal Technical Specification No. 02115.

A locus plan showing the approximate site location is included as Figure 1. A site plan depicting the location of the former on-site USTs and other pertinent site information is included as Figure 2. Sample location schematics are included as Figure 3 and pertinent site photographs are included as Figure 4.

2.1 Site Background Information

The site is described as the Pvt. Lloyd S. Cooper U. S. Army Reserve Center (USARC) located at 885 Sandy Lane in Warwick, Rhode Island. The site consists of an active Army Reserve Center and an Operation and Maintenance Shop (OMS) surrounded by military vehicle parking and bounded by a chain-link fence.

Two single-walled, steel USTs were formerly used on-site to store #2 fuel oil for furnaces located in the site buildings. The USTs were reportedly installed in 1961. A 1,000-gallon #2 fuel oil UST was formerly located to the west of the OMS building. A 12,000-gallon, #2 fuel oil UST was formerly located to the northeast of the main site building.

3.0 SCOPE OF SERVICES

The objective of this project was to remove and dispose of one single-wall steel, 1,000-gallon #2 fuel oil UST and its contents and one single-wall steel, 12,000-gallon #2 fuel oil UST and its contents. The work described herein was based on USACE's SOW dated September 21, 1998 and the SOW dated March 26, 1999 and includes the following remedial tasks:

- Mobilization/Demobilization Activities
- UST removal and disposal
- Confirmatory soil sampling and analysis
- Backfill and site restoration
- Preparation of UST closure report

4.0 REGULATORY REQUIREMENTS

In addition to the Federal regulations pertaining to UST removal actions and OSHA requirements that are described in the approved Work Plan, UST removal activities were performed in accordance with the following State and local regulatory requirements:

4.1 State and Local Requirements

NOBIS and our subcontractor (Cyn Environmental Services) conducted the UST removal activities in accordance with the Rhode Island Department of Environmental Management's (RIDEM) *Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials. NOBIS* submitted a Permanent Closure Application to the RIDEM Division of Waste Management pursuant to Section 15.0 of the above-referenced regulations prior to the UST removal activities. In addition, *NOBIS* also notified the Warwick Fire Department and obtained a permit for the UST removal and transportation to an approved tank disposal yard. A copy of the permit is included in Appendix A.

Based on review of the RIDEM Groundwater Classification Maps and discussions with RIDEM personnel, the site is located in a class GB groundwater area. A GB Area is defined by RIDEM as an area that is presumed not suitable for use as a current or potential source of drinking water.

Sampling and field screening of soil, as described in Section 6.3 of the approved Work Plan, was performed in accordance with the *Rhode Island Department of Environmental Management UST Closure Assessment Guidelines.*

5.0 UST REMOVAL ACTIVITIES

On April 28-30, 1999, Cyn removed one 1,000-gallon fuel oil UST and one 12,000-gallon fuel oil UST under the supervision of *NOBIS*. Prior to removal of the UST, Cyn personnel emptied approximately 380 gallons of product (30 gallons from the 1,000-gallon tank and 350 gallons from the 12,000-gallon tank) for disposal at their Stoughton, MA facility before entering and cleaning of the tanks. A copy of the manifest is included in Appendix A. Before entering the USTs, the lower explosive level (LEL) and oxygen content were measured in accordance with Cyn's confined space entry protocol and the *NOBIS* Site Safety and Health Plan. Prior to removal, the USTs were entered by Cyn personnel and cleaned with speedi-dry and absorbent materials. The USTs were then removed, placed on flat bed trailers and transported to Grants Recycling in Readville, Massachusetts for disposal.

Mr. Kevin Gillen, Senior Engineer of the RIDEM Office of Waste Management visited the site on April 28, 1999 to deliver the RIDEM UST Removal approval letter and to observe the UST removal activities. A copy of the approval letter is included in Appendix A. Mr. Gillen authorized the removal of the USTs. Copies of the closure permit and shipping documentation are included in Appendix A.

5.1 1,000-Gallon UST Removal

The former 1,000-gallon UST was located between the western wall of the OMS and a chain link fence, which forms the western boundary between the subject site and the abutting Warwick Department of Public Works property. Access to this location was limited by the building and chain link fence. Ground cover in the vicinity of the UST consisted of topsoil and grass.

The excavation for the 1,000-gallon tank was approximately 15 feet long by 8 feet wide in size and extended to a depth of approximately 8 feet below the existing ground surface. A slight petroleum odor was detected from the soils on the bottom of the excavation. However, no evidence of staining was observed on the encountered soils. Refer to Section 7.0 for a discussion of the field screening results. The mobility of the backhoe arm was hindered due to the location of the site building and adjacent chain link fence. Excavated soils, generated during the removal of the UST, were temporarily stockpiled immediately to the north of the UST.

Soils encountered in the excavation of the 1,000-gallon UST appeared to predominantly consist of fill materials. Neither groundwater nor bedrock was encountered in the excavation.

Upon removal, the single-wall steel tank was observed to be in poor condition with visual evidence of several small holes. The holes were observed on the bottom of the tank towards the southern end. Elevated PID readings were encountered in the southern end of the excavation. Minimal rusting and pitting was observed on the exterior of the tank. The length of the 1,000-gallon tank was approximately 132 inches (11 feet) and the diameter was 48 inches (4 feet).

After removal of the UST, soil samples were collected for field screening and laboratory analyses. (Refer to Section 7.0). The excavation was then backfilled in 24-inch lifts with processed bank-run gravel and the excavated soils generated during the removal of the UST. The excavation was compacted with a hand held vibratory roller, the excavator bucket and a rubber-tire skid steer. Final restoration activities of the former 1,000-gallon UST area consisted of loaming and seeding and were completed on August 12, 1999.

5.2 12,000-Gallon UST Removal

The former 12,000-gallon UST was located to the northeast of the main site building. Ground cover in the vicinity of the UST consisted of a small portion of the paved parking lot, two paved walkways and grass. The excavation to remove the 12,000-gallon UST was approximately 26 feet long by 16 feet wide in size and extended to a depth of 13 feet below the existing ground surface. Soils encountered in the excavation, which consisted of loose brown fine to medium sand with varying amounts of gravel and silt, appeared to be predominantly fill materials. Neither groundwater nor bedrock was encountered in the UST excavation.

Upon removal, the single-wall steel tank was observed to be in good condition with no visual evidence of holes. Minimal rusting and pitting was observed. The length of the 12,000-gallon tank was approximately 19 feet and the diameter was 10.5 feet.

After removal of the UST, soil samples were collected for field screening and laboratory analyses. (Refer to Section 7.0). The excavation was compacted with a hand held vibratory roller, the excavator bucket and a rubber-tire skid steer.

Final restoration activities at the former 12,000-gallon UST location were completed on August 12, 1999 and consisted of loaming, seeding, and repaving of the walkway and parking areas.

5.3 Personal Protective Equipment Disposal

Three (3) 55-gallon drums of personal protective equipment (ppe), speedi-dry and rags were generated during the UST cleaning and removal activities. The drums were removed from the site on June 17, 1999 by Cyn. A copy of the manifest for the drum disposal is included in Appendix A.

6.0 FIELD SCREENING RESULTS

Soil samples were collected from the excavator bucket, the excavated soil stockpile, and the UST excavation, and screened in the field for total volatile organic compounds (VOCs) using a Photovac MicroTIP photoionization detector (PID) equipped with a 10.6 eV bulb. The MicroTIP PID responds readily to most VOCs but does not register methane or natural components of air such as oxygen, nitrogen, or carbon dioxide. The MicroTIP PID has a detection limit of approximately one part per million (ppm) by volume, referenced to an isobutylene-in-air standard.

Field screening results are summarized in Table 2 and the field screening procedures are described in Appendix B.

1,000-gallon UST Excavation

PID screening results of soils encountered during the removal activities of the 1,000-gallon UST ranged from less than 1 ppm to 150 ppm. The elevated VOC concentrations were detected from soils located in the bottom of the excavation on the southern end of the UST at depths ranging from 6 feet to 8 feet below the ground surface. The elevated readings correspond to the locations of the observed holes in the bottom of the UST. Screening results of the temporary stockpile ranged from 1 ppm to 20 ppm. The PID readings of the soil samples collected for laboratory analysis ranged from less than 1 ppm to 13.5 ppm.

Based on the proximity of the chain link fence, the storage of DPW materials (which included empty cable spools, vehicles, 55-gallon drums, storage containers,

concrete structures and metal culverts) immediately adjacent to the fence, and the proximity of the site building, the soil which exhibited the elevated PID readings could not be removed in a safe and effective manner.

Based on *Rhode Island Department of Environmental Management UST Closure Assessment Guidelines,* PID readings exceeding 40 ppm constitute a Reportable Condition. On April 30, 1999, Mr. Kevin Gillen of the RIDEM, was contacted by *NOBIS* concerning the elevated PID concentrations. Mr. Gillen indicated that, based on the readings, soil samples should be collected in accordance with the UST Closure Guidelines and the results submitted to RIDEM upon receipt.

Upon removal of the UST, the bottom of the excavation was lined with polyethylene sheeting. Based on site conditions and screening results, the temporary stockpile materials were used as backfill upon removal of the UST.

12,000-gallon UST Excavation

PID screening results of soils encountered during the removal activities of the 12,000-gallon UST were all below the action level of 25 ppm. PID readings of the temporary stockpile ranged from less than 1 ppm to 15 ppm. The PID readings of the soil samples collected for laboratory analysis ranged from 6.5 to 11 ppm. No reportable conditions, as described in the RIDEM guidance document entitled *Rhode Island Department of Environmental Management UST Closure Assessment Guidelines* were encountered during the UST removal activities. Based on screening results and observations, the excavation was backfilled with the temporary soil stockpile material and processed gravel.

No significant stains or petroleum odors were noted during the excavation of the 12,000-gallon UST. Refer to Figure 3 for the soil sampling locations.

7.0 SAMPLE COLELCTION AND LABORATORY ANALYSIS

1,000-Gallon UST – Sample Collection

Five composite soil samples (designated as 1K/S-1 through 1K/S-5) were collected from the sidewalls and the bottom excavation after the removal of the 1,000-gallon UST. The samples were submitted to Katahdin Analytical Services, Inc. of Westbrook, Maine for analysis of VOCs per EPA Method 8260B, total petroleum hydrocarbons (TPH) per EPA Method SW8015M and polyaromatic hydrocarbons (PAH) per EPA Method 8270C. The sidewall samples (designated as 1K/S-1 through 1K/S-4) were collected at depths ranging from 4 feet to 6 feet below the ground surface. The bottom sample (designated as 1K/S-5) was collected from a depth of approximately 8 feet BGS, from the southern portion of the excavation, where the elevated PID readings were encountered during the field screening activities (refer to Section 6.0).

1,000-Gallon UST – Laboratory Analysis of Soil Samples

Laboratory analysis indicated that no target VOCs were detected in the samples above the RIDEM Direct Exposure Criteria for an Industrial/Commercial property. Furthermore, no target VOCs were detected above the more stringent RIDEM Direct Exposure Criteria for Residential properties either. An estimated acetone concentration (a common laboratory contaminant) of 0.33 ppm was detected in sample 1K/S-2, however, this concentration is below the practical quantitation limit for the specific analyte. No other VOCs were detected above the method detection limits in the submitted soil samples.

Laboratory analysis indicated TPH concentrations ranging from 18 ppm to 470 ppm in four of the five samples collected from the 1,000 gallon UST excavation (1K/S-2 was non-detect). The highest concentration was detected in the sample collected from the bottom of the excavation at a depth of approximately 8 feet BGS. These concentrations were below the RIDEM Direct Exposure Criteria for both Residential (500 ppm) and Industrial/Commercial properties (2,500 ppm).

The PAH analyses indicated the presence of fluoranthene and pyrene in the sidewall sample, 1K/S-1. The estimated concentrations were below their respective Direct Exposure Criteria. The estimated concentrations were also below the practical quantitation limit for the specific analytes. Estimated concentrations of benzo (b) fluoranthene, fluoranthene and pyrene were detected in the bottom sample, 1K/S-5. These concentrations are below their respective practical quantitation limit. A phenanthrene concentration of 0.43 ppm was also detected in the bottom sample (1K/S-5). This concentration is below the Direct Exposure Criteria of 10,000 ppm for phenanthrene. No other target PAHs were detected above the method detection limits. Furthermore, no target PAHs were detected above the more stringent RIDEM Direct Exposure Criteria for Residential properties either.

Refer to Table 2 for a summary of the analytical results.

The laboratory results were forwarded to Mr. Gillen of the RIDEM on July 23, 1999. After review of the data, RIDEM issued an approval letter dated September 22, 1999. A copy of this letter is included in Appendix A.

12,000-Gallon UST – Sample Collection

Five composite soil samples (designated as 12K/S-1 through 12K/S-5) were collected from the sidewalls and the bottom excavation after the removal of the 12,000-gallon UST. The samples were submitted to Katahdin Analytical Services, Inc. of Westbrook, Maine for analysis of VOCs per EPA Method 8260B, TPH per EPA Method SW8015M and PAH per EPA Method 8270C. The sidewall samples (designated as 12K/S-1 through 12K/S-4) were collected at depths ranging from 8 feet to 12 feet below the ground surface. The bottom sample (designated as 12K/S-5) was collected from a depth of approximately 13 feet BGS, from the

southern portion of the excavation, where the elevated PID readings were encountered during the field screening activities (refer to Section 6.0).

12,000-Gallon UST – Laboratory Analysis of Soil Samples

Laboratory analysis indicated that no target VOCs or PAHs were detected in the samples, above the method detection limits.

Laboratory analysis indicated TPH concentrations ranging from 10 ppm to 170 ppm in three of the five samples collected from the 12,000 gallon UST excavation. The highest concentration was detected in the sample collected from the southern sidewall (12K/S-3).

Refer to Table 3 for a summary of the analytical results.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the work performed, *NOBIS* presents the following conclusions and recommendations:

8.1 1,000-Gallon UST

- The 1,000-gallon and 12,000 gallon fuel oil USTs were closed-by-removal at the subject site during April 28-30, 1999.
- The single-wall 1,000-gallon UST was determined to be in poor condition with visual evidence of several small holes with minimal rusting and pitting.
- Olfactory evidence of a petroleum release was detected in the soils located beneath the southern portion of the 1,000-gallon UST, however, no visual evidence of a release was observed in the excavation. Field screening results of the soil encountered in the excavation of the 1,000-gallon UST ranged from less than 1 ppm to 150 ppm. The highest PID readings were encountered in the southern portion of the excavation, in the vicinity of the concrete deadmen.
- Based on the PID readings detected in the 1,000-gallon UST excavation, a Reportable Condition was encountered. On April 30, 1999, Mr. Kevin Gillen of the RIDEM was notified of the elevated PID readings. Mr. Gillen indicated that sampling and analyses should be performed in accordance with the *Rhode Island Department of Environmental Management UST Closure Assessment Guidelines.*
- Results of laboratory analysis of five composite soil samples, representative of remaining in-ground conditions (from the 1,000-gallon UST excavation), indicated the presence of low levels if TPH and several PAHs in four (4) of the five (5) analyzed samples. The detected concentrations were below the applicable RIDEM Direct Exposure Criteria of 2,500 ppm for Commercial/Industrial properties. Additionally, the detected concentrations were also below the more conservative Direct Exposure Criteria for

Residential properties. The laboratory results were forwarded to Mr. Gillen of the RIDEM on July 23, 1999. After review of the data, the RIDEM indicated that an approved Closure Certificate would be issued to the USACE and 94th RSC.

8.2 12,000-Gallon UST

- The 12,000-gallon UST was determined to be good condition with no visual evidence of holes and minimal rusting and pitting.
- No visual or olfactory evidence of a petroleum release was observed or detected in the soil encountered during the removal activities of the 12,000-gallon UST. Field screening results of the soil encountered in the excavation and the temporary stockpile were below the reportable limit set by the RIDEM (of 40 ppm) and the action level set in the approved work plan for this project (25 ppm). No reportable conditions were encountered during removal activities.
- Results of laboratory analysis of five composite soil samples, representative of remaining in-ground conditions (from the 12,000-gallon UST excavation), indicated the presence of low levels of TPH and PAHs in three (3) of the five (5) analyzed samples, however, all concentrations, were below the applicable RIDEM Direct Exposure Criteria of 2,500 ppm for Commercial/Industrial properties. Additionally, the detected concentrations were also below the more conservative Direct Exposure Criteria for Residential properties.

8.3 Summary

- Field observations, soil screening data, and confirmatory soil analytical results indicate that there are no conditions that require further notification to RIDEM pertaining to the removed USTs. Based on the observations and results cited above, *NOBIS* concludes that no further investigations or remedial actions pertaining to the removed fuel oil USTs is necessary at this time. The conditions associated with the UST removal activities pose a level of No Significant Risk to human health, welfare, and the environment.

TABLES

TABLE 1
SUMMARY OF FIELD SCREENING
UST EXCAVATIONS

Lloyd Cooper USAR Center
Warwick, Rhode Island

Sample Number	Depth Interval (ft.)	PID Reading (ppm)	Sample Number	Depth Interval (ft.)	PID Reading (ppm)
1K/S-1	4' - 6'	0	12K/S-1	8' - 12'	7.5
1K/S-2	4' - 6'	0	12K/S-2	8' - 12'	6.5
1K/S-3	4' - 6'	18	12K/S-3	8' - 12'	8
1K/S-4	4' - 6'	15	12K/S-4	8' - 12'	6.5
1K/S-5	8'	13.5	12K/S-5	13'	11

NOTES:
1) Photoionization detector (PID) readings are in parts per million (ppm) referenced to an isobutylene-in-air standard.
2) PID readings obtained from head-space tests of 4-ounce jar soil
3) PID readings obtained by Nobis Engineering, Inc. personnel using a Photovac MicroTIP PID equipped with a 10.6 eV lamp.
4) Detection limit of PID instrument is considered to be 1 ppm.
5) Depth stated is measured in feet below existing grade.

TABLE 2
SUMMARY OF SOIL ANALYSES
1,000-GALLON UST EXCAVATION

Lloyd Cooper USAR Center
Warwick, RI

Parameter	1K/S-1	1K/S-2	1K/S-3	1K/S-4	1K/S-5	Direct Exposure Criteria (9)		Soil Leachability Criteria (10)	
Depth -	4' - 6'	4' - 6'	4' - 6'	4' - 6'	7' - 8'	Residential	Industrial/Commercial	GA Groundwater	GB Groundwater
VOCs (ppm)									
Benzene	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	2.5	200	0.2	4
Toluene	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	190	10,000	32	54
Ethylbenzene	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	71	10,000	27	62
Xylenes	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	100	10,000	540	*
MTBE	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	390	10,000	0.9	100
Naphthalene	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	54	10,000	0.8	*
Dichloroethane (1,2-)	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	0.9	63	0.1	2
(8) Ethylene Dibromide	< 0.19	< 0.2	< 0.2	< 0.18	< 0.2	0.01	0.07	0.0005	*
Acetone	J 0.19	J 0.33	< 0.41	J 0.18	J 0.28	7,800	10,000	NA	NA
Other VOCs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	NA	NA
TPH-DRO (ppm)	52	< 5	18	9.3	470	500	2,500	500	2,500
PAH (ppm)									
Naphthalene	< 0.4	< 0.33	< 0.4	< 0.33	< 0.36	390	10,000	0.9	100
Phenanthrene	< 0.4	< 0.33	< 0.4	< 0.33	0.43	40	10,000	NA	NA
Acenaphthene	< 0.4	< 0.33	< 0.4	< 0.33	< 0.36	43	10,000	NA	NA
Benzo(b)fluoranthene	< 0.4	< 0.33	< 0.4	< 0.33	J 0.2	0.9	7.8	NA	NA
Fluoranthene	J 0.23	< 0.33	< 0.4	< 0.33	J 0.34	20	10,000	NA	NA
Fluorene	< 0.4	< 0.33	< 0.4	< 0.33	< 0.36	28	10,000	NA	NA
Pyrene	J 0.25	< 0.33	< 0.4	< 0.33	J 0.74	13	10,000	NA	NA
Other PAHs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	NA	NA

NOTES:

1) Volatile organic carbons (VOC), total petroleum hydrocarbons (TPH), and polyaromatic hydrocarbons (PAH) are reported as milligrams per kilogram (mg/Kg), equivalent to parts per million (ppm).
2) "--" indicates that the parameter was not detected. A "J" indicates that the reported parameter was detected below the PQL for that specific analyte.
3) "*" indicates that soil leachability criteria not established for this contaminant.
4) The samples were collected by Nobis Engineering, Inc. at the subject sites between April 28and April 30, 1999.
5) All analyses were performed by Katadhin Analytical Services of Westbrook, ME. The VOC analyses were performed per method 8260A. The PAH analyses were performed by method 8270C. The TPH analyses were performed by method SW8015M.
6) Soil standards referenced in ppm from RIDEM *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.* According to review of the RIDEM Groundwater Classification Maps, the subject site is located in a GB Classification Area.
7) A shaded entry indicates an exceedance of the Residential Direct Exposure Criteria and a bolded and shaded entry indicates an exceedance of Residential and Industrial/Commercial Criteria.
8) Ethylene dibromide is also known as 1,2 - Dibromomethane which was reported during the 8260B analysis.
9) The site is considered to be a Commercial/Industrial property. The Residential Direct Exposure Criteria are provided for comparison to the more conservative RIDEM standards.
10) The site is located in a Class GB Groundwater area, as designated by the RIDEM.

TABLE 3
SUMMARY OF SOIL ANALYSES
12,000-GALLON UST EXCAVATION

Lloyd Cooper USAR Center
Warwick, RI

Parameter	12K/S-1	12K/S-2	12K/S-3	12K/S-4	12K/S-5	12K/S-5D	12K/S-5Q	Direct Exposure Criteria (9)		Soil Leachability Criteria (10)	
Depth	8' - 12'	8' - 12'	8' - 12'	8' - 12'	8' - 12'	12' - 13'	12' - 13'	Residential	Industrial/Commercial	GA Groundwater	GB Groundwater
VOCs (ppm)											
Benzene	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	2.5	200	0.2	4
Toluene	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	190	10,000	32	54
Ethylbenzene	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	71	10,000	27	62
Xylenes	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	100	10,000	540	*
MTBE	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	390	10,000	0.9	100
Naphthalene	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	54	10,000	0.8	*
Dichloroethane (1,2-)	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	0.9	63	0.1	2
(8) Ethylene Dibromide	< 0.18	< 0.19	< 0.18	< 0.18	< 0.19	< 0.2	< 0.19	0.01	0.07	0.0005	*
Acetone	< 0.35	< 0.38	< 0.35	< 0.37	< 0.38	< 0.4	0.24	7,800	10,000	NA	NA
Other VOCs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	NA	NA
TPH-DRO (ppm)	23	< 5	170	10	< 5.5	<5.5	23	500	2,500	500	2,500
PAH (ppm)											
Naphthalene	< 0.36	< 0.33	< 0.36	< 0.33	< 0.36	< 0.36	< 0.35	390	10,000	0.9	100
Phenanthrene	< 0.36	< 0.33	< 0.36	< 0.33	< 0.36	< 0.36	< 0.35	40	10,000	NA	NA
Acenaphthene	< 0.36	< 0.33	< 0.36	< 0.33	< 0.36	< 0.36	< 0.35	43	10,000	NA	NA
Benzo(b)fluoranthene	< 0.36	< 0.33	< 0.36	< 0.33	< 0.36	< 0.36	< 0.35	0.9	7.8	NA	NA
Fluoranthene	< 0.36	< 0.33	< 0.36	< 0.33	< 0.36	< 0.36	< 0.35	20	10,000	NA	NA
Fluorene	< 0.36	< 0.33	< 0.36	< 0.33	< 0.36	< 0.36	< 0.35	28	10,000	NA	NA
Pyrene	< 0.36	< 0.33	< 0.36	< 0.33	< 0.36	< 0.36	< 0.35	13	10,000	NA	NA
Other PAHs	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies	NA	NA

NOTES:

1) Volatile organic carbons (VOC), total petroleum hydrocarbons (TPH), and polyaromatic hydrocarbons (PAH) are reported as milligrams per kilogram (mg/Kg), equivalent to parts per million (ppm).
2) "--" indicates that the parameter was not detected. A "J" indicates that the reported parameter was detected below the PQL for that specific analyte.
3) "*" indicates that soil leachability criteria not established for this contaminant.
4) The samples were collected by Nobis Engineering, Inc. at the subject sites between April 28and April 30, 1999.
5) All analyses were performed by Katadhin Analytical Services of Westbrook, ME. The VOC analyses were performed per method 8260A. The PAH analyses were performed by method 8270C. The TPH analyses were performed by method SW8015M.
6) Soil standards referenced in ppm from RIDEM *Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.* According to review of the RIDEM Groundwater Classification Maps, the subject site is located in a GB Classification Area.
7) A shaded entry indicates an exceedance of the Residential Direct Exposure Criteria and a bolded and shaded entry indicates an exceedance of Residential and Industrial/Commercial Criteria.
8) Ethylene dibromide is also known as 1,2 - Dibromomethane which was reported during the 8260B analysis.
9) The site is considered to be a Commercial/Industrial property. The Residential Direct Exposure Criteria are provided for comparison to the more conservative RIDEM standards.
10) The site is located in a Class GB Groundwater area, as designated by the RIDEM.

FIGURES

DWG. NAME: LOCUS

NORTH

USGS TOPOGRAPHIC MAP

EAST GREENWICH, RHODE ISLAND

1975

APPROXIMATE SCALE
1 INCH = 2,000 FEET

Nobis Engineering, Inc.
1 Griffin Brook Drive
Methuen, MA 01844
Tel (978) 683-0891
Fax (978) 683-0966

QUADRANGLE LOCATION

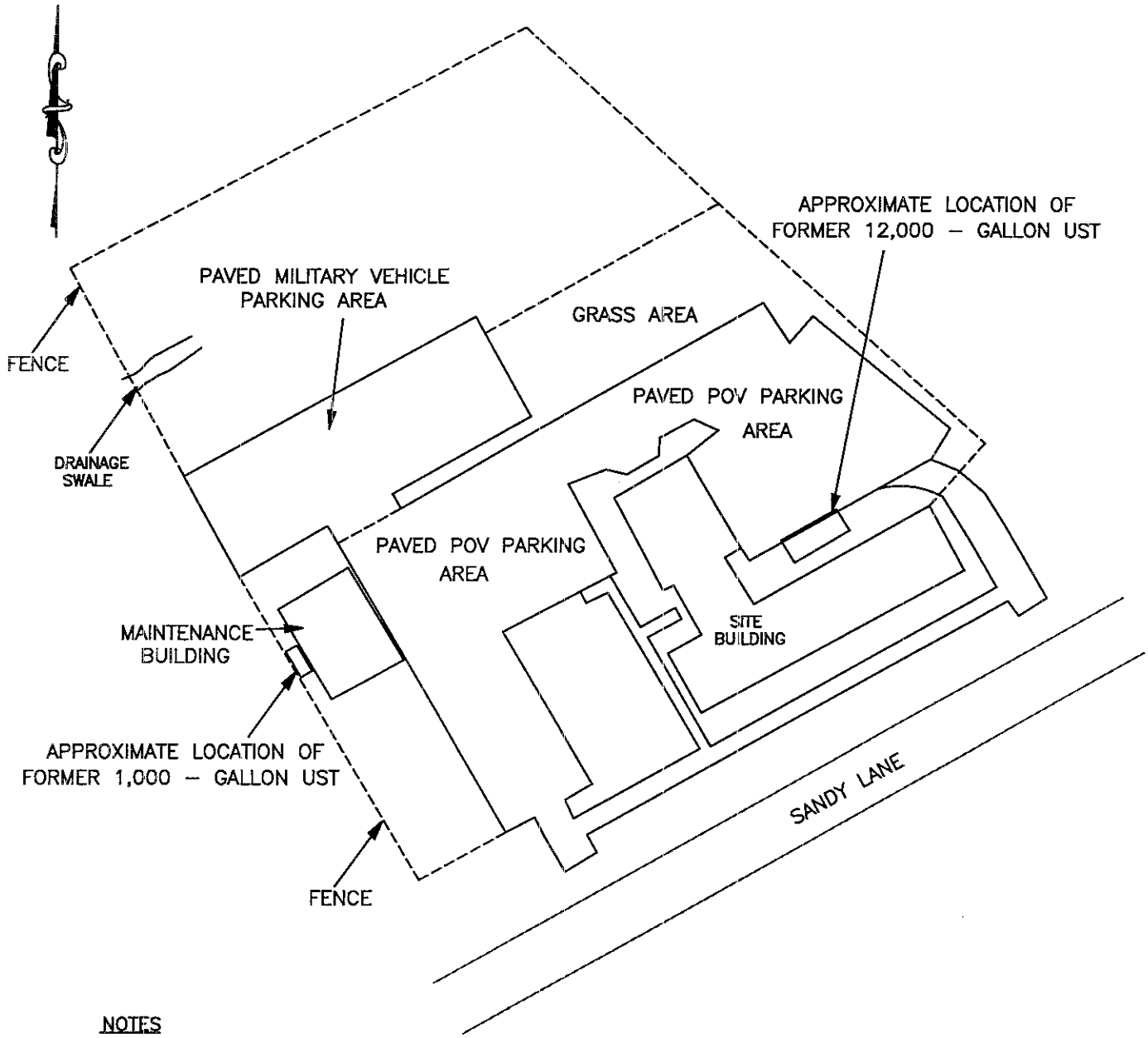
FIGURE 1

LOCUS PLAN

LLOYD COOPER
U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000

DWG NAME: SITE



NOTES

1. THIS SITE SKETCH WAS DEVELOPED FROM A SITE PLAN SUPPLIED BY THE USACE AND SITE OBSERVATIONS BY NOBIS ENGINEERING, INC.
2. LOCATIONS OF SITE FEATURES DEPICTED HEREON ARE APPROXIMATE AND GIVEN FOR ILLUSTRATIVE PURPOSES ONLY.

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1 Griffin Brook Drive
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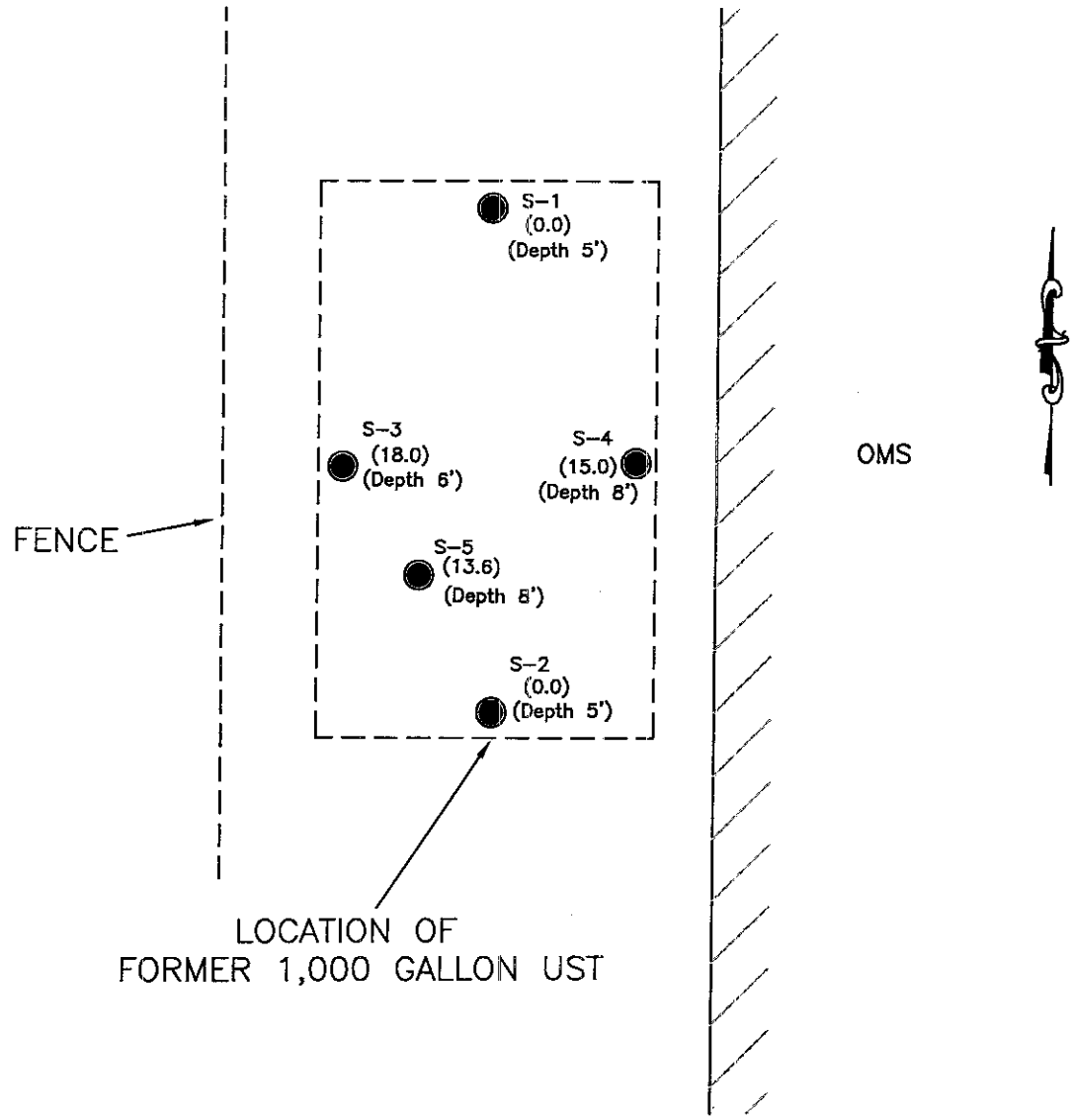
FIGURE 2

SITE PLAN

LLOYD COOPER U.S. ARMY RESESRVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000



LEGEND

S-1 ● SOIL SAMPLING/SCREENING LOCATION

(0.4) FIELD SCREENING RESULTS IN PARTS PER MILLION (PPM)

(Depth 6') DEPTH OF SAMPLE

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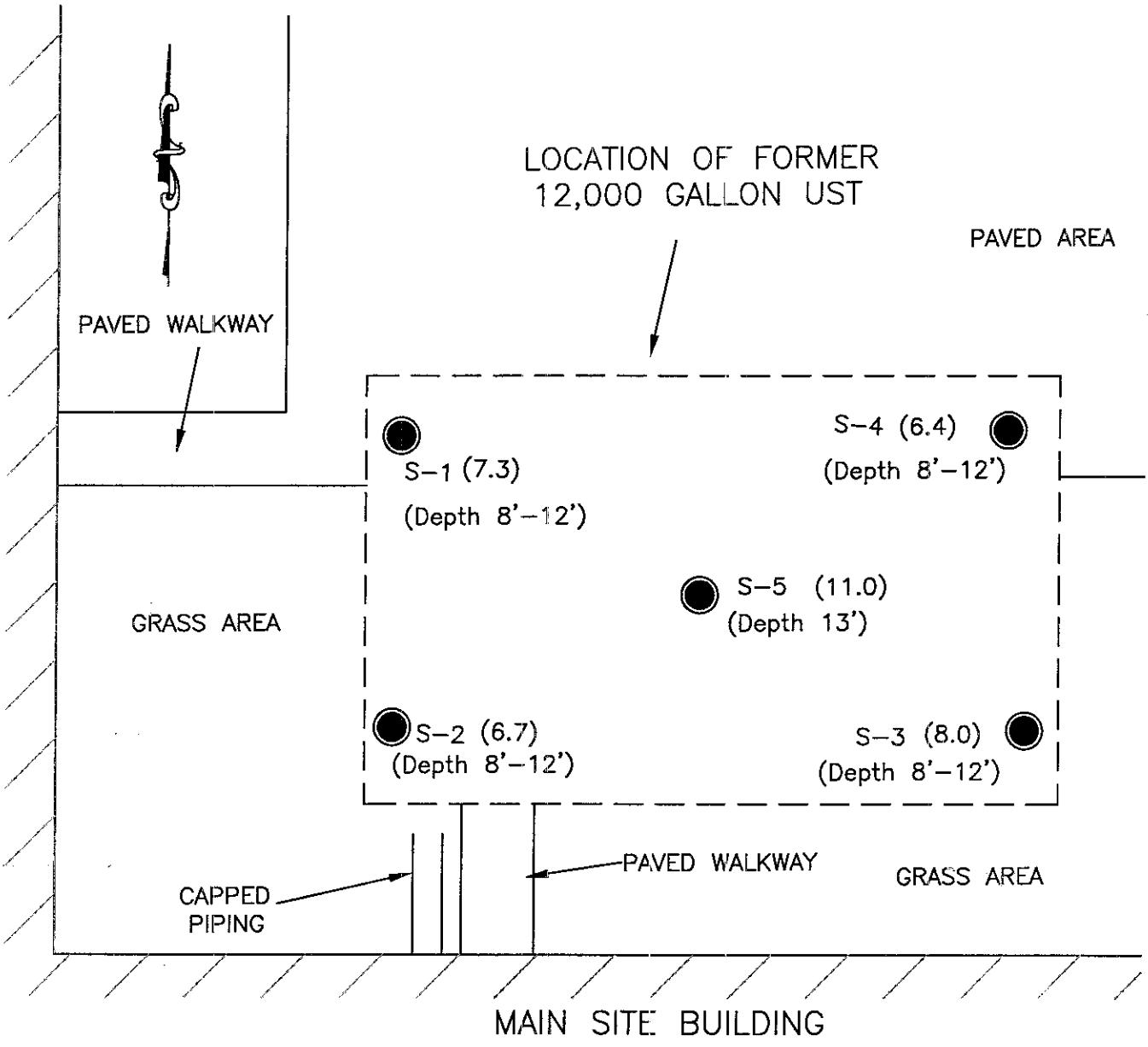
Fax (978) 683-0966

FIGURE 3A

SAMPLING SCHEMATIC

LLOYD COOPER U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000



LEGEND

S-1 ● SOIL SAMPLING/SCREENING LOCATION

(0.4) FIELD SCREENING RESULTS IN PARTS PER MILLION (PPM)

(Depth 6') DEPTH OF SAMPLE

Nobis Engineering, Inc.
One Griffin Brooke Drive
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Tel (978) 683-0891
Fax (978) 683-0966

FIGURE 3B

SAMPLING SCHEMATIC

LLOYD COOPER U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000

PHOTOGRAPH TEXT

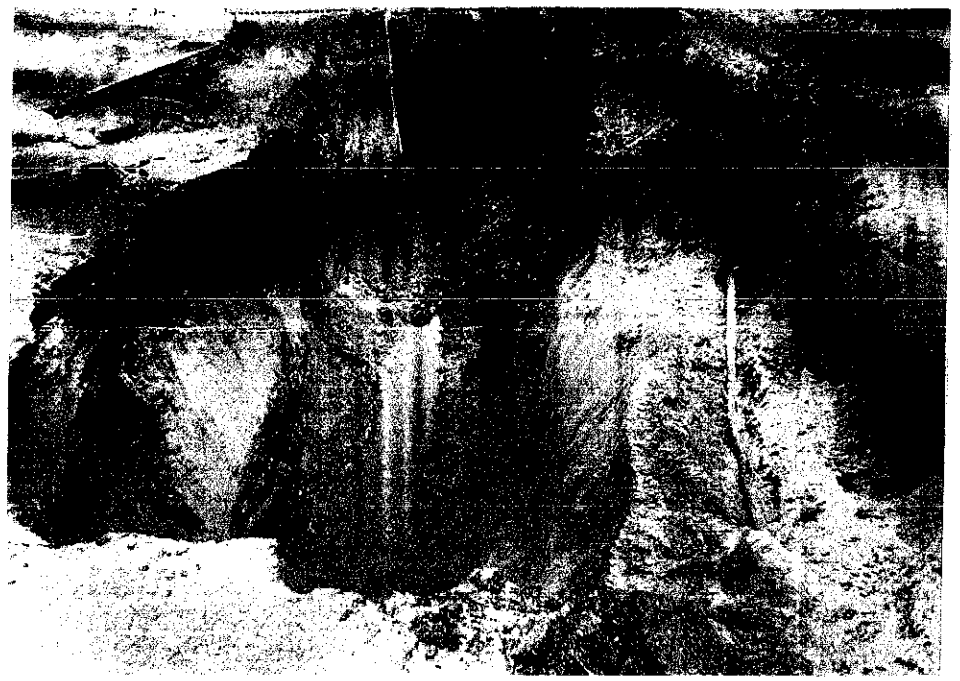
U. S. Army Reserve Center
885 Sandy Lane
Warwick, Rhode Island

Photographs taken by Nobis Engineering, Inc. on April 28-30, and August 12, 1999.

1. Former location of 12,000-gallon UST to northeast of main site building.
2. Initial excavation activities of 12,000-gallon UST, facing west.
3. Cleaning operations of 12,000-gallon UST.
4. 12,000-gallon UST during removal. Holes in side of tank were made during disconnection of tank from deadmen (after the interior of the tank was performed).
5. Bottom and side of 12,000-gallon UST.
6. Bottom and side of excavation after removal of the 12,000-gallon UST.
7. Bottom and side of excavation after removal of the 12,000-gallon UST, facing west.
8. Backfilling operations of 12,000-gallon UST excavation.
9. 12,000-gallon excavation area after completion of initial restoration activities.
10. 12,000-gallon excavation area after completion of final restoration activities.
11. Former location of 1,000-gallon UST to west of OMS, facing south.
12. Initial excavation activities of 1,000-gallon UST, facing south.
13. Initial excavation activities of 1,000-gallon UST, facing north.
14. Top and end of 1,000-gallon UST during excavation activities, facing south.
15. Top and side of 1,000-gallon UST during excavation activities, facing south.
16. End of 1,000-gallon UST and excavation after removal of tank, facing south.
17. Bottom and side of excavation after removal of the 1,000-gallon UST, facing south.
18. Backfilling operations of 1,000-gallon UST excavation.
19. Western sidewall of 1,000-gallon excavation after removal of UST.
20. 1,000-gallon excavation area after completion of final restoration activities.

DWG. NAME: PHOTO

1



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6

PHOTOGRAPHS TAKEN BY NOBIS ENGINEERING, INC. ON APRIL 28 – 30, 1999.
FINAL RESTORATION PHOTOGRAPHS WERE TAKEN ON AUGUST 12, 1999.

Nobis

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One Griffin Brook Drive
Methuen, Ma 01844.
Tel (978) 683-0891
Fax (978) 683-0966

FIGURE 4A

SITE PHOTOGRAPHS

LLOYD COOPER U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000

DWG. NAME: PHOTO

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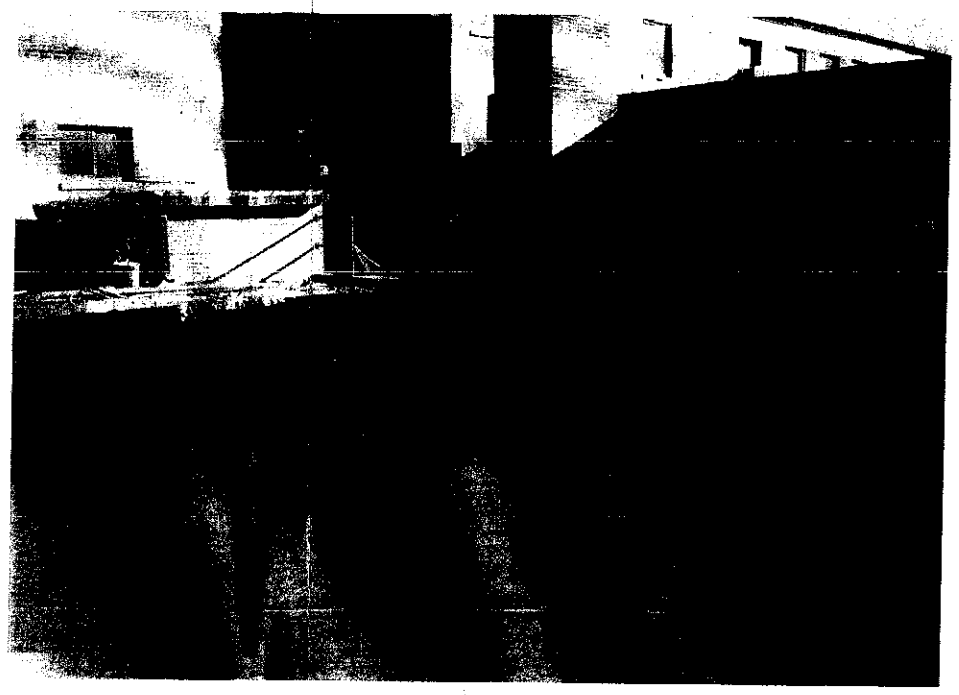

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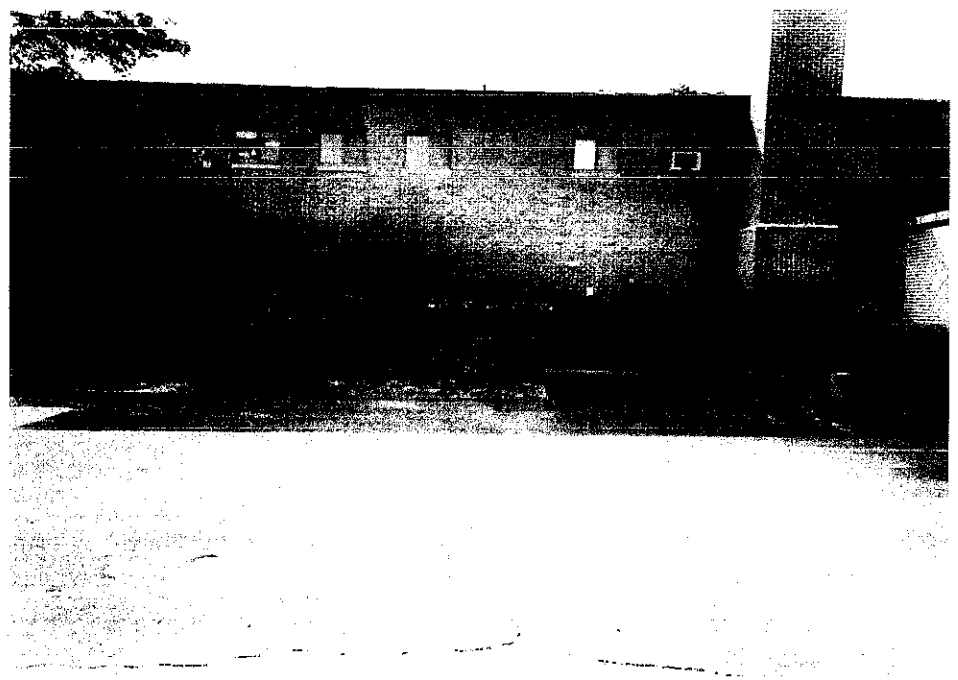

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12

PHOTOGRAPHS TAKEN BY NOBIS ENGINEERING, INC. ON APRIL 28 – 30, 1999.
FINAL RESTORATION PHOTOGRAPHS WERE TAKEN ON AUGUST 12, 1999.

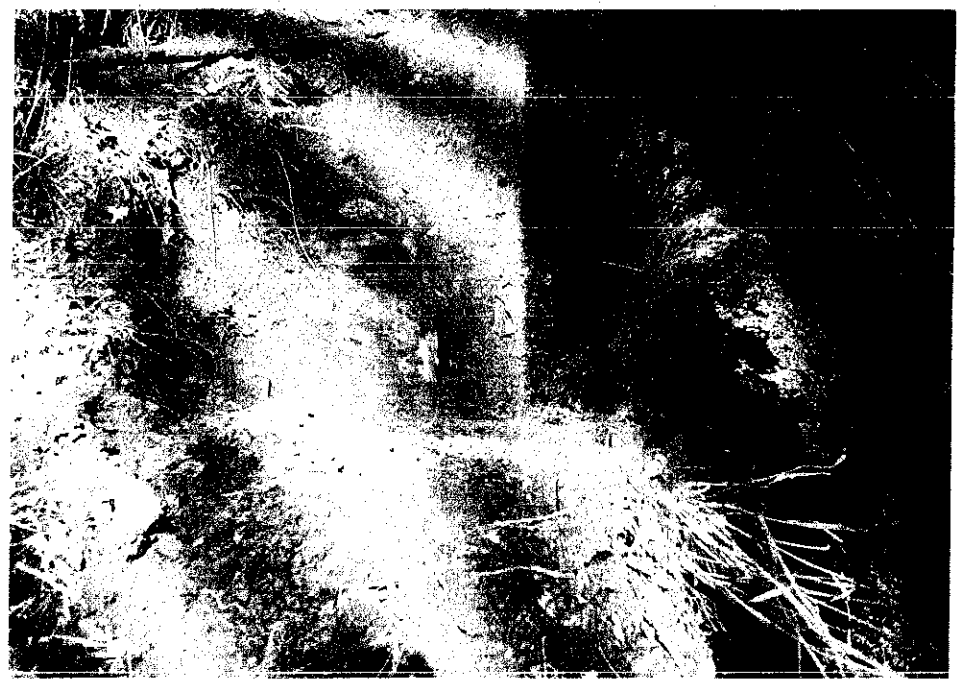
Nobis

Nobis Engineering, Inc.
One Griffin Brook Drive
Methuen, Ma 01844
Tel (978) 683-0891
Fax (978) 683-0966

FIGURE 4B

SITE PHOTOGRAPHS
LLOYD COOPER U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000



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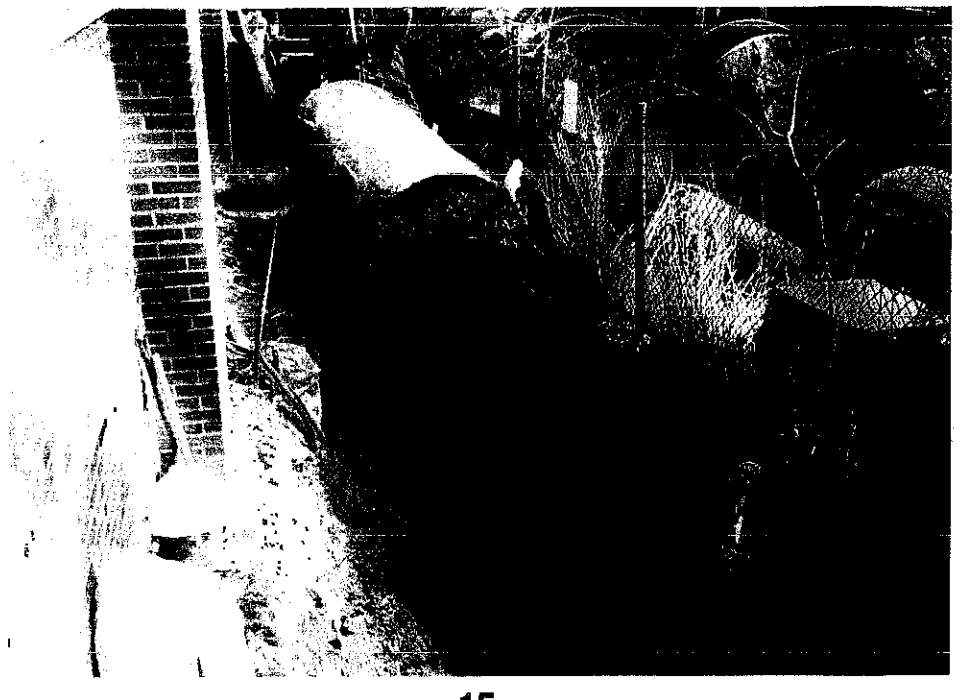
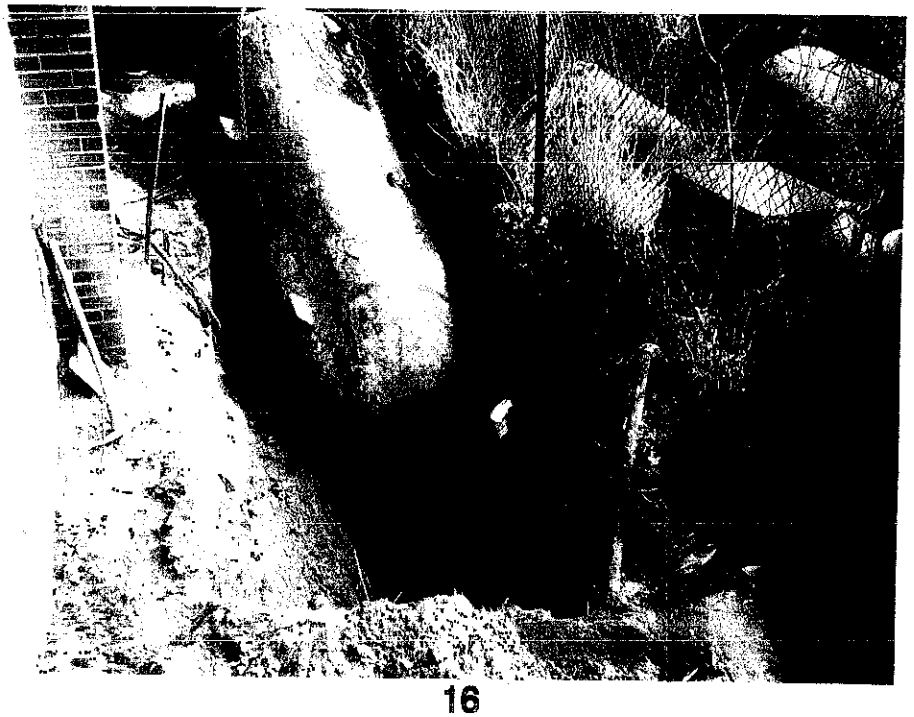


15



16

PHOTOGRAPHS TAKEN BY NOBIS ENGINEERING, INC. ON APRIL 28 – 30, 1999.
FINAL RESTORATION PHOTOGRAPHS WERE TAKEN ON AUGUST 12, 1999.

Nobis

Nobis Engineering, Inc.
One Griffin Brook Drive
Methuen, Ma 01844
Tel (978) 683-0891
Fax (978) 683-0966

FIGURE 4C

SITE PHOTOGRAPHS

LLYOD COOPER U.S.ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000

DWG. NAME: PHOTO

17

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PHOTOGRAPHS TAKEN BY NOBIS ENGINEERING, INC. ON APRIL 28 – 30, 1999.
FINAL RESTORATION PHOTOGRAPHS WERE TAKEN ON AUGUST 12, 1999.

Nobis

Nobis Engineering, Inc.
One Griffin Brook Drive
Methuen, Ma 01844
Tel (978) 683-0891
Fax (978) 683-0965

FIGURE 4D

SITE PHOTOGRAPHS

LLOYD COOPER U.S. ARMY RESERVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | MAY 2000

APPENDIX A

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD: 401-831-5508

September 22, 1999

Robert Gagnon
U.S. Army Reserve Center
885 Sandy Lane
Warwick, RI 02886

Re: Underground Storage Tank Removal
U.S. Army Resserve Center
885 Sandy Lane
Warwick, RI
RI DEM Facility I.D. #1668, LUST I.D. #ST 3593

Dear Mr. Gagnon:

The Office of Waste Management has reviewed a Closure Assessment Report for the above-referenced facility, prepared by Nobis Engineering, Inc., and dated July 29, 1999.

Based on the representations made by the consultant in the report and our inspector's observations at the time of removal, no further action is presently required by this Office. However, the D.E.M. reserves the right to order future corrective measures should any significant contamination in groundwater or soil become apparent.

Enclosed for your records is a Certificate of Closure for the closed underground storage tank(s).

Sincerely,

Bruce T. Catterall

Bruce T. Catterall
Supervising Sanitary Engineer
Office of Waste Management

BTC/ltd

cc: Peter Delano, Nobis Engineering, Inc.
UST Facility File

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767 TDD 401-831-5508

April 26, 1999

Mr. Robert Gagnon
885 Sandy Lane
Warwick, RI 02886

RE Underground Storage Tank Closure
US Army Reserve Center
885 Sandy Lane
Warwick, RI 02886

Dear Mr. Gagnon

The Office of Waste Management has reviewed the Permanent Closure Application For Underground Storage Tank(s) at the above referenced property. The following UST(s) are approved to be closed on 4/28/99:

UST ID	Volume	Stored	Removed/Filled
1	1000 gallons	No. 2 Fuel Oil	Removed
2	12,000 gallons	No. 2 Fuel Oil	Removed

This letter and a copy of the UST closure application are an approved replacement for the Closure Inspection Sheet ("pink slip"). All USTs are to be removed and handled as described in the closure application. Your contractor is required to contact me on the day of the UST closure for verification. I can be reached at (401) 222-2797 extension 7116.

Sincerely,

Kevin Gillen
Senior Engineer
Office of Waste Management

cc: Alise Ramos, RIDEM/ Waste Management

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-831-5508

September 22, 1999

Robert Gagnon
U.S. Army Reserve Center
885 Sandy Lane
Warwick, RI 02886

Re: Underground Storage Tank Removal
U.S. Army Resserve Center
885 Sandy Lane
Warwick, RI
RI DEM Facility I.D. #1668, LUST I.D. #ST 3593

Dear Mr. Gagnon:

The Office of Waste Management has reviewed a Closure Assessment Report for the above-referenced facility, prepared by Nobis Engineering, Inc., and dated July 29, 1999.

Based on the representations made by the consultant in the report and our inspector's observations at the time of removal, no further action is presently required by this Office. However, the D.E.M. reserves the right to order future corrective measures should any significant contamination in groundwater or soil become apparent.

Enclosed for your records is a Certificate of Closure for the closed underground storage tank(s).

Sincerely,

Bruce T. Catterall

Bruce T. Catterall
Supervising Sanitary Engineer
Office of Waste Management

BTC/ltd

cc: Peter Delano, Nobis Engineering, Inc
UST Facility File

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
UNDERGROUND STORAGE TANK SECTION
235 Promenade Street
Providence, Rhode Island 02908
(401) 277-2797

UST FACILITY ID #1568
LUST FACILITY ID ST 3593

CLOSURE CERTIFICATE
FOR UNDERGROUND STORAGE FACILITIES

In compliance with Chapter 46-12 of the Rhode Island General Laws, as amended, and the Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials,

US Army Reserve Center

owner/operator of an underground storage facility located at

885 Sandy Lane
Warwick, RI

is issued this Certificate of Closure indicating that the storage tanks described below have been taken out of service permanently, in compliance with the Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials.

TANK ID	VOLUME	STORED MATERIAL	DATE LAST USED	STATUS OF TANK F=Filled R=Removed
001	12000 gal.	#2 fuel oil		R
002	1000 gal.	#2 fuel oil		R

Signed this 22nd day of September, 19 99

Approved: Bruce T. Cottrell
Underground Storage Tank Section
Department of Environmental Management

NOTE: This is not a document to approve or certify that tanks are/were safe or clean to transport.

State of Rhode Island & Providence Plantations

X

CITY OF WARWICK
4/30
DATE
APPROVED FOR STATE FIRE CODE CONFORMANCE
BUREAU OF FIRE

DIVISION OF FIRE SAFETY
[illegible] Conway Avenue, Quonset/Davisville Industrial Park, N. Kingston, RI 02852

APRIL 28 1999
(DATE)

APPLICATION FOR PERMIT

To: THE LICENSING AUTHORITY
WARWICK
CITY OR TOWN

State clear purpose for which permit is requested.

For permission to: REMOVE 1 - 1,000 #2 FUEL OIL AND 1 - 12,000 #2 FUEL OIL

Restrictions: PER RI STATE FIRE SAFETY CODE

at 885 SANDY LANE

at PVT. LLOYD S. COOPER U.S. ARMY RESERVE CENTER

(Give location by street and no., or describe in such a manner as to provide adequate identification of location)

APRIL 28 1999 By:
Date issued – rejected

X Scott Hewett - Vobis Eng.
(signature of applicant)

APRIL 30 1999
Date of expiration

X 1 Griffin Brook Dr. Methuen, Ma 01844
(Address)

FEE $ 50.00	PAID / DUE

NO HAZARDOUS MATERIAL ACCEPTED

State of Rhode Island & Providence Plantations

DIVISION OF FIRE SAFETY

24 Conway Avenue, Quonset/Davisville Industrial Park, N. Kingston, RI 02852

WARWICK (city or town) APRIL 28 (DATE) 19 99.

PERMIT

In accordance with the provisions of Chapter 28 of Title 23 as provided in GL of RI. This permit is granted to:

Name: CYN ENVIRONMENTAL SERVICES, INC. 146 LONDONDERRY TURNPIKE NEW HAMPSHIRE
(Full name of person, firm or corporation granted permit)

State clear purpose for which permit is requested. For permission to: REMOVE 1 - 1,000 #2 FUEL OIL AND 1 - 12,000 #2 FUEL OIL

Restrictions: PER RI STATE FIRE SAFETY CODE

at PVT. LLOYD S. COOPER U.S. ARMY RESERVE CENTER 885 SANDY LANE WARWICK RI 02886
(Give location by street and no., or describe in such a manner as to provide adequate identification of location)

Fee Paid $ 50.00

X George W Potter Jr
(Signature of official granting permit)

This permit will expire on: APRIL 30 19 99

DATE

INSPECTOR
TITLE

→THIS PERMIT MUST BE CONSPICUOUSLY POSTED UPON THE PREMISES←

JAMES G. GRANT CO., INC.
28 WOLCOTT STREET
READVILLE, MA 02137 Rec. 4/28/99 MA. Yard # 0081

→ Tank Disposal Facility

D·E·M

- 8 1999

STATE OF RHODE ISLAND
DIVISION OF WASTE MANAGEMENT
PERMANENT CLOSURE APPLICATION FOR UNDERGROUND STORAGE TANK(S)

DEM USE ONLY
Approved:
Date Scheduled:
Total $ Received:
Date Received:
Check Number:
Received by:

I. FEES

Closure: Number of Tank(s): 2 X $75.00 Per Tank = $150.00

Registration: Number of Tank(s): _____ X $50.00 Per Tank = _____

* Payment for all unregistered tank(s) and tank(s) with outstanding registration fees, must accompany this application.

II. FACILITY INFORMATION

Date of Application: 16 March 1999 UST Facility Identification #: 01668

Proposed Date of Tank Closure: April 19-20,1999 (This date is subject to change pending availability and confirmation by the UST Section.)

Facility Name: PVT. LLoyd S. Cooper U.S. Army Reserve Center

Facility Address: 885 Sandy Lane

City: Warwick	State: RI	Zip:02886	Phone: (401)253-0451
Contact Person: Robert Gagnon	Title: Facility Manager		

III. TANK OWNER INFORMATION

Tank Owner Name: Pvt. Lloyd S.Cooper U.S. Army Reserve Center

Mailing Address: 885 Sandy Lane

City: Warwick	State: RI	Zip: 02886	Phone: (401) 253-0451
Contact Person: Robert Gagnon	Title: Facility Manager		

IV. PROPERTY OWNER INFORMATION

Property Owner Name: Commander, 94th Regional Support Command, U.S. Army Reserve

Mailing Address: Attn: AFRC-CMA-EN-E, 50 Sherman Avenue

City: Devens	State: MA	Zip: 01433-4000	Phone: (978)796-2238
Contact Person: Gary Puryear	Title: Environmental Coordinator		

V. FIRM/CONTRACTOR TO PERFORM TANK CLOSURE

Name of Contractor/Firm: CYN Environmental Services,Inc. (Nobis Subcontractor)

Mailing Address: 146 Londonderry Turnpike

City: Hooksett	State: NH	Zip:03106	Phone: (603) 624-5443
Contact Person: Jim Bell	Title: General Manager		

VI. FIRM/CONSULTANT TO PERFORM CLOSURE ASSESSMENT

Is a Closure Assessment required for this facility? (See Section 15.00)	☐ YES ☐ NO
If not, do you choose to obtain one?	☐ YES

Please check one of the following:

☒ Professional Engineer

☐ Certified Professional Geologist

(☐ Other (Equivalent Professional Certification) "Subject to DEM Approval"*

* A statement of qualifications must be submitted this application.)

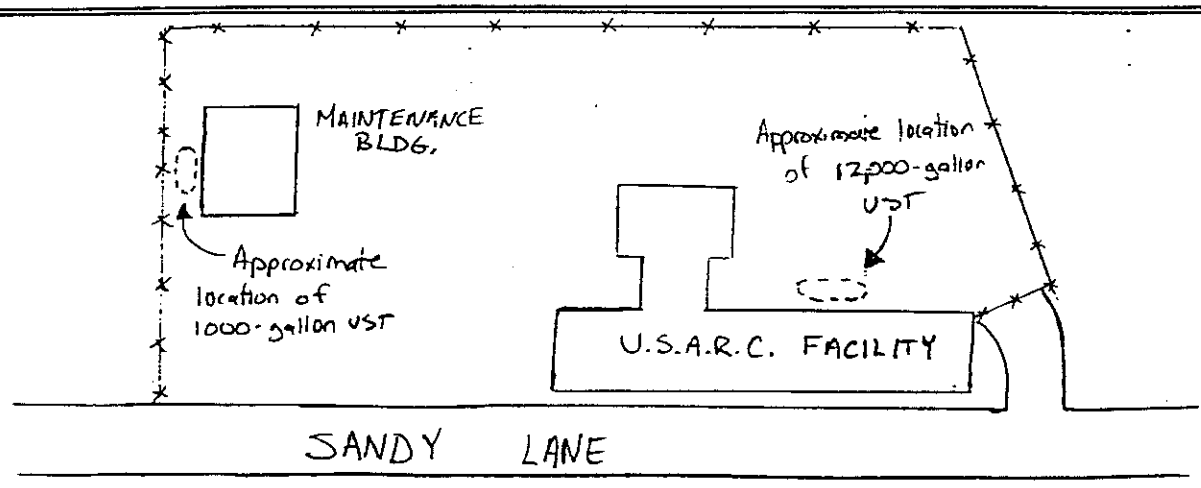
Name of Consultant/Firm: Nobis Engineering, Inc.			
Mailing Address: 79 Sheep Davis Rd.			
City: Pembroke	State: NH	Zip: 03275	Phone: (603) 224-418
Contact Person: Peter W. Delano, P.E.	Title: Senior Project Manager		

VII. DESCRIPTION OF TANK(S) TO BE CLOSED

Tank No.	Age	Date Last Used	Volume	Construction Materials	Stored Mate
1	38 Yrs.	Sept. 1998	1000 gal	Steel	#2 Fuel Oil
2	38 yrs.	Sept. 1998	12,000 gal	Steel	#2 Fuel Oil

* If there are more tanks being closed please list on an attachment.

VIII. LOCATION OF TANK(S) (Sketch diagram)



IX. CLOSURE INFORMATION

All tank(s) be excavated, cleaned and disposed of (Section 15.11)? ☒ YES ☐ NO
Specify method of tank cleaning: Enter Tank, Rinse, Squegee, Speedi-Dry, or, etc.

If circumstances exist which inhibit excavation, you may request a UST Closure in Place. *This request is subject to DEM approval.* Are you requesting to close tank(s) in place? ☐ YES ☒ NO
Owner must submit supporting documentation providing specific details on the necessity to close in place and a detailed diagram must be attached to this application. ***Please note: There are additional requirements for determining tank integrity as detailed in the Closure in Place guidelines.***

Specify whether cleaning will take place: ☒ ON-SITE ☐ OFF-SITE
If OFF-SITE, indicate location of final tank(s) cleaning (Name & Address): _____

Will tank(s) be rendered unfit for use and disposed of? ☒ YES ☐ NO
If YES, location for final tank(s) disposal: _____

Will tank(s) be reused? ☐ YES ☒ NO
Please note: Reuse of a tank in the ground requires compliance with Section 12.03 of UST Regulations.

If tank(s) is to be reused, specify:
Proposed use: N/A
Name & Address of intended user: _____

Describe the method to be used to empty the tank(s) prior to excavation: Tank contents will be removed with the use of a vacuum truck.

Describe the method to be used to remove the tank(s) from excavation: Tanks will be removed from the excavations using an excavator.

Describe the method(s) to be used to properly and safely vent the tank(s) and properly make openings in the tank(s): Forced Air blower will be used to vent the tanks. The oxygen levels and LEL's will be monitored prior to cutting and entering the tanks.
Please note: Appropriate venting must be carried out both before the cutting of any tank and before off-site transport of any tank which has not been completely cleaned per Rule 15.11(c) of the UST Regulations.

Describe the instruments used to verify that the tank(s) have been properly vented: An Oxygen level indicator and a LEL meter will be used to monitor the tank.

Describe how any residues remaining in the tank(s) will be managed: Any residual material will be containeriz and hauled to a licensed disposal facility see section X.

Have these tank(s) ever held non-petroleum, hazardous materials? ☐ YES ☒ NO
If yes, please list materials: _____

Have any of the tank(s) ever contained a product other than that listed in Section VII above? ☐ YES ☒ NO
If yes, please list tank # and material stored: _____

After the closure(s) have been completed on the aforementioned tank(s), will there be any underground storage tank(s) remaining in existence at this facility? ☐ YES ☒ NO

Will any new UST(s) be installed on the site? ☐ YES ☒ NO
If YES, please note: Prior written approval by DEM is required.

X. WASTE HAULER INFORMATION (if applicable)

Firms transporting tank sludge and waste or tank(s) which require further cleaning must be permitted by DEM, Division of Waste Management, RCRA Section as Hazardous Waste Transporters.

Specify method for disposing of tank sludges or wastes generated by the cleaning process: Tank sludges or wastes will be containerized in 55 gallon drums and transported to CYN Env., Stoughtin, MA. for bulk hauling to Chemwaste Mgt.,Birrudgewok, Maine.

Name of Waste Hauler: CYN Environmental Services, Inc.

Address: 146 Londonderry Turnpike City: Hooksett State: NH Zip: 03106

DEM Waste Hauler Permit #: RI 315

XI. NOTIFICATION OF LOCAL FIRE DEPARTMENT

The authorized signature of the local fire department below indicates that the local fire officials have been notified that you are planning to close an underground storage tank(s) at the above location. ***You must also notify the local fire department of the exact closure date after you have confirmed this date with DEM.***

Authorized Local Fire Department Representative
(Original Signature is Required)

4/6/99
Date

WARWICK
Name of Local Fire Department

401-468-4030
Phone Number

This signature however, does not serve as notice to the city/town, does not guarantee city/town approval, and does not relieve you of your obligations to other applicable city/town officials. Any violation, deficiency or requirement which may have been overlooked is also subject to correction under the provision of any applicable code.

XII. CERTIFICATION BY TANK OWNER *(This section MUST be completed by tank owner)*

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. I further certify that records pertaining to the closure will be kept on file by me indicating final destination of residues, etc. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Owner: (please print) 94th Regional Support Command
U.S. Army Reserve
Attn: AFRC-CMA-EN-E
Title: N/A

Address: 50 Sherman Avenue City: Devens State: MA Zip: 01433

Telephone: (978) 796-2238

Signature: [signature], Regional Env. Mgr. Date: 12 MAR 99
(Original Signature is Required)

Who should be contacted for questions regarding this application and for scheduling the UST Closure?

Christine Johnson-Battista	Project Engineer	978-772-0148
Name	Title	Telephone

USTCLOSE.MST
revised 9/96.CMH

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. RIR000015552 — Manifest Document No. 26777 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address: US ARMY CORPS OF ENGINEERS, NORTH CENTRAL RESIDENT OFFICE, BOX 90 50 MACARTHUR LANE, DEVENS MA 01432-4440

4. Generator's Phone: 978 772-0148

5. Transporter 1 Company Name: CYN OIL CORPORATION — 6. US EPA ID Number: MAD082303777

7. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address: CYN OIL CORPORATION, 1771 WASHINGTON STREET, P. O. BOX 119, STOUGHTON, MA 02072 — 10. US EPA ID Number: MAD082303777

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. PETROLEUM OIL WASTE OIL COMBUSTIBLE LIQUID NA 1270 PG III	001	TT	00380	G
b.				
c.				
d.				

15. Special Handling Instructions and Additional Information
D.O.T. ER GUIDE NO. 128
IN CASE OF EMERGENCY CALL CYN OIL CORPORATION 24 HOURS AT (800) 899-1038

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment 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 and that I have selected the 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 made a 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. for U.S. Army Corps of Eng.

Printed/Typed Name: GARY D. COOPER — Signature: Gary D. Cooper — Date: Month 04 Day 28 Year 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: EDWARD J CONNOLLY — Signature: Edward J Connolly — Date: Month 04 Day 28 Year 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Jeffrey Henriques — Signature — Date: Month 04 Day 28 Year 99

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

Form Approved OMB No 2050-0039, Expires 9-30-94
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY>3: FACILITY MAILS TO GENERATOR

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. RIR000015552 — Manifest Document No. 4048Y — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number: MA K 713618

3. Generator's Name and Mailing Address
U.S. ARMY CORPS OF ENGINEERS
NORTH CENRAL RES. OFFICE BOX90 MACARTHUR LN
DEVENS, MA 01432-4440

B. State Gen. ID: 885 SANDY LANE WARWICK RI 02886

4. Generator's Phone 978-772-0148

5. Transporter 1 Company Name: CYN OIL CORPORATION — 6. US EPA ID Number: MAD982303777

C. State Trans. ID: 32795 M

7. Transporter 2 Company Name — 8. US EPA ID Number

D. Transporter's Phone (781)341-5108

E. State Trans. ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
CYN OIL CORPORATION
1771 WASHINGTON ST. PO BOX 119
STOUGHTON, MA 02072

10. US EPA ID Number: MAD982303777

G. State Facility's ID: NOT REQUIRED

H. Facility's Phone (781) 341-5108

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	WASTE NO.
a. STATE REGULATED WASTE OILY SOLIDS NON DOT HAZARDOUS MATERIAL	3	DM	1000	P	MA01
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code)
a. — c.
b. — d.

K. Handling Codes for Wastes Listed Above
a. S101 — c.
b. — d.

15. Special Handling Instructions and Additional Information
IN CASE OF EMERGENCY CALL 800 899 1038 24 HOURS

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment 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 and that I have selected the 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 made a 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: DAVID A SIKOLA — Signature: David G Sikola — Date: Month 06 Day 17 Year 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: PAUL SCHIAVONE — Signature: Paul Schiavone — Date: Month 06 Day 17 Year 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item19
Printed/Typed Name: ALAN SNYDER — Signature: Alan Snyder — Date: Month 06 Day 21 Year 99

Form Approved OMB No. 2050-0039. Expires 9-30-96
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY>3: FACILITY MAILS TO GENERATOR

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

GENERATOR

APPENDIX B

APPENDIX B

FIELD PROCEDURES

Field Screening of Soils

The soil samples collected during drilling were screened for total concentrations of volatile organic compounds (VOCs) using a MicroTIP organic vapor meter equipped with a photoionization detector (PID). The MicroTIP PID is equipped with a 10.6 eV bulb and has a detection limit of 1 part per million (ppm) by volume referenced to an isobutylene-in-air standard. The tightly-capped soil samples were allowed to equilibrate to room temperature. Immediately prior to screening, the jar sample was shaken vigorously for approximately 30 seconds. A measurement of the total VOCs within the headspace of the jar sample was then obtained by loosening the cap, slightly lifting one side of the cap, and inserting the PID probe tip between the lip of the jar and the cap. The maximum PID reading was recorded and the cap was placed back on the jar.

APPENDIX C

Katahdin
ANALYTICAL SERVICES

SDG NARRATIVE
KATAHDIN ANALYTICAL SERVICES
NOBIS ENGINEERING
WARWICK, RI
WP2273

Sample Receipt

The following samples were received on May 4, 1999 and were logged in under Katahdin Analytical Services work order number WP2273 for a hardcopy due date of May 18, 1999.

KATAHDIN Sample No.	NOBIS ENGINEERING Sample Identification	Date Sampled	Parameter
WP2273-1	12K/S-1	4/28/99	VOA, PAH, TPH-DRO
WP2273-2	12K/S-2	4/28/99	VOA, PAH, TPH-DRO
WP2273-3	12K/S-3	4/28/99	VOA, PAH, TPH-DRO
WP2273-4	12K/S-4	4/28/99	VOA, PAH, TPH-DRO
WP2273-5	12K/S-5	4/28/99	VOA, PAH, TPH-DRO
WP2273-6	12K/S-5D	4/28/99	VOA, PAH, TPH-DRO
WP2273-7	1K/S-1	4/30/99	VOA, PAH, TPH-DRO
WP2273-8	1K/S-2	4/30/99	VOA, PAH, TPH-DRO
WP2273-9	1K/S-3	4/29/99	VOA, PAH, TPH-DRO
WP2273-10	1K/S-4	4/29/99	VOA, PAH, TPH-DRO
WP2273-11	1K/S-5	4/30/99	VOA, PAH, TPH-DRO
WP2273-12	TP-1/1	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-13	TP-1/12	4/28/99	VOA, TPH-DRO, TPH-GRO
WP2273-14	TP-2/1	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-15	TP-2/10	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-16	TP-3/1	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-17	TP-3/5	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-18	TP-4/1	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-19	TP-4/7.5	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-20	TP-5/10	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-21	TP-6/1	4/30/99	VOA, TPH-DRO, TPH-GRO
WP2273-22	TRIP BLANK	4/28/99	VOA

The samples were logged in for the analyses specified on the chain of custody form. All non-conformances noted during sample receipt have been noted on the applicable chain of custody or laboratory sample condition receipt form.

Sample analyses have been performed by the methods as noted herein.

Volatile Organics Analysis

340 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 874-2400 Fax: (207) 775-4029

http://katahdinlab.com

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

Twenty-one methanol-preserved soil samples and one methanol trip blank were received by the Katahdin Analytical Services, Inc. GC/MS laboratory on May 4, 1999 and were specified to be analyzed for the USEPA method 8260 full list of volatile organics.

Analyses for this SDG were performed on instrument 5970-Q with 5 ml purge volumes. A VSTD050 (50 ppb standard) was used for the continuing calibration standard. Internal standard and surrogate compounds were also spiked at 50 ug/l.

Batch QC (VBLK, and LCS) was performed in each twelve hour window. Results are included in this data package. The LCS QC samples were spiked with the entire list of compounds quantitated for at 50 ppb. Matrix spike/matrix spike duplicate pairs were analyzed on samples WP2273-7 and -14.

100 ul of each methanol extract provided by the client was spiked into 5 ml of organic free water and purged, resulting in a dilution factor of 50. Surrogates were spiked into each vial prior to sampling.

The initial calibration curve analyzed in this SDG had some of the target analyte %RSD values exceeding 15 %.

Method 8000B, section 7.5.1.2.1 (Revision 2, 12/96) states, "in those instances where the RSD for one or more analytes exceeds 20%, the initial calibration curve may still be acceptable if the mean of the RSD values for all analytes in the calibration is less than or equal to 20%." Method 8260B narrows this 20% maximum to 15%.

Since the average %RSD for all analytes in the calibration curve was 8.9%, the curve was acceptable.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" (software-generated) on the pertinent quantitation reports. All "M" flags have been dated and initialed by the analyst performing the integration. In addition, all "M" flags have been reviewed and approved by the GC/MS supervisor. Copies of each manual integration are included in the pertinent quantitation reports.

No other protocol deviations were noted by the volatile organics staff.

Polynuclear Aromatic Hydrocarbon (PAH) Analysis

Eleven soil/sediment samples were received by the Katahdin GC/MS laboratory on May 4, 1999 for analysis for the PAH list of analytes in accordance with USEPA method 8270C.

The samples were extracted following USEPA method 3540 on May 11, 1999. A laboratory control spike, consisting of all PAH analytes spiked into an organic free sand, was extracted in the batch. A matrix spike/matrix spike duplicate pair was extracted on sample WP2273-5 .

340 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 874-2400 Fax: (207) 775-4029

http://katahdinlab.com

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

Analysis of sample WP2273-5 yielded internal standard area recovery deviations. Analysis of the MS/MSD pair also performed on this sample also yielded internal standard area recovery deviations, confirming matrix interference in the parent sample.

Initial analyses of samples WP2273-7, -9, -10, and -11 yielded internal standard area recovery deviations. Reanalyses yielded similar results, confirming matrix interference in each sample. Both sets of data for each sample are included in this data package.

The initial calibration curves analyzed in this SDG each had some of the target analyte %RSD values exceeding 15 %.

Method 8000B, section 7.5.1.2.1 (Revision 2, 12/96) states, "in those instances where the RSD for one or more analytes exceeds 20%, the initial calibration curve may still be acceptable if the mean of the RSD values for all analytes in the calibration is less than or equal to 20%." Section 7.3.7.1 of method 8270C (revision 3, 12/96) narrows this 20% maximum to 15%.

In the calibration curves analyzed in this SDG, the average %RSD for all analytes was 11.1 and 11.3%, making the curves acceptable.

Several manual integrations were performed due to split peaks; all have been flagged with a "M" by the data system. All manual integrations have been dated and initialed by the responsible analyst. Copies of each manual integration are included in the data package. All manual integrations have been reviewed and approved by the GC/MS supervisor.

No other protocol deviations were noted by the semivolatiles organics staff.

GC Laboratory

Samples WP2273-1 through 21 were received on May 4, 1999. Samples WP2273-1 through 21 were analyzed for Total Petroleum Hydrocarbons (TPH) according to SW846 Method 8015 modified while samples WP2273-12 through 21 were analyzed for Gasoline Range Organics (GRO) according to SW 846 Method 8015, modified. All samples were extracted and analyzed within hold time and all QC criteria were met with the following comments:

TPH-Gasoline Range Organics Analysis

The method blank BSGROPE07 (file 4PE1104) associated with samples WP2273-12 through 16 was initially analyzed on 5/8/99 and did not contain Gasoline Range Organics above the PQL. This blank was reanalyzed on 5/11/99 (file 4PE1118) with samples WP2273-17 through 21 and recovered the Gasoline Range Organics at 4.3 mg/kg, which is above the PQL of 2.5 mg/kg. The chromatogram displays a non-target peak that is within the GRO timed range. This peak appears to be responsible for the elevated PQL which was likely introduced during the analysis process. Samples WP2273-17, 18, and 20 also contained a similar non-target peak, elevating the Gasoline Range Organic results above the PQL. These sample were reported with a "B" qualifier and this data should be used with due consideration. Since the laboratory was supplied

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with only one vial for analysis, re-extraction could not be performed.

TPH-Diesel Range Organics Analysis

Samples WP2273-3, 11, and 21 were diluted in order to bring the high TPH concentration into the calibration range.

Sample WP2273-13 was used for the matrix spike and the matrix spike duplicate.

There were no other method deviations or observations noted by the GC laboratory staff.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager and/or his designee, as verified by the following signature.

Maria Crouch
Authorized Signature
06/08/99

340 County Road No. 5
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KATAHDIN ANALYTICAL SERVICES, INC.
SAMPLE RECEIPT CONDITION REPORT
Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) # WP 2273

PAGE: 1 OF 2

COOLER: 1 OF 2

CLIENT: NUBIS ENGINEERING

COC#

SDG#

DATE / TIME RECEIVED: 05-04-99 10:15

DELIVERED BY: FED EX

RECEIVED BY: BRIAN ROY

LIMS ENTRY BY: BK

LIMS REVIEW BY / PM: KAP

PROJECT: Warwick, R.I.

	YES	NO	EXCEPTIONS
1. CUSTODY SEALS PRESENT / INTACT?	☑	☐	☐
2.CHAIN OF CUSTODY PRESENT IN THIS COOLER?	☑	☐	☐
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	☑	☐	☐
4. CHAIN OF CUSTODY MATCHES SAMPLES?	☐	☐	☐
5. TEMPERATURE BLANKS PRESENT?	☑	☐	☐
6. SAMPLES RECEIVED AT 4°C +/- 2? ICE / ICE PACKS PRESENT Y or N?	☑	☐	☐
7. VOLATILES FREE OF HEADSPACE?	☐	☑	☐
8. TRIP BLANK PRESENT IN THIS COOLER	☑	☐	☐
9. PROPER SAMPLE CONTAINERS AND VOLUME?	☑	☐	☐
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	☑	☐	☐
11. SAMPLES PROPERLY PRESERVED(1)?	☑	☐	☐
12. CORRECTIVE ACTION REPORT FILED?	☐	☑	N/A

COMMENTS / RESOLUTION

TEMP BLANK TEMP (°C)= 5.7

COOLER TEMP (°C)= NA
(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)

SOIL/METHANOL NA

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC (ACOE) AFCEE OTHER (STATE OF ORIGIN): RI

LOG - IN NOTES(1): ANALYSIS

1K Sample ~~IDs~~ present ON CAP NOT ON LABEL/KATAHDIN filled in LABEL TO MATCH CAP

9/2/99

(1) Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

KATAHDIN ANALYTICAL SERVICES, INC.
SAMPLE RECEIPT CONDITION REPORT
Tel. (207) 874-2400
Fax (207) 775-4029

LAB (WORK ORDER) # WP 2273

PAGE: 2 OF 2

COOLER: 2 OF 2

CLIENT: NOBIS ENGINEERING

COC#

SDG#

DATE / TIME RECEIVED: 05-04-99 10:15

DELIVERED BY: Fed Ex

RECEIVED BY: BR

LIMS ENTRY BY: BR

PROJECT: WARWICK, RI

LIMS REVIEW BY / PM: KAP

	YES	NO	EXCEPTIONS
1. CUSTODY SEALS PRESENT / INTACT?	☑	☐	☐
2.CHAIN OF CUSTODY PRESENT IN THIS COOLER?	☑	☐	☐
3. CHAIN OF CUSTODY SIGNED BY CLIENT?	☑	☐	☐
4. CHAIN OF CUSTODY MATCHES SAMPLES?	☑	☐	☐
5. TEMPERATURE BLANKS PRESENT?	☑	☐	☐
6. SAMPLES RECEIVED AT 4°C +/- 2? ICE / ICE PACKS PRESENT (Y or N)?	☑	☐	☐
7. VOLATILES FREE OF HEADSPACE?	☐	☑	☐
8. TRIP BLANK PRESENT IN THIS COOLER	☑	☐	☐
9. PROPER SAMPLE CONTAINERS AND VOLUME?	☑	☐	☐
10. SAMPLES WITHIN HOLD TIME UPON RECEIPT?	☑	☐	☐
11. SAMPLES PROPERLY PRESERVED[1]?	☑	☐	☐
12. CORRECTIVE ACTION REPORT FILED?	☐	☐	N/A

COMMENTS / RESOLUTION

TEMP BLANK TEMP (°C)= 5.2

COOLER TEMP (°C)= NA
(RECORD COOLER TEMP ONLY IF TEMP BLANK IS NOT PRESENT)

VOA SOILS

13. ANALYTICAL PROGRAMS (CIRCLE ONE) COMMERCIAL CLP HAZWRAP NFESC (ACOE) AFCEE OTHER (STATE OF ORIGIN): RI

LOG - IN NOTES[1]:

TP3/5 ; TP2/1 ; TP2/10 VOA VIALS IN SAME BAG ; ONE OR ALL SAMPLES LEAKING - proceed called client on 5/4/99 with analysis - KAP STAFF

LABEL VOA TP6/5-1 ASSUME TO BE TP6/1 Trip blank present in cooler but not listed on COC - KAP STAFF

Leaked

(1) Use this space (and additional sheets if necessary) to document samples that are received broken or compromised, C-O-C discrepancies, radiation checks, residual chlorine check, results of pH check if required. If samples required pH adjustment, record volume and type of preservative added.

COOLER RECEIPT FORM

Number of Coolers: 1 & 2

LIMS #: WP2273 Date received: 5/04/99

Project: WARWICK, RI

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 05/04/99

by (print): D. McGRATH (sign): D. McGrath

1. Did cooler come with a shipping slip (airbill, etc.)? ..... (YES) NO

   If YES, enter carrier name and airbill number here: FEDEX 8128 5100 5088

2. Were custody seals on outside of cooler? ..... (YES) NO

   How many and where: 2; Front/Back Handle seal date: 5/3/99, seal name: SCOTT HARDY

3. Were custody seals unbroken and intact at the date and time of arrival? ..... (YES) NO

4. Did you screen samples for radioactivity using a Geiger Counter? ..... (YES) NO

5. Were custody papers sealed in a plastic bag and taped inside the lid? ..... (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? ..... (YES) NO

7. Did you sign custody papers in the appropriate place? ..... (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form (YES) NO

9. If required, was enough ice used? Type of ice: BLUE ICE & COBE ..... (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: BKR (date) 05-04-99

B. LOG-IN PHASE: Date samples were logged in: 05-04-99

by (print): BRIAN KELLY (sign): Brian Kelly

11. Describe type of packing in cooler: BUBBLE WRAP

12. Were all bottles sealed in separate plastic bags? ..... YES (NO)

13. Did all bottles arrive unbroken and were labels in good condition? ..... (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ANALYSIS NOT ON LABEL YES (NO) FOR IK sample

15. Did all bottle labels agree with custody papers? ..... (YES) NO

16. Were correct containers used for the tests indicated? ..... (YES) NO

17. Were correct preservatives added to samples? ..... (YES) NO

18. Was a sufficient amount of sample sent for tests indicated? ..... (YES) NO

19. Were bubbles absent in VOA samples? If NO, list by sample #: NA Soil ..... YES NO

20. Was the project manager called and status discussed? If YES, give details on the back of this form (YES) NO

21. Who was called? Scott Hardy By whom? Kelly Perkins (date): 5/4 + 5/7/99

0000008

COOLER RECEIPT FORM

Number of Coolers: 2 of 2

LIMS #: WF 2273 Date received: 5/04/99

Project: WARWICK, RI

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 05/04/99

by (print): D. McGRATH (sign): D. McGrath

1. Did cooler come with a shipping slip (airbill, etc.)? . . . . . (YES) NO

If YES, enter carrier name and airbill number here: FED EX 8128 5100 5077

2. Were custody seals on outside of cooler? . . . . . (YES) NO

How many and where: FRONT/BACK HINGE, seal date: 5/3/99, seal name: SCOTT HARDY

3. Were custody seals unbroken and intact at the date and time of arrival? . . . . . (YES) NO

4. Did you screen samples for radioactivity using a Geiger Counter? . . . . . (YES) NO

5. Were custody papers sealed in a plastic bag and taped inside the lid? . . . . . (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? . . . . . (YES) NO

7. Did you sign custody papers in the appropriate place? . . . . . (YES) NO

8. Was project identifiable from custody papers? If YES, enter project name at the top of this form (YES) NO

9. If required, was enough ice used? Type of ice: BLUE ICE . . . . . (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: _____ (date) _____

B. LOG-IN PHASE: Date samples were logged in: 05/04/99

by (print): BRIAN K. ROY (sign): [signature]

11. Describe type of packing in cooler: BUBBLE WRAP

12. Were all bottles sealed in separate plastic bags? VOAS - MULTI PER BAG . . . . . YES (NO)

13. Did all bottles arrive unbroken and were labels in good condition? . . . . . YES (NO)

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ANALYSIS NOT ON ALL BOTTLES YES (NO)

VOA TP6/5-1 assume to be TP6/5-1

15. Did all bottle labels agree with custody papers? . . . . . (YES) NO

16. Were correct containers used for the tests indicated? . . . . . (YES) NO

17. Were correct preservatives added to samples? . . . . . (YES) NO

18. Was a sufficient amount of sample sent for tests indicated? TP3/5, TP2/1, TP2/10 (YES) NO in same bag

19. Were bubbles absent in VOA samples? If NO, list by sample #: VOA-SOIL . NA. . . . . YES (NO)

20. Was the project manager called and status discussed? If YES, give details on the back of this form YES NO

21. Who was called? Scott Hardy By whom? Kelly Perkins (date): 5/4/99 + 5/7/99

0000009

KATAHDIN ANALYTICAL SERVICES, INC.
GC Vial Prep Log

Method: MA DEP VPH
Reviewed By/Date:

MEOH LOT: M11285
BOTTLE LOT: 040999
10w surrogate Restek Cat #5 4
LOGBOOK # 1 lot # A01

Σ SURROGATE

Date	Init.	Vial Number	Vial Weight Empty (g)	Vial + Methanol (g)	Vial + Methanol + Sample (g)	Sample Weight (g)	Comments
04/14/99	BKR	3182		41.85			5035/8260B VOCs
		3183		42.16			
		3184		41.81			
		3185		42.00			
		3186		42.15			
		3187		42.06			
		3188		42.19			
		3189		42.06			
		3190		41.94			
		3191		42.01			
		3192		42.05			
		3193		41.92			
		3194		42.01			
		3195		41.75			
		3196		41.87			
		3197		41.95			
		3198		42.15			
		3199		42.12			
		3200		41.98			
		3201		42.05			
		3202		41.93			
		3203		41.81			
		3204		42.04			
		3205		41.95			
		3206		41.80			
		3207		41.99			
		3208		42.05			

04/14/99

10ml Purge Needle
MEOH LOT: M11285
BOTTLE LOT: 012199

KATAHDIN ANALYTICAL SERVICES, INC.
GC Vial Prep Log

Method: MA DEP VPH **LOGBOOK # 1**
Reviewed By/Date:

Date	Init.	Vial Number	Vial Weight Empty (g)	Vial + Methanol (g)	Vial + Methanol + Sample (g)	Sample Weight (g)	Comments
4/14/99	BKR	3209		98.30			TPH GRO
		3210		97.49			
		3211		98.51			
		3212		98.18			
		3213		98.55			
		3214		98.54			
		3215		98.38			
		3216		98.96			
		3217		98.88			
		3218		98.60			
		3219		98.05			
↓	↓	3220		97.65			

04/14/99

C000011

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04098
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE PRINT IN PEN

Page 1 of

ent	Contact	Phone #	Fax #
NORTHERN ENGINEERING	S. HARDING	(978) 683-0891	(978) 683-0960
ss 160 Frank Berk Dr.	City Methuen	State MA	Zip Code 01844
rchase Order # 67003	Proj. Name / No. Warwick, RI	Katahdin Quote #	
(if different than above)	Address		
mpler (Print / Sign) S. Harding / Scott Harding		Copies To:	

AB USE ONLY WORK ORDER #: WP2273

KATAHDIN PROJECT MANAGER

EMARKS:

PPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

RBILL NO:

MP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES: VOCs 5035/8260B	TPH-DRO 8015M	PAHs 8270C	Filt. Y N	Filt. Y N	Filt. Y N	Filt. Y N	Filt. Y N	Filt. Y N	Filt. Y N	Filt. Y N	Filt. Y N
12K | S-1	4/28/99 1753	SOIL	3	X	X	X									
12K | S-2	1800			X	X	X									
12K | S-3	1804			X	X	X									
12K | S-4	1808			X	X	X									
12K | S-5	1745			X	X	X									
12K | S-5D	1745			X	X	X									
12K | S SH	/														
1K | S-1	4/30/99 1600			X	X	X									
1K | S-2	4/30/99 1545			X	X	X									
1K | S-3	4/29/99 1535			X	X	X									
1K | S-4	4/29/99 1538			X	X	X									
1K | S-5	4/29/99 1540	↓	↓	X	X	X									
	/														
	/														
SH	/														
	/														

MENTS

quished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Scott Harding	5/3/99 1500				
elinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
		05-04-99 1015			000012

OURCE INC (207) 782-3311
CHN-OF-CSTDY

ORIGINAL

Katahdin
ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04098
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE PRINT IN PEN

Page 2 of

ient	Contact	Phone #	Fax #
NORIS (SAME AS BJ)		( )	( )

ddress	City	State	Zip Code

rchase Order #	Proj. Name / No.	Katahdin Quote #
67003	Warwick, RI	

(if different than above)	Address

mpler (Print / Sign)	Copies To:
S. Harding / Scott Hardy	

AB USE ONLY WORK ORDER #: WP2273

KATAHDIN PROJECT MANAGER

MARKS:

IPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

RBILL NO:

MP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES: VOCs 5035/8260B	TPH - GRO 8015	TPH - GRO 8015	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Fi ☐Y
TP-1 | 1'	4/30/99 1357	Soil	3	X	X	X								
TP-1 | 12'	/1420													
TP-2 | 1'	/1335													
TP-2 | 10'	/1350													
TP-3 | 1'	/1040													
TP-3 | 5'	/1050													
TP-4 | 1'	/0900													
TP-4 | 7.5'	/0920													
TP-5 | 10'	/1000													
TP-6 | 1'	/1020													
	/													
	/													
	/													
	/													
	/													
	/													

SH

MENTS

linquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signat
Scott Hardy	5/3/99 1500	[illegible] 05-04-99 1015			
linquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
					000013

SAMPLE DATA PACKAGE

Katahdin
ANALYTICAL SERVICES

TABLE OF CONTENTS

340 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 874-2400 Fax: (207) 775-4029

http://katahdinlab.com

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-1
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-1	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
VINYL CHLORIDE	<350	ug/Kgdrywt	35	350	10
BROMOMETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROETHANE	<180	ug/Kgdrywt	35	180	5
TRICHLOROFLUOROMETHANE	<180	ug/Kgdrywt	35	180	5
1,1-DICHLOROETHENE	<180	ug/Kgdrywt	35	180	5
METHYLENE CHLORIDE	B200	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHENE (TRANS)	<180	ug/Kgdrywt	35	180	5
1-DICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHENE (CIS)	<180	ug/Kgdrywt	35	180	5
2,2-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
CHLOROFORM	<180	ug/Kgdrywt	35	180	5
BROMOCHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
1,1,1-TRICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,1-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
CARBON TETRACHLORIDE	<180	ug/Kgdrywt	35	180	5
BENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
TRICHLOROETHENE	<180	ug/Kgdrywt	35	180	5
DIBROMOMETHANE	<180	ug/Kgdrywt	35	180	5
BROMODICHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
CIS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
TOLUENE	<180	ug/Kgdrywt	35	180	5
TRANS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
1,1,2-TRICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,3-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
DIBROMOCHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
TETRACHLOROETHENE	<180	ug/Kgdrywt	35	180	5
1,2-DIBROMOETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
1,1,1,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	35	180	5

eport Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-1
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-1	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
BROMOFORM	<180	ug/Kgdrywt	35	180	5
STYRENE	<180	ug/Kgdrywt	35	180	5
1,1,2,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2,3-TRICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
ISOPROPYLBENZENE	<180	ug/Kgdrywt	35	180	5
BROMOBENZENE	<180	ug/Kgdrywt	35	180	5
2-CHLOROTOLUENE	<180	ug/Kgdrywt	35	180	5
N-PROPYLBENZENE	<180	ug/Kgdrywt	35	180	5
4-CHLOROTOLUENE	<180	ug/Kgdrywt	35	180	5
1,3,5-TRIMETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
TERT-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,2,4-TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
SEC-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,3-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
P-ISOPROPYLTOLUENE	<180	ug/Kgdrywt	35	180	5
1,4-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
N-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DIBROMO-3-CHLOROPROPAN	<180	ug/Kgdrywt	35	180	5
1,2,4-TRIMETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
NAPHTHALENE	<180	ug/Kgdrywt	35	180	5
HEXACHLOROBUTADIENE	<180	ug/Kgdrywt	35	180	5
1,2,3-TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
MTBE	<180	ug/Kgdrywt	35	180	5
ACETONE	<350	ug/Kgdrywt	35	350	10
2-BUTANONE	<350	ug/Kgdrywt	35	350	10
4-METHYL-2-PENTANONE	<350	ug/Kgdrywt	35	350	10
2-HEXANONE	<350	ug/Kgdrywt	35	350	10
M+P-XYLENE	<180	ug/Kgdrywt	35	180	5
O-XYLENE	<180	ug/Kgdrywt	35	180	5
1,3,5 TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
VINYL ACETATE	<180	ug/Kgdrywt	35	180	5.0

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-1
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-1	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<180	ug/Kgdrywt	35	180	5
DIETHYL ETHER	<180	ug/Kgdrywt	35	180	5
TETRAHYDROFURAN	<350	ug/Kgdrywt	35	350	10
DIBROMOFLUOROMETHANE	78	%	35		
1,2-DICHLOROETHANE-D4	80	%	35		
TOLUENE-D8	78	%	35		
P-BROMOFLUOROBENZENE	82	%	35		

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-2
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 94
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-2	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
VINYL CHLORIDE	<380	ug/Kgdrywt	38	380	10
BROMOMETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROETHANE	<190	ug/Kgdrywt	38	190	5
TRICHLOROFLUOROMETHANE	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROETHENE	<190	ug/Kgdrywt	38	190	5
METHYLENE CHLORIDE	B250	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHENE (TRANS)	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHENE (CIS)	<190	ug/Kgdrywt	38	190	5
2,2-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
CHLOROFORM	<190	ug/Kgdrywt	38	190	5
BROMOCHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
1,1,1-TRICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
CARBON TETRACHLORIDE	<190	ug/Kgdrywt	38	190	5
BENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
TRICHLOROETHENE	<190	ug/Kgdrywt	38	190	5
DIBROMOMETHANE	<190	ug/Kgdrywt	38	190	5
BROMODICHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
CIS-1,3-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
TOLUENE	<190	ug/Kgdrywt	38	190	5
TRANS-1,3-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
1,1,2-TRICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,3-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
DIBROMOCHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
TETRACHLOROETHENE	<190	ug/Kgdrywt	38	190	5
1,2-DIBROMOETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
1,1,1,2-TETRACHLOROETHANE	<190	ug/Kgdrywt	38	190	5

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-2
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 94
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-2	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
BROMOFORM	<190	ug/Kgdrywt	38	190	5
STYRENE	<190	ug/Kgdrywt	38	190	5
1,1,2,2-TETRACHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2,3-TRICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
ISOPROPYLBENZENE	<190	ug/Kgdrywt	38	190	5
BROMOBENZENE	<190	ug/Kgdrywt	38	190	5
2-CHLOROTOLUENE	<190	ug/Kgdrywt	38	190	5
N-PROPYLBENZENE	<190	ug/Kgdrywt	38	190	5
4-CHLOROTOLUENE	<190	ug/Kgdrywt	38	190	5
1,3,5-TRIMETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
TERT-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,2,4-TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
SEC-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,3-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
P-ISOPROPYLTOLUENE	<190	ug/Kgdrywt	38	190	5
1,4-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
N-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DIBROMO-3-CHLOROPROPAN	<190	ug/Kgdrywt	38	190	5
1,2,4-TRIMETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
NAPHTHALENE	<190	ug/Kgdrywt	38	190	5
HEXACHLOROBUTADIENE	<190	ug/Kgdrywt	38	190	5
1,2,3-TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
MTBE	<190	ug/Kgdrywt	38	190	5
ACETONE	<380	ug/Kgdrywt	38	380	10
2-BUTANONE	<380	ug/Kgdrywt	38	380	10
4-METHYL-2-PENTANONE	<380	ug/Kgdrywt	38	380	10
2-HEXANONE	<380	ug/Kgdrywt	38	380	10
M+P-XYLENE	<190	ug/Kgdrywt	38	190	5
O-XYLENE	<190	ug/Kgdrywt	38	190	5
1,3,5 TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
VINYL ACETATE	<190	ug/Kgdrywt	38	190	5.0

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-2
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 94
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-2	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<190	ug/Kgdrywt	38	190	5
DIETHYL ETHER	<190	ug/Kgdrywt	38	190	5
TETRAHYDROFURAN	<380	ug/Kgdrywt	38	380	10
DIBROMOFLUOROMETHANE	75	%	38		
1,2-DICHLOROETHANE-D4	76	%	38		
TOLUENE-D8	79	%	38		
P-BROMOFLUOROBENZENE	82	%	38		

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-3
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 92
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-3	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
VINYL CHLORIDE	<350	ug/Kgdrywt	35	350	10
BROMOMETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROETHANE	<180	ug/Kgdrywt	35	180	5
TRICHLOROFLUOROMETHANE	<180	ug/Kgdrywt	35	180	5
1,1-DICHLOROETHENE	<180	ug/Kgdrywt	35	180	5
METHYLENE CHLORIDE	B200	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHENE (TRANS)	<180	ug/Kgdrywt	35	180	5
,1-DICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHENE (CIS)	<180	ug/Kgdrywt	35	180	5
2,2-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
CHLOROFORM	<180	ug/Kgdrywt	35	180	5
BROMOCHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
1,1,1-TRICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,1-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
CARBON TETRACHLORIDE	<180	ug/Kgdrywt	35	180	5
BENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
TRICHLOROETHENE	<180	ug/Kgdrywt	35	180	5
DIBROMOMETHANE	<180	ug/Kgdrywt	35	180	5
BROMODICHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
CIS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
TOLUENE	<180	ug/Kgdrywt	35	180	5
TRANS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
1,1,2-TRICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,3-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
DIBROMOCHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
TETRACHLOROETHENE	<180	ug/Kgdrywt	35	180	5
1,2-DIBROMOETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
1,1,1,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	35	180	5

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-3
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 92
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-3	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
BROMOFORM	<180	ug/Kgdrywt	35	180	5
STYRENE	<180	ug/Kgdrywt	35	180	5
1,1,2,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2,3-TRICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
ISOPROPYLBENZENE	<180	ug/Kgdrywt	35	180	5
BROMOBENZENE	<180	ug/Kgdrywt	35	180	5
2-CHLOROTOLUENE	<180	ug/Kgdrywt	35	180	5
N-PROPYLBENZENE	<180	ug/Kgdrywt	35	180	5
4-CHLOROTOLUENE	<180	ug/Kgdrywt	35	180	5
1,3,5-TRIMETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
TERT-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,2,4-TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
SEC-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,3-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
P-ISOPROPYLTOLUENE	<180	ug/Kgdrywt	35	180	5
1,4-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
N-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DIBROMO-3-CHLOROPROPAN	<180	ug/Kgdrywt	35	180	5
1,2,4-TRIMETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
NAPHTHALENE	<180	ug/Kgdrywt	35	180	5
HEXACHLOROBUTADIENE	<180	ug/Kgdrywt	35	180	5
1,2,3-TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
MTBE	<180	ug/Kgdrywt	35	180	5
ACETONE	<350	ug/Kgdrywt	35	350	10
2-BUTANONE	<350	ug/Kgdrywt	35	350	10
4-METHYL-2-PENTANONE	<350	ug/Kgdrywt	35	350	10
2-HEXANONE	<350	ug/Kgdrywt	35	350	10
M+P-XYLENE	<180	ug/Kgdrywt	35	180	5
O-XYLENE	<180	ug/Kgdrywt	35	180	5
1,3,5 TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
VINYL ACETATE	<180	ug/Kgdrywt	35	180	5.0

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-3
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 92
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-3	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<180	ug/Kgdrywt	35	180	5
DIETHYL ETHER	<180	ug/Kgdrywt	35	180	5
TETRAHYDROFURAN	<350	ug/Kgdrywt	35	350	10
DIBROMOFLUOROMETHANE	74	%	35		
1,2-DICHLOROETHANE-D4	74	%	35		
TOLUENE-D8	73	%	35		
P-BROMOFLUOROBENZENE	75	%	35		

eport Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-4
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 96
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-4	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<180	ug/Kgdrywt	37	180	5
CHLOROMETHANE	<180	ug/Kgdrywt	37	180	5
VINYL CHLORIDE	<370	ug/Kgdrywt	37	370	10
BROMOMETHANE	<180	ug/Kgdrywt	37	180	5
CHLOROETHANE	<180	ug/Kgdrywt	37	180	5
TRICHLOROFLUOROMETHANE	<180	ug/Kgdrywt	37	180	5
1,1-DICHLOROETHENE	<180	ug/Kgdrywt	37	180	5
METHYLENE CHLORIDE	B210	ug/Kgdrywt	37	180	5
1,2-DICHLOROETHENE (TRANS)	<180	ug/Kgdrywt	37	180	5
1,1-DICHLOROETHANE	<180	ug/Kgdrywt	37	180	5
1,2-DICHLOROETHENE (CIS)	<180	ug/Kgdrywt	37	180	5
2,2-DICHLOROPROPANE	<180	ug/Kgdrywt	37	180	5
CHLOROFORM	<180	ug/Kgdrywt	37	180	5
BROMOCHLOROMETHANE	<180	ug/Kgdrywt	37	180	5
1,1,1-TRICHLOROETHANE	<180	ug/Kgdrywt	37	180	5
1,2-DICHLOROETHANE	<180	ug/Kgdrywt	37	180	5
1,1-DICHLOROPROPENE	<180	ug/Kgdrywt	37	180	5
CARBON TETRACHLORIDE	<180	ug/Kgdrywt	37	180	5
BENZENE	<180	ug/Kgdrywt	37	180	5
1,2-DICHLOROPROPANE	<180	ug/Kgdrywt	37	180	5
TRICHLOROETHENE	<180	ug/Kgdrywt	37	180	5
DIBROMOMETHANE	<180	ug/Kgdrywt	37	180	5
BROMODICHLOROMETHANE	<180	ug/Kgdrywt	37	180	5
CIS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	37	180	5
TOLUENE	<180	ug/Kgdrywt	37	180	5
TRANS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	37	180	5
1,1,2-TRICHLOROETHANE	<180	ug/Kgdrywt	37	180	5
1,3-DICHLOROPROPANE	<180	ug/Kgdrywt	37	180	5
DIBROMOCHLOROMETHANE	<180	ug/Kgdrywt	37	180	5
TETRACHLOROETHENE	<180	ug/Kgdrywt	37	180	5
1,2-DIBROMOETHANE	<180	ug/Kgdrywt	37	180	5
CHLOROBENZENE	<180	ug/Kgdrywt	37	180	5
1,1,1,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	37	180	5

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-4
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 96
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-4	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<180	ug/Kgdrywt	37	180	5
BROMOFORM	<180	ug/Kgdrywt	37	180	5
STYRENE	<180	ug/Kgdrywt	37	180	5
1,1,2,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	37	180	5
1,2,3-TRICHLOROPROPANE	<180	ug/Kgdrywt	37	180	5
ISOPROPYLBENZENE	<180	ug/Kgdrywt	37	180	5
BROMOBENZENE	<180	ug/Kgdrywt	37	180	5
2-CHLOROTOLUENE	<180	ug/Kgdrywt	37	180	5
N-PROPYLBENZENE	<180	ug/Kgdrywt	37	180	5
4-CHLOROTOLUENE	<180	ug/Kgdrywt	37	180	5
1,3,5-TRIMETHYLBENZENE	<180	ug/Kgdrywt	37	180	5
TERT-BUTYLBENZENE	<180	ug/Kgdrywt	37	180	5
1,2,4-TRICHLOROBENZENE	<180	ug/Kgdrywt	37	180	5
SEC-BUTYLBENZENE	<180	ug/Kgdrywt	37	180	5
1,3-DICHLOROBENZENE	<180	ug/Kgdrywt	37	180	5
P-ISOPROPYLTOLUENE	<180	ug/Kgdrywt	37	180	5
1,4-DICHLOROBENZENE	<180	ug/Kgdrywt	37	180	5
1,2-DICHLOROBENZENE	<180	ug/Kgdrywt	37	180	5
N-BUTYLBENZENE	<180	ug/Kgdrywt	37	180	5
1,2-DIBROMO-3-CHLOROPROPAN	<180	ug/Kgdrywt	37	180	5
1,2,4-TRIMETHYLBENZENE	<180	ug/Kgdrywt	37	180	5
NAPHTHALENE	<180	ug/Kgdrywt	37	180	5
HEXACHLOROBUTADIENE	<180	ug/Kgdrywt	37	180	5
1,2,3-TRICHLOROBENZENE	<180	ug/Kgdrywt	37	180	5
MTBE	<180	ug/Kgdrywt	37	180	5
ACETONE	<370	ug/Kgdrywt	37	370	10
2-BUTANONE	<370	ug/Kgdrywt	37	370	10
4-METHYL-2-PENTANONE	<370	ug/Kgdrywt	37	370	10
2-HEXANONE	<370	ug/Kgdrywt	37	370	10
M+P-XYLENE	<180	ug/Kgdrywt	37	180	5
O-XYLENE	<180	ug/Kgdrywt	37	180	5
1,3,5 TRICHLOROBENZENE	<180	ug/Kgdrywt	37	180	5
VINYL ACETATE	<180	ug/Kgdrywt	37	180	5.0

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-4
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 96
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-4	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<180	ug/Kgdrywt	37	180	5
DIETHYL ETHER	<180	ug/Kgdrywt	37	180	5
TETRAHYDROFURAN	<370	ug/Kgdrywt	37	370	10
DIBROMOFLUOROMETHANE	97	%	37		
1,2-DICHLOROETHANE-D4	99	%	37		
TOLUENE-D8	93	%	37		
P-BROMOFLUOROBENZENE	92	%	37		

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-5
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
VINYL CHLORIDE	<380	ug/Kgdrywt	38	380	10
BROMOMETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROETHANE	<190	ug/Kgdrywt	38	190	5
TRICHLOROFLUOROMETHANE	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROETHENE	<190	ug/Kgdrywt	38	190	5
METHYLENE CHLORIDE	B240	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHENE (TRANS)	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHENE (CIS)	<190	ug/Kgdrywt	38	190	5
2,2-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
CHLOROFORM	<190	ug/Kgdrywt	38	190	5
BROMOCHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
1,1,1-TRICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
CARBON TETRACHLORIDE	<190	ug/Kgdrywt	38	190	5
BENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
TRICHLOROETHENE	<190	ug/Kgdrywt	38	190	5
DIBROMOMETHANE	<190	ug/Kgdrywt	38	190	5
BROMODICHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
CIS-1,3-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
TOLUENE	<190	ug/Kgdrywt	38	190	5
TRANS-1,3-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
1,1,2-TRICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,3-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
DIBROMOCHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
TETRACHLOROETHENE	<190	ug/Kgdrywt	38	190	5
1,2-DIBROMOETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
1,1,1,2-TETRACHLOROETHANE	<190	ug/Kgdrywt	38	190	5

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-5
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
BROMOFORM	<190	ug/Kgdrywt	38	190	5
STYRENE	<190	ug/Kgdrywt	38	190	5
1,1,2,2-TETRACHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2,3-TRICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
ISOPROPYLBENZENE	<190	ug/Kgdrywt	38	190	5
BROMOBENZENE	<190	ug/Kgdrywt	38	190	5
2-CHLOROTOLUENE	<190	ug/Kgdrywt	38	190	5
N-PROPYLBENZENE	<190	ug/Kgdrywt	38	190	5
4-CHLOROTOLUENE	<190	ug/Kgdrywt	38	190	5
1,3,5-TRIMETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
TERT-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,2,4-TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
SEC-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,3-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
P-ISOPROPYLTOLUENE	<190	ug/Kgdrywt	38	190	5
1,4-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
N-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DIBROMO-3-CHLOROPROPAN	<190	ug/Kgdrywt	38	190	5
1,2,4-TRIMETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
NAPHTHALENE	<190	ug/Kgdrywt	38	190	5
HEXACHLOROBUTADIENE	<190	ug/Kgdrywt	38	190	5
1,2,3-TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
MTBE	<190	ug/Kgdrywt	38	190	5
ACETONE	<380	ug/Kgdrywt	38	380	10
2-BUTANONE	<380	ug/Kgdrywt	38	380	10
4-METHYL-2-PENTANONE	<380	ug/Kgdrywt	38	380	10
2-HEXANONE	<380	ug/Kgdrywt	38	380	10
M+P-XYLENE	<190	ug/Kgdrywt	38	190	5
O-XYLENE	<190	ug/Kgdrywt	38	190	5
1,3,5 TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
VINYL ACETATE	<190	ug/Kgdrywt	38	190	5.0

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-5
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<190	ug/Kgdrywt	38	190	5
DIETHYL ETHER	<190	ug/Kgdrywt	38	190	5
TETRAHYDROFURAN	<380	ug/Kgdrywt	38	380	10
DIBROMOFLUOROMETHANE	93	%	38		
1,2-DICHLOROETHANE-D4	94	%	38		
TOLUENE-D8	93	%	38		
P-BROMOFLUOROBENZENE	92	%	38		

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-6
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5D	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<200	ug/Kgdrywt	40	200	5
CHLOROMETHANE	<200	ug/Kgdrywt	40	200	5
VINYL CHLORIDE	<400	ug/Kgdrywt	40	400	10
BROMOMETHANE	<200	ug/Kgdrywt	40	200	5
CHLOROETHANE	<200	ug/Kgdrywt	40	200	5
TRICHLOROFLUOROMETHANE	<200	ug/Kgdrywt	40	200	5
1,1-DICHLOROETHENE	<200	ug/Kgdrywt	40	200	5
METHYLENE CHLORIDE	B260	ug/Kgdrywt	40	200	5
1,2-DICHLOROETHENE (TRANS)	<200	ug/Kgdrywt	40	200	5
1,1-DICHLOROETHANE	<200	ug/Kgdrywt	40	200	5
1,2-DICHLOROETHENE (CIS)	<200	ug/Kgdrywt	40	200	5
2,2-DICHLOROPROPANE	<200	ug/Kgdrywt	40	200	5
CHLOROFORM	<200	ug/Kgdrywt	40	200	5
BROMOCHLOROMETHANE	<200	ug/Kgdrywt	40	200	5
1,1,1-TRICHLOROETHANE	<200	ug/Kgdrywt	40	200	5
1,2-DICHLOROETHANE	<200	ug/Kgdrywt	40	200	5
1,1-DICHLOROPROPENE	<200	ug/Kgdrywt	40	200	5
CARBON TETRACHLORIDE	<200	ug/Kgdrywt	40	200	5
BENZENE	<200	ug/Kgdrywt	40	200	5
1,2-DICHLOROPROPANE	<200	ug/Kgdrywt	40	200	5
TRICHLOROETHENE	<200	ug/Kgdrywt	40	200	5
DIBROMOMETHANE	<200	ug/Kgdrywt	40	200	5
BROMODICHLOROMETHANE	<200	ug/Kgdrywt	40	200	5
CIS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	40	200	5
TOLUENE	<200	ug/Kgdrywt	40	200	5
TRANS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	40	200	5
1,1,2-TRICHLOROETHANE	<200	ug/Kgdrywt	40	200	5
1,3-DICHLOROPROPANE	<200	ug/Kgdrywt	40	200	5
DIBROMOCHLOROMETHANE	<200	ug/Kgdrywt	40	200	5
TETRACHLOROETHENE	<200	ug/Kgdrywt	40	200	5
1,2-DIBROMOETHANE	<200	ug/Kgdrywt	40	200	5
CHLOROBENZENE	<200	ug/Kgdrywt	40	200	5
1,1,1,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	40	200	5

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-6
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5D	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<200	ug/Kgdrywt	40	200	5
BROMOFORM	<200	ug/Kgdrywt	40	200	5
STYRENE	<200	ug/Kgdrywt	40	200	5
1,1,2,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	40	200	5
1,2,3-TRICHLOROPROPANE	<200	ug/Kgdrywt	40	200	5
ISOPROPYLBENZENE	<200	ug/Kgdrywt	40	200	5
BROMOBENZENE	<200	ug/Kgdrywt	40	200	5
2-CHLOROTOLUENE	<200	ug/Kgdrywt	40	200	5
N-PROPYLBENZENE	<200	ug/Kgdrywt	40	200	5
4-CHLOROTOLUENE	<200	ug/Kgdrywt	40	200	5
1,3,5-TRIMETHYLBENZENE	<200	ug/Kgdrywt	40	200	5
TERT-BUTYLBENZENE	<200	ug/Kgdrywt	40	200	5
1,2,4-TRICHLOROBENZENE	<200	ug/Kgdrywt	40	200	5
SEC-BUTYLBENZENE	<200	ug/Kgdrywt	40	200	5
1,3-DICHLOROBENZENE	<200	ug/Kgdrywt	40	200	5
P-ISOPROPYLTOLUENE	<200	ug/Kgdrywt	40	200	5
1,4-DICHLOROBENZENE	<200	ug/Kgdrywt	40	200	5
1,2-DICHLOROBENZENE	<200	ug/Kgdrywt	40	200	5
N-BUTYLBENZENE	<200	ug/Kgdrywt	40	200	5
1,2-DIBROMO-3-CHLOROPROPAN	<200	ug/Kgdrywt	40	200	5
1,2,4-TRIMETHYLBENZENE	<200	ug/Kgdrywt	40	200	5
NAPHTHALENE	<200	ug/Kgdrywt	40	200	5
HEXACHLOROBUTADIENE	<200	ug/Kgdrywt	40	200	5
1,2,3-TRICHLOROBENZENE	<200	ug/Kgdrywt	40	200	5
MTBE	<200	ug/Kgdrywt	40	200	5
ACETONE	<400	ug/Kgdrywt	40	400	10
2-BUTANONE	<400	ug/Kgdrywt	40	400	10
4-METHYL-2-PENTANONE	<400	ug/Kgdrywt	40	400	10
2-HEXANONE	<400	ug/Kgdrywt	40	400	10
M+P-XYLENE	<200	ug/Kgdrywt	40	200	5
O-XYLENE	<200	ug/Kgdrywt	40	200	5
1,3,5 TRICHLOROBENZENE	<200	ug/Kgdrywt	40	200	5
VINYL ACETATE	<200	ug/Kgdrywt	40	200	5.0

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-6
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: SW8260
Date Analyzed: 5/7/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5D	SL	4/28/99	5/4/99	5/7/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<200	ug/Kgdrywt	40	200	5
DIETHYL ETHER	<200	ug/Kgdrywt	40	200	5
TETRAHYDROFURAN	<400	ug/Kgdrywt	40	400	10
DIBROMOFLUOROMETHANE	104	%	40		
1,2-DICHLOROETHANE-D4	107	%	40		
TOLUENE-D8	102	%	40		
P-BROMOFLUOROBENZENE	106	%	40		

Report Notes: B

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-7
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 87
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-1	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
VINYL CHLORIDE	<380	ug/Kgdrywt	38	380	10
BROMOMETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROETHANE	<190	ug/Kgdrywt	38	190	5
TRICHLOROFLUOROMETHANE	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROETHENE	<190	ug/Kgdrywt	38	190	5
METHYLENE CHLORIDE	J130	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHENE (TRANS)	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHENE (CIS)	<190	ug/Kgdrywt	38	190	5
2,2-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
CHLOROFORM	<190	ug/Kgdrywt	38	190	5
BROMOCHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
1,1,1-TRICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,1-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
CARBON TETRACHLORIDE	<190	ug/Kgdrywt	38	190	5
BENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
TRICHLOROETHENE	<190	ug/Kgdrywt	38	190	5
DIBROMOMETHANE	<190	ug/Kgdrywt	38	190	5
BROMODICHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
CIS-1,3-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
TOLUENE	<190	ug/Kgdrywt	38	190	5
TRANS-1,3-DICHLOROPROPENE	<190	ug/Kgdrywt	38	190	5
1,1,2-TRICHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,3-DICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
DIBROMOCHLOROMETHANE	<190	ug/Kgdrywt	38	190	5
TETRACHLOROETHENE	<190	ug/Kgdrywt	38	190	5
1,2-DIBROMOETHANE	<190	ug/Kgdrywt	38	190	5
CHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
1,1,1,2-TETRACHLOROETHANE	<190	ug/Kgdrywt	38	190	5

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-7
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 87
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-1	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
BROMOFORM	<190	ug/Kgdrywt	38	190	5
STYRENE	<190	ug/Kgdrywt	38	190	5
1,1,2,2-TETRACHLOROETHANE	<190	ug/Kgdrywt	38	190	5
1,2,3-TRICHLOROPROPANE	<190	ug/Kgdrywt	38	190	5
ISOPROPYLBENZENE	<190	ug/Kgdrywt	38	190	5
BROMOBENZENE	<190	ug/Kgdrywt	38	190	5
2-CHLOROTOLUENE	<190	ug/Kgdrywt	38	190	5
N-PROPYLBENZENE	<190	ug/Kgdrywt	38	190	5
4-CHLOROTOLUENE	<190	ug/Kgdrywt	38	190	5
1,3,5-TRIMETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
TERT-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,2,4-TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
SEC-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,3-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
P-ISOPROPYLTOLUENE	<190	ug/Kgdrywt	38	190	5
1,4-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
N-BUTYLBENZENE	<190	ug/Kgdrywt	38	190	5
1,2-DIBROMO-3-CHLOROPROPAN	<190	ug/Kgdrywt	38	190	5
1,2,4-TRIMETHYLBENZENE	<190	ug/Kgdrywt	38	190	5
NAPHTHALENE	<190	ug/Kgdrywt	38	190	5
HEXACHLOROBUTADIENE	<190	ug/Kgdrywt	38	190	5
1,2,3-TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
MTBE	<190	ug/Kgdrywt	38	190	5
ACETONE	J190	ug/Kgdrywt	38	380	10
2-BUTANONE	<380	ug/Kgdrywt	38	380	10
4-METHYL-2-PENTANONE	<380	ug/Kgdrywt	38	380	10
2-HEXANONE	<380	ug/Kgdrywt	38	380	10
M+P-XYLENE	<190	ug/Kgdrywt	38	190	5
O-XYLENE	<190	ug/Kgdrywt	38	190	5
1,3,5 TRICHLOROBENZENE	<190	ug/Kgdrywt	38	190	5
VINYL ACETATE	<190	ug/Kgdrywt	38	190	5.0

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-7
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 87
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-1	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<190	ug/Kgdrywt	38	190	5
DIETHYL ETHER	<190	ug/Kgdrywt	38	190	5
TETRAHYDROFURAN	<380	ug/Kgdrywt	38	380	10
DIBROMOFLUOROMETHANE	101	%	38		
1,2-DICHLOROETHANE-D4	103	%	38		
TOLUENE-D8	104	%	38		
P-BROMOFLUOROBENZENE	108	%	38		

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-8
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-2	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<200	ug/Kgdrywt	39	200	5
CHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
VINYL CHLORIDE	<390	ug/Kgdrywt	39	390	10
BROMOMETHANE	<200	ug/Kgdrywt	39	200	5
CHLOROETHANE	J110	ug/Kgdrywt	39	200	5
TRICHLOROFLUOROMETHANE	<200	ug/Kgdrywt	39	200	5
1,1-DICHLOROETHENE	<200	ug/Kgdrywt	39	200	5
METHYLENE CHLORIDE	J140	ug/Kgdrywt	39	200	5
1,2-DICHLOROETHENE (TRANS)	<200	ug/Kgdrywt	39	200	5
1,1-DICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROETHENE (CIS)	<200	ug/Kgdrywt	39	200	5
2,2-DICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
CHLOROFORM	<200	ug/Kgdrywt	39	200	5
BROMOCHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
1,1,1-TRICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,1-DICHLOROPROPENE	<200	ug/Kgdrywt	39	200	5
CARBON TETRACHLORIDE	<200	ug/Kgdrywt	39	200	5
BENZENE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
TRICHLOROETHENE	<200	ug/Kgdrywt	39	200	5
DIBROMOMETHANE	<200	ug/Kgdrywt	39	200	5
BROMODICHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
CIS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	39	200	5
TOLUENE	<200	ug/Kgdrywt	39	200	5
TRANS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	39	200	5
1,1,2-TRICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,3-DICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
DIBROMOCHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
TETRACHLOROETHENE	<200	ug/Kgdrywt	39	200	5
1,2-DIBROMOETHANE	<200	ug/Kgdrywt	39	200	5
CHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
1,1,1,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	39	200	5

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-8
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-2	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<200	ug/Kgdrywt	39	200	5
BROMOFORM	<200	ug/Kgdrywt	39	200	5
STYRENE	<200	ug/Kgdrywt	39	200	5
1,1,2,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,2,3-TRICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
ISOPROPYLBENZENE	<200	ug/Kgdrywt	39	200	5
BROMOBENZENE	<200	ug/Kgdrywt	39	200	5
2-CHLOROTOLUENE	<200	ug/Kgdrywt	39	200	5
N-PROPYLBENZENE	<200	ug/Kgdrywt	39	200	5
4-CHLOROTOLUENE	<200	ug/Kgdrywt	39	200	5
1,3,5-TRIMETHYLBENZENE	<200	ug/Kgdrywt	39	200	5
TERT-BUTYLBENZENE	<200	ug/Kgdrywt	39	200	5
1,2,4-TRICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
SEC-BUTYLBENZENE	<200	ug/Kgdrywt	39	200	5
1,3-DICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
P-ISOPROPYLTOLUENE	<200	ug/Kgdrywt	39	200	5
1,4-DICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
N-BUTYLBENZENE	<200	ug/Kgdrywt	39	200	5
1,2-DIBROMO-3-CHLOROPROPAN	<200	ug/Kgdrywt	39	200	5
1,2,4-TRIMETHYLBENZENE	<200	ug/Kgdrywt	39	200	5
NAPHTHALENE	<200	ug/Kgdrywt	39	200	5
HEXACHLOROBUTADIENE	<200	ug/Kgdrywt	39	200	5
1,2,3-TRICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
MTBE	<200	ug/Kgdrywt	39	200	5
ACETONE	J330	ug/Kgdrywt	39	390	10
2-BUTANONE	<390	ug/Kgdrywt	39	390	10
4-METHYL-2-PENTANONE	<390	ug/Kgdrywt	39	390	10
2-HEXANONE	<390	ug/Kgdrywt	39	390	10
M+P-XYLENE	<200	ug/Kgdrywt	39	200	5
O-XYLENE	<200	ug/Kgdrywt	39	200	5
1,3,5 TRICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
VINYL ACETATE	<200	ug/Kgdrywt	39	200	5.0

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-8
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-2	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<200	ug/Kgdrywt	39	200	5
DIETHYL ETHER	<200	ug/Kgdrywt	39	200	5
TETRAHYDROFURAN	<390	ug/Kgdrywt	39	390	10
DIBROMOFLUOROMETHANE	117	%	39		
1,2-DICHLOROETHANE-D4	119	%	39		
TOLUENE-D8	116	%	39		
P-BROMOFLUOROBENZENE	116	%	39		

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-9
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 85
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-3	SL	4/29/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<200	ug/Kgdrywt	41	200	5
CHLOROMETHANE	<200	ug/Kgdrywt	41	200	5
VINYL CHLORIDE	<410	ug/Kgdrywt	41	410	10
BROMOMETHANE	<200	ug/Kgdrywt	41	200	5
CHLOROETHANE	<200	ug/Kgdrywt	41	200	5
TRICHLOROFLUOROMETHANE	<200	ug/Kgdrywt	41	200	5
1,1-DICHLOROETHENE	<200	ug/Kgdrywt	41	200	5
METHYLENE CHLORIDE	J160	ug/Kgdrywt	41	200	5
1,2-DICHLOROETHENE (TRANS)	<200	ug/Kgdrywt	41	200	5
1-DICHLOROETHANE	<200	ug/Kgdrywt	41	200	5
1,2-DICHLOROETHENE (CIS)	<200	ug/Kgdrywt	41	200	5
2,2-DICHLOROPROPANE	<200	ug/Kgdrywt	41	200	5
CHLOROFORM	<200	ug/Kgdrywt	41	200	5
BROMOCHLOROMETHANE	<200	ug/Kgdrywt	41	200	5
1,1,1-TRICHLOROETHANE	<200	ug/Kgdrywt	41	200	5
1,2-DICHLOROETHANE	<200	ug/Kgdrywt	41	200	5
1,1-DICHLOROPROPENE	<200	ug/Kgdrywt	41	200	5
CARBON TETRACHLORIDE	<200	ug/Kgdrywt	41	200	5
BENZENE	<200	ug/Kgdrywt	41	200	5
1,2-DICHLOROPROPANE	<200	ug/Kgdrywt	41	200	5
TRICHLOROETHENE	<200	ug/Kgdrywt	41	200	5
DIBROMOMETHANE	<200	ug/Kgdrywt	41	200	5
BROMODICHLOROMETHANE	<200	ug/Kgdrywt	41	200	5
CIS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	41	200	5
TOLUENE	<200	ug/Kgdrywt	41	200	5
TRANS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	41	200	5
1,1,2-TRICHLOROETHANE	<200	ug/Kgdrywt	41	200	5
1,3-DICHLOROPROPANE	<200	ug/Kgdrywt	41	200	5
DIBROMOCHLOROMETHANE	<200	ug/Kgdrywt	41	200	5
TETRACHLOROETHENE	<200	ug/Kgdrywt	41	200	5
1,2-DIBRCMOETHANE	<200	ug/Kgdrywt	41	200	5
CHLOROBENZENE	<200	ug/Kgdrywt	41	200	5
1,1,1,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	41	200	5

eport Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-9
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 85
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-3	SL	4/29/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<200	ug/Kgdrywt	41	200	5
BROMOFORM	<200	ug/Kgdrywt	41	200	5
STYRENE	<200	ug/Kgdrywt	41	200	5
1,1,2,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	41	200	5
1,2,3-TRICHLOROPROPANE	<200	ug/Kgdrywt	41	200	5
ISOPROPYLBENZENE	<200	ug/Kgdrywt	41	200	5
BROMOBENZENE	<200	ug/Kgdrywt	41	200	5
2-CHLOROTOLUENE	<200	ug/Kgdrywt	41	200	5
N-PROPYLBENZENE	<200	ug/Kgdrywt	41	200	5
4-CHLOROTOLUENE	<200	ug/Kgdrywt	41	200	5
1,3,5-TRIMETHYLBENZENE	<200	ug/Kgdrywt	41	200	5
TERT-BUTYLBENZENE	<200	ug/Kgdrywt	41	200	5
1,2,4-TRICHLOROBENZENE	<200	ug/Kgdrywt	41	200	5
SEC-BUTYLBENZENE	<200	ug/Kgdrywt	41	200	5
1,3-DICHLOROBENZENE	<200	ug/Kgdrywt	41	200	5
P-ISOPROPYLTOLUENE	<200	ug/Kgdrywt	41	200	5
1,4-DICHLOROBENZENE	<200	ug/Kgdrywt	41	200	5
1,2-DICHLOROBENZENE	<200	ug/Kgdrywt	41	200	5
N-BUTYLBENZENE	<200	ug/Kgdrywt	41	200	5
1,2-DIBROMO-3-CHLOROPROPAN	<200	ug/Kgdrywt	41	200	5
1,2,4-TRIMETHYLBENZENE	<200	ug/Kgdrywt	41	200	5
NAPHTHALENE	<200	ug/Kgdrywt	41	200	5
HEXACHLOROBUTADIENE	<200	ug/Kgdrywt	41	200	5
1,2,3-TRICHLOROBENZENE	<200	ug/Kgdrywt	41	200	5
MTBE	<200	ug/Kgdrywt	41	200	5
ACETONE	<410	ug/Kgdrywt	41	410	10
2-BUTANONE	<410	ug/Kgdrywt	41	410	10
4-METHYL-2-PENTANONE	<410	ug/Kgdrywt	41	410	10
2-HEXANONE	<410	ug/Kgdrywt	41	410	10
M+P-XYLENE	<200	ug/Kgdrywt	41	200	5
O-XYLENE	<200	ug/Kgdrywt	41	200	5
1,3,5 TRICHLOROBENZENE	<200	ug/Kgdrywt	41	200	5
VINYL ACETATE	<200	ug/Kgdrywt	41	200	5.0

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-9
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 85
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-3	SL	4/29/99	5/4/99	5/3/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<200	ug/Kgdrywt	41	200	5
DIETHYL ETHER	<200	ug/Kgdrywt	41	200	5
TETRAHYDROFURAN	<410	ug/Kgdrywt	41	410	10
DIBROMOFLUOROMETHANE	108	%	41		
1,2-DICHLOROETHANE-D4	109	%	41		
TOLUENE-D8	104	%	41		
P-BROMOFLUOROBENZENE	104	%	41		

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-10
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-4	SL	4/29/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
VINYL CHLORIDE	<350	ug/Kgdrywt	35	350	10
BROMOMETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROETHANE	<180	ug/Kgdrywt	35	180	5
TRICHLOROFLUOROMETHANE	<180	ug/Kgdrywt	35	180	5
1,1-DICHLOROETHENE	<180	ug/Kgdrywt	35	180	5
METHYLENE CHLORIDE	J120	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHENE (TRANS)	<180	ug/Kgdrywt	35	180	5
1,1-DICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHENE (CIS)	<180	ug/Kgdrywt	35	180	5
2,2-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
CHLOROFORM	<180	ug/Kgdrywt	35	180	5
BROMOCHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
1,1,1-TRICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,1-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
CARBON TETRACHLORIDE	<180	ug/Kgdrywt	35	180	5
BENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
TRICHLOROETHENE	<180	ug/Kgdrywt	35	180	5
DIBROMOMETHANE	<180	ug/Kgdrywt	35	180	5
BROMODICHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
CIS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
TOLUENE	<180	ug/Kgdrywt	35	180	5
TRANS-1,3-DICHLOROPROPENE	<180	ug/Kgdrywt	35	180	5
1,1,2-TRICHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,3-DICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
DIBROMOCHLOROMETHANE	<180	ug/Kgdrywt	35	180	5
TETRACHLOROETHENE	<180	ug/Kgdrywt	35	180	5
1,2-DIBROMOETHANE	<180	ug/Kgdrywt	35	180	5
CHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
1,1,1,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	35	180	5

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-10
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-4	SL	4/29/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
BROMOFORM	<180	ug/Kgdrywt	35	180	5
STYRENE	<180	ug/Kgdrywt	35	180	5
1,1,2,2-TETRACHLOROETHANE	<180	ug/Kgdrywt	35	180	5
1,2,3-TRICHLOROPROPANE	<180	ug/Kgdrywt	35	180	5
ISOPROPYLBENZENE	<180	ug/Kgdrywt	35	180	5
BROMOBENZENE	<180	ug/Kgdrywt	35	180	5
2-CHLOROTOLUENE	<180	ug/Kgdrywt	35	180	5
N-PROPYLBENZENE	<180	ug/Kgdrywt	35	180	5
4-CHLOROTOLUENE	<180	ug/Kgdrywt	35	180	5
1,3,5-TRIMETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
TERT-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,2,4-TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
SEC-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,3-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
P-ISOPROPYLTOLUENE	<180	ug/Kgdrywt	35	180	5
1,4-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
N-BUTYLBENZENE	<180	ug/Kgdrywt	35	180	5
1,2-DIBROMO-3-CHLOROPROPAN	<180	ug/Kgdrywt	35	180	5
1,2,4-TRIMETHYLBENZENE	<180	ug/Kgdrywt	35	180	5
NAPHTHALENE	<180	ug/Kgdrywt	35	180	5
HEXACHLOROBUTADIENE	<180	ug/Kgdrywt	35	180	5
1,2,3-TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
MTBE	<180	ug/Kgdrywt	35	180	5
ACETONE	J180	ug/Kgdrywt	35	350	10
2-BUTANONE	<350	ug/Kgdrywt	35	350	10
4-METHYL-2-PENTANONE	<350	ug/Kgdrywt	35	350	10
2-HEXANONE	<350	ug/Kgdrywt	35	350	10
M+P-XYLENE	<180	ug/Kgdrywt	35	180	5
O-XYLENE	<180	ug/Kgdrywt	35	180	5
1,3,5 TRICHLOROBENZENE	<180	ug/Kgdrywt	35	180	5
VINYL ACETATE	<180	ug/Kgdrywt	35	180	5.0

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-10
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-4	SL	4/29/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<180	ug/Kgdrywt	35	180	5
DIETHYL ETHER	<180	ug/Kgdrywt	35	180	5
TETRAHYDROFURAN	<350	ug/Kgdrywt	35	350	10
DIBROMOFLUOROMETHANE	105	%	35		
1,2-DICHLOROETHANE-D4	107	%	35		
TOLUENE-D8	102	%	35		
P-BROMOFLUOROBENZENE	105	%	35		

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-11
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 88
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-5	SL	4/30/99	5/4/99	5/3/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<200	ug/Kgdrywt	39	200	5
CHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
VINYL CHLORIDE	<390	ug/Kgdrywt	39	390	10
BROMOMETHANE	<200	ug/Kgdrywt	39	200	5
CHLOROETHANE	<200	ug/Kgdrywt	39	200	5
TRICHLOROFLUOROMETHANE	<200	ug/Kgdrywt	39	200	5
1,1-DICHLOROETHENE	<200	ug/Kgdrywt	39	200	5
METHYLENE CHLORIDE	J130	ug/Kgdrywt	39	200	5
1,2-DICHLOROETHENE (TRANS)	<200	ug/Kgdrywt	39	200	5
,1-DICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROETHENE (CIS)	<200	ug/Kgdrywt	39	200	5
2,2-DICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
CHLOROFORM	<200	ug/Kgdrywt	39	200	5
BROMOCHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
1,1,1-TRICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,1-DICHLOROPROPENE	<200	ug/Kgdrywt	39	200	5
CARBON TETRACHLORIDE	<200	ug/Kgdrywt	39	200	5
BENZENE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
TRICHLOROETHENE	<200	ug/Kgdrywt	39	200	5
DIBROMOMETHANE	<200	ug/Kgdrywt	39	200	5
BROMODICHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
CIS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	39	200	5
TOLUENE	<200	ug/Kgdrywt	39	200	5
TRANS-1,3-DICHLOROPROPENE	<200	ug/Kgdrywt	39	200	5
1,1,2-TRICHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,3-DICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
DIBROMOCHLOROMETHANE	<200	ug/Kgdrywt	39	200	5
TETRACHLOROETHENE	<200	ug/Kgdrywt	39	200	5
1,2-DIBROMOETHANE	<200	ug/Kgdrywt	39	200	5
CHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
1,1,1,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	39	200	5

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-11
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 88
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-5	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<200	ug/Kgdrywt	39	200	5
BROMOFORM	<200	ug/Kgdrywt	39	200	5
STYRENE	<200	ug/Kgdrywt	39	200	5
1,1,2,2-TETRACHLOROETHANE	<200	ug/Kgdrywt	39	200	5
1,2,3-TRICHLOROPROPANE	<200	ug/Kgdrywt	39	200	5
ISOPROPYLBENZENE	<200	ug/Kgdrywt	39	200	5
BROMOBENZENE	<200	ug/Kgdrywt	39	200	5
2-CHLOROTOLUENE	<200	ug/Kgdrywt	39	200	5
N-PROPYLBENZENE	<200	ug/Kgdrywt	39	200	5
4-CHLOROTOLUENE	<200	ug/Kgdrywt	39	200	5
1,3,5-TRIMETHYLBENZENE	<200	ug/Kgdrywt	39	200	5
TERT-BUTYLBENZENE	<200	ug/Kgdrywt	39	200	5
1,2,4-TRICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
SEC-BUTYLBENZENE	<200	ug/Kgdrywt	39	200	5
1,3-DICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
P-ISOPROPYLTOLUENE	<200	ug/Kgdrywt	39	200	5
1,4-DICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
1,2-DICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
N-BUTYLBENZENE	<200	ug/Kgdrywt	39	200	5
1,2-DIBROMO-3-CHLOROPROPAN	<200	ug/Kgdrywt	39	200	5
1,2,4-TRIMETHYLBENZENE	<200	ug/Kgdrywt	39	200	5
NAPHTHALENE	<200	ug/Kgdrywt	39	200	5
HEXACHLOROBUTADIENE	<200	ug/Kgdrywt	39	200	5
1,2,3-TRICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
MTBE	<200	ug/Kgdrywt	39	200	5
ACETONE	J280	ug/Kgdrywt	39	390	10
2-BUTANONE	<390	ug/Kgdrywt	39	390	10
4-METHYL-2-PENTANONE	<390	ug/Kgdrywt	39	390	10
2-HEXANONE	<390	ug/Kgdrywt	39	390	10
M+P-XYLENE	<200	ug/Kgdrywt	39	200	5
O-XYLENE	<200	ug/Kgdrywt	39	200	5
1,3,5 TRICHLOROBENZENE	<200	ug/Kgdrywt	39	200	5
VINYL ACETATE	<200	ug/Kgdrywt	39	200	5.0

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-11
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 88
Method: SW8260
Date Analyzed: 5/8/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-5	SL	4/30/99	5/4/99	5/8/99	HMP	5035	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<200	ug/Kgdrywt	39	200	5
DIETHYL ETHER	<200	ug/Kgdrywt	39	200	5
TETRAHYDROFURAN	<390	ug/Kgdrywt	39	390	10
DIBROMOFLUOROMETHANE	107	%	39		
1,2-DICHLOROETHANE-D4	108	%	39		
TOLUENE-D8	102	%	39		
P-BROMOFLUOROBENZENE	102	%	39		

Report Notes: J

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-22
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: N/A
Method: SW8260
Date Analyzed: 5/11/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
TRIP BLANK	AQ	4/28/99	5/4/99	5/11/99	HMP	5030	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
DICHLORODIFLUOROMETHANE	<250	ug/L	50	250	5
CHLOROMETHANE	<250	ug/L	50	250	5
VINYL CHLORIDE	<100	ug/L	50	100	2
BROMOMETHANE	<250	ug/L	50	250	5
CHLOROETHANE	<250	ug/L	50	250	5
TRICHLOROFLUOROMETHANE	<250	ug/L	50	250	5
1,1-DICHLOROETHENE	<250	ug/L	50	250	5
METHYLENE CHLORIDE	<250	ug/L	50	250	5
1,2-DICHLOROETHENE (TRANS)	<250	ug/L	50	250	5
1,1-DICHLOROETHANE	<250	ug/L	50	250	5
1,2-DICHLOROETHENE (CIS)	<250	ug/L	50	250	5
2,2-DICHLOROPROPANE	<250	ug/L	50	250	5
CHLOROFORM	<250	ug/L	50	250	5
BROMOCHLOROMETHANE	<250	ug/L	50	250	5
1,1,1-TRICHLOROETHANE	<250	ug/L	50	250	5
1,2-DICHLOROETHANE	<250	ug/L	50	250	5
1,1-DICHLOROPROPENE	<250	ug/L	50	250	5
CARBON TETRACHLORIDE	<250	ug/L	50	250	5
BENZENE	<250	ug/L	50	250	5
1,2-DICHLOROPROPANE	<250	ug/L	50	250	5
TRICHLOROETHENE	<250	ug/L	50	250	5
DIBROMOMETHANE	<250	ug/L	50	250	5
BROMODICHLOROMETHANE	<250	ug/L	50	250	5
CIS-1,3-DICHLOROPROPENE	<250	ug/L	50	250	5
TOLUENE	<250	ug/L	50	250	5
TRANS-1,3-DICHLOROPROPENE	<250	ug/L	50	250	5
1,1,2-TRICHLOROETHANE	<250	ug/L	50	250	5
1,3-DICHLOROPROPANE	<250	ug/L	50	250	5
DIBROMOCHLOROMETHANE	<250	ug/L	50	250	5
TETRACHLOROETHENE	<250	ug/L	50	250	5
1,2-DIBROMOETHANE	<250	ug/L	50	250	5
CHLOROBENZENE	<250	ug/L	50	250	5
1,1,1,2-TETRACHLOROETHANE	<250	ug/L	50	250	5

Report Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-22
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: N/A
Method: SW8260
Date Analyzed: 5/11/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
TRIP BLANK	AQ	4/28/99	5/4/99	5/11/99	HMP	5030	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
ETHYLBENZENE	<250	ug/L	50	250	5
BROMOFORM	<250	ug/L	50	250	5
STYRENE	<250	ug/L	50	250	5
1,1,2,2-TETRACHLOROETHANE	<250	ug/L	50	250	5
1,2,3-TRICHLOROPROPANE	<250	ug/L	50	250	5
ISOPROPYLBENZENE	<250	ug/L	50	250	5
BROMOBENZENE	<250	ug/L	50	250	5
2-CHLOROTOLUENE	<250	ug/L	50	250	5
N-PROPYLBENZENE	<250	ug/L	50	250	5
4-CHLOROTOLUENE	<250	ug/L	50	250	5
1,3,5-TRIMETHYLBENZENE	<250	ug/L	50	250	5
TERT-BUTYLBENZENE	<250	ug/L	50	250	5
1,2,4-TRICHLOROBENZENE	<250	ug/L	50	250	5
SEC-BUTYLBENZENE	<250	ug/L	50	250	5
1,3-DICHLOROBENZENE	<250	ug/L	50	250	5
P-ISOPROPYLTOLUENE	<250	ug/L	50	250	5
1,4-DICHLOROBENZENE	<250	ug/L	50	250	5
1,2-DICHLOROBENZENE	<250	ug/L	50	250	5
N-BUTYLBENZENE	<250	ug/L	50	250	5
1,2-DIBROMO-3-CHLOROPROPAN	<250	ug/L	50	250	5
1,2,4-TRIMETHYLBENZENE	<250	ug/L	50	250	5
NAPHTHALENE	<250	ug/L	50	250	5
HEXACHLOROBUTADIENE	<250	ug/L	50	250	5
1,2,3-TRICHLOROBENZENE	<250	ug/L	50	250	5
MTBE	<250	ug/L	50	250	5
ACETONE	<500	ug/L	50	500	10
2-BUTANONE	<500	ug/L	50	500	10
4-METHYL-2-PENTANONE	<500	ug/L	50	500	10
2-HEXANONE	<500	ug/L	50	500	10
M+P-XYLENE	<250	ug/L	50	250	5
O-XYLENE	<250	ug/L	50	250	5
1,3,5 TRICHLOROBENZENE	<250	ug/L	50	250	5
VINYL ACETATE	<250	ug/L	50	250	5.0

Report Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-22
SDG: WP2273
Report Date: 5/22/99
PO No. : 67003
Project: WARWICK,RI
% Solids: N/A
Method: SW8260
Date Analyzed: 5/11/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
TRIP BLANK	AQ	4/28/99	5/4/99	5/11/99	HMP	5030	HMP

Compound	Result	Units	DF	Sample PQL	Method PQL
CARBON DISULFIDE	<250	ug/L	50	250	5
DIETHYL ETHER	<250	ug/L	50	250	5
TETRAHYDROFURAN	<500	ug/L	50	500	10
DIBROMOFLUOROMETHANE	104	%	50		
1,2-DICHLOROETHANE-D4	100	%	50		
TOLUENE-D8	109	%	50		
P-BROMOFLUOROBENZENE	109	%	50		

Report Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-1
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-1	SL	4/28/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	<360	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	<360	ug/Kg	1.1	360	330
PYRENE	<360	ug/Kg	1.1	360	330
ENZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	78	%	1.1		
2-FLUOROBIPHENYL	79	%	1.1		
TERPHENYL-D14	74	%	1.1		

eport Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-2
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 94
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-2	SL	4/28/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
BENZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
CHRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZ[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	76	%	1.0		
2-FLUOROBIPHENYL	72	%	1.0		
TERPHENYL-D14	72	%	1.0		

Report Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-3
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 92
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-3	SL	4/28/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	<360	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	<360	ug/Kg	1.1	360	330
PYRENE	<360	ug/Kg	1.1	360	330
NZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	86	%	1.1		
2-FLUOROBIPHENYL	83	%	1.1		
TERPHENYL-D14	84	%	1.1		

Report Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-4
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 96
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-4	SL	4/28/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
BENZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
CHRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZ[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	78	%	1.0		
2-FLUOROBIPHENYL	73	%	1.0		
TERPHENYL-D14	72	%	1.0		

Report Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-5
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5	SL	4/28/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	<360	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	<360	ug/Kg	1.1	360	330
PYRENE	<360	ug/Kg	1.1	360	330
:NZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	80	%	1.1		
2-FLUOROBIPHENYL	74	%	1.1		
TERPHENYL-D14	101	%	1.1		

:port Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-6
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 93
Method: EPA 8270
Date Analyzed: 5/28/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
12K/S-5D	SL	4/28/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	<360	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	<360	ug/Kg	1.1	360	330
PYRENE	<360	ug/Kg	1.1	360	330
BENZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	68	%	1.1		
2-FLUOROBIPHENYL	68	%	1.1		
TERPHENYL-D14	66	%	1.1		

Report Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number:	WP2273-7
SDG:	WP2273
Report Date:	6/2/99
PO No. :	67003
Project:	WARWICK,RI
% Solids:	87
Method:	EPA 8270
Date Analyzed:	5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-1	SL	4/30/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<400	ug/Kg	1.2	400	330
2-METHYLNAPHTHALENE	<400	ug/Kg	1.2	400	330
ACENAPHTHYLENE	<400	ug/Kg	1.2	400	330
ACENAPHTHENE	<400	ug/Kg	1.2	400	330
FLUORENE	<400	ug/Kg	1.2	400	330
PHENANTHRENE	<400	ug/Kg	1.2	400	330
ANTHRACENE	<400	ug/Kg	1.2	400	330
FLUORANTHENE	J230	ug/Kg	1.2	400	330
PYRENE	J250	ug/Kg	1.2	400	330
NZO[A]ANTHRACENE	<400	ug/Kg	1.2	400	330
CHRYSENE	<400	ug/Kg	1.2	400	330
BENZO[B]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[K]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[A]PYRENE	<400	ug/Kg	1.2	400	330
INDENO[1,2,3-CD]PYRENE	<400	ug/Kg	1.2	400	330
DIBENZ[A,H]ANTHRACENE	<400	ug/Kg	1.2	400	330
BENZO[G,H,I]PERYLENE	<400	ug/Kg	1.2	400	330
NITROBENZENE-D5	75	%	1.2		
2-FLUOROBIPHENYL	79	%	1.2		
TERPHENYL-D14	93	%	1.2		

port Notes: J, O-13

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KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-7RA
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 87
Method: EPA 8270
Date Analyzed: 5/28/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-1	SL	4/30/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<400	ug/Kg	1.2	400	330
2-METHYLNAPHTHALENE	<400	ug/Kg	1.2	400	330
ACENAPHTHYLENE	<400	ug/Kg	1.2	400	330
ACENAPHTHENE	<400	ug/Kg	1.2	400	330
FLUORENE	<400	ug/Kg	1.2	400	330
PHENANTHRENE	<400	ug/Kg	1.2	400	330
ANTHRACENE	<400	ug/Kg	1.2	400	330
FLUORANTHENE	<400	ug/Kg	1.2	400	330
PYRENE	J230	ug/Kg	1.2	400	330
BENZO[A]ANTHRACENE	<400	ug/Kg	1.2	400	330
CHRYSENE	<400	ug/Kg	1.2	400	330
BENZO[B]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[K]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[A]PYRENE	<400	ug/Kg	1.2	400	330
INDENO[1,2,3-CD]PYRENE	<400	ug/Kg	1.2	400	330
DIBENZ[A,H]ANTHRACENE	<400	ug/Kg	1.2	400	330
BENZO[G,H,I]PERYLENE	<400	ug/Kg	1.2	400	330
NITROBENZENE-D5	65	%	1.2		
2-FLUOROBIPHENYL	66	%	1.2		
TERPHENYL-D14	75	%	1.2		

Report Notes: J, O-13

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-8
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: EPA 8270
Date Analyzed: 5/28/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-2	SL	4/30/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
:NZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
CHRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZ[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	78	%	1.0		
2-FLUOROBIPHENYL	82	%	1.0		
TERPHENYL-D14	96	%	1.0		

:port Notes:

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-9
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 85
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-3	SL	4/29/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<400	ug/Kg	1.2	400	330
2-METHYLNAPHTHALENE	<400	ug/Kg	1.2	400	330
ACENAPHTHYLENE	<400	ug/Kg	1.2	400	330
ACENAPHTHENE	<400	ug/Kg	1.2	400	330
FLUORENE	<400	ug/Kg	1.2	400	330
PHENANTHRENE	<400	ug/Kg	1.2	400	330
ANTHRACENE	<400	ug/Kg	1.2	400	330
FLUORANTHENE	<400	ug/Kg	1.2	400	330
PYRENE	<400	ug/Kg	1.2	400	330
BENZO[A]ANTHRACENE	<400	ug/Kg	1.2	400	330
CHRYSENE	<400	ug/Kg	1.2	400	330
BENZO[B]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[K]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[A]PYRENE	<400	ug/Kg	1.2	400	330
INDENO[1,2,3-CD]PYRENE	<400	ug/Kg	1.2	400	330
DIBENZ[A,H]ANTHRACENE	<400	ug/Kg	1.2	400	330
BENZO[G,H,I]PERYLENE	<400	ug/Kg	1.2	400	330
NITROBENZENE-D5	81	%	1.2		
2-FLUOROBIPHENYL	83	%	1.2		
TERPHENYL-D14	95	%	1.2		

Report Notes: O-13

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-9RA
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 85
Method: EPA 8270
Date Analyzed: 5/28/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-3	SL	4/29/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<400	ug/Kg	1.2	400	330
2-METHYLNAPHTHALENE	<400	ug/Kg	1.2	400	330
ACENAPHTHYLENE	<400	ug/Kg	1.2	400	330
ACENAPHTHENE	<400	ug/Kg	1.2	400	330
FLUORENE	<400	ug/Kg	1.2	400	330
PHENANTHRENE	<400	ug/Kg	1.2	400	330
ANTHRACENE	<400	ug/Kg	1.2	400	330
FLUORANTHENE	<400	ug/Kg	1.2	400	330
PYRENE	<400	ug/Kg	1.2	400	330
ENZO[A]ANTHRACENE	<400	ug/Kg	1.2	400	330
CHRYSENE	<400	ug/Kg	1.2	400	330
BENZO[B]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[K]FLUORANTHENE	<400	ug/Kg	1.2	400	330
BENZO[A]PYRENE	<400	ug/Kg	1.2	400	330
INDENO[1,2,3-CD]PYRENE	<400	ug/Kg	1.2	400	330
DIBENZ[A,H]ANTHRACENE	<400	ug/Kg	1.2	400	330
BENZO[G,H,I]PERYLENE	<400	ug/Kg	1.2	400	330
NITROBENZENE-D5	72	%	1.2		
2-FLUOROBIPHENYL	78	%	1.2		
TERPHENYL-D14	98	%	1.2		

eport Notes: O-13

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-10
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-4	SL	4/29/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
BENZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
CHRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZ[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	80	%	1.0		
2-FLUOROBIPHENYL	79	%	1.0		
TERPHENYL-D14	93	%	1.0		

Report Notes: O-13

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-10RA
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 95
Method: EPA 8270
Date Analyzed: 5/28/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-4	SL	4/29/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<330	ug/Kg	1.0	330	330
2-METHYLNAPHTHALENE	<330	ug/Kg	1.0	330	330
ACENAPHTHYLENE	<330	ug/Kg	1.0	330	330
ACENAPHTHENE	<330	ug/Kg	1.0	330	330
FLUORENE	<330	ug/Kg	1.0	330	330
PHENANTHRENE	<330	ug/Kg	1.0	330	330
ANTHRACENE	<330	ug/Kg	1.0	330	330
FLUORANTHENE	<330	ug/Kg	1.0	330	330
PYRENE	<330	ug/Kg	1.0	330	330
ENZO[A]ANTHRACENE	<330	ug/Kg	1.0	330	330
CHRYSENE	<330	ug/Kg	1.0	330	330
BENZO[B]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[K]FLUORANTHENE	<330	ug/Kg	1.0	330	330
BENZO[A]PYRENE	<330	ug/Kg	1.0	330	330
INDENO[1,2,3-CD]PYRENE	<330	ug/Kg	1.0	330	330
DIBENZ[A,H]ANTHRACENE	<330	ug/Kg	1.0	330	330
BENZO[G,H,I]PERYLENE	<330	ug/Kg	1.0	330	330
NITROBENZENE-D5	67	%	1.0		
2-FLUOROBIPHENYL	71	%	1.0		
TERPHENYL-D14	72	%	1.0		

port Notes: O-13

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KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-11
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 88
Method: EPA 8270
Date Analyzed: 5/27/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-5	SL	4/30/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	J200	ug/Kg	1.1	360	330
PHENANTHRENE	470	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	J320	ug/Kg	1.1	360	330
PYRENE	800	ug/Kg	1.1	360	330
BENZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	J220	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	79	%	1.1		
2-FLUOROBIPHENYL	85	%	1.1		
TERPHENYL-D14	107	%	1.1		

Report Notes: J, O-13

KATAHDIN ANALYTICAL SERVICES
REPORT OF ANALYTICAL RESULTS

Client: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE
SUITE 204
METHUEN, MA 01844

Proj. ID:

Lab Number: WP2273-11RA
SDG: WP2273
Report Date: 6/2/99
PO No. : 67003
Project: WARWICK,RI
% Solids: 88
Method: EPA 8270
Date Analyzed: 5/28/99

Sample Description	Matrix	Sampled Date	Rec'd Date	Ext. Date	Ext'd By	Ext. Method	Analyst
1K/S-5	SL	4/30/99	5/4/99	5/11/99	DAS	SW3540	SW

Compound	Result	Units	DF	Sample PQL	Method PQL
NAPHTHALENE	<360	ug/Kg	1.1	360	330
2-METHYLNAPHTHALENE	<360	ug/Kg	1.1	360	330
ACENAPHTHYLENE	<360	ug/Kg	1.1	360	330
ACENAPHTHENE	<360	ug/Kg	1.1	360	330
FLUORENE	<360	ug/Kg	1.1	360	330
PHENANTHRENE	430	ug/Kg	1.1	360	330
ANTHRACENE	<360	ug/Kg	1.1	360	330
FLUORANTHENE	J340	ug/Kg	1.1	360	330
PYRENE	740	ug/Kg	1.1	360	330
NZO[A]ANTHRACENE	<360	ug/Kg	1.1	360	330
CHRYSENE	<360	ug/Kg	1.1	360	330
BENZO[B]FLUORANTHENE	J200	ug/Kg	1.1	360	330
BENZO[K]FLUORANTHENE	<360	ug/Kg	1.1	360	330
BENZO[A]PYRENE	<360	ug/Kg	1.1	360	330
INDENO[1,2,3-CD]PYRENE	<360	ug/Kg	1.1	360	330
DIBENZ[A,H]ANTHRACENE	<360	ug/Kg	1.1	360	330
BENZO[G,H,I]PERYLENE	<360	ug/Kg	1.1	360	330
NITROBENZENE-D5	75	%	1.1		
2-FLUOROBIPHENYL	82	%	1.1		
TERPHENYL-D14	101	%	1.1		

Report Notes: J, O-13

Katahdin
ANALYTICAL SERVICES

Lab Number : WP-2273-1
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
12K/S-1	Solid	S.HARDING	04/28/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								1
Total Petroleum Hydrocarbons	23.	mg/kgdrywt	1.1	5	SW8015M	05/22/99	JG	
o-Terphenyl	96.	%	1.1		SW8015M	05/22/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

340 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 874-2400 Fax: (207) 775-4029

http://katahdinlab.com

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

Katahdin
ANALYTICAL SERVICES

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

Lab Number : WP-2273-2
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
12K/S-2	Solid	S.HARDING	04/28/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								
Total Petroleum Hydrocarbons	<5.	mg/kgdrywt	1.0	5	SW8015M	05/18/99	JG	1
o-Terphenyl	93.	%	1.0		SW8015M	05/18/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

340 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
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210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

LJO/mrcajc(dw)
PE21ICW0

Katahdin
ANALYTICAL SERVICES

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

Lab Number : WP-2273-3
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
12K/S-3	Solid	S.HARDING	04/28/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								1,2
Total Petroleum Hydrocarbons	170.	mg/kgdrywt	3.3	5	SW8015M	05/19/99	JG	
o-Terphenyl	115.	%	3.3		SW8015M	05/19/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS
(2) Sample dilution required for quantitation of one or more target analytes; therefore, standard laboratory Practical Quantitation Level (PQL) could not be achieved.

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

Lab Number : WP-2273-4
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
12K/S-4	Solid	S.HARDING	04/28/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								
Total Petroleum Hydrocarbons	10.	mg/kgdrywt	1.2	5	SW8015M	05/19/99	JG	1
o-Terphenyl	84.	%	1.2		SW8015M	05/19/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

Lab Number : WP-2273-5
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
12K/S-5	Solid	S.HARDING	04/28/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								1
Total Petroleum Hydrocarbons	<5.5	mg/kgdrywt	1.1	5	SW8015M	05/18/99	JG	
o-Terphenyl	88.	%	1.1		SW8015M	05/18/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

Lab Number : WP-2273-6
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
12K/S-5D	Solid	S.HARDING	04/28/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								
Total Petroleum Hydrocarbons	<5.5	mg/kgdrywt	1.1	5	SW8015M	05/18/99	JG	1
o-Terphenyl	86.	%	1.1		SW8015M	05/18/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

Lab Number : WP-2273-7
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
1K/S-1	Solid	S.HARDING	04/30/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								1
Total Petroleum Hydrocarbons	52.	mg/kgdrywt	1.0	5	SW8015M	05/20/99	JG	
o-Terphenyl	92.	%	1.0		SW8015M	05/20/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbkgt/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

Lab Number : WP-2273-8
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
1K/S-2	Solid	S.HARDING	04/30/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								1
Total Petroleum Hydrocarbons	<5.	mg/kgdrywt	1.0	5	SW8015M	05/18/99	JG	
o-Terphenyl	90.	%	1.0		SW8015M	05/18/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

Lab Number : WP-2273-9
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
1K/S-3	Solid	S.HARDING	04/29/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								1
Total Petroleum Hydrocarbons	18.	mg/kgdrywt	1.1	5	SW8015M	05/19/99	JG	
o-Terphenyl	99.	%	1.1		SW8015M	05/19/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

Lab Number : WP-2273-10
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
1K/S-4	Solid	S.HARDING	04/29/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								
Total Petroleum Hydrocarbons	9.3	mg/kgdrywt	1.1	5	SW8015M	05/19/99	JG	1
o-Terphenyl	95.	%	1.1		SW8015M	05/19/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

Katahdin
ANALYTICAL SERVICES

Lab Number : WP-2273-11
Report Date: 06/04/99
PO No. : 67003
Project : WARWICK,RI

CLIENT: SCOTT HARDING
NOBIS ENGINEERING
1 GRIFFIN BROOK DRIVE, SUITE 204
METHUEN, MA 01844

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
1K/S-5	Solid	S.HARDING	04/30/99	05/04/99

PARAMETER	RESULT	UNITS	DF	*PQL	METHOD	ANALYZED	BY	NOTES
Total Petroleum Hydrocarbons								1,2,3
Total Petroleum Hydrocarbons	470.	mg/kgdrywt	11	5	SW8015M	05/21/99	JG	
o-Terphenyl	DL	%	11		SW8015M	05/21/99	JG	

* PQL (Practical Quantitation Level) represents laboratory reporting limits and may not reflect sample-specific reporting limits. Sample-specific limits are indicated by results annotated with '<' values.
(1) Sample Preparation on 05/10/99 by DAS
(2) Sample dilution required for quantitation of one or more target analytes; therefore, standard laboratory Practical Quantitation Level (PQL) could not be achieved.
(3) "DL" flag denotes inability to calculate surrogate recovery due to sample dilution.

06/04/99

LJO/jcbjcg/kp(dw)
PE10FOS3

340 County Road No. 5
P.O. Box 720, Westbrook, ME 04098
Tel: (207) 874-2400 Fax: (207) 775-4029

http://katahdinlab.com

210 West Road No. 5, Portsmouth, NH 03801
Tel: (603) 431-5777 Fax: (603) 436-3356

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767 TDD 401-831-5508

CERTIFIED MAIL

VOLUNTARY PROCEDURE LETTER June 7, 2001
CASE # 2001-038

Maurice Beaudoin, P.E.
Resident Engineer,
US Army Corps of Engineers
New Bedford Resident Office
103 Sawyer Street
New Bedford, MA 02746-2448

RE: US Army Reserve Center
Property at 885 Sandy Lane, Warwick R.I.

Dear Mr. Beaudoin:

On 4 September 1996 the Rhode Island Department of Environmental Management (the Department) enacted the amended Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in an efficient manner. A Voluntary Procedure Letter (VPL) is a preliminary document used by the Department to codify and define the relationship between the Department and a Performing Party under the Regulations. A Performing Party may be a Responsible Party, a voluntary party, or any Bona Fide Prospective Purchaser.

In the matter of the above referenced site, the Department has on file the following document submitted on behalf of Department of the Army:

1. **Notification Letter from M. Beaudoin, Resident Engineer** to RIDEM's L. Grandchamp received May 24, 2001 for the property at 885 Sandy Lane in Warwick, Rhode Island.

2. This notification and discussions with staff document a disposal site in which jurisdictional hazardous substances in the fill material were discovered at concentrations that exceed Department's Industrial/Commercial Direct Exposure Criteria for Inorganic Metals (Metals). Based on the presence of these hazardous substances, the Department has concluded that a **release** of **hazardous materials** has occurred, as defined by Rules 3.54, 3.28 and 3.62 respectively of the Remediation Regulations.

The Department requests that the **US Army Corps of Engineers** conduct and complete a Site Investigation Report (SIR) with proposed Remedial Alternatives in accordance with Section 7.0 of the Remediation Regulations. Also, please notify all of the abutting property owners in accordance with Rule 7.07. Upon completion of the Public Notification to abutters, provide a copy of each written notification to the Department. Upon review and approval of the SIR and Public Notice, the Department will then issue the Remedial Decision Letter (RDL).

In addition, it is the Department's understanding that any proposed remedial alternative for the site (short of cleaning up the entire site to residential soil criteria and GB groundwater compliance) will involve the recording an Environmental Land Usage Restriction (ELUR) in the Land Evidence records for the City of Warwick which identifies the restrictions and the areas of each parcel where the restrictions are applicable.

As the Performing Party, the **US Army Corps of Engineers** will be responsible for properly conducting the above-listed activities.

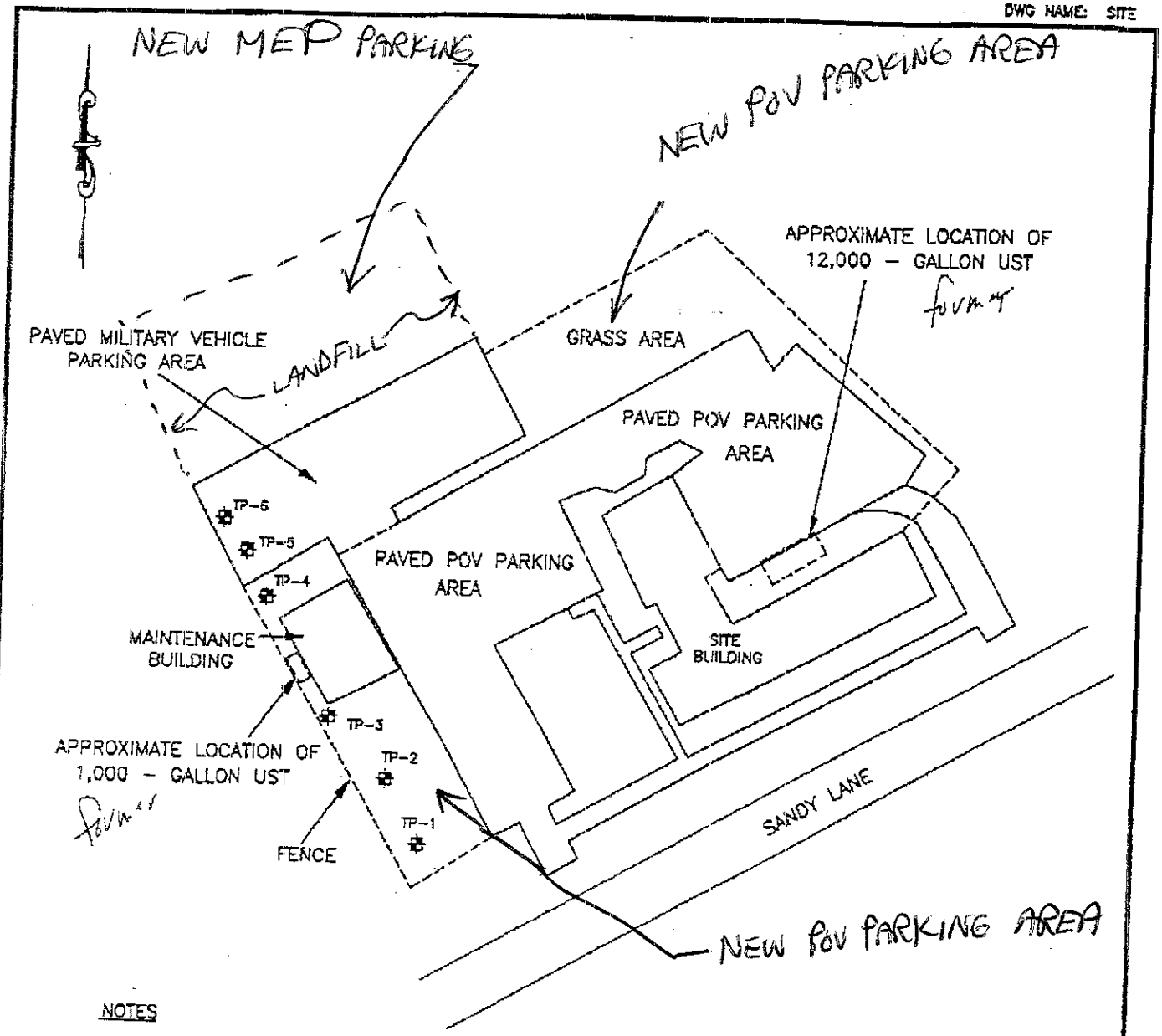
Please notify this office of your plans to address these items. If you have any questions regarding this letter, please contact me at my office at (401) 222-2797 (x7102).

Sincerely,

Jeffrey Crawford, Principal Environmental Scientist
Office of Waste Management
Department of Environmental Management

cc: Leo Hellested, P.E., Chief, RIDEM/OWM
Garry Waldeck, RIDEM/OWM
John Langlois, Esq., RIDEM/OLS
Angela Shulman, RIDEM/OWM
Matt DeStefano, RIDEM Federal Facilities

DWG NAME: SITE



NOTES

1. THIS SITE SKETCH WAS DEVELOPED FROM A SITE PLAN SUPPLIED BY THE USACE AND SITE OBSERVATIONS BY NOBIS ENGINEERING, INC.
2. LOCATIONS OF SITE FEATURES DEPICTED HEREON ARE APPROXIMATE AND GIVEN FOR ILLUSTRATIVE PURPOSES ONLY.

TP–1 APPROXIMATE LOCATION OF TEST PITS

Nobis Engineering, Inc.
1 Griffin Brook Drive
Methuen, MA 01844
Tel (978) 683-0891
Fax (978) 683-0966

FIGURE 2

SITE PLAN
LLOYD COOPER U.S. ARMY RESESRVE CENTER
885 SANDY LANE
WARWICK, RHODE ISLAND

PROJECT 67003 | OCTOBER 1999

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List of Appendices

1.00 FINDINGS AND POLICY

1.01 **Authority**: Under the authority of the Rhode Island General Laws, Chapter 42-35, Chapter 23-19.1, Chapter 23-19.14, Chapter 42-17.1-2, Chapter 46-12 and Chapter 46-13.1, particularly Sections 23-19.1-6, 23-19.1-10.3, 23-19.1-11.1, 46-12-3, and 46-12-5 of those Laws, the following rules and regulations are promulgated to administer these chapters for the investigation and remediation of contamination resulting from the unpermitted release of hazardous material, and shall be construed to be consistent with other Departmental regulations and the regulations of federal agencies.

1.02 **Legislative Intent and Policy**: The declaration of intent and public policy enumerated by the Legislature in Chapter 23-19.1, Chapter 23-19.14, Chapter 46-12 and Chapter 46-13.1-2, as amended, are hereby adopted as the administrative findings and policy upon which these rules and regulations are based.

These findings recognize and declare that it is the policy of the State not to allow the unpermitted introduction of pollutants into the environment of the State. It is also the policy of the State that the environment shall be restored, to the extent practicable, to a quality consistent with its beneficial uses.

The Department has determined that contaminated sites exist in the State which pose a direct and/or potential threat to human health and the environment. Furthermore, the contamination is often an obstacle to redevelopment due to the liability relating to the contaminated sites as a result of the fact that financial institutions are often cautious or unwilling to lend to businesses who wish to expand at or relocate to areas that have or are suspected to have contamination. The remediation and control of these contaminated sites will clear the way for re-use and redevelopment and will reduce the artificial economic incentive to develop previously undisturbed natural resources.

The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in a timely and cost-effective manner. To ensure consistency and certainty in the process, clean up objectives for soil and groundwater have been developed to manage the risks to human health and the environment, and are to be applied in a manner consistent with the current and reasonably expected future use of the contaminated property.

It has been and shall be the policy of the State to require performing parties to investigate, evaluate and remediate both existing and new unpermitted sources of pollutants which will or may likely adversely affect human health or impact the waters, including groundwater, of the State.

1.03 **Functions**: The primary functions of the Department pursuant to these rules and regulations are to regulate the investigation and remediation of contamination resulting

from releases of hazardous materials; the granting, denial, suspension or revocation of approvals and permits for remediation of that contamination; and the granting, denial, suspension, revocation or approval of the plans and specifications for the installation of any equipment for such remediation.

These regulations are intended to minimize environmental hazards resulting from the unpermitted release of hazardous materials. These regulations are not designed to address aesthetic considerations after risk-based remediation is complete. To the extent that nuisance conditions persist after human health and environmental risks have been eliminated, any disputes concerning these nuisance issues will continue to be addressed through other appropriate legal venues.

2.00 ORGANIZATION AND METHOD OF OPERATIONS

2.01 **Organization**: Section 42-17.1-2 of the Rhode Island General Laws (R.I.G.L.), as amended, provides the Director of the Department of Environmental Management with the powers and duties to exercise all functions, powers and duties vested by Chapters 1-22 in Title 46 of the R.I.G.L. and Chapter 19.1 in Title 23 of the R.I.G.L., and requires the Director to issue and enforce such rules, regulations and orders as may be necessary to carry out the duties assigned.

The Director is also charged with the protection of the environment from the effects of improper, inadequate or unsound management of hazardous waste which may pose a threat to public health and safety, and is the trustee for the natural resources of the State.

Section 46-12-3 of the R.I.G.L. empowers the Director to develop comprehensive programs for the prevention, control and abatement of new or existing pollution of the waters of the State and to make, issue, amend and revoke rules and regulations for the prevention, control and abatement of such pollution. Section 46-12-5 prevents the unpermitted or unapproved placement of a pollutant in any location where it may enter the waters of the State and prevents the unpermitted discharge of any pollutant into those waters. Section 46-12-28 includes groundwater as waters of the state and protects groundwater from the unapproved and unpermitted in-ground or surface discharge or disposal of industrial or commercial pollutants.

Section 23-19.1-10 of the 1956 R.I.G.L., as amended, established the Department of Environmental Management as the permitting agency for hazardous waste management facilities and hazardous waste treatment processes and operations. Section 23-19.1-6 grants the Director the authority to establish rules and regulations to protect the health and safety of the public and the environment from the effects of improper hazardous waste management.

2.02 **Operation and Enforcement:** The Department's Division of Site Remediation or its organizational successor within the Department is the lead State office for reviewing and approving response actions pursuant to these regulations.

When the Division becomes aware of an actual or potential release of hazardous materials, it may inspect and/or investigate the subject area in order to determine its compliance status and the necessity for response actions. For cases which have the potential for a release, such as an abandonment of containers of hazardous materials, the responsible party will be required to properly manage the material in order to eliminate any potential for harm to human health and/or the environment. A jurisdictional release of hazardous materials occurs when analytical results indicate an exceedance of the appropriate reportable concentrations defined in these regulations. Cases posing the potential to release hazardous materials and those consisting of actual releases require notification to the Division by the responsible party within 15 days of their discovery. The Division will attempt to respond in writing within 45 days of the receipt of the notification as to whether additional response actions will be required in accordance with these regulations.

If the Division determines that the reported release requires a response action, the area impacted by the release is considered to constitute a source area of contamination. A site with one or more source areas is considered to be a contaminated site. A contaminated site is the focus of the regulatory framework described in these regulations.

The Division will respond by informing known responsible parties of their obligations under these regulations through the issuance of a Letter of Responsibility. Failure to meet the obligations of these regulations may result in the issuance of enforcement actions including Notices of Violation and Immediate Compliance Orders or the filing of a civil action. These enforcement actions are not exclusive remedies and may also include the assessment of civil administrative penalties or criminal sanctions.

A contaminated site may also be addressed by a voluntary party which otherwise bears no responsibility for the contaminated site, but which may realize some benefit, economic or otherwise, from remediation. Such parties will not proceed under an enforcement mode as described above, but instead may be informed of the necessary procedural steps in order to meet the requirements of these regulations through the issuance of a Voluntary Procedure Letter.

Regardless of whether the contaminated site is addressed through the enforcement or voluntary program, remediation of the contaminated site under these regulations shall be performed with the goal of providing permanent protection to human health and the environment. A release of hazardous material as defined in these regulations may include any mixture of hazardous substances. The Division has facilitated the remedial process by establishing three methods for determining protective remedial objectives for the hazardous substances found to exist in soil and/or groundwater at any given contaminated site. Method 1 is a series of tables establishing conservative risk-based cleanup levels for

commonly encountered hazardous substances. Method 2 is a process by which the performing party can supplement or modify the Method 1 clean up levels to reflect site-specific circumstances. Method 3 corresponds to site-specific human health and/or ecological risk assessments which may be used for assessing baseline risk and subsequently determining appropriate remedial objectives for all impacted media.

Contaminated sites are likely to enter the site management process during a phase of the Site Investigation. The Site Investigation process concludes with the selection of a site remedy or issuance of a Letter of Compliance if remedial action is not necessary. For sites requiring remedial action, the performing party must propose a remedy at the conclusion of the Site Investigation. The Division will approve acceptable remedies through the issuance of a Remedial Decision Letter which will request that the performing party submit for review and approval a Remedial Action Work Plan. The Remedial Action Work Plan will describe the technical details of implementing the remedy. The Division will approve acceptable Remedial Action Work Plans via an Order of Approval for complex site remedies and a Remedial Approval Letter for simple site remedies. At the point in the process when the Division determines that no further action is necessary, the area impacted by the release in question will be determined to be compliant with these regulations and a Letter of Compliance will be issued.

The Department may enter into Settlement Agreements with performing parties to perform response action(s) if the Department determines that the proposed response action(s) are appropriate and entering the agreement is in the public interest. The Department must be a party to any settlement agreement entered under the authority of these regulations.

When the Department enters into a Settlement Agreement, each party's liability for the response actions (including any future liability to the Department, relating to the release or threatened release that is the subject of the agreement) shall be limited as provided in the agreement pursuant to a covenant not to sue. The covenant not to sue may, at the discretion of the Department, be transferred to successors or assigns who are not otherwise found to be a responsible party under these regulations. The covenant not to sue may provide that future liability to the Department of a settling party under the agreement may be limited to the same proportion as that established in the original Settlement Agreement.

Before the finalization of any Settlement Agreement, the Department shall provide an opportunity for public comment for a period of fourteen (14) days after the date of the notice of the proposed agreement. The Department shall consider any written comments, views or allegations relating to the proposed agreement. The proposed agreement shall be considered final when all substantive public comments have been addressed.

2.03 **Severability**: If any provision of these rules and regulations or the application thereof to any person or circumstances is held invalid by a court of competent jurisdiction, the remainder of the rules and regulations shall not be affected thereby. The invalidity of any

section or sections or parts of any section or sections shall not affect the validity of the remainder of these rules and regulations.

3.00 DEFINITIONS

3.01 **Active well** shall mean a well equipped and capable of producing potable water which has been used for this purpose within the last 2 years.

3.02 **Aquifer** shall mean a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells, springs or Surface Water.

3.03 **Asbestos** shall mean any material consisting of the following materials: actinolite, amosite, anthophylite, chrysotile, crocidolite or tremolite.

3.04 **Authorized Representative** shall mean any individual employed by any Person, including all forms of private, governmental and commercial entities included thereunder, in a position to commit the resources of that Person and bind that Person to any responsibilities and/or liabilities set forth under these regulations.

3.05 **Background** shall mean the ambient concentrations of Hazardous Substances present in the environment that have not been influenced by human activities, or the ambient concentrations of Hazardous Substances consistently present in the environment in the vicinity of the Contaminated-Site which are the result of human activities unrelated to Releases at the Contaminated-Site.

3.06 **Bedrock** shall mean the continuous solid rock that underlies gravel, soil or other surficial material, including any fractured zones within said rock.

3.07 **Bona Fide Prospective Purchaser** shall mean an intentional purchaser of a Contaminated-Site, who had documented their intent to purchase the property in writing and who has offered to pay fair market value for the property in the contaminated state. Any former owner, former operator or other Person who is otherwise a Responsible Party or any Person who had more than ten percent (10%) equitable or other legal interest in any property impacted by the Contaminated-Site or any of the operations related to the contamination cannot be considered as a Bona Fide Prospective Purchaser.

3.08 **Carcinogenic Substance** shall mean any substance defined as a carcinogen or suspected carcinogen by federal agencies and for which a quantitative health risk extrapolation is available.

3.09 **CERCLA** shall mean the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986.

3.10 **Container** shall mean any portable device in which a material is stored, transported, treated, disposed of or otherwise handled.

3.11 **Contaminated-Site** shall mean any Source Area or series of Source Areas that have not reached final resolution under the Remediation Regulations. A Contaminated-Site may include unimpacted land between multiple Source Areas in close proximity to one another. A Contaminated-Site shall be considered to be independent of property lines.

3.12 **Department** shall mean the Department of Environmental Management.

3.13 **Direct Exposure Criteria** shall mean the concentrations of Hazardous Substances in soil protective of human health and the environment from exposures including but not limited to ingestion as identified in Table 1 of Rule 8.02.B (Method 1 Soil Objectives) or any other direct exposure criteria approved by the Director pursuant to Rule 8.02.C (Method 2 Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.14 **Director** shall mean the Director of the Department of Environmental Management, or that Director's designee.

3.15 **Emergency and Short-Term Response Action** shall mean any activities undertaken immediately following the discovery of a Release of Hazardous Material in order to completely or partially contain, clean up or treat the Released material and remove an imminent hazard if it exists.

3.16 **Environmentally Sensitive Area** shall mean any of the following areas:

A. Areas which provide habitat for Federally endangered or threatened species as determined by the U.S. Department of Fish and Wildlife;

B. Areas which provide habitat for State endangered or threatened species as determined by the Department through the Natural Heritage Program;

C. Surface Water classified A, B or C by the Department or Wetlands;

D. Coastal areas designated as Type 1 Conservation Areas or Type 2 Low-Intensity Use by the Rhode Island Coastal Resources Management Council;

E. Tidal waters classified SA by the Department;

F. State parks, management areas, wildlife areas or marine sanctuaries; or

G. Natural areas owned or operated by government agencies or not-for-profit organizations for the purposes of preserving the natural character of the property.

3.17 **Excess Lifetime Cancer Risk** shall mean the estimated probability that an individual's exposure to a substance could result in cancer.

3.18 **Facility** shall mean all contiguous land, structures and other appurtenances and improvements on the land used for treating, storing or disposing of Hazardous Waste.

3.19 **Free Liquid** shall mean Liquid which readily separates from the solid portion of a material under ambient temperature and pressure.

3.20 **GA/GAA Area** shall mean any area having a Groundwater classification of GA or GAA, including GA and GAA non-attainment designations, in accordance with the Groundwater Quality Regulations.

3.21 **GA Groundwater Objectives** shall mean the concentrations of Hazardous Substances in Groundwater protective of human health and the environment which are identified in Table 3 of Rule 8.03.B.i (Method 1 GA Groundwater Objectives) or any other GA Groundwater Objective approved by the Director pursuant to Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.22 **GA Leachability Criteria** shall mean the concentrations of Hazardous Substances in soil identified in Table 2 of Rule 8.02.B (Method 1 Soil Objectives) or any other GA Leachability Criteria approved by the Director pursuant to Rule 8.02.C (Method 2 Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.23 **GB Area** shall mean any area having a Groundwater classification of GB, including GB non-attainment designations, in accordance with the Groundwater Quality Regulations.

3.24 **GB Groundwater Objectives** shall mean the concentrations of Hazardous Substances in Groundwater protective of human health and the environment which are identified in Table 4 of Rule 8.03.B.ii (Method 1 GB Groundwater Objectives) or any other GB Groundwater Objective approved by the Director pursuant to Rule 8.03.C (Method 2 GB Groundwater Objectives) or Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.25 **GB Leachability Criteria** shall mean the concentrations of Hazardous Substances in soil identified in Table 2 of Rule 8.02.B (Method 1 Soil Objectives) or any other GB Leachability Criteria approved by the Director pursuant to Rule 8.02.C (Method 2 Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.26 **Groundwater** shall mean water found underground which completely fills the open spaces between particles of sand, gravel, clay, silt and Bedrock fractures. The zone of materials filled with groundwater is called the zone of saturation.

3.27 **Hazard Index** shall mean the calculation of the potential for non-cancer health effects as a result of exposure to one or more Hazardous Substances with the same or similar modes of toxic action or toxic endpoints.

3.28 **Hazardous Material** shall mean any material or combination or mixture of materials containing any Hazardous Substance. Hazardous Material does not include Petroleum as defined in these regulations (i.e., virgin petroleum products).

3.29 **Hazardous Substance** shall mean any substance designated as such pursuant to 40 CFR 300.5 (incorporated by reference and attached in Appendix A). Hazardous Substance also include any material that meets the definition of Hazardous Waste. Hazardous Substance shall not include, for the purposes of these regulations, Asbestos or radioactive materials.

3.30 **Hazardous Waste** shall mean any material defined as such waste pursuant to Rule 3.25 of the Rhode Island Rules and Regulations for Hazardous Waste Management.

3.31 **Imminent Hazard** shall mean a Release of Hazardous Material meeting any of the following criteria:

A. The Release poses an immediate and substantial threat or risk of acute or chronic adverse effect on human health;

B. The Release poses a threat or risk of harm which could cause immediate destruction or significant adverse impact on an Environmentally Sensitive Area or the contamination of a wellhead protection area or other drinking water source;

C. The Release poses an immediate threat of fire or explosion. Further factors to consider when evaluating Releases resulting in a threat of fire and explosion shall include:

i. The ignitability of the Hazardous Material, and the mixture resulting from the Release of the Hazardous Material;

ii. The reactivity of the Hazardous Material, and the mixture resulting from the Release of the Hazardous Material;

iii. The potential incompatibility of the Hazardous Material, and the mixture resulting from the Release of the Hazardous Material, with other materials which can reasonably be expected to be stored or handled in the area of the Release; and

iv. The potential impacts of a fire and/or explosion; and

D. The Release may be influenced by site-specific factors which have the potential to lead to an imminent threat to human health or the environment.

3.32 **Impoundment or Surface Impoundment** shall mean a natural topographic depression or man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of Liquids, solids or materials containing free Liquids, and which is not a well. Examples of impoundments include holding, storage, settling and aeration pits, ponds, and lagoons.

3.33 **Incompatible Materials** shall mean materials which are unsuitable for:

A. Placement in a particular device or management at a Contaminated-Site or facility because those materials may cause corrosion or decay of containment materials; or

B. Commingling with another material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes or gases or flammable fumes or gases.

3.34 **Industrial/Commercial Activity** shall mean any activity related to the commercial production, distribution, manufacture or sale of goods or services, or any other activity which is not a traditional residential activity as defined by this Section including activities related to outdoor recreational areas with restrictions in place to limit potential exposure.

3.35 **Industrial/Commercial Direct Exposure Criteria** shall mean the concentrations identified in the Industrial/Commercial column of Table 1 of Rule 8.02.B (Method 1 Soil Objectives) or any other Industrial/Commercial Direct Exposure Criteria approved by the Director pursuant to Rule 8.02.C (Method 2 Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.36 **Inorganic Hazardous Substance** shall mean any Hazardous Substance which is not an Organic Hazardous Substance.

3.37 **Leachability Criteria** shall mean the concentrations of Hazardous Substances protective of GA/GAA and GB Areas, as appropriate, and the environment which are identified in Table 2 of Rule 8.02.B (Method 1 Soil Objectives) or any other GA Leachability Criteria approved by the Director pursuant to Rule 8.02.C (Method 2 Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.38 **Liquid** shall mean any material that expresses as separable Liquid by weight thirty percent (30%) or more of the material when exposed to a vacuum of 3/4 atmosphere for thirty (30) minutes.

3.39 **Manifest** shall mean the Rhode Island Uniform Hazardous Waste Manifest provided by the Department or any other manifest approved by the United States Environmental Protection Agency for identifying, at a minimum, the quantity, composition, type and the origin, routing and destination of Hazardous Waste from the point of generation, to the point of treatment, storage, or disposal.

3.40 **Method 1** shall mean the determination of appropriate soil and groundwater objectives based on the concentrations of Hazardous Substances identified in Table 1 and Table 2 of Rule 8.02.B (Method 1 Soil Objectives) and Table 3 and Table 4 of Rule 8.03.B (Method 1 Groundwater Objectives) of the Remediation Regulations.

3.41 **Method 2** shall mean the determination of appropriate soil and groundwater objectives based on the concentrations of Hazardous Substances developed using site-specific factors in accordance with Rule 8.02.C (Method 2 Soil Objectives) and Rule 8.03.C (Method 2 GB Groundwater Objectives) of the Remediation Regulations.

3.42 **Method 3** shall mean the determination of appropriate remedial objectives based on the concentrations of Hazardous Substances developed in accordance with Rule 8.04 (Method 3 Remedial Objectives) and Rule 8.05 (Ecological Protection) of the Remediation Regulations.

3.43 **Non-Aqueous Phase Liquid (NAPL)** shall mean an organic compound present at a concentration such that it exists as a separate phase in equilibrium with water.

3.44 **Operator** shall mean the Person who is responsible for the operation of the activities at the Contaminated-Site. For the purposes of these regulations, Persons who create or maintain a security interest in land by making loans, administering loans or participating in the financial workout of defaulted loans are not Operators, and such acts of themselves are not considered participation in management of a Contaminated-Site. Activities which are considered appropriate activities of a secured lender include, without limitation:

A. Requiring or conducting site assessments on a Contaminated-Site; and

B. Collecting income and rents from the site to the extent that such funds are not inappropriately diverted from being utilized toward remediation of the Contaminated-Site.

3.45 **Organic Hazardous Substance** shall mean any Hazardous Substance containing the element carbon.

3.46 **Overburden** shall mean the material present in the ground above bedrock.

3.47 **Owner** shall mean the Person who owns the Contaminated-Site or part of the Contaminated-Site.

3.48 **PCB or PCBs** shall mean any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance.

3.49 **Performing Party** shall mean any Bona Fide Prospective Purchaser, Responsible Party, voluntary party or any other party conducting an investigation of and/or Remediation at a Contaminated-Site.

3.50 **Person** shall mean an individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, the Federal Government or any agency or subdivision thereof, a state, municipality, commission, political subdivision of a state, or any interstate body.

3.51 **Petroleum** shall mean any virgin petroleum product including the following products:

A. Unused distillate and residual oil including but not limited to gasoline, aviation fuels, kerosene, diesel, and heating oils; and

B. Unused crankcase oil, lubricants, hydraulic oils, penetrant oils, tramp oils, quench oils, and other industrial oils.

3.52 **Public Water Supply System** shall mean a system for the provision to the public of piped water for human consumption, provided such a system has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year.

3.53 **RCRA** shall mean the federal Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, as amended.

3.54 **Release** shall be defined by 40 CFR 300.5 (incorporated by reference and attached as Appendix A) for purposes of the Remediation Regulations, but shall exclude any of the following:

A. Any Release from a process, activity or Contaminated-Site allowed under a permit, license or approval by any regulatory process or legal authority;

B. Any Release of Hazardous Materials solely derived from common household materials and occurring at the household; or

C. Any Release that is completely contained within an area or structure designed and engineered to contain such materials.

Release shall also include an actual or potential threat of Release.

Concentrations of PCBs greater than 10 micrograms/100 cm^2, as measured by a standard wipe test, on any surface shall constitute a Release. The Director may determine that an area with PCB contamination at concentrations lower than specified above requires investigation and/or remediation due to site-specific circumstances.

3.55 **Remediation** shall mean the act of implementing, operating and maintaining a Remedy or Remedial Action.

3.56 **Remediation Regulations** shall mean the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases.

3.57 **Remedy or Remedial Action** shall mean those actions taken to rectify the effects of a Release of Hazardous Material, so that it does not cause a significant risk to present or future public health or welfare, or the environment.

3.58 **Residential Activity** shall mean any activity related to a (1) residence or dwelling, including but not limited to a house, apartment, or condominium, or (2) school, hospital, day care center, playground, or unrestricted outdoor recreational area.

3.59 **Residential Direct Exposure Criteria** shall mean the concentrations identified in the Residential column of Table 1 of Rule 8.02.B (Method 1 Soil Objectives) or any other Residential Direct Exposure Criteria approved by the Director pursuant to Rule 8.02.C (Method 2 Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) of the Remediation Regulations.

3.60 **Responsible Party** shall mean any or all of the following Persons:

A. The Owner or Operator of a Vessel, Transport Vehicle, or a Contaminated-Site at which there is a known or suspected Release;

B. Any Person who, at the time of storage or disposal of any Hazardous Material, owned or operated a Contaminated-Site at which there is a known or suspected Release;

C. Any Person who, by contract, agreement, or otherwise, directly or indirectly, arranged for the disposal of Hazardous Material at a Contaminated-Site at which there has been a known or suspected Release;

D. Any Person who accepts or accepted any Hazardous Materials for transport to disposal or treatment facilities or Contaminated-Sites selected by such Person and from which location there is a Release or a threatened Release of Hazardous Materials which causes the incurrence of response costs;

E. Any Person who otherwise caused or is legally responsible for a Release of Hazardous Materials from a Vessel, Transport Vehicle or operation at a Contaminated-Site; and

F. The Person or legal entity controlling a Contaminated-Site, Transport Vehicle, Vessel or activity that contains or led to a known or suspected Release.

Responsible Party shall also mean any and all combinations of the abovementioned Persons.

The following parties are not Responsible Parties and shall not be held liable for costs or damages associated with a Release of Hazardous Materials:

A. Persons otherwise liable who can establish by a preponderance of the evidence that the Release or threat of Release of Hazardous Materials and the damages resulting therefrom were caused solely by an act of God or an act of war;

B. Persons who are defined as Bona Fide Prospective Purchasers of a Contaminated-Site and have entered a settlement agreement with the Department related to the same Contaminated-Site;

C. Persons who are not Operators and who act solely as custodial receivers or who can establish by a preponderance of evidence that they are an innocent landowner and the Release or threat of Release were caused solely by an act or omission of a third party other than an employer or agent of the defendant, or whose act or omission occurs in connection with a contractual relationship, existing directly or indirectly, with the defendant if the defendant establishes:

   i. That it exercised due diligence in the acquisition of the Contaminated-Site at the time of purchase and exercised due care with respect to the Hazardous Material concerned, taking into consideration the characteristics of such Hazardous Material, in light of the facts and circumstances; and

   ii. That it took precautions against foreseeable acts, or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions; and

D. Persons who maintain an indicia of ownership solely to protect a security interest in land and are not Operators.

For the purposes of this definition, a secured lender is not deemed an Owner or an Operator if in order to protect its security interest the secured lender accepts title to a Contaminated-Site through foreclosure, or by accepting the deed to the Contaminated-Site in lieu of foreclosure, and meeting the following requirements:

A. The secured lender can demonstrate that no act of the secured lender or its agent(s), after accepting title, caused or contributed to a Release of Hazardous Materials;

B. The secured lender provides notification, if required, pursuant to Rule 5.01 (Notification of Release) if notification had not previously been provided to the Department;

C. The secured lender does not acquire property which presents an Imminent Hazard, or in the event of discovery of an Imminent Hazard subsequent to foreclosure, the secured lender takes appropriate action pursuant to Section 6 (EMERGENCY AND SHORT-TERM RESPONSE) of the Remediation Regulations to stop, minimize or remove the imminent threat;

D. The secured lender provides the Department and its agents with access to the Contaminated-Site; and

E. The secured lender acts diligently to sell or otherwise divest itself of ownership or possession of the Contaminated-Site in a timely manner. For the first eighteen (18) months after accepting or taking title, the secured lender is presumptively assumed to be actively seeking to divest the property. In this period, it is the burden of the Department to demonstrate that the lender is not pursuing reasonable good faith efforts. For the time period after eighteen (18) months of accepting or taking title, the burden shifts to the secured lender to affirmatively demonstrate that it has undertaken, and continues to undertake, good faith efforts to sell the property.

3.61 **Sediment** shall mean the unconsolidated inorganic and organic material that is suspended in and is being transported by Surface Water, or has settled out of Surface Water.

3.62 **Source Area** shall mean the horizontal and vertical extent of natural or man-made media impacted by a Release of Hazardous Materials or causing a Release of Hazardous Materials at concentrations in excess of the reportable concentrations described in Rule 5.01.B (Reportable Concentrations for Soil) and Rule 5.01.C (Reportable Concentrations for Groundwater), and determined by the Department to pose a potential threat to human health and the environment. For purposes of these regulations, sanitary landfills licensed under the Rules and Regulations for Solid Waste Management Facilities on or after 18 June 1992 are not source areas.

3.63 **Surface Water** shall mean any body of water open to the atmosphere including brooks, streams, rivers, ponds, lakes, bays or Wetlands.

3.64 **Tank** shall mean a stationary device designed to contain an accumulation of Hazardous Material which is constructed primarily of non-earthen materials which provide structural support.

3.65 **Transport Vehicle** shall mean a motor vehicle, trailer or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, railroad freight car, etc.) is a separate Transport Vehicle.

3.66 **Treatment** shall mean any method, technique, or process, including neutralization or incineration, designed to change the physical, chemical, or biological character or composition of any Hazardous Material.

3.67 **Underground Injection Control System** shall mean any active or inactive system or structure used for the subsurface discharge of commercial or industrial wastewater.

3.68 **Vadose Zone** shall mean the full extent of the soil column existing above the elevation of Groundwater for the purposes of the Remediation Regulations.

3.69 **Vessel** shall mean any boat or watercraft whether moved by oars, paddles, sails, or other power mechanism, inboard or outboard, or any other boat or structure floating upon the water whether or not capable of self locomotion, including house boats, barges and similar floating objects.

3.70 **Well** shall mean a bored, drilled, or driven shaft or a dug hole, with a depth that is greater than its largest surface dimension, through which groundwater has flowed, flows, or may flow under natural or induced pressure and that has been modified for purposes of obtaining water.

3.71 **Wellhead Protection Area** shall mean a three-dimensional zone, designated by the Director and delineated pursuant to Section 18 of the Groundwater Quality Regulations, surrounding a well or wellfield supplying a public water supply system, through which water will move toward and reach such well or wellfield.

3.72 **Wetland** shall mean any area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.

3.73 **40 CFR ...** shall mean that section or subsection of the Code of Federal Regulations, Title 40, Protection of Environment, Chapter I, Environmental Protection Agency. References to the Administrator, appearing therein, shall be interpreted as referring to the Director.

4.00 PROHIBITIONS, MANAGEMENT, INSPECTIONS AND ANALYTICAL METHODS

4.01 **Prohibition on Unpermitted Release or Disposal**: No person shall release any hazardous material in any manner which may impact the classification or uses of the land, ground water, or Surface Water without complying with all applicable rules and regulations.

4.02 **Management of Unpermitted Releases**: Any responsible party who discovers or is notified of the potential unpermitted disposal, release or presence of hazardous materials released from, present on, or originating from its operations or property must immediately initiate investigations and actions as specified in Sections 5 (NOTIFICATION) through 11 (REMEDIAL ACTION) of these regulations.

Sites listed on the National Priorities List shall comply with the requirements of the National Contingency Plan (40 CFR Part 300) in lieu of these regulations.

4.03 **Additional Compliance**: Any action taken pursuant to the requirements of these regulations must be done in compliance with all applicable environmental statutes and regulations. Nothing in these regulations shall be construed to limit the authority of the Department to act pursuant to other existing statutes and regulations.

4.04 **Inspections; Right of Entry**: For purposes of enforcement of these regulations, the Director may:

A. Enter any place the Director has reason to believe hazardous materials are generated, used, stored, treated, or disposed of, and which may have contributed to a release;

B. Inspect any place, material, vessel or transport vehicle that the Director has reason to believe is associated with a release of hazardous material;

C. Obtain samples of any material, from any vessel or transport vehicle or place, which the Director has reason to believe was released, is or was contaminated by a release, or is otherwise associated with a release, of hazardous material; and

D. Inspect and copy records, reports, information, or test results kept or maintained at any place, on any vessel or transport vehicle, that the Director has reason to believe is associated with a release of hazardous material.

4.05 **Analytical Methods**: To the extent that laboratory analysis is utilized pursuant to Section 5 (NOTIFICATION), the analytical protocol shall be consistent with the specified methods listed in Appendix B. Equivalent or alternative methods may be used throughout

any other phase of the management of a contaminated-site with specific prior written approval from the Director.

5.00 NOTIFICATION

5.01 **Notification of Release**: A responsible party must notify the Department, in writing, of the discovery of any release in accordance with the requirements of this Rule which was not previously reported to the Department by any responsible party. Any release which requires notification pursuant to this Rule must be reported no later than 15 days after the discovery of the release.

A. Exemptions from Notification:

Any release which is solely the result of an underground injection control system or a leaking underground storage tank is exempt from the reporting requirements of the Remediation Regulations.

B. Reportable Concentrations for Soil:

For those concentrations of hazardous substances which are in excess of any of the soil objectives as specified in Tables 1 or 2 of Rule 8.02.B (Method 1 Soil Objectives), as appropriate, or which are not specified in Tables 1 or 2 and are in an amount and concentration which present a significant potential to cause an acute or chronic adverse effect on human health or the environment, the responsible party shall provide notification to the Division of Site Remediation consistent with Rule 5.02 (Contents of Notification), except as otherwise provided in this Rule.

Notification of a release for soil is not required provided that all of the following site conditions are met:

i. The release has impacted an area currently limited to industrial/commercial activity;

ii. The reasonably foreseeable future use of the property impacted by the release is limited to industrial/commercial activity;

iii. The groundwater underlying the site is classified as a GB area;

iv. There are no well head protection areas or active wells known to the performing party or their representatives within 500 feet;

v. The hazardous substances of concern are listed in Table 1 and Table 2, and are at concentrations which are below the industrial/commercial direct exposure criteria, and below the GB leachability criteria as listed in those tables, respectively;

vi. There are no GA/GAA areas within 500 feet of the release;

vii. The abutting properties are used for industrial/commercial activity; and

viii. There is no physical boundary of any wetland or surface water within 500 feet of the release.

C. Reportable Concentrations for Groundwater:

Responsible parties that have had a release which has impacted or threatens to impact groundwater shall notify the Department when:

i. Any hazardous substance in groundwater is at a concentration which exceeds any of the groundwater objectives for the hazardous substance as specified in Tables 3 and 4 of Rule 8.03 (Groundwater Objectives), as appropriate; or

ii. Any hazardous substance in groundwater which is not specified in Tables 3 or 4 is in an amount and concentration which presents a significant potential to cause an acute or chronic adverse effect on human health or the environment; or

iii. A responsible party has reasonable cause to believe that a discharge or release has occurred which may result in an exceedance of any appropriate groundwater objective.

5.02 **Contents of Notification**: For any release of hazardous materials which triggers notification pursuant to Rule 5.01 (Notification of Release), the written notification must include, but not necessarily be limited to, all of the following information (a form is provided in Appendix C which may be used as the notification submittal for all releases except for those releases posing an imminent hazard):

A. The names, addresses and telephone numbers of: the person notifying the Department of the release; the owner(s) and operator(s) of any properties impacted by the release or of the vessel where the release has occurred; any other responsible parties; and the contact person at the impacted area or vessel where the release has occurred;

B. The city/town, street address, legal description (plat and lot) and the general location of the area impacted by the release;

C. The date of and the circumstances leading to and surrounding the discovery of the release;

D. An identification of the hazardous material released, the approximate concentrations of hazardous substances in the released material and the approximate quantity of the hazardous material released;

E. An initial estimate of the source of the release and the extent of contamination resulting from the release;

F. Measures taken or proposed to be taken in response to the release as of the time of notification;

G. Any other relevant information relating to the potential for environmental impacts and other factors evaluated in determining whether or not the release presents an imminent hazard, including but not limited to:

i. A determination as to whether a release of hazardous material has the potential to adversely impact any wetland or surface water; and

ii. A determination as to whether the extent of hazardous material contamination in soil or groundwater is within 500 feet of a surface water or wetland;

H. A determination as to whether the release impacts an area utilized for residential activity, industrial commercial activity, or both;

I. An identification of the underlying groundwater classification, and if the classification is GB, the distance to the nearest GA/GAA area; and

J. An indication of whether a background determination consistent with Rule 8.06 (Background Concentrations for Soil) will be performed and submitted subsequent to notification.

6.00 EMERGENCY AND SHORT-TERM RESPONSE

6.01 **Emergency and Short-Term Response Actions**: The responsible party must immediately notify the Department with the information outlined in Rule 5.02 (Contents of Notification) and take appropriate action to stop or minimize a release of hazardous

material posing an imminent hazard and/or any on-going spill of hazardous material at the time of discovery.

All Emergency and Short-Term Response Actions undertaken by the responsible party must be conducted in a manner which is protective of human health and the environment.

No Emergency and Short-Term Response Action undertaken by the responsible party may be conducted in a manner which increases the potential for harm, either short-term or long-term, to human health or the environment.

6.02 **Treatment Actions**: All Emergency and Short-Term Response Actions which include the treatment of hazardous material or of substances contaminated by a release of hazardous material must be approved by the Director prior to initiation.

6.03 **Duration**: The duration of Emergency and Short-Term Response Actions involving the treatment of hazardous material or of substances contaminated by a release of hazardous material will be determined on an incident-specific basis by the Department.

The duration of any portion of an approved Emergency and Short-Term Response Action involving hazardous waste treatment is limited to less than twenty-four (24) hours from the time of discovery of the release.

6.04 **Emergency Permits**: In cases where on-site treatment of hazardous waste is necessary to remove the imminent hazard, and it is anticipated to take longer than twenty-four (24) hours, responsible parties must obtain an Emergency Permit prior to initiating the treatment actions proposed as part of that response.

Emergency Permit applications must include the manner and location of all proposed treatment operations.

Application for an Emergency Permit may be made orally with a written application following no later than forty-eight (48) hours after the discovery of the release.

Emergency Permits may be granted orally with a written permit subsequently issued.

6.05 **Emergency Permit Duration**: Emergency Permits shall not exceed ninety (90) days in duration.

6.06 **Public Notice**: All Emergency Permits will be accompanied by a public notice published in a local newspaper of largest regional circulation. The responsible party will write that notice in a block ad format and be responsible for its publication. A final copy of the public notice must be submitted and approved by the Department prior to publication. The notice must be published within ten (10) days of the release.

The notice shall contain, at a minimum, the following information:

A. The name and address of the responsible party receiving the permit;

B. A brief description of the hazardous wastes involved;

C. A brief description of the treatment action and/or other actions authorized by the permit;

D. The name and address of the permitting agency; and

E. The duration and effective dates of the permit.

6.07 **Cessation Orders**: The Director may order, via an Immediate Compliance Order or Order to Cease and Desist, the immediate cessation of any Emergency and Short-Term Response Action without process if the Director has reason to believe that the termination of that response action is necessary to protect human health or the environment. An order may also be issued if the Director finds that the responsible party has not complied with the terms and conditions of an Emergency Permit or if the imminent hazard has been removed.

6.08 **Monitoring and Evaluation**: In all cases where an Emergency and Short-Term Response Action is initiated, the responsible party must, throughout the implementation of that action, monitor and evaluate the performance, effectiveness and completeness of the action in abating, preventing or eliminating contamination and, more specifically, the imminent hazard. The Director may require the submittal of progress reports on a specified schedule throughout the Emergency and Short-Term Response Action.

6.09 **Emergency and Short-Term Response Report**: Following the completion of any Emergency and Short-Term Response Action, the responsible party undertaking the action must prepare an Emergency and Short-Term Response Report providing a detailed summary of all investigations and activities taken in response to the release. This report must be submitted to the Department within thirty days of completion of the Emergency and Short-Term Response Action.

The Emergency and Short-Term Response Report must contain, where applicable, at least the following information:

A. The basis for the determination of whether the release presented an imminent hazard;

B. The design specifications of any physical structures built or installed as part of the response;

C. A site plan showing the areal extent of the release and noting all treatment units, pertinent structures, areas, and/or other aspects of the release and Emergency and Short-Term Response Action;

D. Documentation of any off-site migration of released material including notation of any factors, such as weather conditions, which may have caused or aggravated this migration;

E. The locations of all samples, including those from monitoring activities, taken and the results of the analysis of those samples;

F. The manifests, receipts and/or bills of lading for any hazardous material or material contaminated by the release;

G. The nature, concentrations and extent of residual contamination. In cases where the responsible party considers the Emergency and Short-Term Response Action as the final remedy, the responsible party must demonstrate compliance with Section 8 (RISK MANAGEMENT); and

H. In cases where an Emergency Permit was issued, evidence that Public Notice was issued pursuant to the requirements of Rule 6.06 (Public Notice).

6.10 **Certification Requirements**: The Emergency and Short-Term Response Report and all associated progress reports must include the following statements signed by an authorized representative of the party specified:

A. A statement signed by an authorized representative of the person who prepared the Emergency and Short-Term Response Report certifying the accuracy of the information contained in that report to the best of their knowledge.

B. A statement signed by the responsible party responsible for the submittal of the Emergency and Short-Term Response Report certifying that the report is a complete and accurate representation of the circumstances known about the release and the subsequent response activities to the best of their knowledge.

7.00 SITE INVESTIGATION

7.01 **Site Investigation**: The Director may require a performing party for any contaminated-site to conduct, in a specified amount of time, an investigation of the contaminated-site to adequately assess the nature and extent of contamination, and to evaluate and design a proposed remedy. The Director shall base the decision to require the investigation on the available information regarding the mobility, toxicity and volume of the hazardous material released and the resultant potential for harm to human health or the environment.

The Site Investigation must determine the nature and extent of the contaminated-site and the actual and potential impacts of the release. Remedial alternatives shall be considered and data generated during the Site Investigation must be in such a form and substance as to aid in the selection of a remedy for the contaminated-site that is protective of both human health and the environment.

The scope of the Site Investigation shall be tailored to specific conditions and circumstances at the site under investigation using professional judgement. The Remedial Investigation may be conducted in phases which may focus on specific releases, source areas or exposure pathways.

7.02 **Site Investigation Work Plan**: Upon formal written notification from the Department that a Site Investigation is necessary, the performing party may develop, and submit to the Department for review, comment, guidance and approval, a work plan detailing the specific objectives of the Site Investigation, the data that is necessary to meet those objectives, and the methods which will be used to collect that data. Unless otherwise specified by the Director, submittal of the Site Investigation Work Plan is voluntary.

7.03 **Site Investigation Scope**: The Site Investigation Report shall contain the following information on the contaminated-site where the spill or release occurred, as appropriate:

A. A list of specific objectives of the Site Investigation identifying all data collected to completely characterize the contaminated-site, the release, the impacts the release and to select a remedy;

B. All information previously reported in a Notification of Release required by Rule 5.01 (Notification of Release) and an Emergency and Short-Term Response Report required by Rule 6.09 (Emergency and Short-Term Response Report), if applicable. The performing party may elaborate and expand on any and all information found in those reports. The performing party must correct any incorrect information or interpretations contained in those reports prior to their incorporation into the Site Investigation Report;

C. Documentation of any past incidents or releases (fires, spills, explosions, leaks, etc.);

D. A list of past owners and operators at the contaminated-site including their past uses of the property, a sequencing of property transfers and time periods of occupancy to the extent that this information is available;

E. All previously existing environmental information which characterizes the contaminated-site and all information that led to the discovery of a contaminated-site;

F. A description of the current uses and zoning of the contaminated-site including a brief statement on each active operation performed therewith, a description of the processes employed, a list of all wastes generated, a list of all hazardous materials handled, and a statement summarizing any residential activity on the contaminated-site;

G. A locus map showing the location of the contaminated-site using the U.S. Geological Survey 7.5 minute quadrangle map or a copy of a section of that U.S.G.S. map;

H. A site plan, drawn to scale, showing the locations of all buildings, activities and structures on the contaminated-site including, but not limited to:

i. A North arrow;

ii. Wells;

iii. Underground injection control systems, septic tanks, underground storage tanks, piping and other underground structures;

iv. Outdoor hazardous material storage and handling areas, and extent of paved areas;

v. The location of all environmental samples previously taken at the contaminated-site;

vi. All waste management and disposal areas, active and/or historical; and

vii. Property lines;

I. A general characterization of the property surrounding the area affected by the release including, but not limited to:

i. The location and distance to any surface water bodies within five hundred (500) feet of the contaminated-site;

ii. The location and distance to any environmentally sensitive areas within five hundred (500) feet of the contaminated-site;

iii. The actual sources of potable water for all properties immediately abutting the contaminated-site;

iv. The location and distance to all public water supplies which have been active within the previous 2 years and within one (1) mile of the contaminated-site;

v. A determination as to whether the release impacts any off-site area utilized for residential or industrial/commercial property or both; and

vi. A determination of the underlying groundwater classification and if the classification is GB, the distance to the nearest GA/GAA area;

J. Classifications of surface water and ground water at or surrounding the contaminated-site which could be potentially impacted by the release of hazardous materials;

K. A description of the contamination resulting from the release including, but not limited to:

i. Free liquids on the surface;

ii. Concentrations of hazardous substances which can be shown to present an actual or potential threat to human health, including, but not limited to, any concentrations of hazardous substances in excess of any of the remedial objectives listed in Tables 1 or 2 of Rule 8.02.B (Method 1 Soil Objectives) or Tables 3 or 4 of Rule 8.03.B (Method 1 Groundwater Objectives);

iii. A determination/opinion as to whether the release of hazardous material has the potential to adversely impact an environmentally sensitive area;

iv. Contamination of man-made structures;

v. Odors or stained soil;

vi. Stressed vegetation;

vii. The presence of excavated or stockpiled material and an estimate of its total volume;

viii. Environmental sampling locations, sampling procedures and copies of the results of any analytical testing undertaken at the contaminated-site; and

ix. A list of the hazardous substances at the contaminated-site;

L. The concentration gradients of hazardous substances throughout the contaminated-site for each media impacted by the release of hazardous materials;

M. The methodology and results of any investigation conducted to determine background concentrations of hazardous substances identified at the contaminated-site;

N. A listing and evaluation of the site-specific hydrogeological properties which could influence the migration of hazardous substances throughout and away from the contaminated-site, including but not limited to, where appropriate:

i. The depth to groundwater;

ii. The presence and effects of both the natural and man-made barriers to and conduits for contaminant migration;

iii. A characterization of the bedrock; and

iv. The groundwater contours, flow rates and gradients throughout the contaminated-site;

O. A characterization of the topography and surface water and run-off flow patterns, including the flooding potential, of the contaminated-site;

P. The potential for hazardous substances from the contaminated-site to volatilize and any and all potential impacts of the volatilization to structures within the contaminated-site;

Q. The potential for entrainment of hazardous substances from the contaminated-site by wind or erosion actions;

R. Detailed protocols for all fate and transport models used in the Site Investigation;

S. A complete list of all samples taken, the location of all samples, parameters tested for and analytical methods used during the Site Investigation;

T. Construction plans and development procedures for all monitoring wells. Well construction must be consistent with the requirements of Appendix I of the Groundwater Quality Regulations;

U. Procedures for the handling, storage and disposal of wastes derived from and during the investigation if such procedures deviate from the Department's Guidelines for the Management of Investigation Derived Waste (Policy Memo 95-01);

V. A quality assurance and quality control evaluation summary report for sample handling and analytical procedures, including, but not necessarily limited to, chain-of-custody procedures and sample preservation techniques; and

W. Any other site-specific factor that the Director has reason to believe is necessary to make an accurate decision as to the appropriate remedial action to be taken at the contaminated-site.

7.04 **Development of Remedial Alternatives**: The Site Investigation Report must contain a section proposing remedial alternatives. This section must contain a minimum of two remedial alternatives other than the no action/natural attenuation alternative unless this requirement is waived by the Department. It should be clear in this section which of these alternatives is most preferable. Cost effectiveness of the remedial alternatives may be used to support the selection of the preferred alternative.

All alternatives must be supported by relevant data contained in the Site Investigation Report and consistent with the current and reasonably foreseeable land usage, and documentation of the following:

A. Compliance with Section 8 (RISK MANAGEMENT);

B. Technical feasibility of the preferred remedial alternative;

C. Compliance with State and local laws or other public concerns; and

D. The ability of the performing party to perform the preferred remedial alternative.

7.05 **Certification Requirements**: The Site Investigation Report and all associated progress reports must include the following statements signed by an authorized representative of the party specified:

A. A statement signed by an authorized representative of the person who prepared the Site Investigation Report certifying the completeness and accuracy of the information contained in that report to the best of their knowledge; and

B. A statement signed by the performing party responsible for the submittal of the Site Investigation Report certifying that the report is a complete and accurate representation of the contaminated-site and the release and contains all known facts surrounding the release to the best of their knowledge.

7.06 **Progress Reports**: Unless otherwise specified by the Director, the performing party must during the implementation of the Site Investigation, submit periodic progress reports on the status of the investigation and interim reports on any milestones achieved in the project.

7.07 **Public Notice**: Public Notice is required at two (2) points during the Site Investigation.

A. Prior to the implementation of the Site Investigation field activities, the performing party must notify all abutting property owners and tenants that an investigation is about to occur; and

B. When the Site Investigation is deemed complete, the Department will issue a program letter confirming that the performing party has adequately assessed the nature and extent of contamination at the contaminated-site. Prior to the formal Department approval of the Site Investigation Report (in the form of a Remedial Decision Letter), the performing party must notify all abutting property owners, tenants and community well suppliers associated with any well head protection areas which encircle the contaminated-site that the investigation is complete and provide them with the findings of the investigation and any proposed remedial alternative which includes on-site treatment and/or containment of hazardous materials as part of the final remedy.

7.08 **Site Investigation Report**: A completed Site Investigation Report shall contain all the information set forth in Rules 7.03 (Site Investigation Scope), 7.04 (Development of Remedial Alternatives) and 7.05 (Certification Requirements) as necessary and appropriate to meet the goals of the Site Investigation. The Site Investigation Report must be submitted to the Department for review and approval upon completion. If the Site Investigation Report is deemed unacceptable by the Department, the Department will identify the reasons why the report is unacceptable and direct the performing party to correct the deficiencies.

All sources of information and assumptions presented in the Site Investigation Report and any other report incorporated therein must be properly referenced and documented.

7.09 **Remedy Selection**: Upon completion of the Site Investigation Report the Director shall issue a Remedial Decision Letter, identifying the preferred remedial alternative. All preferred remedial alternatives which include on-site treatment and/or containment of hazardous materials as part of the final contaminated-site remedy shall be subject to public notice as specified in Rule 7.07 (Public Notice), and shall be subject to public review and comment regarding the technical feasibility of such preferred remedial alternative prior to issuance of the Remedial Decision Letter. If none of the proposed remedial alternatives are acceptable, the Director shall require the performing party to consider other remedial alternatives.

The Director's decision regarding the appropriateness of the site remedy shall be based upon the information contained within the decision record for the contaminated-site. The decision record shall include the following:

A. A finalized Site Investigation Report, specifically Rule 7.04 (Development of Remedial Alternatives); and

B. A final response, approved by the Department, to substantive public comments required by Rule 7.07 (Public Notice). If the responses to comment are prepared by the performing party, the responses must be approved by the Department in order for the responses to be considered final.

8.00 RISK MANAGEMENT

8.01 **Remedial Objectives:** The appropriate remedial objectives for all hazardous substances in all impacted media at a contaminated-site shall be consistent with this Rule so as to manage the actual or potential risks to human health and the environment by ensuring that the following requirements are met:

A. The remedial objective for each carcinogenic substance does not exceed a 1×10^{-6} excess lifetime cancer risk level and the cumulative excess lifetime cancer risk posed by the contaminated-site does not exceed 1×10^{-5};

B. The remedial objective for each non-carcinogenic substance does not exceed a hazard index of 1 and the cumulative hazard index posed by the contaminated-site does not exceed 1 for any target organ;

C. The remedial objective will not significantly contribute to adverse effects to any environmentally sensitive areas at or in the vicinity of the contaminated-site;

D. The remedial objective will be protective of the natural resources of the State, including but not limited to groundwater; and

E. The remedial objective shall address the requirements of Rule 8.07 (Upper Concentration Limits).

Specific requirements for the development and application of concentration-based soil and groundwater objectives are presented throughout the remainder of this Section. Concentration-based soil and groundwater objectives may consider background conditions.

8.02 **Soil Objectives:** Unless otherwise specified in these regulations, soil contaminated as a result of a release of hazardous materials shall be remediated in a manner which meets the direct exposure and leachability criterion for each hazardous substance established in Rule 8.02.B (Method 1 Soil Objectives: Tables 1 and 2), Rule 8.02.C (Method 2 Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives); or the background concentration of the hazardous substance as established by Rule 8.06 (Background Concentrations for Soils).

All soil objectives must be consistent with Rule 8.01 (Remedial Objectives) and Rule 8.02.A (General Requirements for Soil Objectives).

A. General Requirements for Soil Objectives:

i. General Requirements for Direct Exposure Criteria:

1. With respect to any hazardous substance in soil at a contaminated-site, the Director may approve the application of a direct exposure criterion provided it is demonstrated to the satisfaction of the Director that the application of such direct exposure criterion at the contaminated-site will be protective of current and reasonably foreseeable future human exposure.

2. Regardless of the method employed for determining the direct exposure criterion, the residential direct exposure criterion shall be applied throughout the vadose zone for each hazardous substance in soil, except as otherwise provided in this Rule.

The industrial/commercial direct exposure criterion may be applied to a depth of at least 2 feet below ground surface for each hazardous substance in soil if all of the following conditions are met:

a. The contaminated-site is currently limited to industrial/commercial activity;

b. Access to the property containing the contaminated-site is limited to individuals working at or temporarily visiting the subject parcel;

c. The current and reasonably foreseeable future human exposure to soils at the contaminated-site is not expected to occur beyond a depth of 2 feet below ground surface; and

d. An environmental land usage restriction consistent with Rule 8.09 (Institutional Controls) is in effect with respect to the property, or to the portion of the property containing the contaminated-site; such an environmental land usage restriction shall ensure that the property or restricted portion thereof is not used for any residential activity in the future and that any future use of the property or restricted portion thereof is limited to industrial/ commercial activity.

ii. General Requirements for Leachability Criteria:

1. With respect to any hazardous substance in soil at a contaminated-site, the Director may approve a leachability criterion provided it is demonstrated to the satisfaction of the Director that the application of such leachability criterion at the contaminated-site is protective of the following:

   a. The actual and potential uses of the groundwater at the contaminated-site by ensuring that, at a minimum, the leachability criterion will not contribute to an exceedance of the applicable groundwater objective for the hazardous substance as described in Rule 8.03 (Groundwater Objectives); and

   b. Surface water at or in the vicinity of the contaminated-site from potential migration of groundwater.

2. Regardless of the method employed for determining the leachability criterion, the GA leachability criterion shall be applied throughout the vadose zone for each hazardous substance in soil, except as otherwise provided in this Rule..

   The GB leachability criterion may be applied throughout the vadose zone for each substance in soil if both of the following conditions are met:

   a. The GB groundwater objective is applicable to the groundwater of concern underlying and downgradient of the contaminated-site in accordance with Rule 8.03 (Groundwater Objectives); and

   b. The application of the GB leachability criterion will not contribute to actual or potential impacts to surface water and/or sediments as described in the policies and regulations of the Division of Water Resources.

iii. Method Requirements for Soil Objectives:

For each of the hazardous substances at a contaminated-site, the Director shall approve the application of a Method 1 Soil Objective established in Rule 8.02.B (Method 1 Soil Objectives) provided that the application of the Method 1 Soil Objective is consistent with Rule 8.01 (Remedial

Objectives), Rule 8.02.A (General Requirements for Soil Objectives) and the objective is specified in Tables 1 and 2, as appropriate.

If no Method 1 Soil Objective has been promulgated for one or more hazardous substances in soil at a contaminated-site, then the following options are available:

1. Method 2 may be used to develop soil objectives for the contaminated-site as described in Rule 8.02.C (Method 2 Soil Objectives). Method 2 Soil Objectives may be used alone or in combination with other Method 1 Soil Objectives. A combined Method 1 and Method 2 approach shall be considered to result in Method 2 Soil Objectives; or

2. Method 3 may be used to develop soil objectives for the contaminated-site as described in Rule 8.04 (Method 3 Remedial Objectives).

If a Method 1 Soil Objective has been promulgated for one or more hazardous substances in soil at a contaminated-site, then the following options are available:

1. The performing party may only propose Method 2 to develop leachability criteria, as described in Rule 8.02.C (Method 2 Soil Objectives). Method 2 Leachability Criteria may be used alone or in combination with other Method 1 Leachability Criteria. A combined Method 1 and Method 2 approach shall be considered to result in Method 2 Soil Objectives; or

2. Method 3 may be used to develop soil objectives for the contaminated-site as described in Rule 8.04 (Method 3 Remedial Objectives).

For hazardous substances in soil that are determined by either the Department or the performing party to have a potential to significantly contribute to adverse effects to any environmentally sensitive area at or in the vicinity of the contaminated-site, a Method 3 Ecological Risk Assessment shall be performed in accordance with Rule 8.05 (Ecological Protection).

iv. Soil Objectives for Total Petroleum Hydrocarbons (TPH):

Although not a single hazardous substance, TPH can be useful as an indicator of potential adverse impacts to human health from a release of

hazardous materials. TPH Soil Objectives shall be applied to a contaminated-site for which jurisdiction has been established through the discovery of a release as described in Section 5 (NOTIFICATION). The Department will utilize these objectives for non-virgin petroleum/weathered petroleum situations as they occur at contaminated-sites.

Accordingly, the Department shall require that soil objectives for TPH as described in this Rule be applied to a contaminated-site in conjunction with soil objectives for the hazardous substances established pursuant to this Section. The Director shall approve the application of the functional equivalent of a direct exposure criterion and leachability criterion for TPH provided that the application of the criteria is consistent with Rule 8.01 (Remedial Objectives) and Rule 8.02.A (General Requirements for Soil Objectives). The performing party may apply the soil objectives for TPH described below or may develop soil objectives for TPH under Method 3, as described in Rule 8.04 (Method 3 Remedial Objectives).

1. The following shall be considered the Method 1 Direct Exposure Criteria for TPH, subject to the provided requirements:

   a. The Method 1 Residential TPH Direct Exposure Criterion shall be 500 ppm; or

   b. The Method 1 Residential TPH Direct Exposure Criterion may be 1000 ppm contingent upon field-verification by Department personnel to ensure that short-term risks are managed appropriately prior to approval as a final remedial objective; and

   c. The Method 1 Industrial/Commercial TPH Direct Exposure Criterion shall be 2500 ppm.

2. The following shall be considered the Method 1 Leachability Criteria for TPH, subject to the provided requirements:

   a. The Method 1 GA TPH Leachability Criterion shall be 500 ppm; or

   b. The Method 1 GA TPH Leachability Criterion may be 1000 ppm and may be field-verified at the discretion of the Department to ensure that short-term risks are managed appropriately prior to approval as a final remedial objective; and

c. The Method 1 GB TPH Leachability criterion shall be 2500 ppm.

For clarity, any reference to concentrations of hazardous substances in the following Rules shall be considered by the Department to be in addition to the appropriate concentrations of TPH as described herein: Rule 8.02 (Soil Objectives), Rule 8.04 (Method 3 Remedial Objectives), Rule 8.06 (Background Concentrations for Soils), Rule 8.08.A (Points of Compliance for Soils), Rule 8.09 (Institutional Controls) and Rule 8.10 (Compliance Sampling).

B. Method 1 Soil Objectives:

Unless otherwise prohibited by the Director, the Method 1 Soil Objectives specified in Tables 1 and 2 may be applied to a contaminated-site provided that the conditions set forth in Rule 8.01 (Remedial Objectives) and Rule 8.02.A (General Requirements for Soil Objectives) are met.

i. Method 1 Direct Exposure Criteria:

The Method 1 Direct Exposure Criteria are listed in Table 1.

ii. Method 1 Leachability Criteria:

The Method 1 Leachability Criteria are listed in Table 2.

With respect to the Method 1 Leachability Criteria for inorganic hazardous substances, the performing party shall conduct a laboratory test that demonstrates that the inorganic hazardous substance will not leach to groundwater at levels which exceed the applicable groundwater objective for the inorganic hazardous substance. Accordingly, the resulting leachate concentration must not exceed the leachability criteria for the associated inorganic hazardous substance listed in Table 2.

The performing party may perform the Synthetic Precipitation Leaching Procedure (SPLP; EPA Method 1312), the Toxicity Characteristic Leaching Procedure (TCLP; EPA Method 1311) or other procedures pre-approved by the Department to estimate potential leaching of inorganic hazardous substances at the contaminated-site.

TABLE 1

DIRECT EXPOSURE CRITERIA		
Substance	Residential (mg/kg)	Industrial/Commercial (mg/kg)
Volatile Organics		
Acetone	7,800	10,000
Benzene	2.5	200
Bromodichloromethane	10	92
Bromoform	81	720
Bromomethane	0.8	2900
Carbon tetrachloride	1.5	44
Chlorobenzene	210	10,000
Chloroform	1.2	940
Dibromochloromethane	7.6	68
Dibromochloropropane (DBCP)	0.5	4.1
Dichloroethane (1,1-)	920	10,000
Dichloroethane (1,2-)	0.9	63
Dichloroethene (1,1-)	0.2	9.5
Dichloroethene (cis-1,2-)	630	10,000
Dichloroethene (trans-1,2-)	1,100	10,000
Dichloropropane (1,2)	1.9	84
Ethyl benzene	71	10,000
Ethylene dibromode (EDB)	0.01	0.07
Isopropyl benzene	27	10,000
Methyl ethyl ketone	10,000	10,000
Methyl isobutyl ketone	1200	10,000
Methyl-tert-butyl-ether (MTBE)	390	10,000
Methylene chloride	45	760
Styrene	13	190
Tetrachloroethane,1,1,1,2	2.2	220

TABLE 1

DIRECT EXPOSURE CRITERIA		
[illegible]	Residential (mg/kg)	Industrial/Commercial (mg/kg)
Tetrachloroethane,1,1,2,2	1.3	29
Tetrachloroethylene	12	110
Toluene	190	10,000
Trichloroethane, 1,1,1-	540	10,000
Trichloroethane, 1,1,2-	3.6	100
Trichloroethylene	13	520
Vinyl chloride	0.02	3.0
Xylenes (Total)	110	10,000
Semivolatiles		
Acenaphthene	43	10,000
Acenaphthylene	23	10,000
Anthracene	35	10,000
Benzo(a)anthracene	0.9	7.8
Benzo(a)pyrene[a]	0.4	0.8
Benzo(b)fluoranthene	0.9	7.8
Benzo(g,h,i)perylene	0.8	10,000
Benzo(k)fluoranthene	0.9	78
Biphenyl, 1,1-	0.8	10,000
Bis(2-ethylhexyl)phthalate	46	410
Bis(2-chloroethyl)ether	0.6	5.2
Bis(2-chloroisipropyl)ether	9.1	82
Chloroaniline, 4- (p-)	310	8200
Chlorophenol, 2-	50	10,000
Chrysene	0.4	780
Dibenzo(a,h)anthracene[a]	0.4	0.8
Dichlorobenzene, 1,2- (o-DCB)	510	10,000

TABLE 1

DIRECT EXPOSURE CRITERIA		
Substance	Residential (mg/kg)	Industrial/Commercial (mg/kg)
Dichlorobenzene, 1,3- (m-DCB)	430	10,000
Dichlorobenzene, 1,4- (p-DCB)	27	240
Dichlorobenzidine, 3,3-	1.4	13
Dichlorophenol, 2,4-	30	6,100
Diethyl phthalate	340	10,000
Dimethyl phenol, 2,4-	1,400	10,000
Dimethyl phthalate	1900	10,000
Dinitrophenol, 2,4-	160	4,100
Dinitrotoluene, 2,4-	0.9	8.4
Fluoranthene	20	10,000
Fluorene	28	10,000
Hexachlorobenzene	0.4	3.6
Hexachlorobutadiene	8.2	73
Hexachloroethane	46	410
Indeno(1,2,3-cd)pyrene	0.9	7.8
Methyl naphthalene, 2-	123	10,000
Naphthalene	54	10,000
Pentachlorophenol	5.3	48
Phenanthrene	40	10,000
Phenol	6,000	10,000
Pyrene	13	10,000
Trichlorobenzene, 1,2,4-	96	10,000
Trichlorophenol, 2,4,5-	330	10,000
Trichlorophenol, 2,4,6-	58	520

TABLE 1

DIRECT EXPOSURE CRITERIA		
[illegible]	Residential (mg/kg)	Industrial/Commercial (mg/kg)
Pesticides/PCBs		
Chlordane	0.5	4.4
Dieldrin	0.04	0.4
Polychlorinated biphenyls (PCBs)[b]	10	10
Inorganics		
Antimony	10	820
Arsenic[c]	1.7	3.8
Barium	5,500	10,000
Beryllium[c]	0.4	1.3
Cadmium	39	1,000
Chromium III (Trivalent)	1,400	10,000
Chromium VI (Hexavalent)	390	10,000
Copper	3,100	10,000
Cyanide	200	10,000
Lead[d]	150	500
Manganese	390	10,000
Mercury	23	610
Nickel	1,000	10,000
Selenium	390	10,000
Silver	200	10,000
Thallium	5.5	140
Vanadium	550	10,000
Zinc	6,000	10,000

[illegible] Estimated quantitation limits
[illegible] Direct exposure criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)
[illegible] Background Levels of Priority Pollutant Metals in Rhode Island Soils, T. O'Connor, RIDEM
[illegible] Direct exposure criteria for Lead consistent with the Rhode Island Department of Health Rules and Regulations for Lead Poisoning Prevention [R23-24.6-PB], as amended

TABLE 2

LEACHABILITY CRITERIA		
[illegible]	CA Leachability (mg/kg except as otherwise noted)	CAT Leachability (mg/kg)
Volatile Organics		
Benzene	0.2	4.3
Carbon tetrachloride	0.4	5.0
Chlorobenzene	3.2	100
Dichloroethane (1,2-)	0.1	2.3
Dichloroethylene (1,1-)	0.7	0.7
Dichloroethylene (cis-1,2-)	1.7	60
Dichloroethylene (trans-1,2-)	3.3	92
Dichloropropane (1,2)	0.1	70
Ethylbenzene	27	62
Ethylene dibromide (EDB)	5E-04	-
Methyl-tert-butyl-ether (MTBE)	0.9	100
Styrene	2.9	64
Tetrachloroethylene	0.1	4.2
Toluene	32	54
Trichloroethane (1,1,1-)	11	160
Trichloroethane (1,1,2-)	0.1	-
Trichloroethylene	0.2	20
Vinyl chloride	0.3	-
Xylenes	540	-
Semivolatiles		
Benzo(a)pyrene	240	-
Dichlorobenzene (all isomers)	41	-
Diethylhexyl phthalate	120	-

TABLE 2

LEACHABILITY CRITERIA		
Substance	GA Leachability (mg/kg except as otherwise noted)	GB Leachability (mg/kg)
Naphthalene	0.8	-
Pentachlorophenol	7.1	-
Trichlorobenzene (1,2,4-)	140	-
Pesticides/PCBs		
Chlordane	1.4	-
Polychlorinated biphenyls (PCBs)[a]	10.0	10.0
Substance	GA Leachability (mg/l)	GB Leachability (mg/l)
Inorganics		
Antimony (TCLP/SPLP)	0.05	-
Barium (TCLP/SPLP)	23	-
Beryllium (TCLP/SPLP)	0.03	-
Cadmium (TCLP/SPLP)	0.03	-
Chromium (TCLP/SPLP)	1.1	-
Cyanide (TCLP/SPLP)	2.4	-
Lead (TCLP/SPLP)	0.04	-
Mercury (TCLP/SPLP)	0.02	-
Nickel (TCLP/SPLP)	1	-
Selenium (TCLP/SPLP)	0.6	-
Thallium (TCLP/SPLP)	0.005	-

"-" No Method 1 GB Leachability Criteria promulgated

[a] Leachability criteria for PCBs consistent with the Toxic Substance Control Act (TSCA)

C. Method 2 Soil Objectives:

Method 2 allows for the consideration of limited site-specific information to modify Method 1 Soil Objectives or to calculate soil objectives for hazardous substances not listed in Table 1 or Table 2. For the purposes of these regulations, a Method 2 Soil Objective shall refer to any soil objective which addresses site-specific conditions established pursuant to this Rule and in accordance with the appropriate information presented in Appendix D and Appendix E.

The Department reserves the right to require the development of Method 2 Soil Objectives based on complicated conditions at a contaminated-site, including, but not limited to potential adverse impacts to adjacent surface water bodies or other potential impacts to human health and/or the environment.

Method 2 Soil Objectives shall be consistent with Rule 8.01 (Remedial Objectives), Rule 8.02.A (General Requirements for Soil Objectives) and shall meet all of the following conditions in Rules 8.02.C.i through iv listed below:

i. Direct exposure criteria shall only be developed under Method 2 for those hazardous substances which are not specified under Method 1 in Table 1. Method 2 Direct Exposure Criteria shall be developed using the default assumptions provided in Appendix D. The chemical-specific inputs used to develop the Method 2 Direct Exposure Criteria are subject to the approval of the Director for each proposed application;

ii. Method 2 Soil Objectives shall be developed for hazardous substances on the basis of the following assumptions and procedures:

1. Based upon non-cancer health risk, a concentration of the hazardous substance associated with 100% of the Reference Dose shall be calculated consistent with residential or industrial/commercial activity as appropriate pursuant to Rule 8.02 A.i (General Requirements for Direct Exposure Criteria) using the algorithm specific to the ingestion pathway provided in Appendix D. For a contaminated-site which impacts one or more properties utilized for any residential activity, a concentration of the hazardous substance associated with acute ingestion and the inhalation pathway shall also be calculated using the appropriate algorithms in Appendix D;

2. A concentration of the hazardous substance associated with an Excess Lifetime Cancer Risk equal to no more than one excess cancer case in one million people exposed to the hazardous substance shall be calculated consistent with residential or

industrial/commercial activity as appropriate pursuant to Rule 8.02.A.i (General Requirements for Direct Exposure Criteria) using the algorithm specific to the ingestion pathway provided in Appendix D. For a contaminated-site which impacts one or more properties utilized for any residential activity, a concentration of the hazardous substance associated with the inhalation pathway shall be calculated using the appropriate algorithm in Appendix D;

3. For a contaminated-site impacting one or more properties utilized for any residential activity, the soil saturation concentration (Csat) of the hazardous substance above which pure liquid-phase contaminant is expected in the vadose zone shall be calculated using the equation provided in Appendix D and appropriate chemical-specific and/or soil specific data collected from the contaminated-site;

4. For each concentration of hazardous substance calculated consistent with residential or industrial/commercial activity as appropriate pursuant to Rule 8.02.A.i (General Requirements for Direct Exposure Criteria), the lowest non-zero concentration estimated in Rule 8.02.C.ii.1 through 3 above shall be the Method 2 Direct Exposure Criterion for the hazardous substance;

5. Considering the groundwater classification at the contaminated-site, the Method 2 Leachability Criterion shall be developed utilizing a Department-approved leaching model or test method which demonstrates that the concentrations of the hazardous substance in soil at a contaminated-site now and in the reasonably foreseeable future will result in compliance with all applicable groundwater objectives for that hazardous substance. Therefore, the Department shall approve the target groundwater objective for each hazardous substance established in accordance with this Section prior to the development of the associated Method 2 Leachability Criterion.

   Specifically, Method 2 Leachability Criteria shall be determined by performing the following:

   a. Method 2 Leachability Criteria for Organic Hazardous Substances:

      The performing party may provide a leaching-to-groundwater compliance demonstration with a Department-approved fate and transport model such as that discussed in Appendix E which incorporates site-specific information

such as physical and chemical properties of the hazardous substances including, but not limited to toxicity and mobility, source quantity, subsurface hydrogeological conditions and net precipitation; and

b. Method 2 Leachability Criteria for Inorganic Hazardous Substances:

The performing party shall conduct a laboratory test consistent with that described in Rule 8.02.B.ii (Method 1 Leachability Criteria). The performing party may develop a Method 2 Leachability Criterion for an inorganic hazardous substance by calculating a site-specific dilution/attenuation factor using the algorithm in Appendix E to be multiplied by the appropriate groundwater objective;

6. A site-specific background concentration of the hazardous substance in soil may be calculated and considered for the hazardous substance pursuant to Rule 8.06 (Background Concentrations for Soils); and

7. The Practical Quantitation Limit (PQL) of the hazardous substance using an appropriate analytical method for quantifying the concentration of the chemical in soil may be calculated and considered;

iii. If the development of a Method 2 Soil Objective results in a concentration of a hazardous substance which exceeds any Upper Concentration Limit as described in Rule 8.07 (Upper Concentration Limits), then the Department reserves the right to require that the modification be adjusted downward to a concentration which prevents the exceedance; and

iv. The development of Method 2 Soil Objectives shall be based upon information which is scientifically justified and completely documented with site data collected from the contaminated-site. At a minimum, Method 2 Soil Objective development shall be documented with sufficient information to allow the Director to evaluate the following factors:

1. The appropriateness and validity of any chemical-specific and/or site-specific input parameters used;

2. Whether the calculations were correctly performed;

3. The potential for soils at the contaminated-site to pose a significant risk to human health and the environment after the proposed Method 2 Soil Objectives are applied to the contaminated-site as part of a remedial action; and

4. Background levels for the applicable hazardous substances, if determined.

8.03 **Groundwater Objectives:** Unless otherwise specified in these regulations or otherwise provided by the Director, groundwater contaminated as a result of a release of hazardous materials located in a GA/GAA area shall be remediated to a concentration which meets the groundwater objective for each hazardous substance established in Rule 8.03.B.i (Method 1 GA Groundwater Objectives) and specified in Table 3 or Rule 8.04 (Method 3 Remedial Objectives); or the background concentration of the hazardous substance. Any Method 3 GA Groundwater Objective which deviates from the Method 1 GA Groundwater Objective shall meet the requirements of Rule 13.04 of the Groundwater Quality Regulations.

Groundwater contaminated as a result of a release of hazardous materials located in a GB area shall be remediated to a concentration which meets the groundwater objective for each hazardous substance established in Rule 8.03.B.ii (Method 1 GB Groundwater Objectives) and specified in Table 4, Rule 8.03.C (Method 2 GB Groundwater Objectives) or Rule 8.04 (Method 3 Remedial Objectives); or the background concentration of the hazardous substance.

All groundwater objectives must be consistent with Rule 8.01 (Remedial Objectives) and Rule 8.03.A (General Requirements for Groundwater Objectives).

A. General Requirements for Groundwater Objectives:

i. General Requirements for GA Groundwater Objectives:

1. GA Groundwater Objectives may not be set at levels, except within an approved discharge zone or residual zone (as provided for in Rules 13.03 and 13.04, respectively, of the Groundwater Quality Regulations) which will adversely affect the groundwater as a source of potable water or which will adversely affect other beneficial uses of groundwater, including but not to be limited to recreational, agricultural and industrial uses and the preservation of fish and wildlife habitat through the maintenance of surface water quality; and

2. GA Groundwater Objectives may not be set at levels which exceed or have reasonable potential to cause exceedance of surface water

quality standards established by the Rhode Island Water Quality Regulations for Water Pollution Control, October 1988, and amendments thereto.

ii. General Requirements for GB Groundwater Objectives:

The GB Groundwater Objectives shall be applied in the restoration of the State's groundwater resources which are not for use as current or potential sources of drinking water. GB Groundwater Objectives shall be based on the potential for volatile organic compounds found or suspected in GB areas to volatilize from the groundwater and migrate to indoor air. These GB Groundwater Objectives are based on controlling the threat to human health from the inhalation of these hazardous substances.

The GB Groundwater Objectives shall be applied to the restoration of groundwater in GB Areas under the control of the performing party, provided that the Department determines that the following conditions apply to the contaminated groundwater:

1. The extent and nature of the groundwater contamination does not pose a substantial likelihood of exceeding a surrounding GA Groundwater Objective;

2. The extent and nature of the groundwater contamination does not pose a substantial likelihood of adversely affecting current uses of groundwater, surface water resources or surrounding properties as they exist at the time that the site investigation work is conducted (i.e., adverse off-site impacts are eliminated or effectively mitigated);

3. The groundwater of concern is not located in a designated buffer zone around a licensed solid waste management facility and specific exceedances are acknowledged as part of the operating permit; and

4. The groundwater of concern does not pose a significant threat to the classification and/or actual and potential uses of the surface water bodies in the vicinity of the contaminated-site consistent with the policies and regulations of the Division of Water Resources, or to human health and the environment.

iii. Method Requirements for Groundwater Objectives:

1. Method Requirements for GA Groundwater Objectives:

For each of the hazardous substances at a contaminated-site, the Director shall approve the application of a Method 1 GA Groundwater Objective established in Rule 8.03.B.i (Method 1 GA Groundwater Objectives) provided that the application of the Method 1 GA Groundwater Objective is consistent with Rule 8.01 (Remedial Objectives), Rule 8.03.A (General Requirements for Groundwater Objectives) and the objective is specified in Table 3.

The performing party may develop groundwater objectives under Method 3, as described in Rule 8.04 (Method 3 Remedial Objectives). Groundwater objectives developed using Method 3 may be used alone or in combination with other Method 1 Groundwater Objectives. A combined Method 1 and Method 3 approach shall be considered to result in Method 3 GA Groundwater Objectives.

2. Method Requirements for GB Groundwater Objectives:

For each of the hazardous substances at the contaminated-site, the Director shall approve the application of a Method 1 GB Groundwater Objective established in Rule 8.03.B.ii (Method 1 GB Groundwater Objectives) provided that the Method 1 GB Groundwater Objective is consistent with Rule 8.01 (Remedial Objectives), Rule 8.03.A (General Requirements for Groundwater Objectives) and the objective is specified in Table 4.

The following options are also available to the performing party with respect to GB Groundwater Objective development:

a. Method 2 may be used to develop groundwater objectives for the contaminated-site as described in Rule 8.03.C (Method 2 GB Groundwater Objectives). Method 2 GB Groundwater Objectives may be used alone or in combination with Method 1 GB Groundwater Objectives. A combined Method 1 and Method 2 approach shall be considered to result in Method 2 GB Groundwater Objectives;

b. Method 3 may be used to develop groundwater objectives for the contaminated-site as described in Rule 8.04 (Method 3 Remedial Objectives); or

c. The Method 1 GA Groundwater Objectives as specified in Table 3 may be used for those hazardous substances not included in Table 4.

For hazardous substances in groundwater that are determined by either the Department or the performing party to significantly contribute to adverse effects to any environmentally sensitive area at or in the vicinity of the contaminated-site, a Method 3 Ecological Risk Assessment shall be performed in accordance with Rule 8.05 (Ecological Protection).

B. Method 1 Groundwater Objectives:

Unless otherwise prohibited by the Director, the Method 1 Groundwater Objectives may be applied to a contaminated-site provided that the conditions set forth in Rule 8.01 (Remedial Objectives) and Rule 8.03.A (General Requirements for Groundwater Objectives) are met.

i. Method 1 GA Groundwater Objectives:

Groundwater which is classified as a GA/GAA area is categorized as or presumed to be suitable for drinking water use without treatment, and is subject to the GA Groundwater Objectives listed in Table 3.

ii. Method 1 GB Groundwater Objectives:

Groundwater which is classified as a GB area is presumed not suitable for use as a current or potential source of drinking water, and is subject to the GB Groundwater Objectives listed in Table 4.

TABLE 3

GA GROUNDWATER OBJECTIVES	
Substance	GA Groundwater Objective (ug/l)
Volatile Organics	
Benzene	0.005
Carbon tetrachloride	0.005
Chlorobenzene	0.1
Dibromomchloropropane(DBCP)	0.0002
Dichloroethane (1,2-)	0.005
Dichloroethylene (1,1-)	0.007
Dichloroethylene (cis-1,2-)	0.07
Dichloroethylene (trans-1,2-)	0.1
Dichloropropane (1,2-)	0.005
Ethylbenzene	0.7
Ethylene dibromide (EDB)	0.00005
Methyl tertiary butyl ether (MTBE)	0.04
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1
Trichloroethane (1,1,1-)	0.2
Trichloroethane (1,1,2-)	0.005
Trichloroethylene (TCE)	0.005
Trihalomethanes (Total)	0.1
Vinyl chloride	0.002
Xylenes (Total)	10
Semivolatiles	
Benzo(a)pyrene	0.0002
Dichlorobenzene (o-)	0.6

TABLE 3

GA GROUNDWATER OBJECTIVES	
Substance	GA Groundwater Objective (ug/l)
Dichlorobenzene (m-)	0.6
Dichlorobenzene (p-)	0.075
Diethylhexyl phthalate	0.006
Hexachlorobenzene	0.001
Methylene chloride	0.005
Naphthalene	0.02
Pentachlorophenol	0.001
Trichlorobenzene (1,2,4-)	0.07
Pesticides/PCBs	
Chlordane	0.002
Polychlorinated biphenyls (PCBs)	0.0005
Inorganics	
Antimony	0.006
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium (Total)	0.1
Cyanide	0.2
Lead	0.015
Mercury	0.002
Nickel	0.1
Selenium	0.05
Thallium	0.002

TABLE 4

GB GROUNDWATER OBJECTIVES	
Substance	**GB Groundwater Objective (mg/l)**
Benzene	0.14
Carbon Tetrachloride	0.07
Chlorobenzene	3.2
Dibromochloropropane (DBCP)	0.002
Dichloroethane (1,2-)	0.11
Dichloroethylene (1,1-)	0.007
Dichloroethylene (cis-1,2-)	2.4
Dichloroethylene (trans-1,2-)	2.8
Dichloropropane (1,2-)	3.0
Ethylbenzene	1.6
Styrene	2.2
Methyl Tertiary Butyl Ether (MTBE)	5.0
Tetrachloroethylene	0.15
Toluene	1.7
Trichloroethane (1,1,1-)	3.1
Trichloroethylene	0.54

C. Method 2 GB Groundwater Objectives:

Method 2 allows for the consideration of limited site-specific information to modify Method 1 GB Groundwater Objectives or to calculate GB Groundwater Objectives for hazardous substances in groundwater not listed in Table 4, but which have the potential to volatilize. For the purposes of these regulations, a Method 2 GB Groundwater Objective shall refer to any groundwater objective which has addressed site-specific conditions pursuant to this Rule and in accordance with the appropriate information presented in Appendix F.

The Department reserves the right to require the development of Method 2 GB Groundwater Objectives based on complicated conditions at the contaminated-site such as potential adverse impacts to adjacent surface water bodies, potential adverse impacts to surrounding GA/GAA areas or other potential impacts to human health and/or the environment.

Method 2 GB Groundwater Objectives may be developed for hazardous substances which do not have promulgated Method 1 GB Groundwater Objectives listed in Table 4, or when conditions at the contaminated-site deviate significantly from the conservative assumptions used to calculate the Method 1 GB Groundwater Objectives as discussed in Appendix F, provided that the resulting Method 2 GB Groundwater Objective is based on detailed site-specific information.

Method 2 GB Groundwater Objectives shall be consistent with Rule 8.01 (Remedial Objectives) and Rule 8.03.A (General Requirements for Groundwater Objectives) and shall meet all of the following conditions in Rules 8.03.C.i through iv listed below:

i. The Method 2 GB Groundwater Objective shall be based, at a minimum, on the following:

   1. A scientifically acceptable volatilization model such as that described in Appendix F; or

   2. Transport and fate modeling that incorporates site-specific information on the hazardous substances, hydrogeological conditions at the contaminated-site, current and reasonably foreseeable building conditions, and which demonstrates that contamination will not infiltrate to indoor air and result in significant risk of harm to human health or the environment; and/or

   3. Soil gas characterization data, indoor air characterization data, and data resulting from field investigation activities conducted at and proximate to the contaminated-site;

ii. The Method 2 GB Groundwater Objectives shall not result in indoor or ambient air concentrations which pose a significant risk of harm to human health or the environment;

iii. If the development of a Method 2 GB Groundwater Objective results in a concentration of a hazardous substance which exceeds any Upper Concentration Limit as described in Rule 8.07 (Upper Concentration Limits), then the Department reserves the right to require that the

modification be adjusted downward to a concentration which prevents the exceedance; and

iv. Method 2 GB Groundwater Objectives shall be scientifically justified and sufficiently documented to demonstrate that the developed objectives are protective against migration of hazardous substances into indoor air or any other site-specific considerations. At a minimum, Method 2 GB Groundwater Objective development shall be documented with sufficient information to allow the Director to evaluate the following:

1. The appropriateness and validity of any chemical-specific and/or site-specific input parameters used;

2. Whether the calculations, modeling or sampling were correctly performed;

3. The potential for groundwater at the contaminated-site to pose significant risk to human health and the environment after the proposed Method 2 GB Groundwater Objectives are applied to the contaminated-site as part of a remedial action; and

4. Background levels for the applicable hazardous substances, if determined.

8.04 **Method 3 Remedial Objectives:** Method 3 Remedial Objectives allow for a site-specific risk assessment to be conducted by the performing party on either a voluntary basis, or as required by the Director, subject to requirements of Rule 8.01 (Remedial Objectives), and to the extent appropriate to Rule 8.02.A (General Requirements for Soil Objectives) and Rule 8.03.A (General Requirements for Groundwater Objectives).

Site-specific human health risk assessments shall be conducted only after review and approval of a Human Health Risk Assessment Workplan by the Department. The methodology proposed in the Human Health Risk Assessment Workplan must be consistent with scientifically acceptable risk assessment practices and the fundamentals of risk assessment under EPA's Risk Assessment Guidance for Superfund. The Human Health Risk Assessment Report, when completed according to the approved workplan, shall propose remedial objectives for all impacted environmental media, as appropriate.

In addition, in reviewing the site-specific Method 3 Remedial Objectives derived pursuant to this Rule, the Director may evaluate the following factors:

A. The potential for any remaining hazardous substances to pose a significant threat to human health or the environment;

B. Correct application of the approved methodology;

C. The management of risk relative to any remaining contamination;

D. Background levels for the applicable hazardous substances; and

E. Circumstances related to the practicality of remediation.

Method 3 Remedial Objectives shall also be utilized to develop remedial objectives which are protective of environmentally sensitive areas. To the extent that remedial objectives protective of environmentally sensitive areas are required by the Director, the performing party must develop such remedial objectives in accordance with Rule 8.05 (Ecological Protection).

If any Method 3 Remedial Objective results in an exceedance of any Upper Concentration Limit as described in Rule 8.07 (Upper Concentration Limits), then the Department reserves the right to require that the Method 3 Remedial Objective be adjusted downward to a concentration which prevents the exceedance.

8.05 **Ecological Protection:** Based on information provided in the Notification, Site Investigation or any other source, if a release of hazardous materials has the potential to adversely impact an environmentally sensitive area, then the Director may require the following, including but not limited to:

A. An Ecological Risk Assessment, conducted in accordance with EPA/630/R-92/001, February 1992, Framework for Ecological Risk Assessment, or functional equivalent. The Ecological Risk Assessment shall be conducted only after Department review and approval of an Ecological Risk Assessment Workplan; and

B. An Ecological Risk Assessment Report, which proposes remedial objectives demonstrated to mitigate any risks to the impacted media identified in the Ecological Risk Assessment. Soil objectives which result from the Ecological Risk Assessment Report shall be considered Method 3 Soil Objectives.

8.06 **Background Concentrations for Soil:**

A. Sampling of hazardous substances in background areas may be conducted to distinguish concentrations related to the contaminated-site from concentrations of hazardous substances not related to activities at the contaminated-site or to support the development of soil objectives under the provisions of Rule 8.02 (Soil Objectives).

B. For purposes of defining background concentrations, samples shall be collected from areas that have the same characteristics as the soil at the contaminated-site, and meet the definition of background.

C. In order to evaluate or justify available data for the purposes of defining background concentrations, a performing party shall use a statistical method which is appropriate for the distribution of each hazardous substance and such method shall utilize a minimum of twenty samples. If the distribution of the hazardous substance data is inappropriate for statistical methods based on a normal distribution, then the data may be transformed. If the distributions of individual hazardous substances differ, more than one statistical method may be required at a contaminated-site.

D. For purposes of estimating background concentrations, values below the method detection limit shall be assigned a value equal to one-half of the method detection limit. Measurements above the method detection limit, but below the practical quantitation limit shall be assigned a value equal to the method detection limit. The Department may approve the use of alternate statistical procedures for handling data below the method detection limit or practical quantitation limit.

8.07 **Upper Concentration Limits:** Upper Concentration Limits in soil and groundwater are concentrations of hazardous substances which, if exceeded, may demarcate a transition between contaminated environmental media and waste in the environment. Upper Concentration Limits are not applicable to soil which has been immobilized or encapsulated as part of an approved remedial response action.

All remedial objectives shall address the following concentrations or conditions:

A. The presence of non-aqueous phase liquids (NAPL) in any environmental medium shall be considered a condition which exceeds Upper Concentration Limits;

B. The Upper Concentration Limit for TPH in soil is 30,000 ppm;

C. The Upper Concentration Limit for any hazardous substance in soil is 10,000 ppm; and

D. Table 5 lists the Upper Concentration Limits in GB groundwater which are protective against potential explosive conditions due to the volatilization of hazardous substances in groundwater to structures where human exposures cannot be reasonably expected to occur (see Appendix F).

TABLE 5

UPPER CONCENTRATION LIMITS FOR GB GROUNDWATER	
Substance	**GB Groundwater UCL (mg/l)**
Benzene	18
Chlorobenzene	56
Dichloroethane (1,2-)	670
Dichloroethene (1,1-)	23
Dichloroethene (cis-1,2-)	69
Dichloroethene (trans-1,2-)	79
Dichloropropane (1,2-)	140
Ethyl Benzene	16
Styrene	50
Toluene	21
Trichloroethane (1,1,1-)	68
Trichloroethylene	87

8.08 **Points of Compliance:**

A. Points of Compliance for Soils:

i. The points of compliance for soils are points where the soil objectives established under Rule 8.02 (Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) shall be attained. For soil objectives based on direct exposure to humans engaged in residential or industrial/commercial activities, the point of compliance shall be established in the soils throughout the contaminated-site, except as otherwise specified in Rule 8.02.A.i (General Requirements for Direct Exposure Criteria). For soil objectives based on protection of GA/GAA or GB areas, the points of compliance shall be established throughout the contaminated-site in a manner consistent with Rule 8.02.A.ii (General Requirements for Leachability Criteria).

ii. For a contiguous volume of contaminated soil which is determined to pose risks associated with direct exposure to humans engaged in residential and industrial/commercial activities, separate and distinct points of compliance may be proposed, provided that such points of compliance are consistent with Rule 8.02.A.i (General Requirements for Direct Exposure Criteria) and are demonstrated to ensure protection of both residential and industrial/commercial activities. Such points of compliance are subject to the approval of the Director.

The performing party shall take affirmative steps to manage the contaminated-site such that the contaminated-site does not impact property which is not within the control of performing party, by ensuring that, at a minimum, the following requirements are met:

1. The concentration of any hazardous substance in soil does not exceed the Method 1 Residential Direct Exposure Criterion as described in Rule 8.02 (Soils Objectives) and as specified in Table 1 at any point beyond the control of the performing party;

2. The direct exposure criteria which is applied to the full areal extent which is under the control of the performing party does not present threats to human health and the environment at any point within that control pursuant to Rule 8.01 (Remedial Objectives), Rule 8.02 (Soil Objectives) or Rule 8.04 (Method 3 Remedial Objectives) as appropriate; and

3. The performing party shall provide formal written documentation to the Department demonstrating the performing party's control over the full areal extent of the Method 1 Residential Direct Exposure Criterion exceedance including, but not limited to the following, as appropriate:

   a. Documented acceptance of any residential direct exposure criterion developed pursuant to Rule 8.04 (Method 3 Remedial Objectives) and all supporting documentation used in their derivation from all landowners whose property is impacted by the release; and

   b. An environmental land usage agreement entered into by all impacted land owners pursuant to Rule 8.09 (Institutional Controls), if the exposure assumptions made in the development of the Method 3 Remedial Objective are such that they need to be institutionally maintained in order to

guarantee long-term protection of human health and the environment.

iii. For a contaminated-site which is determined to actually or potentially impact GA/GAA and GB areas, separate and distinct points of compliance for soils may be proposed, provided that such points of compliance are consistent with Rule 8.02.A.ii (General Requirements for Leachability Criteria) and are demonstrated to ensure compliance with both GA and GB Groundwater Objectives.

iv. Points of compliance for soils based on impacts to environmentally sensitive areas shall be established throughout the contaminated-site or as determined in the ecological risk assessment performed in accordance with Rule 8.05 (Ecological Protection).

B. Points of Compliance for Groundwater:

i. Points of Compliance with the GA Groundwater Objectives:

Any point where the groundwater quality is monitored or where groundwater is withdrawn for use, excepting points within a discharge zone or residual zone approved pursuant to Section 13 of the Groundwater Quality Regulations, may be used to determine compliance with the groundwater objectives for the area. Points of compliance with GA Groundwater Objectives may be on, or in close downgradient proximity to, the contaminated-site.

ii. Points of Compliance with the GB Groundwater Objectives:

1. Points of compliance with GB Groundwater Objectives shall be established at locations which provide ample warning prior to groundwater flow into, under and around structures. Specifically:

a. Points of compliance with the GB Groundwater Objectives shall be established along a line situated approximately 30 feet (or any other appropriate and hydrologically defensible distance approved by the Director) laterally from any facility structure boundary, including, but not limited to utility conduits and structures such as sewer lines and pump houses;

b. These points of compliance shall be situated along this line in a manner consistent with the groundwater flow direction;

c. The spacing between points of compliance on the line will depend on site-specific information such as size of the structure, and must be managed in such a way as to provide sufficient information regarding any potential impacts from contaminated groundwater volatilizing to indoor air;

d. These points of compliance may be in addition to points of compliance designated for source control activities; and

e. The Department reserves the right to require additional or separate points of compliance based on site-specific circumstances;

2. The performing party shall take affirmative steps to eliminate migration of any hazardous substance in groundwater to a GB area which is not under the control of the performing party, by ensuring that, at a minimum, the following requirements are met:

a. The concentration of the hazardous substance in groundwater does not exceed the Method 1 GB Groundwater Objective as specified in Table 4 at any point beyond the control of the performing party; and

b. The GB Groundwater Objective which is applied to the full areal extent which is under the control of the performing party does not present threats to human health and the environment at any point within that control pursuant to Rule 8.01 (Remedial Objectives), Rule 8.03.A (General Requirements for Groundwater Objectives), 8.03.C (Method 2 GB Groundwater Objectives) or Rule 8.04 (Method 3 Remedial Objectives) as appropriate;

3. The performing party shall provide formal written documentation to the Department demonstrating the performing party's control over the full areal extent of the Method 1 GB Groundwater Objective exceedance including, but not limited to the following, as appropriate:

a. Documented acceptance of the GB Groundwater Objectives and all supporting documentation used in their derivation from all landowners whose property is impacted by the release; and

b. An environmental land usage agreement entered into by all impacted land owners pursuant to Rule 8.09 (Institutional Controls), if the exposure assumptions made in the development of the GB Groundwater Objectives are such that they need to be institutionally maintained in order to guarantee long-term protection of human health and the environment.

4. Points of compliance for groundwater based on impacts to environmentally sensitive areas shall be established throughout the contaminated-site or as determined in the ecological risk assessment performed in accordance with Rule 8.05 (Ecological Protection).

8.09 **Institutional Controls:** Performing parties must institute environmental land usage restrictions for all properties subject to final decisions which result in levels of hazardous substances greater than those protective against direct exposure associated with residential land usage; or are subject to final decisions under a variance pursuant to Rule 12.03 (Variances) relating to a remedial objective pursuant to these regulations; or are subject to any final decisions based solely or in part on the limitation of reasonably foreseeable exposures to hazardous substances in any media.

The owner(s) of the contaminated-site shall document their concurrence with this restriction by entering an Environmental Land Usage Agreement with the Department. The standard format for this agreement is provided in Appendix G. The executed Environmental Land Usage Agreement shall run with the land, as recorded on the title(s) to the property (or properties) on which the contaminated-site is situated, and shall be binding on all owners, successors and/or assigns. This agreement, and the associated restrictions and controls shall be subject to approval by the Director and shall include provisions to accomplish all of the following:

A. Prohibit activities on the contaminated-site that may interfere with a remedial action and its operation and maintenance, long-term monitoring or other measures necessary to assure the integrity of the remedial action;

B. Prohibit activities that may result in human exposure to levels of hazardous substances which exceed the concentrations that have been determined to be protective of human health, or that may result in a release of hazardous materials which was contained as part of the remediation;

C. Require prior notice to the Department of the owner's intent to convey any interest in the contaminated-site. A conveyance of title, an easement, or other interest in the property or portion of the property shall not be consummated by the owner without complete and full disclosure of the plans and procedures, and adequate and

complete provision for the continued operation of the remedy and the prevention of releases and exposures as described in Rule 8.09.B;

D. Grant to the Department and its designated representatives the right to enter the property at reasonable times for the purpose of monitoring compliance with the remedial action; and

E. Describe the restrictions placed on the property and/or the allowable uses of the property.

A copy of the final, recorded notice must be submitted to the Department within fifteen (15) days of the date that it is entered into the Land Evidence Records.

8.10 **Compliance Sampling:**

A contaminated-site is considered by the Director to be compliant with the Remediation Regulations when it is demonstrated that the appropriate remedial objectives have been met at all source areas within the contaminated-site. This Rule specifies procedures for determining compliance with the appropriate soil objectives and groundwater objectives applied to the contaminated-site. Compliance procedures with all other remedial objectives shall be determined on a site-specific basis.

A. Compliance with the Soil Objectives:

All performing parties have, unless otherwise specified by the Director, two alternatives for determining compliance with soil objectives. These alternatives are:

i. A performing party may propose in the Remedial Action Work Plan to verify compliance by taking less than twenty samples for laboratory analysis. This must be accomplished by a representative sampling program used to characterize the distribution and concentration of hazardous substances at the former source area. The analytical results of all samples taken using this approach, including any and all specific samples which may be specified and/or taken by the Department, must be below the appropriate soil objective in order for the source area to be considered compliant with these Regulations; or

ii. A performing party may propose in the Remedial Action Work Plan to verify compliance by geometrically griding the former source area and taking not less than twenty compliance samples for laboratory analysis at the intersecting points of the grid. If a performing party utilizes this criteria they may also propose a statistical analysis methodology for

determining compliance. This methodology must meet the following criteria:

1. No single sample result exceeds the soil objective by a factor of 5;

2. No more than 10% of the individual sample results exceed the soil objective; and

3. No single sample result exceeds any Upper Concentration Limit as defined by Rule 8.07 (Upper Concentration Limits).

B. Compliance with the Groundwater Objectives:

Compliance with the groundwater objectives shall be determined through laboratory analysis of representative samples used to characterize the distribution and concentration of hazardous substances migrating from the contaminated-site. The analytical results of all samples taken using this approach must be below the appropriate groundwater objective in order for the contaminated-site to be considered compliant with these Regulations.

8.11 **Remedial Objective Approvals:** All remedial objectives must be approved by the Department at one of two points in the site management process. These are:

A. Rule 7.04 (Development of Remedial Alternatives); or

B. Rule 9.02 (Remedial Objectives).

9.00 REMEDIAL ACTION WORK PLAN

9.01 **Remedial Action Work Plan**: The performing party for a contaminated-site where remedial action is found to be necessary under these regulations must prepare and submit to the Department for review and approval a Remedial Action Work Plan documenting how the proposed remedial action will be implemented. The Director shall base the decision to require remedial action on the information available on the mobility, toxicity and volume of the hazardous material released and the resulting potential for harm to human health and the environment.

The performing party may prepare and submit a limited Remedial Action Work Plan for interim or partial remedial actions. Limited or partial Remedial Action Work Plans must contain appropriate assurances that a more complete scope of activities will be evaluated as the contaminated-site is investigated and characterized.

9.02 **Remedial Objectives**: The Remedial Action Work Plan must present a remedial action which addresses remedial objectives for all impacted media at the contaminated-site in a manner consistent with Section 8 (RISK MANAGEMENT), including, as appropriate, the following:

A. Groundwater Objectives: The performing party must propose a remedial objective for all hazardous substances found to have actual or potential impacts on groundwater.

B. Surface Water and Sediment Objectives: The performing party must propose a remedial objective for all hazardous substances found to have actual or potential impacts on surface water and/or sediments, that is consistent with the actual and potential uses of the surface water and/or sediment in the impacted area, and the policies and regulations of the Division of Water Resources;

C. Soil Objectives: The performing party must propose a remedial objective for all hazardous substances and TPH found to have actual or potential impacts on soil, that is consistent with the actual and potential uses of the land in the impacted area. The remedial objective for soil must also take into account the potential for the hazardous substances to leach into groundwater and/or surface water from these impacted soils and, subsequently, should be consistent with the actual and potential uses of the ground water and/or surface water in the impacted area and the policies and regulations of the appropriate regulatory authority for that resource; and

D. Air Objectives: The performing party must propose a remedial objective for all hazardous substances found to have actual or potential impacts on air quality, whether the impact is from gaseous or particulate emissions and/or entrainment on soil. That air remedial objective must be consistent with the requirements of the Rhode Island Clean Air Act and the rules and regulations promulgated pursuant thereto.

The remedial objectives for each media should be expressed, wherever possible or appropriate, as a residual concentration of hazardous material or hazardous substance. However, for remedial actions which include no action/natural attenuation or combinations of engineering and institutional controls which involve containment of contaminated media, the Remedial Action Work Plan shall demonstrate that the proposed remedial action will address the remedial objectives for all impacted media at the contaminated-site in a manner consistent with Rule 8.01 (Remedial Objectives). Department approval of this demonstration shall serve as the Remedial Objective Approval pursuant to Rule 8.11 (Remedial Objective Approvals). This demonstration may be in addition to the documentation of compliance with Section 8 (RISK MANAGEMENT) required by Rule 7.04 (Development of Remedial Alternatives).

The remedial objectives must also consider and manage any short-term risks to human health and the environment associated with the remedial action implementation.

The performing party must estimate the time period necessary to meet all appropriate remedial objectives for groundwater, surface water, sediment, soil and air. In every case, a remedial action should be designed, whenever practicable, as a permanent solution to meet the remedial objectives for hazardous substances in all affected media in the shortest time frame feasible.

9.03 **Proposed Remedy**: The Remedial Action Work Plan must clearly explain the proposed remedy and justify the ability of the remedy to meet the remedial objectives. For Remedial Action Work Plans that include on-site treatment and/or containment of contaminated media, the performing party must demonstrate that best management practices will be followed to:

A. Prevent the infiltration/migration of hazardous substances at levels harmful to human health or the environment;

B. Prevent direct contact with hazardous substances at levels harmful to human health and the environment;

C. Eliminate volatilization and entrainment of hazardous substances; and

D. Minimize and manage surface runoff from the area including during the remedial action.

9.04 **Remediation of Impacted Groundwater**: The Remedial Action Work Plan must clearly explain how impacted groundwater will be remediated. Remediation of groundwater must meet the requirements of Section 16 of the Groundwater Quality Regulations, as well as the requirements of Section 8 (RISK MANAGEMENT) of the Remediation Regulations. Any Remedial Action Work Plan which includes the proposal of a discharge zone and/or a residual zone must submit the required proposals and meet the required demonstrations of Rules 13.03 and 13.04 of the Groundwater Quality Regulations, respectively.

9.05 **Limited Design Investigation**: The Director may require the performing party to include a proposed Limited Design Investigation in the Remedial Action Work Plan in order to gather information necessary for the design and construction of a specific remedy. The performing party may also propose to include a Limited Design Investigation in the Remedial Action Work Plan in order to gather information necessary for the design and construction of a specific remedy. Activities proposed as part of this Limited Design Investigation must meet the requirements of Section 7 (SITE INVESTIGATION) of these regulations.

9.06 **Points of Compliance**: The Remedial Action Work Plan must clearly indicate the locations, for each impacted medium where hazardous substances will be measured in order to determine if the remedial objectives have been met. These points will be designated Points of Compliance. Remedial actions will be initially focussed on meeting remedial objectives set for the contaminated-site, and compliance must be measured throughout that contaminated-site. The Points of Compliance must be managed in a manner consistent with Rule 8.08 (Points of Compliance).

9.07 **Proposed Schedule for Remediation**: The Remedial Action Work Plan must include a proposed schedule for implementing the proposed remedial action.

9.08 **Contractors and/or Consultants**: The performing party must include the names, addresses and telephone numbers of the contact persons of any contractors or consultants hired to implement or operate the remedy proposed in the Remedial Action Work Plan. The responsibilities of each consultant and/or contractor must be clearly explained. If the actual consultant or contractor has not been determined at the time of application, the expected duties of each company must be explained and the Department must be notified as soon as the specific companies are selected.

9.09 **Site Plan**: The Remedial Action Work Plan must include a site plan. The site plan submitted as part of the Site Investigation, conducted pursuant to Rule 7.03.F, must be amended to include any further information available to the performing party, and the locations of all proposed remedial units and monitoring points. The Points of Compliance must also be clearly marked on the site plan.

9.10 **Design Standards and Technical Specification**: The Remedial Action Work Plan must include all design standards and technical specifications necessary for the design of the proposed remedy. Design standards and technical specifications will include, where appropriate:

A. Identification of the materials of construction of all portions of the remedy;

B. The type of equipment to be used, including unit capacity and dimensions;

C. The results of any laboratory or pilot-scale tests conducted to determine the effectiveness of the proposed remedial action; and

D. Any manufacturer's literature and/or technical guidance documents on the construction, implementation and/or operation of proposed units.

These portions of the Remedial Action Work Plan must be prepared under the supervision of a Registered Professional Engineer in the State of Rhode Island, and stamped by that engineer prior to submittal.

9.11 **Set-up Plans**: The Remedial Action Work Plan must explain any pre-operational staging or construction requirements which must be completed prior to the installation and operation of the proposed remedial actions. These pre-operational staging or construction activities may include the installation of pads, liners, or berms; any intrusive activities; or any contaminated-site contouring or grading which may be necessary. The Set-Up Plan must show how any construction or staging activities will be done in a manner in compliance with any applicable laws, rules and regulations.

9.12 **Effluent Disposal**: The Remedial Action Work Plan must include specific plans for the management and disposal of any products or by-products from the proposed remedial action. This section must also identify what regulations must be complied with during, and what permits or approvals must be obtained prior to, any planned effluent disposal actions.

9.13 **Contingency Plan**: The Remedial Action Work Plan must include a Contingency Plan which clearly explains the procedures to be followed and the persons to be notified in the event of an unexpected incident involving hazardous materials at the contaminated-site. The Contingency Plan must include, at a minimum, the following information:

A. The names and telephone numbers of all emergency coordinators;

B. All emergency response procedures and arrangements; and

C. A description of the procedures necessary for the prevention of ignition and/or reaction of any flammable material or reactive materials, where appropriate.

The Contingency Plan must be available at the contaminated-site at all times during the implementation and operation of the remedial action.

9.14 **Operating Log**: The Remedial Action Work Plan must include a proposed Operating Log which clearly and completely records activities on-site and shows how the implementation and operation of the remedial action is progressing. This Operating Log must include, at a minimum, the following information:

A. Time periods of operation of the remedial unit and approximate flow rates;

B. Records of any analyses conducted as part of the remedial action;

C. Instances of implementation of the Contingency Plan; and

D. An inspection plan designed to insure the proper operation of the proposed remedial unit. Operating treatment units must be inspected at least weekly unless an alternative inspection frequency is approved by the Director.

Documentation of these inspections and any problems found and/or repairs made must be included.

The Operating Log must be readily available at the contaminated-site during implementation and operation of the remedial action. A copy of this log must be submitted to the Department annually unless an alternative submittal frequency is approved by the Director for the duration of the active operation of the treatment unit.

The Operating Log must be kept for at least three (3) years following completion of the remedial action.

9.15 **Security Procedures**: The Remedial Action Work Plan must include a description of the security procedures proposed to prevent unknowing access to the contaminated-site or key features identified at the contaminated-site. This section must include descriptions of any natural boundaries or any existing or proposed walls or fences surrounding the contaminated-site. Means to control entry to the contaminated-site or key features identified at the contaminated-site must also be clearly explained.

9.16 **Shut-Down, Closure and Post-Closure Requirements**: The Remedial Action Work Plan must contain a section outlining the procedures required to shut-down and close the remedial units. This section must also outline any proposed post-closure activities, including monitoring and/or institutional controls restricting future land usage at the contaminated-site. All post-closure groundwater monitoring must be done in accordance with a program meeting the requirements of Section 12 of the Groundwater Quality Regulations.

9.17 **Institutional Controls and Notices**: The Remedial Action Work Plan must indicate a methodology for providing notice to the general community, and contain specific plans and implementation procedures for land usage restrictions, restrictions on the use of groundwater on the contaminated-site, and institutional controls in accordance with Rule 8.09 (Institutional Controls) for all remedial actions that are not determined by the Director to provide a permanent solution.

9.18 **Compliance Determination**: The Remedial Action Work Plan must include a section outlining the procedures to be employed in order to demonstrate that the remedial objectives for the contaminated-site have been met. Such compliance determination must be proposed in a manner consistent with Rule 8.10 (Compliance Sampling).

9.19 **Certification Requirements**: The Remedial Action Work Plan and all associated progress reports must include the following statements signed by an authorized representative of the party specified:

A. A statement signed by an authorized representative of the person who prepared the Remedial Action Work Plan certifying the accuracy of the information contained in that report to the best of their knowledge; and

B. A statement signed by an authorized representative of the performing party responsible for the submittal of the Remedial Action Work Plan certifying that the report is a complete and accurate representation of the contaminated-site and the release and contains all known facts surrounding the release to the best of their knowledge.

10.00 REMEDIAL ACTION APPROVALS

10.01 **Remedial Action Approvals**: The performing party must receive approval of the Remedial Action Work Plan from the Director prior to initiating any activities contained therein.

Remedial Action Approvals which include the treatment of hazardous waste at the contaminated-site will be in the form of a Temporary Remedial Action Permit subject to the requirements and conditions of R.I.G.L. 23-19.1-10.3, Emergency and Temporary Permits. The performing party must have a Temporary Remedial Action Permit throughout the period that hazardous waste is being treated.

Approvals for remedial actions which include the remediation of impacted groundwater in GA/GAA areas to remedial objectives other than those listed in Table 3 of Rule 8.03.B.i (Method 1 GA Groundwater Objectives) must obtain a Groundwater Quality Certification pursuant to the requirements of Section 17 of the Groundwater Quality Regulations.

The Director may issue conditions to the Remedial Action Approval when the Director finds that those conditions are necessary to protect human health and the environment. Conditions may include, but not necessarily be limited to, requirements that the performing party provide financial assurances that the remedial action will continue.

10.02 **Remedial Action Approval Application Fees**: The application fee for Remedial Action Approvals shall be one thousand ($1,000.00) dollars.

10.03 **Change in Ownership, Administration and/or Location**:

A. At least thirty (30) days prior to any change in ownership of the contaminated-site or a change in operator of the Remedial Action, the performing party must notify the Director of the proposed change.

B. Remedial Action Approvals shall be voidable whenever there is a change in ownership of the contaminated-site or a change in operator of the Remedial Action.

10.04 **Remedial Action Approval Modifications**: The performing party must apply to the Director for approval of any modifications that the performing party finds necessary during the design, construction or implementation of the remedy.

The Director may require modification of a permit or approval if there is reason to believe that the remedy is not working as anticipated.

The Director may require a new Remedial Action Work Plan in cases where the Director determines that the proposed modifications substantially alter any process or the results of the remedy.

10.05 **Revocation or Suspension of Permits and Approvals**: The Director may order the immediate cessation of any remedial action whenever the Director determines that a performing party is not in compliance with all of the appropriate rules and regulations established by the Department, or that the performing party is not performing the remedial action in conformance with approved plans or conditions of a permit or approval.

The Director may, in lieu of revocation or suspension of the permit or approval issued to the performing party, order that performing party to take whatever corrective action is needed to secure compliance with the rules and regulations established by the Department.

11.00 REMEDIAL ACTION

11.01 **Operational Requirements**: These rules apply to all performing parties conducting any remedial action activities.

11.02 **Proper Operation and Maintenance**: The performing party must operate and maintain all portions, activities and/or operations in accordance with all the terms and conditions of its Remedial Action Approval, and all other applicable laws and regulations. The Department must be notified in writing immediately if the performing party suspects or has reason to believe that any of the remedial objectives will not be met.

11.03 **Operating Records**: The performing party must maintain an operating log as specified in Rule 9.14 (Operating Log) or as otherwise specified by the Director in the Remedial Action Approval.

11.04 **Personnel Training**: The performing party must maintain a personnel training program as specified in the Remedial Action Approval.

11.05 **Progress Reports**: The performing party must submit progress reports at least quarterly. The reports must clearly explain all activities specified in the Remedial Action Approval which have been initiated or which have been completed.

Progress reports must also include the results of all sampling and analysis conducted at the contaminated-site.

After completion of the remedial action, the results of all post-closure monitoring must be submitted to the Director.

11.06 **Effluent Disposal**: The performing party must dispose of all treated effluent, products and/or byproducts from the proposed remedial action in the manner specified in the Remedial Action Approval and in compliance with any other applicable rules and regulations.

11.07 **Initiator**: The performing party must comply with all applicable Rules of Section 5.00 of the Rules and Regulations for Hazardous Waste Management, as amended, for all hazardous waste shipments that they initiate.

The performing party must comply with the requirements of the Rules and Regulations for Solid Waste Management Facilities, as amended, for all solid waste shipments that they initiate.

11.08 **Security**: The performing party must maintain a contaminated-site security program equivalent to that specified in the Remedial Action Approval.

11.09 **Closure and Post Closure**: The performing party must close the remedial action and maintain all post-closure requirements as specified in the Remedial Action Approval.

12.00 VARIANCES AND EXTENSIONS

12.01 **Applications**: An applicant may apply to the Director for a variance from or extension to any of these rules and regulations. The Director may require the collection and/or submission of information the Director deems necessary to fully evaluate such application.

12.02 **Extensions**: The Director may upon request, issue an extension to any of the time tables and schedules required by these regulations in the form of a variance.

12.03 **Variances**: The Director may upon application, issue a variance under this rule when compliance with these rules and regulations would cause unreasonable or undue hardship to the applicant, provided the applicant can also present substantial evidence that the issuance of a variance will, at a minimum:

A. provide protection to human health and the environment equivalent to that which is provided by these regulations;

B. not result in exceedances of applicable remedial objectives as described in Section 8 (RISK MANAGEMENT) beyond the control of the performing party;

C. not endanger the public health and safety;

D. not significantly interfere with the public use and enjoyment of any recreational resource;

E. not significantly adversely impact any surface water or any groundwater, or cause contamination of any drinking water supply or tributary thereto; and

F. not violate any provisions of any pertinent federal or state statutes, rules or regulations regarding air, land or water resources.

In determining whether the applicant has met these requirements, the Director may consider background conditions. Other conditions which the Director will take into consideration when evaluating a request for a variance will include, but not be limited to, groundwater classification, contaminant migration pathways, mobility and toxicity of constituents of concern, volume of contamination, institutional controls and the resulting risk to human health and the environment.

The Director reserves the right to limit the effective time period for a variance.

12.04 **Department's Evidence**: The Department, through its authorized agents, may present evidence to the Director relative to any application or request for an extension or variance.

12.05 **Remonstrant**: Remonstrants who have been notified, as required by this rule, may present evidence to the Director relative to any application or request for an extension or variance it submits for approval or modification.

12.06 **Decision**: The Director may grant or deny the variance after hearing provided, however, that the variance may be subject to such terms and conditions as the Director may deem necessary to protect the public health and safety, and the environment.

13.00 PENALTIES AND APPEALS

13.01 **Penalties**: Administrative penalties may be assessed for any violation of these regulations and will be calculated based on the methodology specified in the Department of Environmental Management Rules and Regulations for the Assessment of Administrative Penalties.

13.02 **Appeals**: Any person affected by a decision of the Director pursuant to these regulations may, in accordance with the Administrative Rules of Practice and Procedure for the Department of Environmental Management, file a claim for an adjudicatory hearing to review the decision. The party appealing a Department decision bears the burden of proving that they comply with the requirements of the rules and regulations herein and that the denial by the Department was arbitrary and capricious or characterized by an abuse of discretion.

The foregoing "Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, as amended August 1996" after due notice and hearing are hereby adopted and filed with the Secretary of State, this 15th day of August 1996 to become effective twenty (20) days thereafter, in accordance with the provisions of Chapters 42-17.1-2, 42-35, 23-19.1, 23-19.14, 46-12 and 46-13.1 of the General Laws of Rhode Island, 1956, as amended.

Timothy R.E. Keeney, Director
Department of Environmental Management

Notice Given on: 21 June 1996

Public Hearing Held: 22 July 1996

Filing Date: 15 August 1996

Effective Date: 4 September 1996

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ADMINISTRATIVE REGULATIONS DIV

Appendix A
DEFINITIONS INCORPORATED BY REFERENCE IN THE REMEDIATION REGULATIONS

National Contingency Plan

40 CFR 300.5; Definitions:

"Hazardous substance" as defined by section 101(14) of CERCLA, means: Any substance designated pursuant to section 311(b)(2)(A) of the CWA; any element, compound, mixture, solution, or substance designated pursuant to section 102 of CERCLA; any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by Act of Congress); any toxic pollutant listed under section 307(a) of the CWA; any hazardous air pollutant listed under section 112 of the Clean Air Act; and any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance in the first sentence of this paragraph, and the term does not include natural gas, natural gas liquids, liquified natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

"Release" as defined by section 101(22) of CERCLA, means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant), but excludes: Any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons; emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine; release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or, for the purposes of section 104 of CERCLA or any other response action, any release of source, byproduct, or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and the normal application of fertilizer. For purposes of the NCP, release also means threat of release.

Appendix B
ANALYTICAL METHODS FOR REPORTING

Volatile Organic Compounds - EPA Method 8240 and 8260

Semi-Volatile Organic Compounds - EPA Method 8270

PCB/Pesticides - EPA Method 8080

Inorganics - Compound Specific Applicable EPA Method

Compound	EPA Method
Antimony	6010, 6020, 7040, 7041, 7062
Arsenic	6010, 6020, 7060, 7061, 7062, 7063
Beryllium	6010, 6020, 7090, 7091
Cadmium	6010, 6020, 7130, 7131
Chromium III	Subtract Chromium VI from Total Chromium
Chromium VI	7195, 7196, 7197, 7198, 7199
Total Chromium	6010, 6020, 7190, 7191
Copper	6010, 6020, 7210 7211
Cyanide	9010, 9012, 9013, 9213
Lead	6010, 6020, 7420, 7421
Manganese	6010, 6020, 7460, 7461
Mercury	7470, 7471, 7472
Nickel	6010, 6020, 7520, 7521
Selenium	6010, 7740, 7741, 7742
Silver	6010, 6020, 7760, 7761
Zinc	6010, 6020, 7950, 7951

Synthetic Precipitation Leaching Procedure (SPLP) - EPA Method 1312

Toxicity Characteristic Leaching Procedure (TCLP) - EPA Method 1311

Appendix C

DIVISION OF SITE REMEDIATION
HAZARDOUS MATERIAL RELEASE NOTIFICATION FORM

THIS FORM IS NOT TO BE USED TO REPORT AN IMMINENT HAZARD

1. Notifier Information

Name: _____

Address: _____

Phone: _____

Status: ___ Owner ___ Operator ___ Secured Creditor ___ Voluntary

2. Property Information

Name of Site: _____

Site Address: _____

Plat/Lot Numbers: _____

Site Contact Person: _____

Site Contact Phone: _____

Site Land Usage Type: ___ Residential ___ Industrial/Commercial

Location of Release: _____

_____

(attach site sketch as necessary)

3. Release Information

Date of Discovery: _____

Source : _____

Release Media: _____

Hazardous Materials and Concentrations: _____

_____

(attach certificates of analysis as necessary)

Extent of Contamination: _____

_____

_____

4. Resource Information

Site Land Usage:	___ Industrial/Commercial	___ Residential
Adjacent Land Usage:	___ Industrial/Commercial	___ Residential
Site Groundwater Class:	___ GA/GAA	___ GB
Adjacent Groundwater Class: (if different than site groundwater classification within 500 feet)	___ GA/GAA	___ GB

Nearest Surface Water or Wetland:

___ Less Than 500 Feet ___ Greater Than 500 Feet

Potential for adverse impact ___ Yes/No

5. Potentially Responsible Parties

Name: _____

Address: _____

Status: ___ Owner ___ Operator ___ Other: _____

Name: _____

Address: _____

Status: ___ Owner ___ Operator ___ Other: _____

6. Measures Taken or Proposed to be Taken in Response to Release

_____

_____

_____

7. Other Significant Remarks About Release (Will a background determination be made?)

_____

_____

_____

Signature: _____ Date ___/___/___

Title: _____

Appendix D
METHOD 2 DIRECT EXPOSURE CRITERIA

Method 2 Direct Exposure Criteria:

A. Ingestion:

i. Residential Activity:

1. Carcinogenic Substances:

RESIDENTIAL INGESTION ALGORITHM FOR CARCINOGENS IN SOIL:

$$C = \left(\frac{RISK \times AT \times CF}{CPSo \times EF} \right) \times \left(\frac{BW_a \times BW_c}{BW_a \times ED_c \times IRS_c + BW_c \times ED_a \times IRS_a} \right)$$

2. Non-Carcinogenic Substances:

RESIDENTIAL INGESTION ALGORITHM FOR NON-CARCINOGENS IN SOIL:

$$C = \left(\frac{HI \times RfD_o \times CF}{EF} \right) \times \left(\frac{BW_c \times AT_c}{ED_c \times IRS_c} \right)$$

3. Acute Toxicity:

ACUTE INGESTION ALGORITHM FOR SOIL:

$$C = \left(\frac{TDHA \times IR_{ar-w}}{IR_{ar-s} \times CF_{AT}} \right)$$

RESIDENTIAL DEFAULT INPUT PARAMETERS			
ORAL INGESTION			
TERM	**DESCRIPTION**	**UNITS**	**VALUE**
C	Concentration Of Contaminant In Soil	mg/kg	Calculated
CPSo	Carcinogenic Potency Slope Factor (Oral)	$(mg/kg/d)^{-1}$	Chemical Specific
RfDo	Reference Dose (Oral)	mg/kg/d	Chemical Specific
RISK	Target Cancer Risk Level	Dimensionless	1 E-06
HI	Hazard Index	Dimensionless	1.0
BW_a	Body Weight (Adult)	kg	70
BW_c	Body Weight (Child Ages 1-6)	kg	15
AT	Averaging Time (Carcinogens)	yr	70
AT_c	Averaging Time (Child Ages 1-6)	yr	6
IRS_a	Soil Ingestion (Adult)	mg/d	100
IRS_c	Soil Ingestion (Child Ages 1-6)	mg/d	200
CF	Conversion Factor	mg-d/kg-yr	3.65 E08*
EF	Exposure Frequency	d/yr	350
ED_a	Exposure Duration (Adult)	yr	24
ED_c	Exposure Duration (Child Ages 1-6)	yr	6
ORAL ACUTE TOXICITY			
TDHA	Ten Day Health Advisory (10 kg Child)	mg/l	Chemical Specific
IR_{at-w}	Ingestion Rate Of Water	l/d	1
IR_{at-s}	Ingestion Rate Of Soil	g/d	1
CF_{at}	Conversion Factor (Acute Toxicity)	kg/g	1 E-03

* Conversion factor: (365 d/yr)(1xE06 mg/kg) = 3.65 E08 mg-d/kg-yr.

ii. Industrial/Commercial Activity:

1. Carcinogenic Substances:

INDUSTRIAL/COMMERCIAL INGESTION ALGORITHM FOR CARCINOGENS IN SOIL:

$$C = \left(\frac{RISK \times AT \times CF}{CPSo \times EF} \right) \times \left(\frac{BW_a}{ED \times IRS_a} \right)$$

2. Non-Carcinogenic Substances:

INDUSTRIAL/COMMERCIAL INGESTION ALGORITHM FOR NON-CARCINOGENS IN SOIL:

$$C = \left(\frac{HI \times RfD_o \times CF}{EF} \right) \times \left(\frac{BW_a \times AT_a}{ED \times IRS_a} \right)$$

INDUSTRIAL\COMMERCIAL DEFAULT INPUT PARAMETERS			
TERM	**DESCRIPTION**	**UNITS**	**VALUE**
C	Concentration Of Contaminant In Soil	mg/kg	Calculated
CPSo	Carcinogenic Potency Slope Factor (Oral)	$(mg/kg/d)^{-1}$	Chemical Specific
RfDo	Reference Dose (Oral)	mg/kg/d	Chemical Specific
RISK	Target Cancer Risk Level	Dimensionless	1 E-06
HI	Hazard Index	Dimensionless	1
BW_a	Body Weight (Adult)	kg	70
AT	Averaging Time (Carcinogens)	yr	70
AT_a	Averaging Time, Adult (Non-carcinogens)	yr	25
IRS_a	Soil Ingestion Rate (Adult)	mg/d	50
EF	Exposure Frequency	d/yr	250
ED	Exposure Duration	yr	25
CF	Conversion Factor	mg-d/kg-yr	3.65 E08*

* Conversion factor: (365 d/yr)(1xE06 mg/kg) = 3.65 E08 mg-d/kg-yr.

B. Inhalation: The **RESIDENTIAL** inhalation concentration shall be calculated using the following equations and the appropriate default input values:

i. Carcinogenic Substances:

INHALATION ALGORITHM FOR CARCINOGENS IN SOIL:

$$C = \frac{RISK \times AT \times 365\ d/yr}{URF \times 1000\ \mu g/mg \times EF \times ED \times \left[\frac{1}{VF} + \frac{1}{PEF} \right] \times TA}$$

ii. Non-Carcinogenic Substances:

INHALATION ALGORITHM FOR NON-CARCINOGENS IN SOIL:

$$C = \frac{HI \times AT \times 365\ d/yr}{EF \times ED \times \left[\frac{1}{RfC} \times \left(\frac{1}{VF} + \frac{1}{PEF} \right) \right] \times TA}$$

iii. Volatilization Factor:

VOLATILIZATION FACTOR ALGORITHM:

$$VF\ (\ m^3/kg\ ) = (\ Q/C\ ) \times \frac{(\ 3.14 \times \alpha \times T\ )^{1/2}}{(\ 2 \times D_{ei} \times P_a \times K_{as}\ )} \times 10^{-4}\ m^2/cm^2$$

Where:

$$\alpha = \frac{D_{ei} \times P_a}{P_a + (\ \rho_s\ )(\ 1 - P_a\ )/K_{as}}$$

RESIDENTIAL DEFAULT INPUT PARAMETERS			
INHALATION			
TERM	**DESCRIPTION**	**UNITS**	**VALUE**
C	Concentration Of Contaminant In Soil	mg/kg	Calculated
RISK	Target Cancer Risk Level (Carcinogens)	Dimensionless	10^{-6}
HI	Hazard Index (Noncarcinogens)	Dimensionless	1
AT	Averaging Time (Carcinogens)	years	70
AT	Averaging Time (Noncarcinogens)	years	30
URF	Inhalation Unit Risk Factor (Carcinogens)	$(\mu g/m^3)^{-1}$	Chemical Specific
RfC	Inhalation Reference Concentration (Noncarcinogens)	mg/m^3	Chemical Specific
EF	Exposure Frequency	days/year	350
ED	Exposure Duration	years	30
VF	Soil-To-Air Volatilization Factor	m^3/kg	Chemical Specific
PEF	Particulate Emission Factor	m^3/kg	4.51×10^9
TA	Time Adjustment Factor	Dimensionless	1

DEFAULT INPUT PARAMETERS			
VOLATILIZATION FACTOR			
TERM	**DESCRIPTION**	**UNITS**	**VALUE**
VF	Soil-To-Air Volatilization Factor	m^3/kg	Calculated
(Q/C)	Inverse Of The Mean Concentration At The Center Of A 0.5 Acre Square Source	g/m^2-s per kg/m^3	101.8
T	Exposure Interval	seconds	7.9×10^8
D_{ei}	Effective Diffusivity	cm^2/s	$D_i(P_a^{3.33}/P_t^2)$
P_a	Air-Filled Soil Porosity	Dimensionless	P_t-$\Theta\beta$
P_t	Total Soil Porosity	Dimensionless	$1-(\beta/\rho_s)$
Θ	Soil Moisture Content	$\frac{cm^3\text{-water g-soil}}{}$	0.1 (10%)
β	Soil Bulk Density	g/cm^3	1.5
ρ_s	True Soil Density Or Particle Density	g/cm^3	2.65
K_{as}	Soil-Air Partition Coefficient	$\frac{\text{g-soil}}{cm^3\text{-air}}$	$(H/K_d) \times 41$
D_i	Diffusivity In Air	cm^2/s	Chemical Specific
H	Henry's Law Constant	atm-m^3/mol	Chemical Specific
K_d	Soil-Water Partition Coefficient	cm^3/g	K_{oc} x OC
K_{oc}	Organic Carbon Partition Coefficient	cm^3/g	Chemical Specific
OC	Organic Carbon Content Of Soil	fraction	0.02 (2%)

C. Soil Saturation Limit (Csat):

SOIL SATURATION LIMIT ALGORITHM FOR UNSATURATED SOILS (C_{sat}):

$$C_{sat} = \left(K_d \times S \times n_m \right) + \left(S \times \Theta_m \right)$$

SOIL SATURATION (C_{sat}) DEFAULT INPUT PARAMETERS			
TERM	**DESCRIPTION**	**UNITS**	**VALUE**
C_{sat}	Soil Saturation Concentration	mg/kg	Calculated
K_d	Soil-Water Partition Coefficient	L/kg	Chemical Specific/ or K_{oc} * OC
K_{oc}	Organic Carbon Partition Coefficient	L/kg	Chemical Specific
OC	Organic Carbon Content Of Surface Soil	%	2
S	Solubility	mg/L-water	Chemical Specific
n_m	Soil Moisture Content	Weight Fraction	0.1
Θ_m	Soil Moisture Content	L-water/ kg-soil	0.1

Note: Appendix D was also utilized for the development of Method 1 Direct Exposure Criteria.

Appendix E
METHOD 2 LEACHABILITY CRITERIA

Method 2 Leachability Criteria:

A. Method 2 Leachability Criteria for Organic Hazardous Substances: The Method 1 Leachability Criteria were derived utilizing the SESOIL and AT123D models (available from General Science Services Corporation) to simulate the transport of organic hazardous substances and estimate levels of soil contamination which are protective of the appropriate groundwater objectives. The following tables provide the inputs to the models which were used to estimate the Method 1 Leachability Criteria for organic substances.

SESOIL CLIMATE INPUT PARAMETERS GENERAL		
Station Name - Providence WSO AP (Green State Airport)		
TERM	**UNITS**	**VALUE**
Latitude	Degrees	41.733
Longitude	Degrees	71.433
Number of Years of Climate Data	Years	1
Number of Years of Simulation	Years	5

SESOIL CLIMATE INPUT PARAMETERS BY MONTH							
TERM	**UNITS**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**
Air Temperature	°C	12.330	6.720	0.280	-1.560	-1.110	2.720
Cloud Cover Fraction	fraction	0.500	0.600	0.600	0.600	0.600	0.600
Relative Humidity	fraction	0.750	0.700	0.750	0.700	0.700	0.700
Short Wave Albedo	-	0.180	0.190	0.270	0.290	0.330	0.290
Evapotranspiration	cm/day	0.000	0.000	0.000	0.000	0.000	0.000
Rainfall Depth (Precipitation)	cm	9.010	10.980	11.170	10.170	9.500	10.670
Mean Storm Duration	days	0.560	0.530	0.560	0.560	0.600	0.570
Number of Storms per Month	-	4.390	5.720	6.000	5.680	5.260	5.890
Length of Rainy Season Within Month	days	30.400	30.400	30.400	30.400	30.400	30.400

SESOIL CLIMATE INPUT PARAMETERS BY MONTH (CONTINUED)							
TERM	UNITS	APR	MAY	JUN	JUL	AUG	SEP
Air Temperature	°C	8.170	13.280	18.440	21.610	20.940	17.330
Cloud Cover Fraction	fraction	0.600	0.600	0.600	0.500	0.500	0.500
Relative Humidity	fraction	0.700	0.700	0.750	0.800	0.800	0.800
Short Wave Albedo	-	0.190	0.180	0.180	0.180	0.180	0.180
Evapotranspiration*	cm/day	0.000	0.000	0.000	0.000	0.000	0.000
Rainfall Depth (Precipitation)	cm	10.590	9.060	7.370	7.490	9.900	8.620
Mean Storm Duration	days	0.540	0.470	0.370	0.310	0.390	0.420
Number of Storms per Month	-	5.600	5.830	5.190	4.750	5.220	4.500
Length of Rainy Season Within Month	days	30.400	30.400	30.400	30.400	30.400	30.400

* Initial evapotranspiration set to zero; SESOIL approximates evapotranspiration using the water budget method (mass balance).

SESOIL SOIL INPUT PARAMETERS		
TERM	UNITS	VALUE
Soil Name	-	-
Soil Bulk Density	g/cm^3	1.50
Intrinsic Permeability	cm^2	1.50E-07
Soil Disconnectedness Index	-	7.50
Effective Porosity	-	0.300
Organic Carbon Content (Subsurface Soil)	%	0.100
Cation Exchange Coefficient (Capacity)	$\frac{\text{milli eq.}}{\text{100g dry soil}}$	0.000
Freundlich Equation Exponent	-	1.00

SESOIL APPLICATION INPUT PARAMETERS				
TERM	UNITS	VALUE		
Number of Years	years	1		
Number of Soil Layers	layers	3		
Application Area of Compartment	cm^2	0.10E+07		
Latitude of the Site (Application Area)	Degrees	41.733002		
Loading Type - (1) Spill - Instantaneous or (0) Steady Application - Continuous	-	0		
Loading Unit - (1) Mass per Unit Area or (0) Concentration	-	0		
Initial Chemical Concentration Given (1) or Not Given (0)	-	0		
Layer Number	-	1	2	3
Depths (Layer Thickness)	cm	0.10E+03	0.10E+03	0.10E+03
Number of Sublayers/Layer	-	1	1	1
Ph of Each Layer	-	default	default	default
Intrinsic Permeability of Each Layer	cm^2	1.5E-7	1.5E-7	1.5E-7
Liquid Biodegradation (KDEL Ratios)	-	-	1.00	1.00
Solid Biodegradation (KDES Ratios)	-	-	1.00	1.00
Organic Carbon (OC) Content Ratios for Lower Layers	-	-	1.00	1.00
Cation Exchange Coefficient (CEC) Ratios for Lower Layers	-	-	1.00	1.00
Freundich (FRN) Ratio	-	-	1.00	1.00
Adsorption (ADS) Ratio	-	-	1.00	1.00
Pollutant Load Entering Each Layer	$\mu g/cm^2$	**0.00**	**LC***	**0.00**

SESOIL APPLICATION INPUT PARAMETERS				
TERM	UNITS	VALUE		
Initial Pollutant Concentration for Any Sublayer	µg/g (ppm)	-	-	-
Mass Transformed	$\mu g/cm^2$	0.00	0.00	0.00
Sink	$\mu g/cm^2$	0.00	0.00	0.00
Ligand Input Mass	$\mu g/cm^2$	0.00	0.00	0.00
Volatilization Index	-	0.20	0.20	0.20
Surface Runoff Participation Index	-	0.00	-	-
Ratio Pollutant Concentration in Rain to Pollutant Maximum Solubility in Water	-	0.00	-	-
Modified Summers Model Used (1) or Not (0) for Groundwater Concentration	-	0		

LC^* = the back-calculated leachability criterion. This value can be converted to a mass concentration by the following: (ug/cm^2)(1/Soil Bulk Density)(1/Layer Thickness)(mg/1000ug)(1000g/kg) = Leachability Criterion (mg/kg)

SESOIL CHEMICAL SPECIFIC INPUT PARAMETERS FOR: ALL CHEMICALS		
TERM	UNITS	VALUE
Base Hydrolysis Constant	l/mol-day	0.00
Acid Hydrolysis Constant	l/mol-day	0.00
Biodegradation Rate in Moisture	1/day	0.00
Biodegradation Rate on Soil	1/day	0.00
Ligand-Pollutant Stability Constant	-	0.00
No. Moles Ligand/Mole Pollutant	-	0.00
Ligand Molecular Weight	g/mole	0.00

AT123D INPUT PARAMETERS		
TERM	UNITS	VALUE
No. of Points in X-Direction	-	1
No. of Points in Y-Direction	-	1
No. of Points in Z-Direction	-	1
No. of Roots: No. of Series Terms	-	400
No. of Beginning Time Step	-	13
No. of Ending Time Step	-	61
No. of Time Intervals for Printed Out Solution	-	1
Instantaneous Source Control - 0 for Instant Source	-	1
Source Condition Control - 0 for Steady Source	-	60
Intermittent Output Control - 0 No Such Output	-	1
Case Control - 1 Thermal, - 2 for Chemical, - 3 RAD	-	2
Aquifer Depth, - 0.0 for Infinite Deep	m	0
Aquifer Width, - 0.0 for Infinite Wide	m	0

AT123D INPUT PARAMETERS		
TERM	UNITS	VALUE
Begin Point of X-Source Location	m	-5
End Point of X-Source Location	m	5
Begin Point of Y-Source Location	m	-5
End Point of Y-Source Location	m	5
Begin Point of Z-Source Location	m	0
End Point of Z-Source Location	m	0
Hydraulic Conductivity	m/hr	0.53
Hydraulic Gradient	-	0.005
Longitudinal Dispersivity	m	20
Lateral Dispersivity	m	2
Vertical Dispersivity	m	2
X Dimension	m	15
Y Dimension	m	0
Z Dimension	m	0

61 * - The SESOIL program only allows a maximum time interval run of 19 months. 61 months (5 years of simulation) was the total time interval used to determine the maximum groundwater impact.

B. Method 2 Leachability Criteria for Inorganic Hazardous Substances:

SITE-SPECIFIC DILUTION FACTOR ALGORITHM:

$$DF = 1 + (Kid/IL) (1 - F_{adj})$$

SITE-SPECIFIC DILUTION FACTOR			
TERM	**DESCRIPTION**	**UNITS**	**VALUE**
DF	Site-specific dilution factor		Calculated
K	Hydraulic conductivity of the unconsolidated aquifer underlying the release area	ft/yr	15000
i	Horizontal hydraulic gradient	ft/ft	0.005
d	Distance	ft	15
I	Infiltration rate	ft/yr	2.0
L	Length of the release area parallel to the direction of groundwater flow	ft	50
F_{adj}	Background concentration for groundwater divided by the appropriate groundwater objective for the hazardous substance, or, where the background concentration for groundwater can not be quantified, 1/2 the minimum detection limit for the hazardous substance divided by the appropriate groundwater objective for the hazardous substance.		Chemical - Specific

Appendix F
METHOD 2 GB GROUNDWATER OBJECTIVES

Method 2 GB Groundwater Objective Algorithm and Input Parameters:

GF GROUNDWATER OBJECTIVE ALGORITHM:

$$C_w = \frac{(C_a)(T)(WS)}{(VP)(MW)(16.04)}$$

METHOD 2 GB GROUNDWATER OBJECTIVE ALGORITHM AND DEFAULT INPUT PARAMETERS			
TERM	**DESCRIPTION**	**UNITS**	**VALUE**
C_w	Water Concentration	mg/L	Calculated
C_a	Air Concentration	mg/L	Chemical Specific PEL*
T	Temperature of groundwater	°K	293
WS	Solubility	mg/L-water	Chemical Specific
VP	Vapor Pressure	mm Hg	Chemical Specific
MW	Molecular Weight	g/mole	Chemical Specific

Permissible Exposure Limit (PEL):
The time-weighted average concentration in air that must not be exceeded during any 8-hour shift of a 40-hour work week.

The PELs were developed by the Occupational Safety and Health Administration (OSHA) to protect workers from "a wide variety of health effects that could cause material impairment of health or functional capacity. This includes protection against catastrophic effects such as cancer, cardiovascular, liver, and kidney damage; lung diseases, as well as more subtle effects resulting in central nervous system damage, narcosis, respiratory effects, and sensory irritation" .

NOTE: The Upper Concentration Limits for GB areas were calculated using the above algorithm and an air concentration C_a set equal to 10% of the Lower Explosive Limit (10% LEL) which is defined as ten percent (10%) of the concentration of a compound in air below which a flame will not propagate if the mixture is ignited.

Appendix G
FORM OF ENVIRONMENTAL LAND USAGE RESTRICTION

Instructions: Any environmental land use restriction pursuant to Rule 8.09 of the Remediation Regulations shall be in the following form. The appropriate information shall be inserted in the blanks shown, and the appropriate language shall be selected from the choices shown in brackets, or if none of the choices addresses the specific circumstance, substitute language shall be inserted.

ENVIRONMENTAL LAND USAGE RESTRICTION

This Declaration of Environmental Land Usage Restriction is made this day of , 1996, by ("the Grantor").

W I T N E S S E T H:

WHEREAS, Grantor is the owner in fee simple of certain real property (the "Property") known as [Address/Location located in the Town of in County][designated as Lot , Plat on the tax map of the Town of in County], more particularly described on Exhibit A (Legal Description of Property) which is attached hereto and made a part hereof; and

WHEREAS, the Grantor has determined that the environmental land use restriction set forth below is consistent with regulations adopted by the Department of Environmental Management ("the Department") pursuant to Section 23-19.1-14 of the Rhode Island General Laws; and

WHEREAS, the Grantor believes that this environmental land use restriction will effectively protect public health and the environment from hazardous substances; and

WHEREAS, the Department's written approval of this environmental land use restriction is contained in the document entitled: [Remedial Decision Letter/Settlement Agreement/Order of Approval] issued pursuant to the Remediation Regulations; and

WHEREAS, the Property [or portion thereof identified in the Class I survey which is attached hereto as Exhibit B and is made a part hereof] has been determined to be a Contaminated-Site and contains hazardous substances; and

WHEREAS, to prevent exposure to or migration of hazardous substances and to abate hazards to human health and/or the environment, and in accordance with the [Remedial Decision Letter/Settlement Agreement/Order of Approval], the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the Contaminated-Site; and

WHEREAS, Grantor intends that such restrictions shall run with the land and be binding upon and enforceable against Grantor and Grantor's successors and assigns.

NOW, THEREFORE, Grantor agrees as follows:

A. **Purpose:** In accordance with the [Remedial Decision Letter/Settlement Agreement/Order of Approval], the purpose of this environmental land use restriction is to assure:

[i. that the Contaminated-Site is not used for residential activities];

[ii. that groundwater at the Contaminated-Site is not utilized as potable water];

[iii. that humans engaged in residential activity are not exposed to soils at the Contaminated-Site containing hazardous substances in concentrations exceeding the applicable Department approved residential direct exposure criteria pursuant to the Remediation Regulations];

[iv. that water does not infiltrate soils at the Contaminated-Site containing hazardous substances in concentrations exceeding the applicable Department approved leachability criteria pursuant to the Remediation Regulations];

[v. that subsurface structures are not constructed over groundwater at the Contaminated-Site containing hazardous substances in concentrations exceeding the applicable Department approved GB Groundwater Objectives pursuant to the Remediation Regulations];

[vi. that the engineered control described in Exhibit C attached hereto is not disturbed and is properly maintained to prevent humans engaged in residential activity from being exposed to soils at the Contaminated-Site containing hazardous substances in concentrations exceeding the applicable Department approved residential direct exposure criteria pursuant to the Remediation Regulations, and/or that water does not infiltrate soils at the Contaminated-Site containing hazardous substances in concentrations exceeding the applicable Department approved leachability criteria pursuant to the Remediation Regulations].

B. **Restrictions Applicable to the Contaminated-Site:** In furtherance of the purposes of this environmental land use restriction, Grantor shall assure that use, occupancy, and activity of and at the Contaminated-Site are restricted as follows:

[i. No residential use of the Contaminated-Site shall be permitted];

[ii. Groundwater at the Contaminated-Site shall not be used as potable water];

[iii. Soil at the Contaminated-Site shall not be disturbed in any manner, including but not limited to...];

[iv. No building shall be constructed on the Contaminated-Site].

C. **No action shall be taken, allowed, suffered, or omitted if such action or omission is reasonably likely to:**

[i. Create a risk of migration of hazardous substances or potential hazard to human health or the environment]; or

[ii. Result in a disturbance of the structural integrity of any engineering controls designed or utilized at the Contaminated-Site to contain hazardous substances or limit human exposure to hazardous substances].

D. **Release of Restriction; Alterations of Subject Area:** Grantor shall not make, or allow or suffer to be made, any alteration of any kind in, to, or about any portion of any of the Contaminated-Site inconsistent with this environmental land use restriction unless the Grantor has first received the Department's written approval of such alteration. If the Department determines that the proposed alteration is significant it may require the amendment of this restriction. Insignificant alterations will be approved by the Department via a letter from the Department. The Department shall not approve any such alteration and shall not release the Property from the provisions of this environmental land use restriction unless the Grantor demonstrates to the Department's satisfaction that Grantor has managed the Contaminated-Site in accordance with the Remediation Regulations.

E. **Notice to Lessees and Other Holders of Interests in the Property:** Grantor, or any future holder of any interest in the Property, shall cause any lease, grant, or other transfer of any interest in the Property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this environmental land use restriction. The failure to include such provision shall not affect the validity or applicability to the Property of this environmental land use restriction.

F. **Severability and Termination:** If any court of competent jurisdiction determines that any provision of this Environmental Land Usage Restriction is invalid or unenforceable, the Grantor shall notify the Department in writing within 14 days of such determination.

G. **Binding Effect:** All of the terms, covenants and conditions of this Environmental Land Usage Restriction shall run with the land and shall be binding on the Grantor, the Grantor's successors and assigns, and each owner and any other party entitled to possession or use of the Property during such period of ownership or possession.

H. **Non-Compliance:** In the event that the terms of this Restriction are violated by the grantor or any future holder of any interest in the Property, this Restriction and all other approvals and agreements relating to the contaminated site shall be null and void.

I. **Terms Used Herein:** The definitions of terms used herein shall be the same as the definitions contained in Section 3 (DEFINITIONS) of the Remediation Regulations.

It is so agreed:

_____

Grantor Date

So Sworn Before Me:

_____

Notary Date

My Commission Expires:

_____

U.S. ARMY RESERVE
STORMWATER-POLLUTION PREVENTION PLAN
(SWP3)

Pvt. Lloyd S. Cooper III U.S. Army Reserve Center
Organizational Maintenance Shop & Military Equipment Park
Warwick, Rhode Island
RI008

Drafted by

U.S. GEOLOGICAL SURVEY
Water Resources Division
Massachusetts-Rhode Island District

for

94th REGIONAL SUPPORT COMMAND
Devens, Massachusetts

03/12/2002

SWP3 Certification (RIPDES.V.G)
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
Signature:
Typed name:
Title:
Telephone numbers:

Acronyms and Abbreviations	
AMSA	Area Maintenance Support Activity
BMP	Best Management Practice
CFR	Code of Federal Regulations
DCSOPS (T)	Deputy Chief of Staff, Operations (Training Division)
DPW	Department of Public Works
DRMO	Defense Reutilization and Marketing Office
HMMWV	High-Mobility Multi-purpose Wheeled Vehicle
ISCP	Installation Spill Contingency Plan
MEP	Military Equipment Park
MSDS	Material Safety Data Sheet
NPDES	National Pollutant Discharge Elimination System
NSWD	Non-stormwater Discharge
OF	Outfall
OMS	Organizational Maintenance Shop
PMCS	Preventive Maintenance Checks and Services
POL	Petroleum, Oil, and Lubricants
POV	Privately Owned Vehicle
PPM	Potentially Polluting Material
PPT	Pollution-Prevention Team
RIDEM	Rhode Island Department of Environmental Management
RIPDES	Rhode Island Pollutant Discharge Elimination System
RSC	94th Regional Support Command, Devens, Massachusetts
SOP	Standard Operating Procedure
SWP3	Stormwater-Pollution Prevention Plan
USARC	U.S. Army Reserve Center
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	Underground-Storage Tank

TABLE OF CONTENTS

1.0 INTRODUCTION

The Clean Water Act of 1987 [40 Code of Federal Regulations (CFR) 122] requires Federal installations that discharge stormwater whose quality may be affected by industrial activities to implement plans to control the quality of stormwater discharges. This "*Stormwater-Pollution Prevention Plan*" (SWP3) was developed in response to these requirements. The plan identifies sources of potential pollution, describes "*Best Management Practices*" (BMPs) designed to minimize pollution through prevention and source control, and recommends actions for this facility. The SWP3 also discusses stormwater-runoff drainage, identifies point-source outfalls into local surface waters, and provides non-stormwater discharge certification of stormwater outfalls.

1.1 FACILITY PERMIT

The State of Rhode Island, in which this facility is located, has National Pollutant Discharge Elimination System (NPDES) permitting authority. Stormwater permitting in the State is administered by the Rhode Island Department of Environmental Management (RIDEM), Office of Water Resources, Providence, Rhode Island (Stormwater Permit Manual, Thompson Publishing Group Inc., written commun., January 1995). The RIDEM representative is Eric Beck at (401) 222-6820, ext. 7202. The stormwater web page for Rhode Island can be viewed at http://www.state.ri.us/dem/programs/benviron/water/permits/ripdes/Stwater/index.htm.

As of December 8, 1999, the U.S. Environmental Protection Agency's (USEPA's) final Phase II stormwater rule allows for a "No-exposure" exemption for facilities that have no discharge of stormwater contaminated by exposure to industrial activities. For more information about Phase II, see USEPA 64 FR 68721 and call the RIDEM representative. The RIDEM will offer the no-exposure certification and will develop a form similar to the one offered by the USEPA that includes a couple of additional questions. This form will be available after February 2002, according to Margarita Chatterton.

1.2 FACILITY DESCRIPTION

The Pvt. Lloyd S. Cooper III U.S. Army Reserve Center (USARC), Organizational Maintenance Shop (OMS), and Military Equipment Park (MEP) are on Sandy Lane in Warwick, Rhode Island (*PLATES 1, 2, 3, 23, 24*). RIDEM-regulated activities, including the OMS and MEP, encompass about 5.2 acres at an approximate elevation of 30 feet above the National Geodetic Vertical Datum of 1929 (figure 1.2). Geographic coordinates for the USARC are latitude 41° 42′ 29″ North and longitude 71° 24′ 46″ West.

The primary mission of the Warwick OMS currently is to provide operator maintenance for vehicles used by the 443rd Civil Affairs Battalion. In 2002, the Motor Sergeant will perform 20 percent of the organizational maintenance for unit vehicles. Maintenance conducted at the site includes support of military vehicles and equipment necessary to perform the units' mission. Area Maintenance Support Activity (AMSA) 68 (G) in Lincoln, Rhode Island currently performs all organizational and direct support maintenance for military vehicles used by the 443rd Civil Affairs Battalion.

1.3 PLAN DEVELOPMENT

The U.S. Geological Survey (USGS), Water Resources Division, drafted this plan. Information and illustrations included in the plan were developed from site inspections and from the 94th Regional Support Command (RSC) and USGS databases.

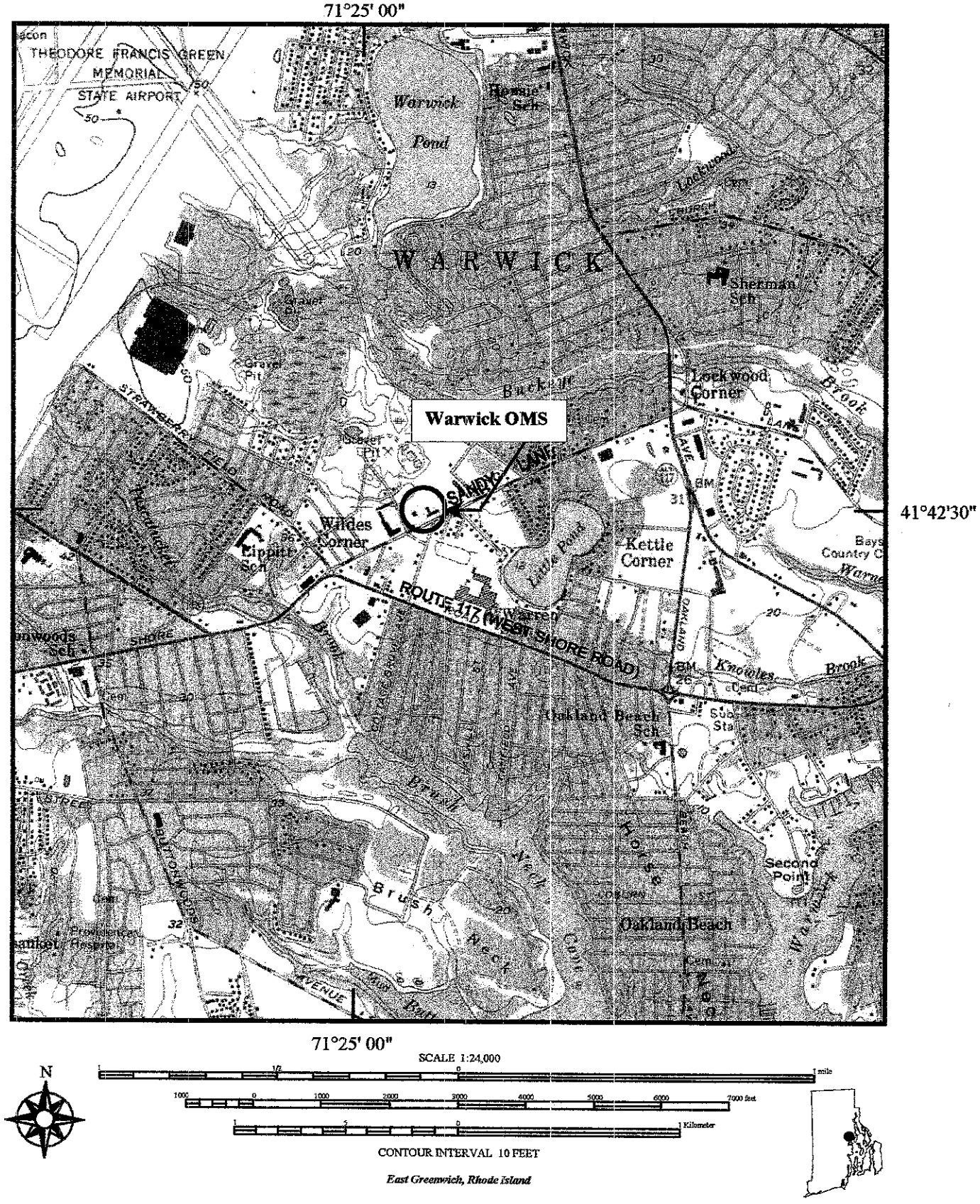
1.0 Introduction...*continued*

1.4 PLAN REVISIONS

The SWP3 should be updated annually or more often, if required. Many elements of the plan are presented in maps and tables describing (1) sites where potential pollution of stormwater might occur, (2) stormwater-pollution risks from those sites to surface waters of the State, and (3) BMPs that prevent or control stormwater pollution. Detailed notes and sketches should be made during periodic stormwater inspections to facilitate the annual plan revision.

1.0 Introduction...*continued*

Figure 1.2–Location Map (source: USGS).



2.0 POLLUTION-PREVENTION TEAM (RIPDES.IV.E.2.a)

The Pollution-Prevention Team (PPT) is responsible for implementing and evaluating the effectiveness of the SWP3 at this facility. Personnel should be officially appointed to the team. Table 2.0 lists the members of the PPT and shows their respective duties. Additional members may be appointed to the PPT as needed.

Table 2.0—Pollution-Prevention Team Members and Duties.

Team member	Duties
94th Regional Support Command - Chief Environmental Division (978) 796-2238	• Reviews and approves the SWP3 and any modifications or updates to the plan in coordination with State and Federal regulators. • Provides guidance and information as requested. • Performs annual site compliance inspection.
Quinta-Gamelin Reserve Center Regional Facility Manager (401) 253-0451	• Reviews and approves the SWP3 and any modifications or updates to the plan.
Pvt. Lloyd S. Cooper III USARC Facility Coordinator (401) 738-5900 ext. 21	• Implements the stormwater-pollution prevention program at the facility. • Schedules meetings of the PPT. • Signs documents and certificates required in the SWP3. • Prepares cost estimates for implementation plans for advanced and baseline BMPs at the facility. • Submits requisitions and work orders and promotes self-help initiatives. • Reviews quarterly stormwater-inspection checklists. • Serves as backup emergency-response spill coordinator for the facility. • Informs Commanding Officer and 94th RSC of problems and equipment and training needs.
Warwick OMS Motor Sergeant (401) 738-5900 ext. 23	• Assists Facility Coordinator with implementation of the SWP3 at the facility, including plans for equipment, construction, and training. • Serves as official emergency-response spill coordinator for the facility. • Conducts quarterly stormwater inspections and files inspection reports. • Inspects hazardous material and waste-storage areas, updates records on those areas, monitors waste generation, and monitors the transfer of such materials among units. • Ensures that OMS personnel implement good-housekeeping, preventive-maintenance, and spill-prevention practices at the motor pool.

3.0 ASSESSMENT (RIPDES.IV.E.1)

As required by the RIDEM General Permit, the site assessment includes a description of potential sources of pollutants that may affect stormwater discharges or which may cause the discharge of pollutants from the facility during dry weather. All activities and materials that may be potential pollutant sources are identified. Pollutant sources are referenced to stormwater outfalls to aid in conducting the risk assessment, implementing BMPs, and updating the SWP3.

3.1 SITE MAP (RIPDES.IV.E.1.a)

The RIDEM stormwater regulations require that a facility site map be developed as part of the SWP3. Required elements of the map include locations of industrial activities, stormwater structures, and the directions of stormwater runoff. The site map (figure 3.1) shows primary stormwater-drainage directions, outfalls, and the location of buildings and facilities. Stormwater-control structures, pollutant sources, and areas at high risk for pollution are labeled with site map codes.

3.2 DRAINAGE (RIPDES.IV. E.1.a)

Site observation of the Pvt. Lloyd S. Cooper III USARC property identified one stormwater outfall (**OF-1**) that could be subject to RIDEM stormwater regulations. Stormwater runoff from the privately owned vehicle (POV) parking areas and the access area east of the OMS is directed into a facility storm-sewer system through four storm drains. The storm drain east of maintenance bay 2 has a high risk for potential pollution from military vehicles entering the OMS (*PLATE 4*). The storm drain northwest of the vehicle-wash rack, identified as OF-1, also is in an area of increased risk (*PLATE 37*). Flow from the facility storm-sewer system continues onto the property of the Warwick Department of Public Works (DPW), enters the municipal storm-sewer system, and discharges into Tuscatucket Brook near West Shore Road. A manhole on the Warwick DPW's property (*PLATES 38, 39*) may be a good sampling location providing the culvert pipe access from the ball field into this manhole remains blocked so the sample only represents runoff from the facility. Regulated activities within the drainage area of outfall OF-1 includes potential vehicle washing, loading and unloading of potentially polluting materials (PPMs) at the OMS, and potential leaks from military vehicles entering and leaving the shop maintenance bays.

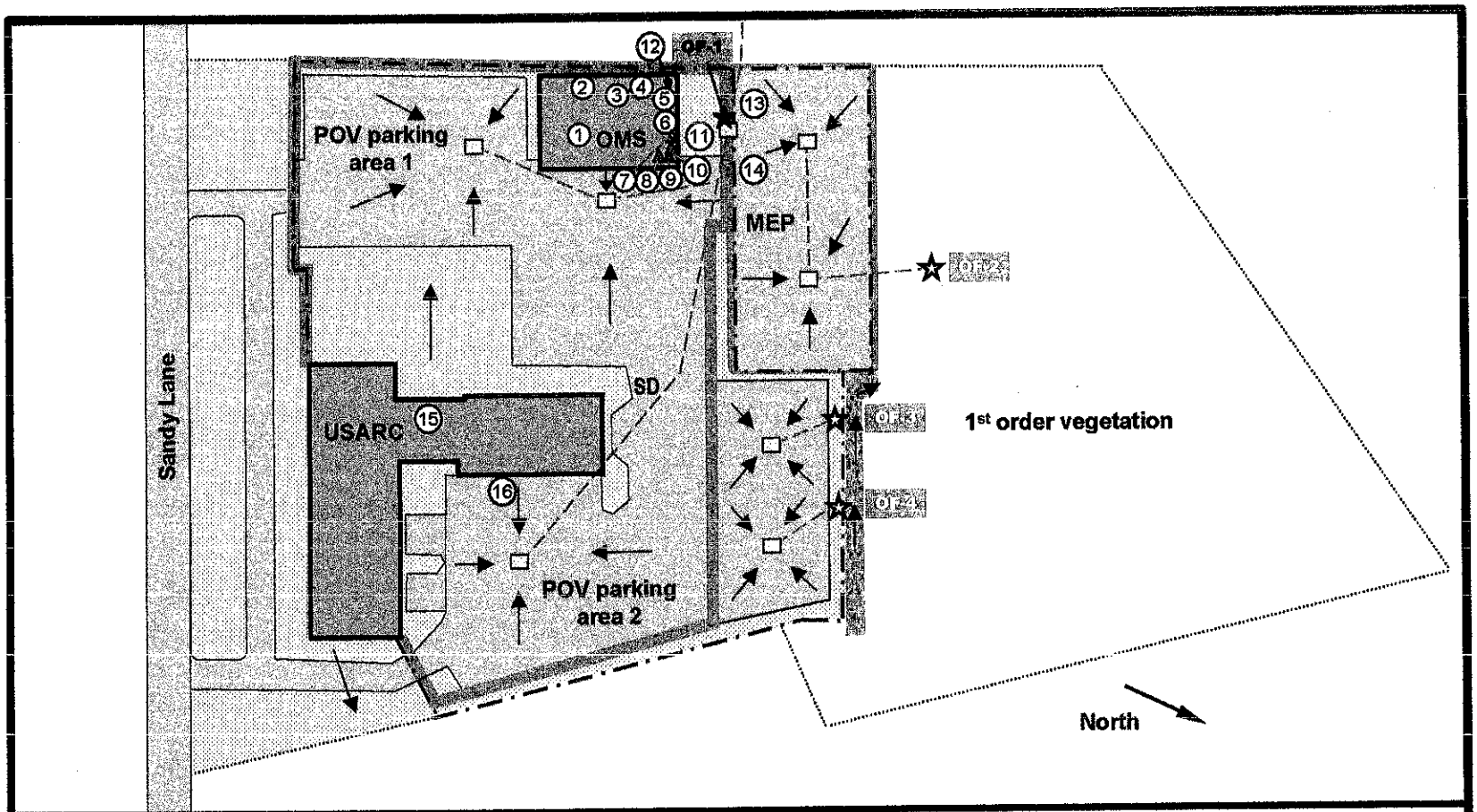
The MEP has a separate storm-sewer system that consists of two storm drains that direct flow into a dry well. The dry well has been identified as OF-2 (*PLATE 40*). Regulated activities within the drainage of OF-2 include loading and unloading of PPMs at the petroleum, oil, and lubricants (POL) shed (**site 14**; *PLATES 21, 22*) and potential leaks from military vehicles parked at the MEP (*PLATES 23, 24*). Spills and leaks from military vehicles commonly result from an inadequate facility preventive-maintenance program, including a lack of available drip pans and infrequent vehicle inspections (see section 3.9). OF-2 is an unregulated outfall because it does not drain to waters of the State.

Some industrial stormwater dischargers may be subject to permit requirements under the State groundwater protection program. This program regulates subsurface discharges of stormwater and may impose additional requirements on industrial facilities in designated wellhead protection areas. For further information contact:

RIDEM, Attn: Sue Kiernan
Division of Groundwater
Providence, Rhode Island 02908
(401) 277-2234.

Stormwater runoff on a recently paved extension of POV parking area 2 (*PLATE 31*) is directed into two storm drains. Each storm drain connects to a separate storm-sewer system that directs flow north of the parking area and discharges onto the grass at OF-3 and OF-4 (*PLATES 32, 33*). Runoff from both outfalls enters an area covered with riprap (*PLATES 34, 35*) and is directed southwest to a low spot in a field on facility property (*PLATE 36*) where it infiltrates the ground; therefore, both outfalls are unregulated.

3.0 Assessment...*continued*



SITE MAP CODE GUIDE

1-Absorbent
2-Vehicle-spill kits
3-Poly-spill barrel on wheels
4-Vehicle-spill kits
5-Hazardous-waste generation point
6-New POL storage area
7-Spill kit & flammables storage cabinet
8-Flammables storage cabinet & sorbant pads
9-MSDS sheets
10-Rolling spill kit
11-Vehicle-wash rack
12-POL storage area (outside access)
13-Four conexes
14-Two bay POL shed
15-MSDS sheets
16-Three conexes

KEY

Stormwater Runoff
Drainage Divide
Security Fence
Regulated Outfall OF-1
Unregulated Outfall OF-2
Storm-sewer system (SD)
Building/ Shed
Paved
Grass
Riprap
Storm Drain
Property Line

Figure 3.1—Warwick OMS Site Map

Not to scale 12/07/2001
Drafted by Jean P. Campbell, Hydrologist
Reviewed by Emitt C. Witt, Supervisory Hydrologist

3.0 Assessment...*continued*

3.3 STRUCTURES (RIPDES.IV. E.1.a)

Stormwater runoff from POV parking area 1 (*PLATE 28*), POV parking area 2 (*PLATE 29*), and the access area east of the OMS (*PLATE 3*) flows into the facility storm-sewer system that directs runoff through the Warwick DPW storm-sewer system into the municipal storm-sewer system. The storm-sewer system in the MEP directs runoff into a dry well (*PLATE 40*). Two storm drains in the paved extension of POV parking area 2 direct runoff through culvert pipes into an area covered with riprap (*PLATES 34, 35*). The vehicle-wash rack (**site 11**, *PLATE 19*) drains into the facility storm-sewer system and is directed into the municipal storm-sewer system. There is no oil/water separator at this facility.

3.4 POTENTIALLY POLLUTING MATERIALS (RIPDES.IV.E.1.d)

Exposed PPMs include any hazardous materials that are exposed to precipitation and/or stormwater runoff (i.e., during storage, active use, loading, or unloading). Exposure to stormwater runoff is caused by a lack of cover and containment during loading, unloading, or storage of PPMs. An electronic copy of the PPM inventory, in spreadsheet format, was provided to the Motor Sergeant on December 28, 2001. The Motor Sergeant will use the spreadsheet to maintain an inventory tracking system for PPMs at the facility. The inventory should be updated continuously and include the locations of the materials and approximate quantities on hand.

3.5 POTENTIAL SOURCES OF POLLUTANTS (RIPDES.IV. E.1.d)

An inventory of areas at the Warwick OMS where industrial activities could potentially pollute stormwater runoff was compiled from facility plans, staff interviews, and field reconnaissance. All pollutant sources at the OMS are directly related to vehicle maintenance, loading and unloading of PPMs, and exposed temporary or permanent storage of PPMs. The use of PPMs and generation of waste products, anticipated in 2002, are results of vehicle maintenance. Vehicle fueling is not conducted onsite.

Maintenance of vehicles and equipment primarily occurs inside the OMS, within three service bays (*PLATES 3, 16*). Vehicle maintenance that involves the exchange of fluids is not conducted in the MEP. The vehicle-wash rack is out of compliance; therefore, vehicle washing is not conducted at this facility.

New PPMs are stored in the OMS at the new POL storage area on spill-containment pallets (**site 6**, *PLATE 10*), in a small flammables storage cabinet that provides secondary containment (**site 8**, *PLATE 12*), or in a separate POL storage area with outside access (**site 12**, *PLATE 18*). A larger flammables storage cabinet that currently is empty will be used for storage of new PPMs (**site 7**, *PLATE 11*). New PPMs are stored in the MEP in the northern bay of a double-door POL shed (**site 14**, *PLATE 21*). Materials stored at these locations are fully protected from precipitation and stormwater runoff during storage.

The OMS is considered to be a conditionally exempt, small-quantity hazardous waste generator by the USEPA and has been issued the generation number (RIR000015552). The Defense Reutilization and Marketing Office (DRMO) in Groton, Connecticut picks up waste PPMs for removal from this facility. The Warwick OMS currently does not generate hazardous waste but may begin to do so in 2002. An area for potential storage of used PPMs, hazardous-waste generation point, was observed in the OMS in maintenance bay 1 (**site 5**, *PLATE 9*). Waste POL, identified in the initial site assessment as requiring proper disposal, was disposed of through DRMO in 2000. Reserve Unit personnel participate in the Army Oil Analysis Program, which is operated through Fort Drum, New York. Primary loading and unloading areas are the new POL storage area in the OMS, the POL storage area with outside access, and the POL shed.

3.0 Assessment...*continued*

The USARC and OMS are heated by natural gas; therefore, fuel-oil underground-storage tanks (USTs) are not in use at this facility. The unused USTs were removed from the facility property during the repaving project in the summer of 2001, according to the Facility Coordinator. The site of the former facility septic tank and former USARC fuel-oil UST can be seen in plate 27. The septic tank and leech field also were removed as part of the repaving project and the facility is now connected to the sanitary-sewer system.

3.6 SIGNIFICANT SPILLS AND LEAKS (RIPDES.IV.E.1.e)

There have not been any significant (reportable) spills or leaks during the last three years at the Warwick OMS, according to the Facility Coordinator.

3.7 NON-STORMWATER DISCHARGES (RIPDES.IV.E.1.i & 2.k)

Unauthorized connections discharging pollutants to stormwater runoff or inappropriate management practices result in non-stormwater discharges (NSWDs) to stormwater-sewer systems, open drainage swales, and outfalls. Sources of unauthorized NSWDs must be identified and permitted, or eliminated, except for flows in compliance with a Rhode Island Pollutant Discharge Elimination System (RIPDES) permit. Stormwater pollution-prevention measures should be adopted and implemented, where necessary, to minimize pollutants in these discharges.

OF-1 was observed for NSWDs on December 6, 2001, as part of the Warwick OMS annual update conducted by the USGS. No dry-weather discharges were observed at this regulated outfall. OF-2, OF-3, and OF-4 are unregulated outfalls and do not require certification. A NSWD certification is provided in the Appendix (table 6.0). The Facility Coordinator must sign the certification (RIPDES.V.F).

3.8 STORMWATER MONITORING DATA (RIPDES.IV.E.1.h)

Stormwater sampling has not occurred at this facility. Sampling of stormwater, if required, should be conducted at regulated outfalls as mandated by RIDEM. Stormwater sampling and analysis must be performed by qualified individuals adhering to a specific quality assurance/quality control program. Stormwater monitoring currently is not required for vehicle-maintenance activities in USEPA regulated states and most states with NPDES permitting authority.

3.9 RISK SUMMARY (RIPDES.IV.E.2.b)

An initial assessment of areas at the Warwick OMS with a potential for pollution from stormwater runoff was completed March 31 and April 1, 1998, as part of the SWP3 preparation. A copy of the initial site assessment may be obtained from the 94th RSC, Environmental Division, Devens Reserve Forces Training Area. The following narratives summarize conditions observed during the December 6, 2001, annual update to the initial assessment. All assessments should be considered a "snapshot" in time and must be updated annually or more often, as necessary. Sites identified as having a potential for stormwater pollution are summarized in table 3.9. Locations of these sites are shown in figure 3.1.

ORGANIZATIONAL MAINTENANCE SHOP

Operator maintenance is conducted in three work bays inside the OMS (*PLATES 3, 16*). AMSA 68 (G) in Lincoln, Rhode Island currently performs all organizational and direct support maintenance for vehicles used by the 443rd Civil Affairs Battalion. In 2002, the Motor Sergeant will perform 20 percent of the organizational

3.0 Assessment...*continued*

maintenance for unit vehicles. The northwestern wall of the OMS contained two flammables storage cabinets, spill equipment, and new and used POL storage areas. Some of these items/areas currently are stored in front of others causing access to important items, such as a rolling spill kit, to be difficult. It is recommended that the items stored along this wall have unobstructed access, especially spill equipment and POL storage areas.

Somewhat crowded workspace and spill-response equipment were observed in the shop maintenance bays (**sites 1, 2, 3, 4, 7, 8, 10, 12**; *PLATES 5, 6, 7, 8, 11, 12, 14, 18*). The storm drain east of maintenance bay 2 could be affected by a substantial leak from military vehicles parked inside the shop or by military vehicles entering the OMS (*PLATE 4*). It is recommended that spill equipment is stored near the bay doors to improve spill response time in this sensitive area. A drain blocker should be requisitioned so that the storm drain can be quickly covered in the event of a spill.

PPMs are stored inside the OMS at a new POL storage area on spill-containment pallets (**site 6**, *PLATE 10*), in a small flammables storage cabinet that provides secondary containment (**site 8**, *PLATE 12*), or in a separate POL storage area with outside access (**site 12**, *PLATE 18*). An unused oil pit in maintenance bay 1 is used for equipment storage (*PLATE 15*). A floor drain was reported to be in this pit; however, interior drainage was not observed by the USGS during the initial site assessment or the annual update. It was reported that plans exist to remove the unused oil pit. The floor drain should be blocked or removed as part of this project because its drainage pathway is most likely out of compliance.

Material safety data sheets (MSDS) were observed on the shop wall (**site 9**, *PLATE 13*). MSDS sheets also were observed in the USARC (**site 15**, *PLATE 25*). Spill response procedure signs were posted on both side doors to the OMS (*PLATE 17*). A Hazardous-Waste Management Manual that contains Federal and State requirements as well as those from the 94th RSC was observed in the OMS maintenance shop office during the initial site assessment. The Installation Spill-Contingency Plan (ISCP) was included in a manual of Environmental Standard-Operating Procedures (SOP).

Three metal drip pans and one plastic pan are available to control potential spills. In addition, each vehicle spill kit contains a small drip pan but the actual number of these is unknown at the present time. Approximately 10 percent of the vehicles stored at the facility should have drips pans. The OMS has a sufficient number of drip pans at this time.

Materials-handling and spill-prevention training has been provided to all Reserve Unit personnel. Reserve Unit personnel also receive good housekeeping training, according to the Motor Sergeant. Two Environmental Assessment people in the unit, the Facility Coordinator, and Motor Sergeant, are responsible to ensure the unit and facility meets all Federal, State, and U.S. Army requirements.

A POL storage area with outside access was observed in the western corner of the OMS (**site 12**, *PLATE 18*). PPMs in this area are stored on metal shelves that do not provide secondary containment; however, these materials are fully protected from precipitation and stormwater runoff inside the building. Spill-containment equipment was observed inside the storage area. Chemicals in this location have the potential to be stormwater pollutants as they are loaded and unloaded into the storage area. A spill outside the POL storage area will infiltrate the grass but there is the potential for a spill to occur on the vehicle-wash rack during transport of PPMs. A spill on the vehicle-wash rack may enter the facility storm-sewer system.

The OMS poses a low risk to surface waters of the State of Rhode Island. OMS personnel safely use and store PPMs inside the shop. Adequate spill-response equipment is located throughout the building; however, access to this spill equipment needs to be improved. The most significant threat to stormwater in this area is an unconfined spill or vehicle leak that leaves the building and enters the storm drain east of maintenance bay 2.

3.0 Assessment...*continued*

MILITARY EQUIPMENT PARK

The Military Equipment Park at the Pvt. Lloyd S. Cooper III USARC is a fenced area north of the OMS (*PLATES 23, 24*). The MEP is used by the 443rd Civil Affairs Battalion for storage of about 51 pieces of rolling stock and equipment. The unit currently has 45 vehicles, including high-mobility multi-purpose wheeled vehicles (HMMWVs) and 2.5-ton cargo trucks, and 6 trailers. The vehicles and equipment were parked in a neat and orderly manner and only minor hydraulic fluid stains were observed. A visual inspection for leaks is performed daily and a technical inspection, preventive maintenance checks and services (PMCS), is done on drill weekends or whenever a vehicle leaves the facility.

The MEP is undersized for the number of vehicles used by the 443rd Civil Affairs Battalion. The expansion of the MEP during the recent repaving project was stopped when contractors uncovered old bottles. The field north of the MEP was a landfill in the 1940s, according to the Facility Coordinator. The project to expand the MEP has been stopped until the State of Rhode Island makes recommendations to close (cap) or remove this landfill.

New PPMs and a spill kit are stored in the northern bay of a double-door POL shed (**site 14**, *PLATE 21*). A chemical inventory and spill information is posted in the shed. The southern bay of the POL shed is used to store empty drums, empty mogas containers, and stoves (**site 14**, *PLATE 22*). The POL shed protects stored new and used chemicals from precipitation and stormwater runoff. PPMs have the potential to be environmental pollutants as they are loaded and unloaded at the shed doors. A spill near the POL shed may enter a storm drain that directs flow to OF-2. A recommended BMP is to have a poly-spill barrel stored outside near the POL shed to improve spill response time in the MEP.

Clothing and tents are stored in four conexes at the southwestern corner of the MEP (**site 13**, *PLATE 20*). Three conexes also were observed in POV parking area 2 (**site 16**, *PLATE 26*). PPMs should not be stored inside a conex because they don't provide adequate protection from precipitation nor do they provide secondary containment in case of a potential leak. The storm drain in POV parking area 2 that would be affected by improperly stored PPMs in conexes can be seen in plate 30. The three conexes in POV parking area 2 were used during the facility renovation but currently are empty. They are scheduled for removal by the 94th RSC at the end of December, according to the Motor Sergeant.

The MEP poses a low risk to surface waters of the State of Rhode Island but may pose a risk to ground water through the dry well identified as OF-2. Spill equipment stored in the MEP will allow spills at the POL shed or potential vehicle leaks to be quickly contained before becoming an environmental issue.

VEHICLE-WASH RACK

The vehicle-wash rack, north of the OMS, currently is not being used because it is out of compliance (**site 11**, *PLATE 19*). Precipitation and runoff that enter the wash rack drain are most likely directed into the facility storm-sewer system at OF-1. An oil/water separator was not observed at this facility. In its current condition, the vehicle-wash rack presents a high risk to surface waters of the State of Rhode Island if used. It is recommended that the vehicle-wash rack not be used until it is brought into compliance.

A sanitary-sewer line was installed west of the OMS so the vehicle-wash rack could be upgraded to direct flow into the sanitary-sewer system. An oil/water separator should be installed to pretreat the wash water before it enters the sanitary sewer. An onsite vehicle-wash rack will aid the mission of the Warwick OMS, according to the Motor Sergeant.

3.0 Assessment...*continued*

Table 3.9--Risk summary.

Site map code	Location	Regulated activity	Potentially polluting materials	Outfall/ Receiving waters	Exposure type[1]	Rating/ Reason[2]
5	OMS	PPM storage, loading	Used POL	None/None	A	No risk/h
6	OMS	PPM storage, loading	New POL	None/None	A	No risk/h
7, 8	OMS	PPM storage, loading	New POL	None/None	A	No risk/h
11	Vehicle-wash rack	Vehicle washing (unused)	POL residues	OF-1/Tuscatucket Brook	F	High if used/c, f, j
12	OMS	PPM storage, loading	New POL	None/Ground water	E	Low/h
14	MEP	PPM storage, loading	New/Used POL	OF-2/Ground water	E	No risk/f, g, h

[1] **Exposure type:**

A No exposure to precipitation or stormwater runoff
B Direct exposure to precipitation due to lack of covering during storage
C Direct exposure to stormwater runoff due to lack of containment during storage
D Some indirect exposure to precipitation due to a lack of walls
E Direct exposure to precipitation and runoff due to spills/leaks during material transfer
F Direct exposure of washrack drainage devices to storm runoff due to lack of cover

[2] **Rating/Reason key:**

a Lack of preventive maintenance and visual inspection program
b Lack of containment, preventing exposure to stormwater runoff
c Lack of covering, preventing exposure to precipitation
d Lack of employee training and/or awareness
e Lack of spill kits, drip pans, sorbent, and/or other spill equipment
f Proximity to storm drain inlet or other conveyance
g Not a point-source discharge to surface waters of the State
h Potential for spills/leaks to exposed areas during material transfer
i Not regulated industrial activity
j Drains into facility storm-sewer system

4.0 BEST MANAGEMENT PRACTICES PLAN (RIPDES.IV.A)

Best Management Practices are measures and controls that can reduce potential stormwater pollution from industrial-activity pollutant sources. These BMPs are classified as "*baseline*" or "*advanced*" and they may be either inexpensive or costly to implement. Baseline BMPs include inspection programs and a contingency plan that attempts to identify and eliminate conditions and practices that could cause stormwater pollution. Advanced BMPs are techniques, equipment, or structures that eliminate contact between stormwater runoff and PPMs.

In the following sections, foundations are established for a BMPs program at the Warwick OMS. Baseline and advanced BMPs necessary for the implementation of the facility stormwater program are discussed and listed in table 4.0. The stormwater inspection checklist (table 5.1b) should be used to monitor potential problems and to select BMPs.

4.1 BASELINE BEST MANAGEMENT PRACTICES

Baseline BMPs are relatively simple inspection programs and contingency plans that are implemented at a facility. The Motor Sergeant will perform quarterly stormwater inspections. The 94th RSC is responsible for updating the spill plan, ensuring that facility personnel receive environmental training, and conducting an annual compliance inspection of the facility. The following baseline programs are discussed briefly in this chapter and are included in the stormwater inspection checklist provided in table 5.1b.

4.1.1 Good Housekeeping (RIPDES.IV.E.2.d)

Good housekeeping addresses cleanliness and orderliness of work and storage areas. Practicality guides the appropriate implementation of good-housekeeping practices.

4.1.2 Preventive Maintenance (RIPDES.IV.E.2.c)

Preventive maintenance involves an inspection of all vehicles and equipment for conditions that could lead to leaks or spills of PPMs. A technical inspection for fluid leaks or drips should be done for all incoming vehicles and equipment. Vehicles and equipment stored at the facility should be inspected daily for fluid leaks and drips. Maintenance equipment, oil/water separators (when present), storage tanks and drums, pipes, and pumps should be included in the technical inspection.

4.1.3 Spill Prevention and Response (RIPDES.IV.E.2.e)

The facility spill plan should be reviewed and revised by the 94th RSC for the Warwick OMS. The Motor Sergeant has the responsibility to serve as emergency coordinator in the event of a spill. The Facility Coordinator should be designated as emergency-response spill coordinator at the facility when the Motor Sergeant is not present. The Motor Sergeant (or alternate) has the responsibility to ensure the spill is immediately contained, proper spill reporting procedures are followed, and the 94th RSC is immediately informed.

4.0 Best Management Practices Plan...*continued*

4.1.4 Visual Inspections (RIPDES.IV.E.2.i)

A formal visual-inspection program is used to ensure that good housekeeping and preventive maintenance are actively practiced, and that a spill plan and spill-containment equipment are readily available at the facility. The Motor Sergeant should conduct a quarterly visual inspection of the motor pool using the stormwater-inspection checklist. The 94th RSC should perform annual compliance inspections using the stormwater-inspection checklist.

4.1.5 Sediment and Erosion Control (RIPDES.IV.E.2.g)

The RIDEM General Permit requires identification of areas having a high potential for significant soil erosion and selection of measures (BMPs) to mitigate soil loss. Significant soil erosion was not observed at this facility.

4.1.6 Environmental Training (RIPDES.IV.E.2.h)

Headquarters, U.S. Army Reserve Command has developed a video-based stormwater-training package. Annual stormwater training is mandated by Deputy Chief of Staff, Operations (Training Division) [DCSOPS (T)] for all reservists assigned to a facility with a stormwater permit. All civilian personnel who work within regulated areas also are required to attend this training. The training, using several videos supplied by the U.S. Army Reserve Command, can be implemented in two or more sessions during the year.

4.2 ADVANCED BEST MANAGEMENT PRACTICES

Advanced BMPs are techniques, equipment, structures, or construction practices that prevent hazardous materials or wastes from reaching the environment in stormwater runoff. All Army Reserve maintenance facilities employ advanced BMPs. Implementation of new advanced BMPs or maintenance and upkeep of existing advanced BMPs usually requires requisitions, work orders, or self-help initiatives. Identification, implementation, and upkeep of advanced BMPs involve communication among the Facility Coordinator, Motor Sergeant, shop personnel, senior officers, and 94th RSC staff. The Facility Coordinator has the responsibility to work with unit, and 94th RSC personnel to identify necessary advanced BMPs and provide proper maintenance and upkeep for existing advanced BMPs. Also, the Facility Coordinator has the responsibility to inform senior officers of advanced BMP needs, and to submit and follow up on requisitions and work orders for those BMPs selected.

Table 4.0 details the status of the BMP program at the facility. Baseline and advanced BMPs can be prioritized according to need and scheduled by the PPT. "Recommended" BMPs in table 4.0 should be endorsed by the PPT as goals for 2002. The Facility Coordinator should initial and date the block indicating that the recommended BMP is accepted and is being implemented.

4.0 Best Management Practices Plan...*continued*

Table 4.0—Best Management Practices.

Best management practice (BMP)	BMP type[1]	Imple-mented	Recom-mend improve-ment	Imple-mented by	Imple-mentation date
Keep work areas and outside areas clean, free of easily spilled materials, and free of sediment and loose soil	GH	X			
Ensure that maintenance buildings and PPM storage buildings are in good condition	GH	X			
Clean spilled materials with dry sweep or rags, not with water	GH	X			
Enforce proper handling, storage, disposal, and labeling of new and used PPMs	GH	X			
Maintain updated MSDS sheets and PPMs inventory	GH		X		
Post good-housekeeping visual aids at the motor pool	GH	X			
Formally train military and civilian maintenance personnel in good-housekeeping practices	GH/TG	X			
Provide technical inspection for all incoming and parked vehicles and equipment with particular emphasis on fluid leaks	PM/VI	X			
Regularly service storm drains, pipes, and other conveyances	PM	X			
Ensure that an updated spill plan, emergency coordinator, and spill equipment are available at the facility during working hours	SPR	X			
In the event of a significant spill or leak during off- duty hours, the designated spill coordinator should refer to the spill plan	SPR	X			
Provide formal training in emergency spill response to all military and civilian maintenance personnel	SPR/TG	X			
Ensure that outdoor-storage structures provide secondary containment and prevent contact between PPMs and stormwater	SPR	X			
Conduct a quarterly visual inspection of the motor pool using the stormwater-inspection checklist. Sign, date, and retain with SWP3	VI		X		
Identify conditions that could cause stormwater pollution and report potential problems to the 94th RSC	VI	X			
Perform an annual stormwater-compliance inspection	VI	X			
Provide stormwater training for all military and civilian maintenance personnel	TG		X		
Do not use vehicle-wash rack until brought into compliance	BBMP		X		
Store spill equipment and PPMs inside OMS with unobstructed access	BBMP		X		
Store spill equipment (preferably equipment on wheels) near OMS bay door 2 to protect storm drain	BBMP		X		
Store poly-spill barrel outdoors near POL shed	BBMP		X		
Block or remove floor drain in unused oil pit	ABMP		X		
Requisition drain blocker	ABMP		X		

[1]**BMP type:**

GH	Good Housekeeping	SPR	Spill Prevention and Response	SEC	Sediment Erosion and Control	BBMP	Baseline Best Management Practice
PM	Preventive Maintenance	VI	Visual Inspections	TG	Training	ABMP	Advanced Best Management Practice

5.0 IMPLEMENTATION (RIPDES.V.A)

This section establishes inspection and record keeping programs that will bring the facility into compliance. Included in this chapter are a guide for implementing a stormwater program, a stormwater-log sheet for record keeping, a stormwater-inspection checklist to be used when performing quarterly and annual stormwater inspections, and an annual compliance schedule. Table 5.0 presents key elements required to implement and evaluate the stormwater-management program, and includes columns for approval and scheduling of such activities by senior officials.

Table 5.0--Key elements to implement and evaluate the stormwater-management program.

Element to implement stormwater program	By	Date
Assign top priority to: (1) correcting problems identified during the annual update; and (2) establishing a stormwater-inspection and personnel-training program.		
Record significant stormwater-management activities on the stormwater-log sheet.		
The Motor Sergeant will perform quarterly inspections. Any problems identified will be reported to the Facility Coordinator for corrective action. If the Facility Coordinator cannot correct the problem, recommendations for corrective actions will be made to the 94th RSC.		
Quarterly inspection checklists will be reviewed, signed and dated by the Facility Coordinator, and filed by the Motor Sergeant for future reference by compliance inspectors.		
Periodic stormwater-inspection reviews will be performed by the 94th RSC. Recommended corrective actions and employee training needs should be discussed.		
The Facility Coordinator should discuss equipment, construction, and training needs with the Motor Sergeant, senior officers and the 94th RSC. The Facility Coordinator should submit requisitions and work orders through proper channels.		
Employee training should be conducted.		
Advanced BMPs should be implemented.		
Personnel from the 94th RSC will conduct the annual compliance evaluations for the stormwater-management program and stormwater-plan reviews.		

5.1 STORMWATER-LOG SHEET AND -INSPECTION CHECKLIST (RIPDES.IV.E.2.j)

The stormwater-log sheet (table 5.1a) and stormwater-inspection checklist (table 5.1b) for motor pool operations are provided on the following pages. The log sheet and checklist are a permanent record of stormwater-management activities conducted at this facility. Items such as stormwater inspections, PPM spills, or activities related to implementation and maintenance of BMPs should be recorded on the log sheet. The inspection checklist is designed to reinforce the existing BMP program by assessing the effectiveness of implemented measures and controls. Regularly (quarterly) updating logs and checklists will aid the facility in tracking pollutant sources, risks, and BMPs. The original documents should be signed and dated, and kept with the SWP3 at the facility for future reference during plan revisions or inquiries by 94th RSC, State, or Federal inspectors.

5.0 Implementation...*continued*

Table 5.1a—Stormwater-log sheet.

Date	Initials	Narrative
Example: 1-1-2001	EFD	PPM spill occurred at waste-oil aboveground-storage tank. Twenty gallons spilled and 12 gallons recovered. Remaining spillage drained into sanitary-sewer system.
3-20-2001	DB	Implemented Stormwater-Pollution Prevention Plan

5.0 Implementation...*continued*

Table 5.1b—Stormwater-inspection checklist.

Unit name:	Building name:	Date:
Problems noted:		
Inspector's name:	Signature:	

Yes	No	Type Inspection item
		Do you see any evidence of recently spilled materials, either solid or liquid?
		Do you see any evidence of illegal dumping into the storm-sewer system or storm drains?
		Are PPMs exposed to precipitation or stormwater runoff?
		Are drums, PPM storage structures, and secondary-containment units secure and properly labeled?
		Is a contract in place for the proper collection and disposal of spent PPMs generated at the OMS?
		Are vehicles and equipment stored outdoors free of excessive mud and dirt?
		Do you see excess trash, unswept or cluttered work areas, or materials that can be easily spilled?
		Are there spots, pools, or other traces of PPMs on the ground?
		Do you see any leaking vehicles, drums, tanks, dumpsters, or other equipment?
		Does standing water have an oil sheen or discoloration?
		Does vehicle/equipment washing or steam cleaning occur at this facility?
		Is the vehicle-wash rack in compliance?
		Is an updated spill plan or SOP posted on the shop bulletin board?
		Is spill-containment equipment readily accessible?
		Are quarterly visual inspections performed and documented?
		Does stormwater runoff enter and cause problems inside shop and storage buildings?
		Is there any active soil erosion at the motor pool?
		Are there areas of standing water at the motor pool?
		Are any non-stormwater discharges entering the storm-sewer system or drainage swales?
		Do outdoor PPM storage structures prevent contact with precipitation or stormwater runoff?
		Are secondary-containment units in use at new and used PPM storage areas?
		Are drip pans in use at the motor pool? Estimated percentage of vehicles with drip pans: _____%.
		Are conex boxes or milvans used to store new or used PPMs at this motor pool? If yes, please give the number of conex boxes or milvans in use: _____
		Are visual aids such as stormwater posters and warning signs displayed at the OMS?
		Is environmental training provided for personnel working at the OMS?

Corrective actions needed:		
Reviewer's name:	Signature:	Date:

5.0 Implementation...*continued*

5.2 ANNUAL COMPLIANCE INSPECTION (RIPDES.IV.E.3)

The SWP3 should be updated annually or more often, as required. The 94th RSC is charged with conducting compliance evaluations and updating the plan. Major tasks include (1) reviewing updated site information (including stormwater-log sheets and stormwater-inspection forms); (2) reinspecting industrial-activity and pollutant-source areas and outfalls; (3) updating information about those areas and the PPMs inventory; (4) conducting non-stormwater discharge inspections of outfalls; (5) reevaluating the use of BMPs and recommending additional controls (if necessary); and (6) convening the PPT to review stormwater issues and problems. The compliance update also allows the PPT to assess and update training needs. Table 5.2 provides information on conducting the evaluations.

Table 5.2--Annual compliance schedule.

Compliance element	Conducted by	Start date	Completion date
Review quarterly stormwater-inspection checklists completed by the Motor Sergeant			
Review site assessment in SWP3 and update as necessary (outfalls, sources, PPMs, site map)			
Review implementation status of BMPs in SWP3 and update as necessary			
Based on updates to implemented BMPs, update recommended BMPs			
Review and update regulatory information in the SWP3 if necessary			
Conduct NSWD assessment and certification of regulated outfalls			
Conduct stormwater sampling of regulated outfalls if required. (Consult RIDEM and RIDEM General Permit for information.)			
Complete report of compliance findings and sample results, and file			

6.0 APPENDIX

Table 6.0–Non-stormwater discharge certification.

Non-stormwater discharge assessment and certification			Completed by: Agency: Date:		Jean Campbell, MA/RI USGS-WRD December 6, 2001	
Date of test or evaluation	Outfall directly observed during the test	Method used to test or evaluate discharge	Describe test results for the presence of non-stormwater discharge	Identify potential significant sources	Agency conducting test or evaluation	Recommended action
4/01/1998	OF-1	Visual	No NSWD	NA	USGS, MA/RI	NA
12/06/2001	OF-1	Visual	No NSWD	NA	USGS, MA/RI	NA

I certify that periodic NSWD inspections will be performed at the Pvt. Lloyd S. Cooper III USARC and conducted in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information that is collected. Additionally, I certify the NSWD information listed in this table is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name and Title of Certifying Authority	B. Area Code and Telephone Number
C. Signature Certifying Authority	D. Date Signed

6.0 Appendix...*continued*

Figure 6.0—Photolog.

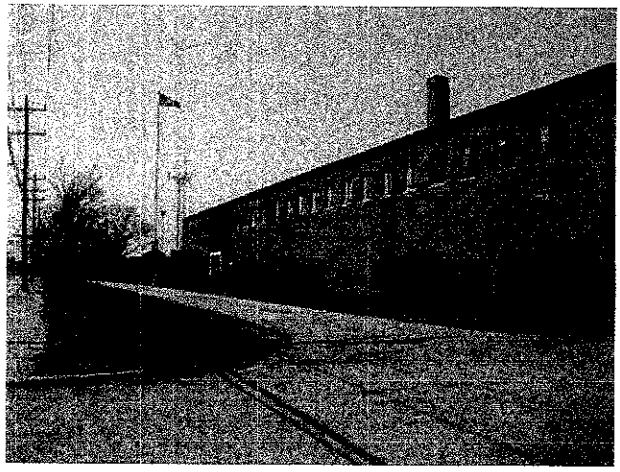


PLATE 1: Pvt. Lloyd S. Cooper III U.S. Army Reserve Center (USARC), Warwick, R.I.

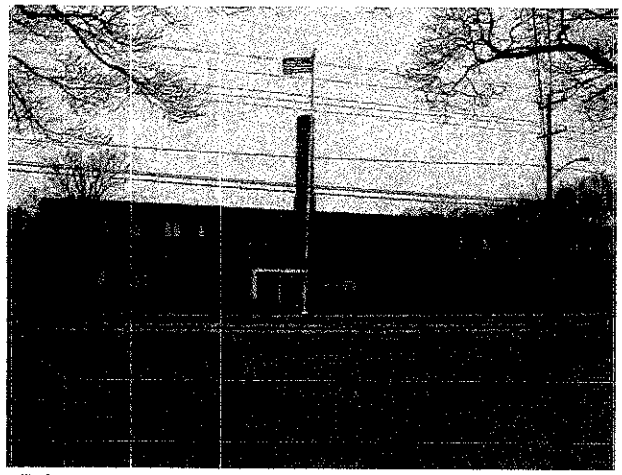


PLATE 2: USARC on Sandy Lane, Warwick, Rhode Island

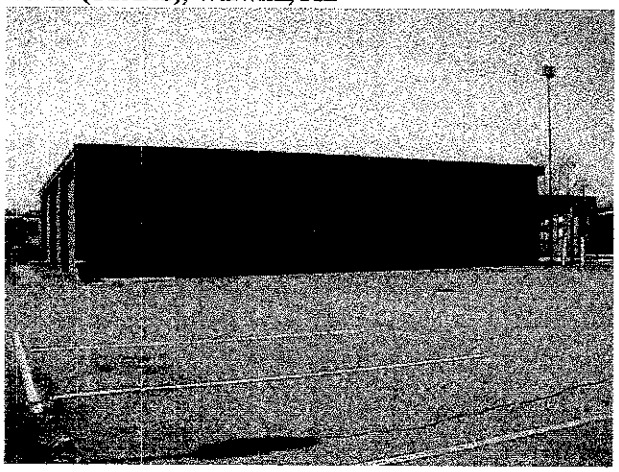


PLATE 3: Organizational Maintenance Shop (OMS)

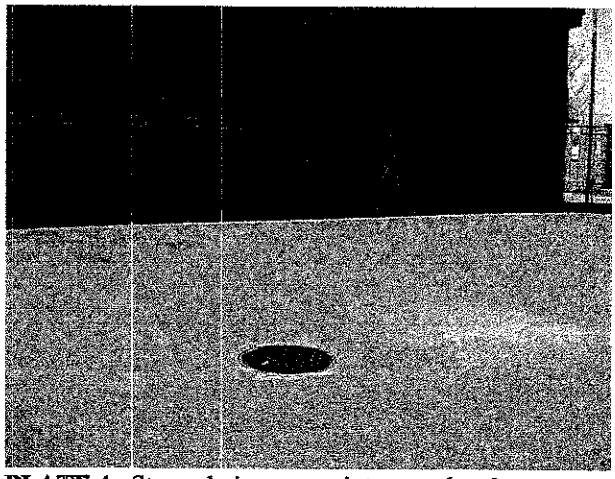


PLATE 4: Storm drain near maintenance bay 2

PLATE 5: Absorbent (site 1)

PLATE 6: Vehicle-spill kits in back of bay 2 (site 2)

6.0 Appendix...*continued*

PLATE 7: Poly-spill barrel on wheels **(site 3)**

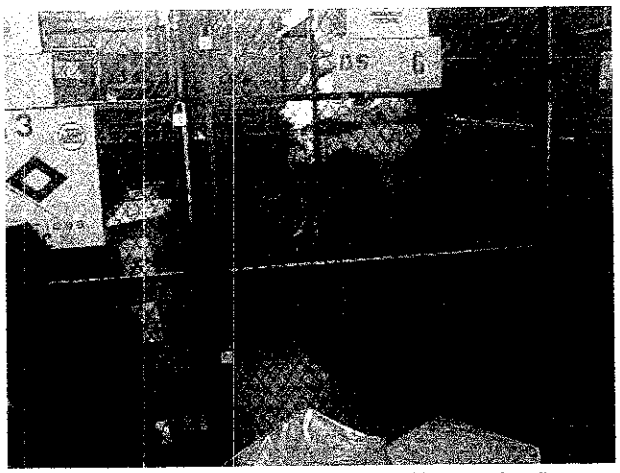


PLATE 8: Vehicle-spill kits in back of bay 1 **(site 4)**

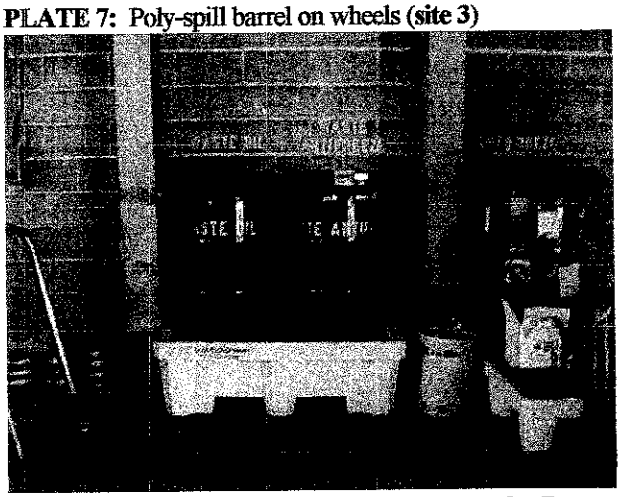


PLATE 9: Hazardous-waste generation point **(site 5)**

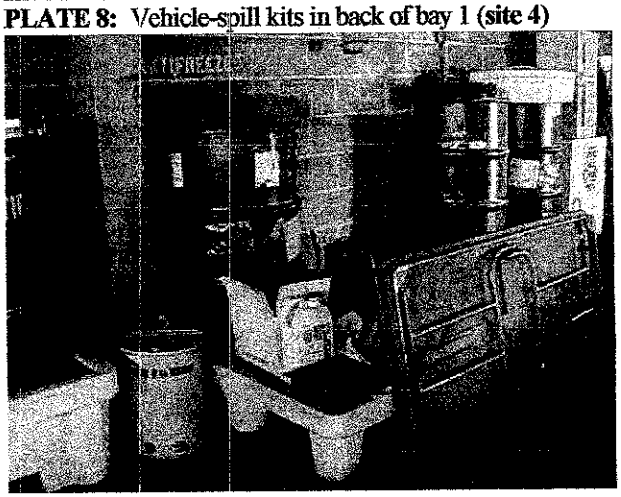


PLATE 10: New POL storage area **(site 6)**

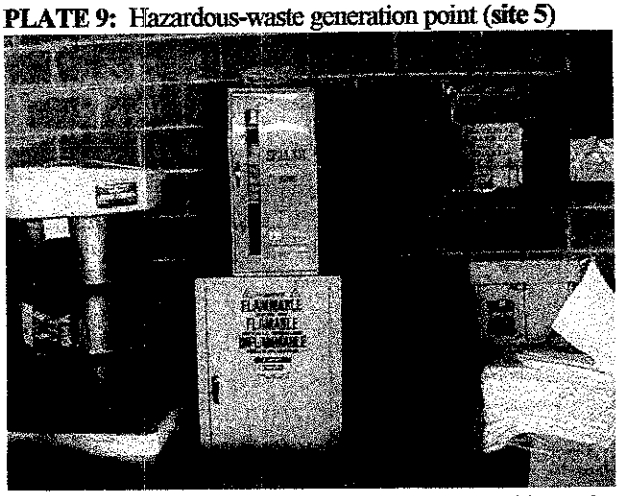


PLATE 11: Spill kit and flammables storage cabinet **(site 7)**

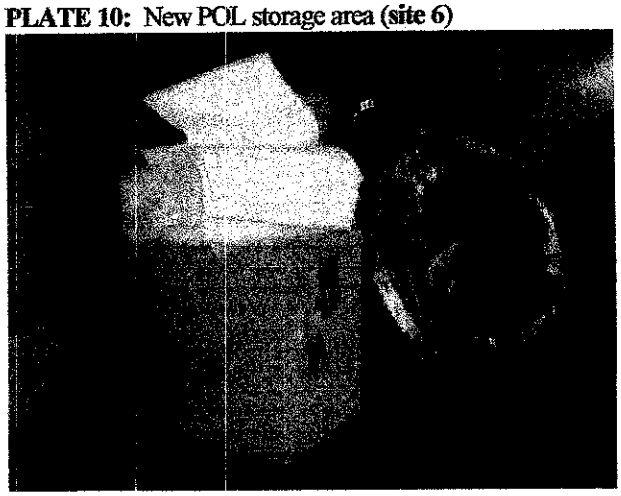


PLATE 12: Flammables storage cabinet and sorbant pads **(site 8)**

6.0 Appendix...*continued*

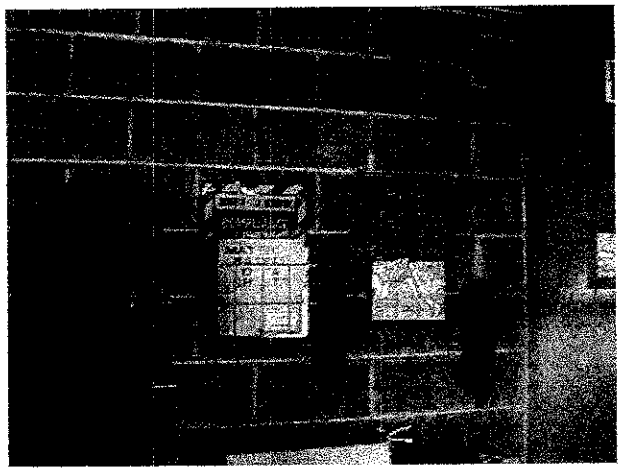


PLATE 13: MSDS sheets **(site 9)**

PLATE 14: Rolling spill kit **(site 10)**

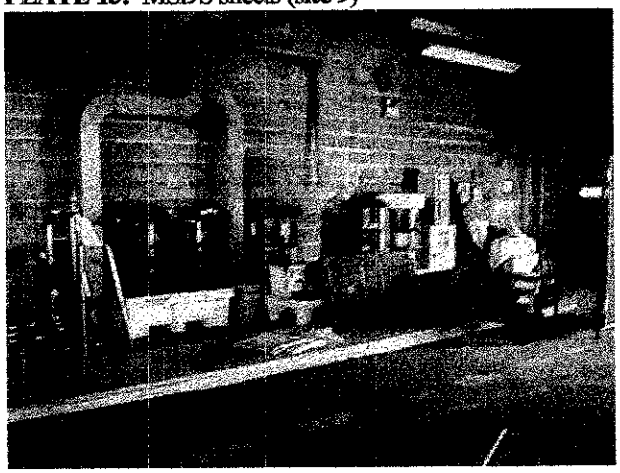


PLATE 15: Unused oil pit in bay 1

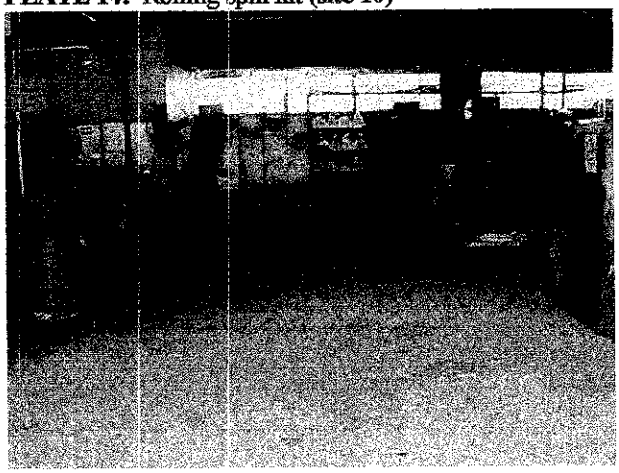


PLATE 16: Maintenance bay 2

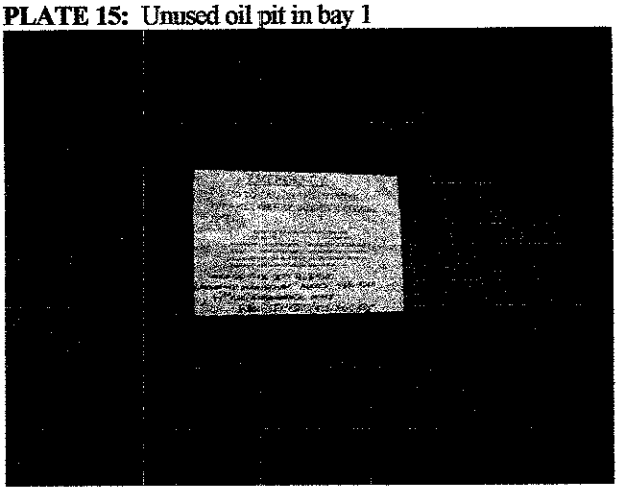


PLATE 17: Emergency spill response sign on door of OMS

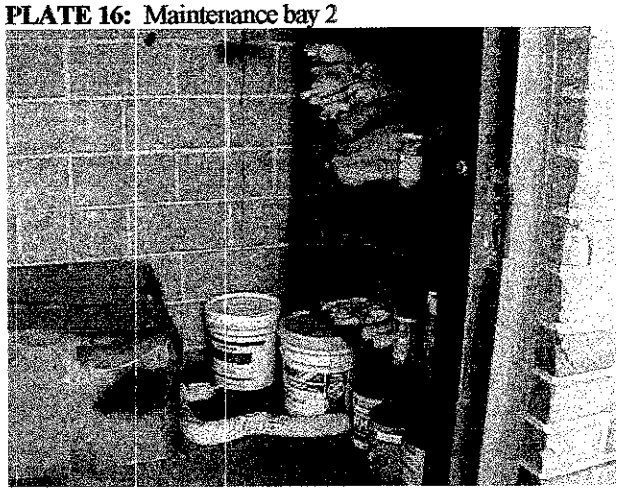


PLATE 18: POL storage area with outside access **(site 12)**

6.0 Appendix...*continued*

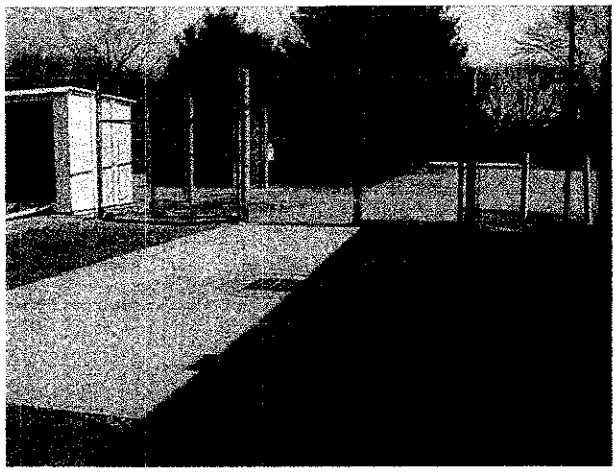


PLATE 19: Vehicle-wash rack **(site 11)**

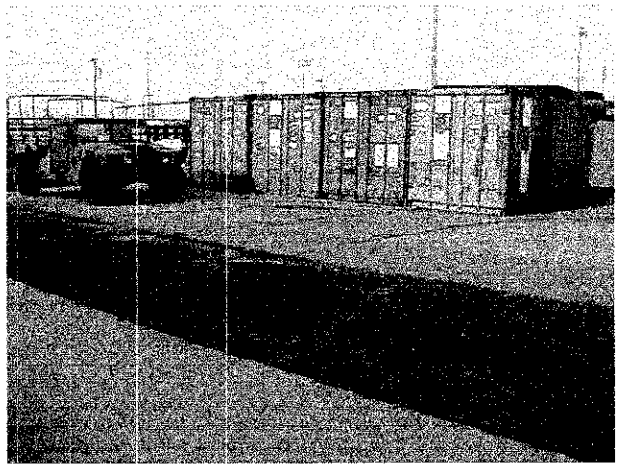


PLATE 20: Four conexes in MEP **(site 13)**

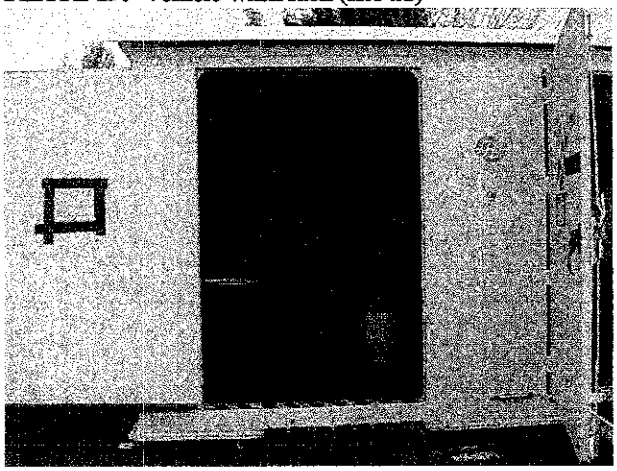


PLATE 21: Northern bay of POL shed, "POL 1" **(site 14)**

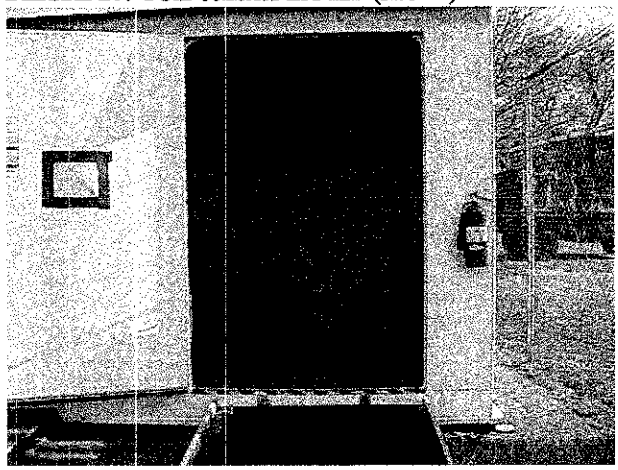


PLATE 22: Southern bay of POL shed, "POL 2" **(site 14)**

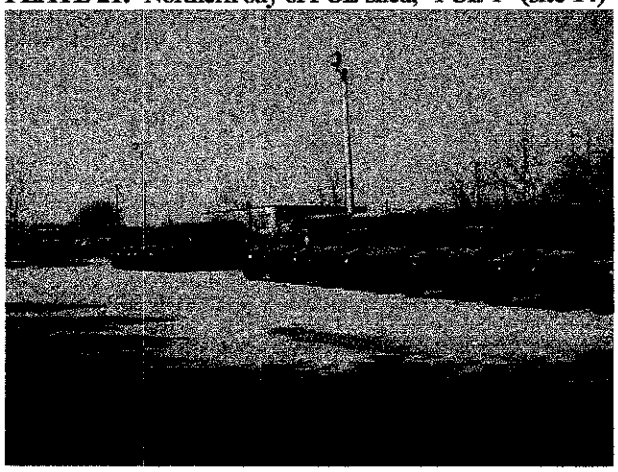


PLATE 23: MEP looking southwest

PLATE 24: Southwestern section of MEP

6.0 Appendix...*continued*

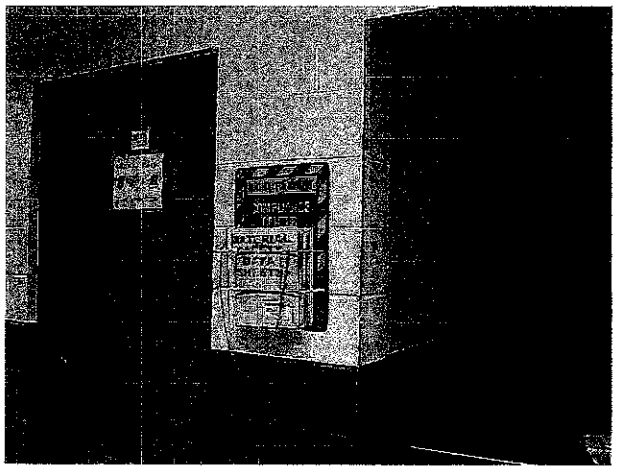


PLATE 25: MSDS sheets in the USARC **(site 15)**

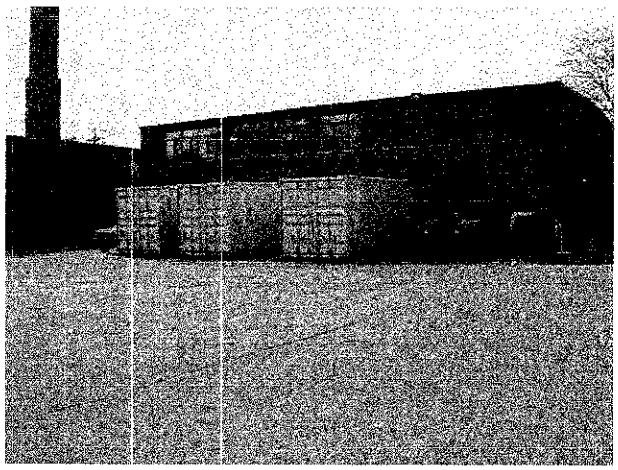


PLATE 26: Three conexes in POV parking area 2 **(site 16)**

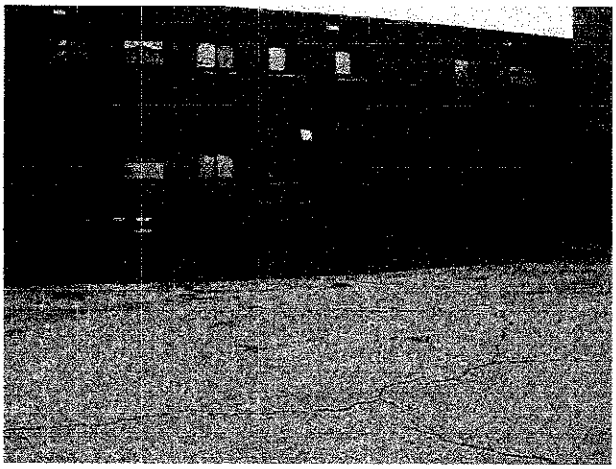


PLATE 27: South of USARC, site of former septic tank and former USARC fuel-oil UST, recently paved

PLATE 28: POV parking area 1 (recently expanded), facing southeast

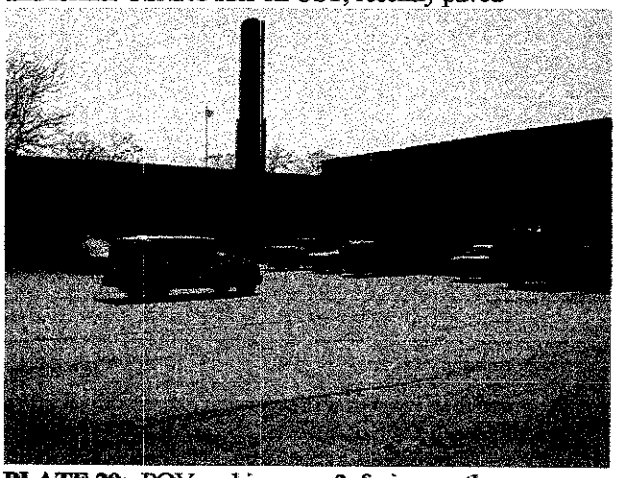


PLATE 29: POV parking area 2, facing south

PLATE 30: Storm drain in POV parking area 2

6.0 Appendix...*continued*

PLATE 31: New paved extension of POV parking area 2, facing west

PLATE 32: Outfall no. 3 (OF-3) - Unregulated

PLATE 33: Outfall no. 4 (OF-4) - Unregulated

PLATE 34: Riprap area downhill (northwest) from OF-3 and OF-4

PLATE 35: View of riprap along fence northwest of new paved extension of POV parking area 2

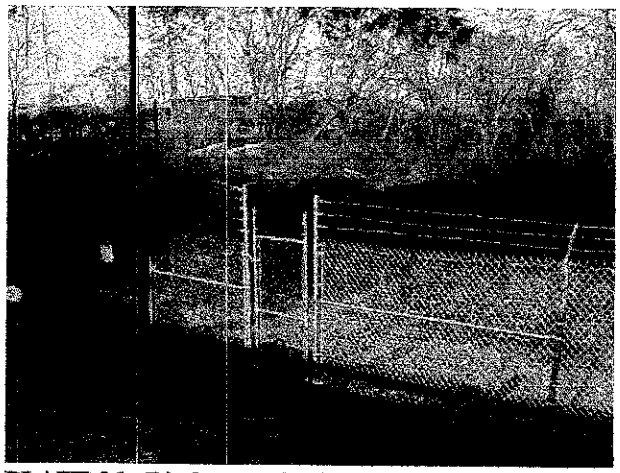


PLATE 36: Discharge point for OF-3 and OF-4 onto field on facility property

6.0 Appendix...*continued*

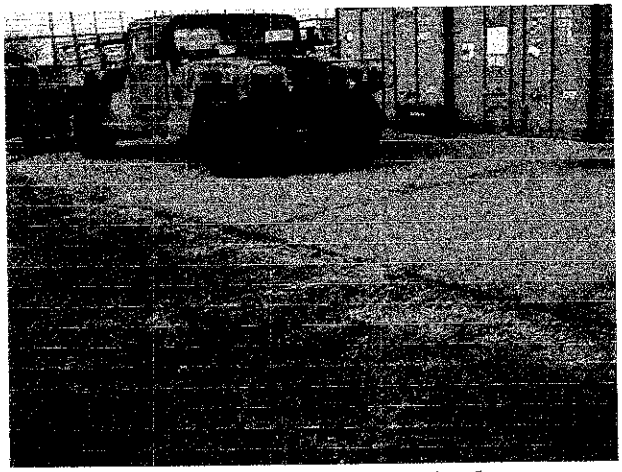


PLATE 37: Outfall no. 1 (OF-1) – Regulated

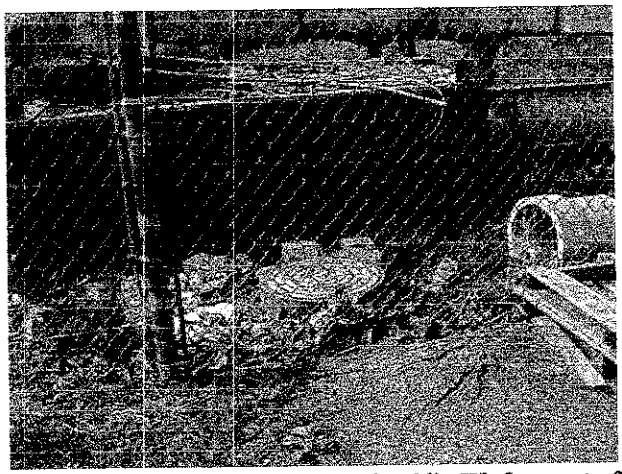


PLATE 38: Manhole at Dept. of Public Works, west of OF-1

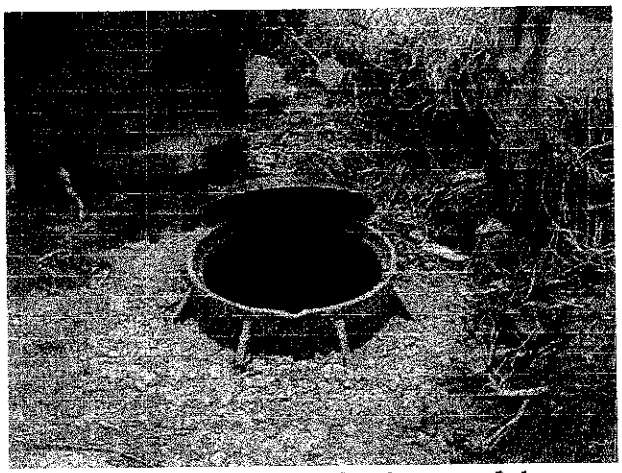


PLATE 39: Possible sampling location at manhole

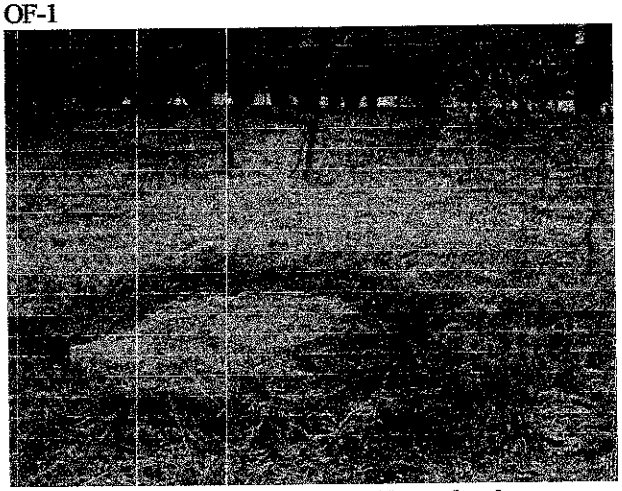


PLATE 40: Outfall no. 2 (OF-2) - Unregulated

RI 008

RHODE ISLAND HISTORICAL PRESERVATION & HERITAGE COMMISSION
HISTORIC PROPERTY DATA COLLECTION FORM

TOWN Warwick VILLAGE _____ SITE RI-_____ ID # _____

ADDRESS 885 Sandy Lane Restrict? _____

PHOTO NOS [Town-P Code-Date-Roll-Frame] PLAT/LOTS

WAWK-PAL-2-2, 3 _____

NAME(S) Pvt. Lloyd S. Cooper III, U. S. Army Reserve Center
If more than one, list & number in order of importance, with Historic Name first

RESOURCE TYPE X Bldg ___Site ___strUc ___Obj OWNERSHIP ___Private Public ___Loc ___St X Fed

STATUS ____DOE ____NR Ind ____NR Dist ____C ____NC ____NHL SURVEYOR PAL, Inc. DATE 3/95

NR DISTRICT _____ REVIEWER _____ DATE _____

USES: If more than one, list & number in order of importance. Use terms from National Register tables ONLY.

CURRENT defense - military facility

HISTORIC defense - military facility

ALTERATIONS ___Maj ___Mod X Min ___None INTEGRITY ___Exc X Good ___Fair ___Poor ___Dest

STORIES 2 → If categories below have more than one entry, number in order of importance

ROOF FORM ___gable ___gambrel ___hip X flat ___mansard ___shed Other _____

MATERIALS: ROOF X asphalt ___slate ___tile Other _____

WALL ___shingle ___weatherboard X brick ___stucco Other _____

FOUNDATION ___brick ___stone X concrete Other _____ OTHER _____

PROPERTY COMPONENTS: List & number in order of importance; include the primary component of the resource as number 1

Component type	Code	Count	Component type	Code	Count
reserve center	B - C	1			
garage	B - C	1			

EVENT	DATE	SOURCE	PERSON	ROLE
Construction/Origin	1960	Title Cards	Reisner & Urbahn	Architects
Donation	1958	Title Cards	by City of Warwick, R.I.	

ARCHITECTURAL STYLES No style
If more than one, list & number in order of importance

Form version 19950

COMMENTS:

See attached architectural description and historical significance statement.

HISTORY:

BIBLIOGRAPHY:

Fort Devens Real Property Office Records
Facility Records

Community: Warwick
Property Address: 885 Sandy Lane

ARCHITECTURAL DESCRIPTION *(continued)*

The Private Lloyd S. Cooper III United States Army Reserve Center, designed by Reisner & Urbahn and built in 1960 as a 400-man center, is an L-shaped structure, with a 185-foot by 48-foot, two-story administrative and classroom block, and a 72-foot by 52-foot drill hall wing connected to the main block at the northwest corner by a narrow, 34-foot long corridor. All walls are concrete block, with exterior brick veneer. Both the main block and the drill hall wing have, flat, built-up roofs which slightly overhang the walls, and slope away slightly from a discrete center ridge for drainage. The double front entrance doors are offset toward the west end of the front (south) elevation, and are located in a 20-foot wide, two-story glass curtain wall, penetrated by a one-story concrete surround. The legend "U.S. ARMY RESERVE" appears on the front wall in six-inch high metal letters near the entrance. The long north and south walls contain rows of regularly-spaced, recessed, metal-sash windows with two vertical panes on protruding concrete sills. These windows replace the original four- and six-pane steel-sash units. A long blank section of the south elevation contains no windows where the drill hall is located. Three stacked windows light the stairwell at the east end of the main block. A tall, slender, square, brick exterior boiler chimney rises from at the junction of the main block and the east side of the connecting corridor. A covered electrical transformer bay is located on the west side of the corridor. The double aluminum-frame and plate glass front doors open into a two-story, open foyer with a second-story mezzanine level. The east and west ends of the building contain double doors which open onto the central corridor. The first floor is devoted mostly to administrative offices, and the second floor is devoted to classrooms. Other interior features include a kitchen, rifle range, boiler room and equipment storage. The drill hall is a 22-foot high structure, with a flat, built-up roof edged with metal coping. The drill hall is lit by six-foot high bands of replacement, metal sash windows which span the length of the tops of the long, east and west side walls. The walls are divided into four wide bays by piers which express the location of the three massive I-beams which support the diagonally-braced, open-web steel roof joists. The north wall of the drill hall contains a roll-type garage door for vehicle access, and a personnel door. The drill hall floor is a thick concrete slab to support the weight of heavy military vehicles and equipment. The north and south end walls of the drill hall are unfenestrated brick.

One related outbuilding, the Maintenance Shop (MS), is located approximately 160 feet west of the main building. The maintenance shop, also designed by Reisner & Urbahn, and built in 1960, is a 70-foot by 53-foot, three-bay, one-story, brick vehicle garage, with a slightly pitched shed roof. Three large roll-type garage doors with small oval windows fill the front (east) bays, and the side walls are divided into three bays by brick pilasters which support the roof beams. The maintenance shop is lit by a band of windows located high on the rear (west) elevation. A personnel access door is located on the south side of the building.

The Pvt. Lloyd S. Cooper III Reserve Center is located on a 5.2-acre graded lot on the north side of Sandy Lane. A Public Works depot is located to the west, and residences lie to the east. A swampy, wooded area extends behind the center to the north. The remains of a small graveyard are located to the northeast of the reserve center property. The property is open lawn at the front, and is fenced off beyond the front of the building. Gated, paved driveways are located at the east and west sides of the building, and lead to parking areas and the maintenance shop. At the front (south) side of the building, the driveways, and the front entrance are linked by paved walks. Landscaping is minimal, consisting of open, mown lawns, trimmed yews, and a few small trees.

The Pvt. Lloyd S. Cooper III Reserve Center is an excellent, unaltered example of the main 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, and a later incarnation, Urbahn, Brayton & Burrows. 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 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. Except for the replacement windows, the Pvt. Lloyd S. Cooper III Reserve Center retains its original appearance and architectural integrity.

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 Conflict, 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, 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 5.2 acres donated by the City of Warwick, Rhode Island in 1958.

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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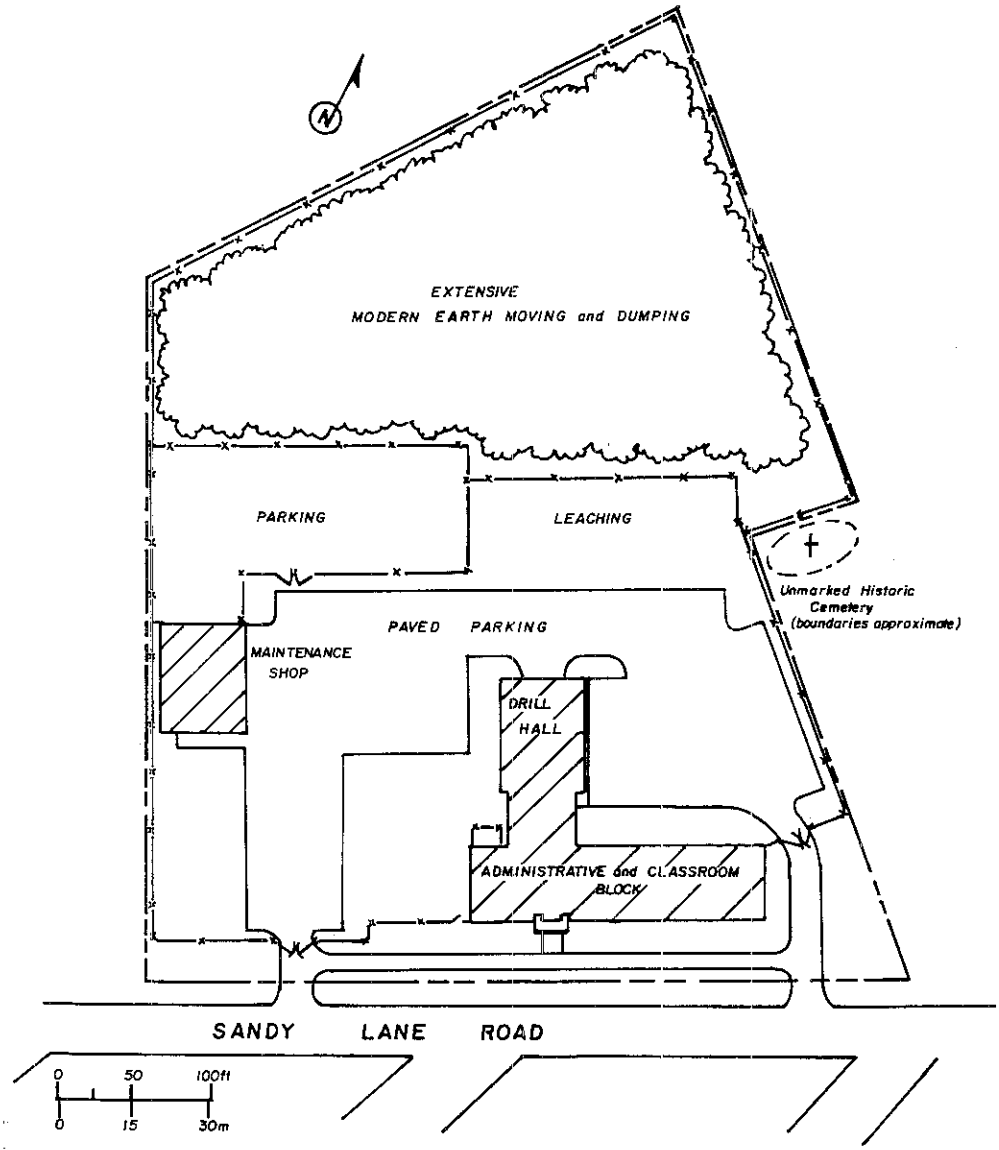
SITE PLAN OF THE PRIVATE LLOYD S. COOPER III USARC



PVT Lloyd S. Cooper III USARC (RI008)

Facility Description

The PVT Lloyd S. Cooper III USARC is located on the north side of Sandy Lane in Warwick, Kent County, Rhode Island (Figure 7-16). The facility, a 5.2-acre parcel donated by the city of Warwick in 1958, contains the reserve center, maintenance shop, two paved parking lots, and a swampy wooded area that extends behind the center to the north. The property is bounded by a Public Works depot to the west, residences to the east, playing fields to the north, and Sandy Lane to the south. The remains of an historic period graveyard lie to the immediate east of the fenced facility.

Environmental Setting

Topography and Physiographic Zone

The topography and physiographic zone for the Cooper USARC are the same as those described for the Quinta-Gamelin USARC in Bristol.

Bedrock, Surficial Geology, and Soils

The general facility area is underlain by sandstone, conglomerate, shale, and meta-anthracite of the Rhode Island Formation deposited during the Pennsylvanian age, about 300 million years ago (Quinn 1971). The surficial geology of the area consists of glacial outwash deposits which is commonly found in the Narragansett Basin (USDA 1981b). The outwash deposits consist of gravel, sand, silt, and clay carried and deposited irregularly by glacial melting at the end of the Wisconsin glaciation. These outwash deposits lie above the Pennsylvanian sedimentary bedrock and older granite rocks. Soils within the Cooper USARC are classified as Urban Land (USDA 1981b). Urban land consists of areas where 75 percent or more of the land is covered with impervious surfaces such as buildings, paved roads, parking lots, and industrial areas.

Narragansett Bay Drainage

The Cooper USARC facility is located within the Lower Bay drainage system, which is situated within the larger Narragansett Bay Basin. The facility lies approximately 380 m northwest of Little Pond and 500 m south of Buckeye Brook, which eventually empties into Narragansett Bay. Tuscatucket Brook, which feeds into Brush Neck Cove and Greenwich Bay, lies approximately 766 yards to the southwest.

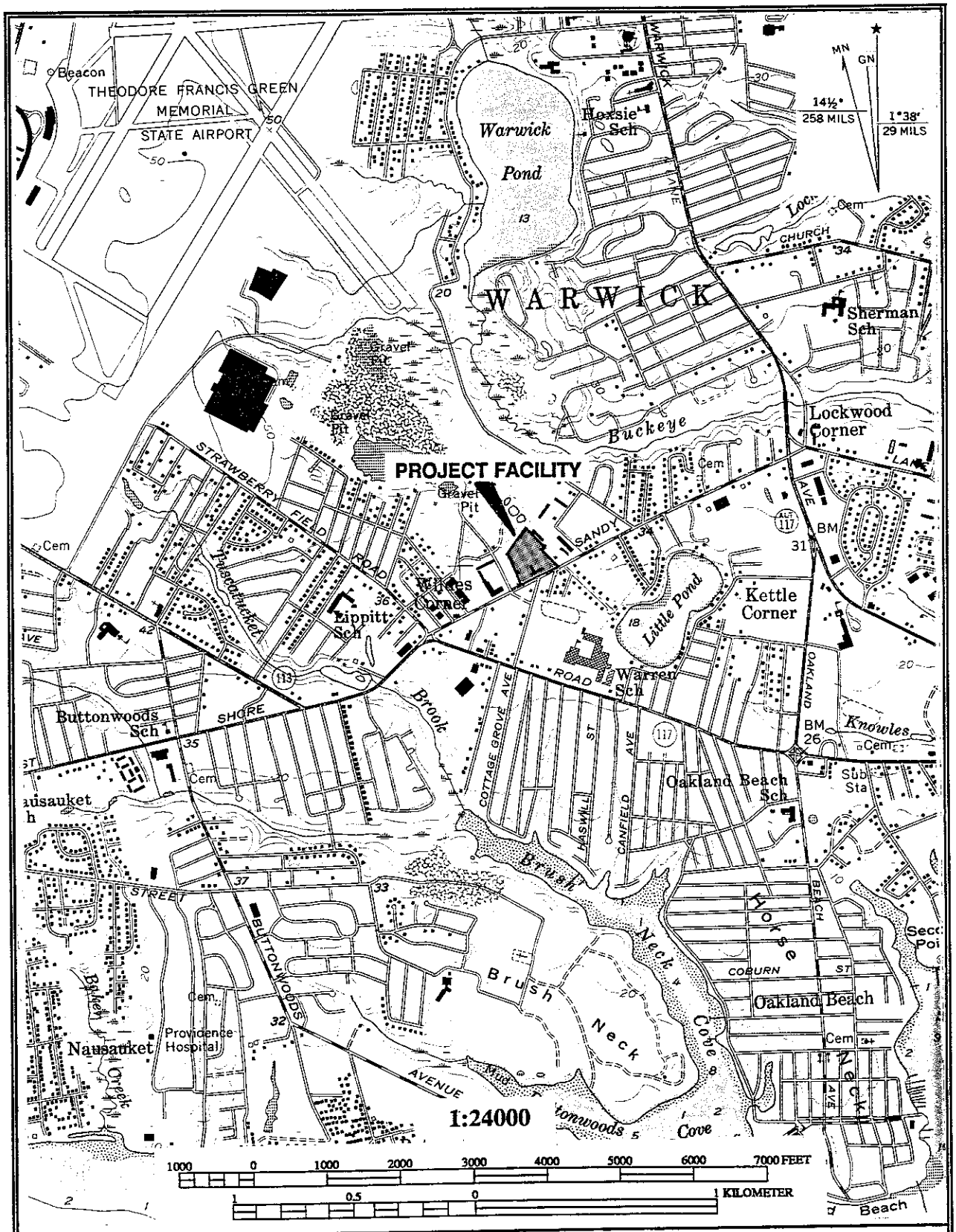


Figure 7-16. Location of the PVT Lloyd S. Cooper III USARC (RI008) project facility on the East Greenwich, Rhode Island USGS topographical quadrangle, 7.5 minute series.

Prehistoric Context

The Cooper USARC in Warwick is located in the near-interior region of Rhode Island, an environmental and geophysical zone that was heavily exploited by prehistoric groups. The proximity of both protected inland and coastal resources would have attracted human populations on a year-round basis. Known information on prehistoric sites in the area relies heavily on artifact collections and avocational reports. More recent CRM surveys have added information on less desirable site locations as well as those not selected by early collectors.

There is limited information available for the PaleoIndian presence in the project vicinity. This period represents the first appearance of human groups following the final glacial retreat. The lack of identified sites makes interpretations of subsistence patterns difficult, but a generally accepted model defines PaleoIndian groups as moving on a seasonal basis and utilizing the glacial lake ecosystem. Diagnostic fluted projectile points are present in area collections, but few have specific site locations. Turnbaugh (1980:62-63) mentions a single fluted point near Chapman Pond in the western Pawcatuck drainage.

The Early Archaic Period is also under-represented in area sites. A general warming trend throughout this period would have increased the diversity of available resources. Diagnostic materials include bifurcate-base and Kirk-type projectile points. The Bouchard Site in Usquepaug produced an Early Archaic radiocarbon date. An Early Archaic presence is also supported by the recovery of a bifurcate point at the South Wind Site, and two bifurcate find spots were reported in the Wickford Cove area.

Early and Middle Archaic projectile points comprise an almost equally small portion of artifact collections from southern Rhode Island. The Middle Archaic Period appears to have been a time of expanding populations, and sites dating to this period have been found in a wide variety of environmental settings. Sites in the area with Middle Archaic components include RI 1371, RI 1024, RI 1023, RI 968, and RI 1010.

All three cultural traditions of the Late Archaic Period are well represented at area sites. The multi-component Bouchard Site contained a number of Laurentian Tradition Brewerton and Vosburg project points. Laurentian materials are well represented in the A.B. Congdon Collection, also from sites in the project vicinity. Area sites with Small Stemmed components include RI 1722 and Sweet Meadow Brook. Local sites with Transitional Archaic-Susquehanna Tradition components include Sweet Meadow Brook and Greenwich Cove (RI 193).

An Early Woodland component was discovered at the Sweet Meadow Brook, Greenwich Cove, RI 823, and Lambert Farm sites, and within the Meadows Archaeological District (RI-253). The strong Woodland presence in the area continues into the Middle Woodland Period. An increased diversity of ceramic styles and a reliance on exotic lithics appear in the archaeological record. Many sites with Middle Woodland deposits also contain Late Woodland materials, and records for a number of area sites do not differentiate between the two. Diagnostic Jack's Reef and Fox Creek projectile points have been identified in many of the Woodland Period deposits in the area, especially at sites on or near the coast.

By the Late Woodland Period horticulture was an important part of the subsistence strategy. Groups were likely living in large, semi-permanent village-like settlements where a variety of activities occurred. Recent archaeological investigations in southern New England have identified planting fields at some of these sites. Recovered evidence indicates that the Warwick area was intensively utilized during this period. Local sites include Macera I and II, Greenwich Cove, and Lambert Farm. The Lambert Farm Site contained a wide variety of features and artifacts, including shell middens, hearths, aboriginal ceramics, and lithic workshops.

Expected Prehistoric Resources

The archaeological record for the project vicinity indicates that the Warwick area attracted prehistoric peoples over thousands of years. Favorable environmental conditions existed from at least the Early Archaic through Late Woodland periods. The archaeological sensitivity for the project vicinity is generally high due to these factors. Expected site types within any intact, well-drained portions of the project property could include small campsites as well as large habitation sites dating to the Late Archaic through Woodland periods, although earlier occupations are possible.

Historic Context

At the time of European exploration along the New England coastline, the land comprising most of present day Kent County was occupied by the Narragansett Tribe (Potter 1835). Most of the southern part of Rhode Island was then referred to as Narragansett Country, reflecting the strength and numbers of the Indians living there.

Warwick consists of four land purchases made between the English and the local Narragansett groups: Shawomet, Occupasstuxet, Potowomut, and Pawtuxet. The first purchase, Shawomet, was obtained by Samuel Gorton and about a dozen followers on January 12, 1642. After being banished from Massachusetts, Gorton and followers of his ultra-Puritan sect purchased more than 100 square miles (ca. 60,000 acres) of land, part of which is now within Warwick, for 144 fathoms of wampum (equivalent to 28 pounds sterling) from Miantonomi and Pomham, two Narragansett sachems (RIHPC 1981). This purchase resulted in the first English settlement in Warwick. Gorton and his followers established a village at the north end of Warwick Neck on Warwick Cove, beyond both the limits of Providence and the legal claim of the English charter. The village was located along what is now West Shore Road from Second Point Road to Economy Avenue (RIHPC 1981).

During this period the Shawomet settlement was not stable, as the Massachusetts Bay Colony was still hostile towards the exiled dissidents who settled in Rhode Island (Fuller 1875). The Massachusetts Bay Colony claimed jurisdiction over the western shore of Narragansett Bay after receiving submissions from Pomham and Sacconoco and four of the English settlers. Gorton and his followers were charged with trespassing, and a contingent of 40 soldiers and 3 commissioners were sent by Massachusetts to Shawomet

(Fuller 1875). Gorton and his men were arrested and brought to Boston for trial, where they were convicted of heresy and sedition, and imprisoned. They were released with orders not to return to Shawomet.

Gorton and two associates returned instead to England, and in May 1646 the Commissioners of Foreign Plantations issued an order prohibiting the Massachusetts Bay Colony from harassing the settlers of Shawomet or of any other Rhode Island colony. Gorton and his followers returned to Shawomet in 1647. In 1648 Shawomet was renamed "Warwick" in honor of the Earl of Warwick, Robert Rich, who was Chairman of the Commissioners and helped secure the charter for the Rhode Island colony (RIHPC 1981). Warwick was granted a charter by the General Assembly in 1648 and became one of four original Rhode Island colonies, the others being Providence, Newport, and Portsmouth.

The advent of King Phillip's War in 1675 heightened hostility between the Narragansetts and the colonists throughout Rhode Island, including Warwick, despite Gorton's friendly relations with the Narragansetts (Leach 1958). On December 27, 1675 the United Colonies' troops burned nearly 100 wigwams of the dissenting Sachem Pomham. On March 17, 1676 the Narragansetts burned every house and bridge in Warwick except the Stone Castle on West Shore Road (demolished 1795). Most of the settlers, however, had already fled to Portsmouth for safety, leaving a small garrison behind at the Stone Castle. When King Philip's War ended in August 1676, Gorton and other English residents of Warwick returned to their village to rebuild.

Warwick witnessed its first major phase of colonial expansion during the early part of the eighteenth century. Settlers began to occupy remote parts of the town as the threat of Indian attacks disappeared. Potowomut Neck and Cowesett were settled by the English, and a few public buildings were constructed. By 1715 a schoolhouse was built at the southwest corner of West Shore Road and Sandy Lane.

Transportation and industry continued to grow throughout the mid to late eighteenth century. The economy of the town at this time was agriculturally based. Gristmills, fulling mills, and other developments sprung up along the Pawtuxet River. Inns and taverns were established along the Pequot Trail (now Post Road), a major thoroughfare in the town. A major improvement in transportation occurred with the opening of a ferry service in 1742 at Warwick Neck. The ferry service later expanded to become the primary form of transportation between Newport and Providence. The population of the town continued to rise steadily, and by 1730 Warwick had a population of 1,178. Although a large section of western Warwick was incorporated into the neighboring town of Coventry in 1741, Warwick's population more than doubled by 1774 to include 2,438 individuals.

Warwick also played an important role in the state's transformation from an agricultural to a seafaring colony. Apponaug, Potowomut, and particularly Pawtuxet developed into major ports. Pawtuxet was a customs port from which Rhode Island contributed to the "triangle" trade (RIHPC 1981). As the seaports expanded, so did the occurrence of smuggling. In an attempt to control smuggling, the British sent several armed vessels to Narragansett Bay. One of these ships, the H.M.S. Gaspee, was run aground off Warwick and burned by a group of colonists on June 9, 1772. This is considered by many to be the first overt act in defiance of British authority in America (Fuller 1875; RIHPC 1981).

The town of Warwick responded patriotically to the Revolutionary War. During the war several Rhode Island militia units were formed, such as the Pawtuxet Rangers and the Kentish Guards. The militia men not only served in the young Continental Army but also were to help defend the town from any enemy incursions. An officer in the Kentish Guard, General Nathaniel Greene, was promoted to General Washington's command. Greene was integral in holding the Continental Army together during the winter at Valley Forge (1777-1778) and became a commander-in-chief of the southern Army at the end of the war.

In 1794 Warwick's first cotton mill was constructed in Centerville by Job Greene, only four years after Samuel Slater founded his Pawtucket mill, the first in the country. Other mills followed; approximately 10 were built by 1834. Mill villages quickly sprang up across western Warwick, mostly along the Pawtuxet River. These mills and their associated mill towns resulted in rapid population growth as they attracted people from the rural hinterlands.

A transportation boom occurred in Warwick during the nineteenth century. The New London Turnpike was built in 1821 and became the quickest route between Providence and New London. By 1830, however, the high cost of travelling on the turnpike and the advent of the railroad brought the turnpike to an early demise. The New York, Providence and Boston Railroads opened in the late 1830s, followed by the Providence, Hartford, and Fishkill Railroads in the 1850s. The railroads stimulated the growth of Warwick's economy by connecting the mill villages of the Pawtuxet Valley to Providence and Hartford, thus providing easy transportation of trade goods. However, the railroad also brought about the demise of the horse-drawn stages and with it the local taverns that had become fixtures along their routes.

The Civil War era was one of growth for Warwick. There was little hesitation by the town to provide whatever was needed to the Federal Army. In 1861, a training camp near Apponaug was opened to train men for the Army. Warwick also used its growing industrial capabilities to provide goods and services for the North.

Population continued to rise in Warwick throughout the nineteenth century. The population of the town was 2,532 in 1800, increasing to 5,529 by 1830. By the mid-1800s Warwick had begun a meteoric rise in population. In 1860, 8,916 people lived in the town; within 20 years the population reached 12,316. At the end of the nineteenth century the population of Warwick was 21,316 (U.S. Census). This large population growth was a function of the increasing number of immigrants attracted to Warwick to work in various industries (RIHPC 1981). The project vicinity along Sandy Lane was thickly settled with a number of residences and small farms (Figure 7-17)

In the early twentieth century, coastal areas of Warwick became focal points for summer cottage development. In the interior, the electric trolley system (1892), automobile and modern highway had the principal effects on development. Improved transportation networks revitalized some areas while bypassing others. The majority of textile mills throughout this part of Rhode Island's interior declined in the twentieth century. More recently, scattered inland subdivisions have transformed many of the agricultural and forested areas into residential districts.

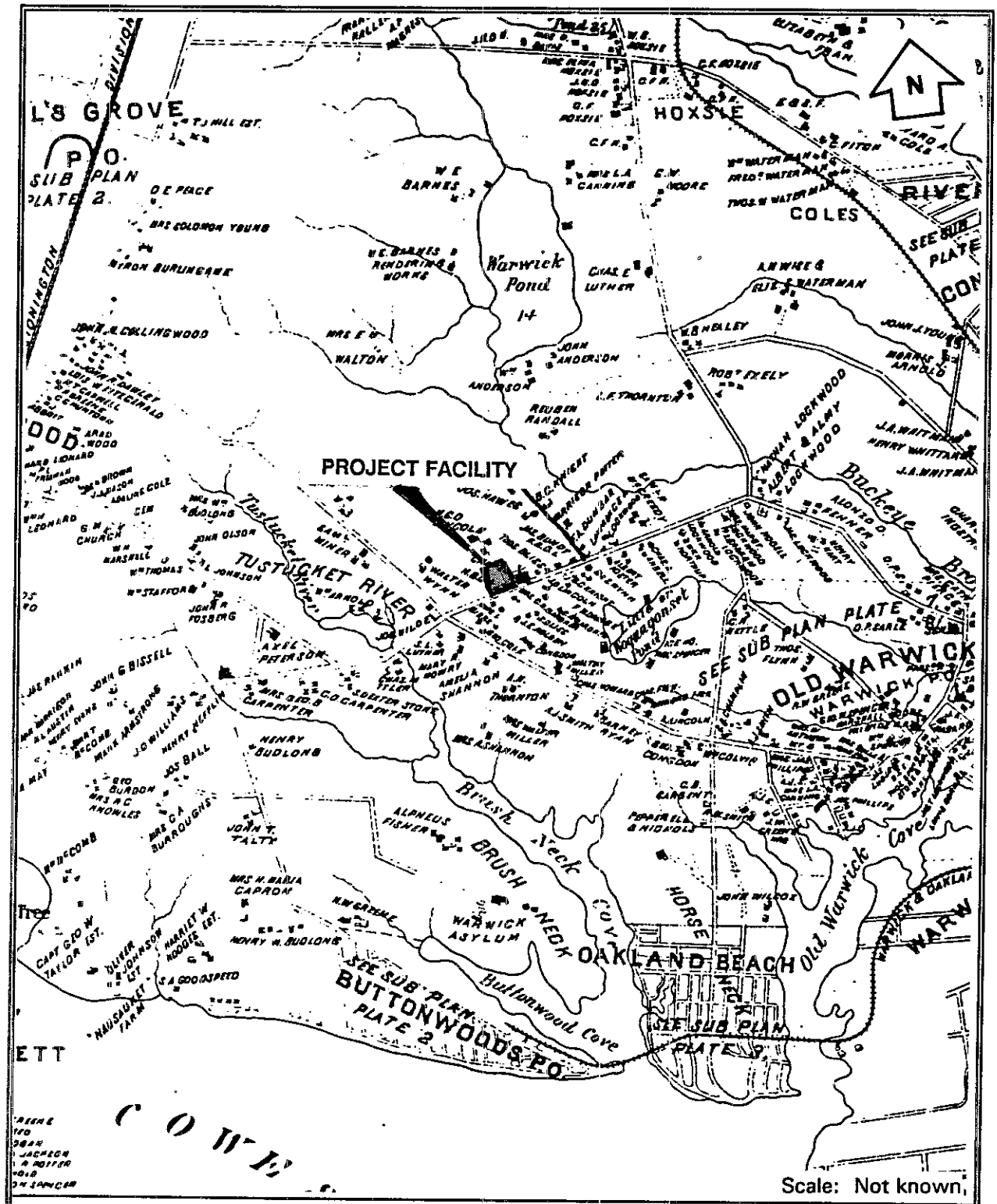


Figure 7-17. 1895 map of Warwick, Rhode Island with the location of the PVT Lloyd S. Cooper III USARC (RI008) project facility (source: Everts and Richards 1895b).

In 1913, West Warwick was incorporated as a town, having been formed from the area of Pawtuxet Valley. This split resulted from long-standing feuds between residents of the built-up sections of the western villages, who wanted several civic improvements, and the residents of the less populated farm and shore communities, who did not want to pay for improvements they would not directly use.

The T.F. Greene Airport was opened in 1931 and became the first state-owned airport in the nation. Warwick today is characterized by commercial and industrial ventures, with occasional survivals of earlier structures. With the relatively recent construction of Interstate 95, commercial, light industrial, and residential developments have become the dominant landscape elements.

Expected Historic Resources

A review of nineteenth-century maps of Warwick revealed that the project property was situated in a section of Warwick historically occupied by single-family farmsteads (Beers 1870c; Everts and Richards 1895b). The 1895 map of Warwick depicts two structures belonging to H.B.O. Lincoln within the Cooper USARC property (see Figure 7-17). A "chapel" structure is depicted to the immediate northeast side of the project property on this same map. These structures do not appear on the 1870 map of Warwick. Facility files contain a 1959 site plan that depicts a house situated roughly 30 ft in from Sandy Lane in the far southeast corner of the property. Three sheds were also present at that time to the rear of the house in the same portion of the project property. The site plan notes that all of these structures were "to be removed." An "existing dump" is also noted in the far northwest section of the project property.

The house and sheds present on the property in 1959 could be related to the documented H.B.O. Lincoln residence dating to at least 1895. The presence and integrity of any below-ground historic resources associated with the historic Lincoln family occupation within the Cooper USARC property is dependent upon the degree of previous disturbance related to facility construction and associated earthmoving activity.

Results of Previous Archaeological Studies

The 1979 archaeological survey of the Cooper USARC consisted of a walkover survey and the placement of five test pits north of the reserve center parking area (Hammer 1983). Based on the results of the subsurface investigations and the disturbed nature of the facility, an intensive archaeological survey of the parcel was not recommended. The 1988 archaeological reassessment reported that the Cooper USARC was entirely disturbed, having been graded, filled, and paved for the construction of the buildings and parking areas (Bourassa and Atwood 1988). The northern section of the property had also been impacted by dumping, earthmoving, and the creation of a leach field. An intensive archaeological survey of the facility was not recommended.

Results of Validation Study

The validation survey included a walkover of the facility to reassess the two previous determinations of low sensitivity and recommendations for no further work. Based on the walkover survey and 1959 through 1994 facility plans, it was determined that the natural topography of the property had been severely disturbed as a result of the construction of the buildings, leach field, and parking areas in the southern portion of the property, and earthmoving and modern dumping in the northern portion (Figure 7-18). No evidence of the documented historic structures was observed within the property. The area formerly occupied by the house and sheds is now a paved drive and partially covered by the reserve center building. Based on the degree of previous disturbance, it was confirmed that the majority of this facility possesses a low archaeological sensitivity for intact archaeological resources.

The historic cemetery noted by Hammer (1983) and Bourassa and Atwood (1988) that abuts the northeast-central fenceline of the facility was re-examined as part of the validation survey (see Figure 7-18). The cemetery consists of a number of visible slate (effaced) and white marble (Lincoln and Roberts families; nineteenth century) gravestones in very poor condition (toppled, broken). The visible gravestones are situated in an overgrown wooded lot and are not within any distinct above-ground enclosure such as a stone wall. The flat topography and elevation in the area of the visible gravestones is the same as that within the Cooper USARC facility property just west of the chain link fence.

Deed research was undertaken in an attempt to determine the age and boundaries of the historic cemetery due to its close proximity to the Cooper USARC property line. This research revealed that the cemetery was situated on an approximate 40-acre farmstead owned and occupied by the Lincoln family of Warwick from 1852 to 1925. This farmstead encompasses the present-day Cooper USARC property on the north side of Sandy Lane. Prior to the Lincoln ownership the same 40-acre farm, with a dwelling and outbuildings, was owned by the James P. Murray of Providence (1851 to 1852), John P. Remington of Warwick (1845 to 1851), and George K. Clarke of Warwick (1838 to 1845). Mr. Clarke purchased the property from Phebe Baker of Warwick, who acquired the farm in 1838 from the Estate of Pardon Baker. The relationship of Phebe and Pardon is not known at this time. Pardon Baker of Warwick purchased the 40-acre farm with a dwelling in 1789 from Thomas Stone of Warwick.

The first mention of a burial ground on the 40-acre farm in the deed records occurs in 1858 as a codicil to the land transaction between James P. Murray and Harrison Gray Otis Lincoln of Providence. The reference notes that "the burial ground on the farm bought by Harrison G.O. Lincoln from said Murray is reserved to the heirs of Pardon Baker, late of Warwick" (Deed Book 29:19). None of the earlier deeds dating back to the transaction between Pardon Baker and Thomas Stone in 1789 makes reference to the presence of a burial ground on the 40-acre farmstead property.

The 1858 recorded right-of-access to the burial ground for the heirs of Pardon Baker suggests that the cemetery was created by the Baker family sometime following Pardon's purchase of the farmstead in 1789. Subsequent owner/occupants, particularly the Lincoln family, also used the cemetery for family burials (cf. visible gravestones of Lincoln family). In addition, it appears that the Lincoln family erected a "chapel" to

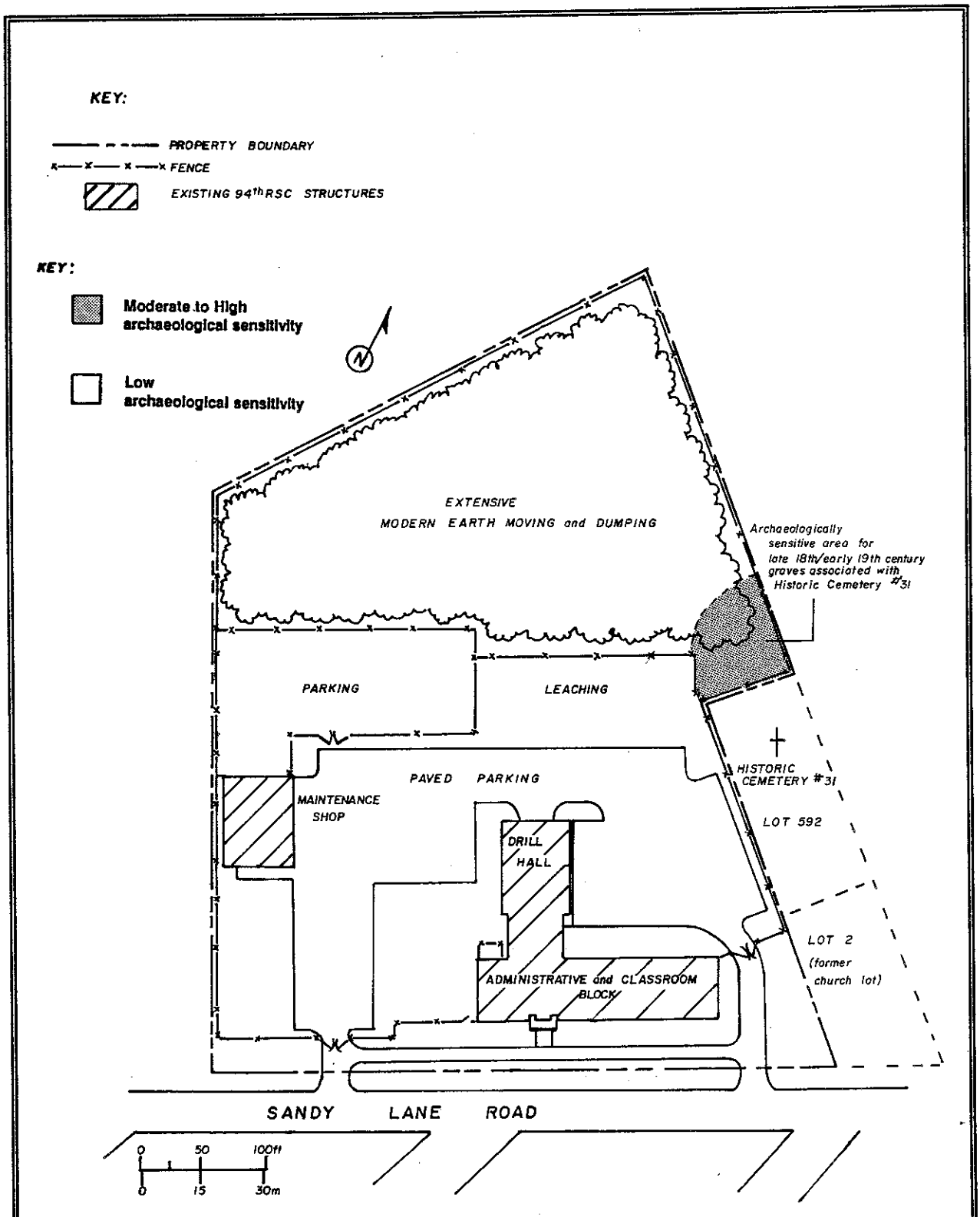


Figure 7-18. PVT Lloyd S. Cooper III USARC (RI008) project facility, showing the location of archaeological sensitivity.

the south side of the cemetery bordering Sandy Lane by 1895. The "chapel" appears to have stood on what was later called the "Church Lot" in a 1927 deed between John O. Lincoln et al. and Harrison G. O. Lincoln and the town of Warwick. This deed records that a strip of land along the western and northern sides of the "Church Lot" that included the cemetery was given back to the above-named Lincoln family members by the Town (Deed Book 125:136). The western extent of this strip of land and the western half of the "Church Lot" are presently included within the Cooper USARC property. The remaining eastern portion of the "Church Lot" is presently recorded as Lot 2 on Plat 349 in the City of Warwick and the "cemetery" is designated Lot 592. Both lots are cut out of the northeast boundary line of the Cooper USARC property, acquired as such by the United States Government from the City of Warwick in 1958 (Deed Book 310:468). Further background research at City Hall determined that the cemetery is recorded in city records as Historic Cemetery 31 (RI Graves Registration Committee 1956). At the time of its recordation, the cemetery, designated the "Lincoln Lot," was noted to contain seven graves, three of which are veterans, and was in poor condition. Its size was estimated to be 40 by 40 ft.

Conclusion/Recommendation

Based on the degree of previous disturbance, it was confirmed that the Cooper USARC property possesses a low archaeological sensitivity for intact prehistoric resources and historic resources associated with the documented farmstead occupation. The deed research conducted for the identified historic cemetery that abuts that northeast-central fenceline of the property verified cemetery boundaries as recorded during the Lincoln family occupation (1852 to 1925) of the former farmstead that encompassed the facility property and surrounding land. These boundaries appear to correspond to the existing fenceline at this location.

However, the deed records indicate that the burial ground was established by the Baker family sometime following the purchase of the farmstead property in 1789. Interments took place somewhere in the vicinity of the visible graves from circa 1789 to 1852 before the Lincoln family acquired the land. It is not known when and by whom formal cemetery boundaries were established that led to the set off established between the Lincoln family heirs and the town of Warwick in 1927. The potential for graves, particularly dating to the Baker family occupation (1789 to 1838), that are no longer marked by headstones cannot be discounted. It is possible that graves once extended into the facility property beyond the modern-day fenceline. The presence and survival of graves within the facility property would be dependent on the degree of earthmoving that occurred during facility construction in this portion of the property. According to the 1958 site plan, the area to the southwest of the fence was graded and filled for paved parking and a leach field. However, the area to the immediate west is wooded and unimproved (see Figure 7-18).

Further documentary and local informant research along with archaeological investigation would be necessary to determine the potential for and presence of late eighteenth/early nineteenth-century unmarked graves that extend within the facility property, particularly to the west side of the fenceline in the wooded and unimproved area. This area should be avoided during future construction activities.

Appendix E

Regulatory Database Search Reports

The EDR Radius Map
with GeoCheck®

PT Lloyd S. Cooper III USARC
885 SANDY LANE
WARWICK, RI 02889

Inquiry Number: 01714247.200r

July 12, 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

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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

885 SANDY LANE
WARWICK, RI 02889

COORDINATES

Latitude (North):	41.706900 - 41° 42' 24.8''
Longitude (West):	71.415000 - 71° 24' 54.0''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	299067.8
UTM Y (Meters):	4619839.5
Elevation:	53 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	41071-F4 EAST GREENWICH, RI
Most Recent Revision:	2000

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following government records. For more information on this property see page 6 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
US ARMY RESERVE 885 SANDY LN WARWICK, RI 02886	RCRA-SQG FINDS MANIFEST	RIR000015552
US ARMY RESERVE TRAINING CENTER 885 SANDY LN WARWICK, RI	UST	N/A
U S ARMY RESERVE CENTER 885 SANDY LANE WARWICK, RI	SHWS Facility Status: Active LUST Facility Status: Inactive; Investigation/Remed. Complete,No Further Action Required	N/A

EXECUTIVE SUMMARY

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
CORRACTS	Corrective Action Report
RCRA-TSDF	Resource Conservation and Recovery Act Information
RCRA-LQG	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
RAATS	RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SWF/LF	Solid Waste Management Facilities
SPILLS	Oil & Hazardous Material Response Log/Spill Report
AUL	ELUR Listing
BROWNFIELDS	Brownfields Site List
NPDES	Permit and Facility Data
AIRS	Air Emissions Listing
LEAD	Lead Inspections Database

TRIBAL RECORDS

INDIAN RESERV	Indian Reservations

EDR PROPRIETARY RECORDS

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR Historical Auto Stations EDR Proprietary Historic Gas Stations
EDR Historical Cleaners EDR Proprietary Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS 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. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

RCRAInfo: 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 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 offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/09/2006 has revealed that there are 15 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
GETTY SERVICE STA 68003	***1015 SANDY LN***	***0 - 1/8 WSW***	***B6***	***16***
C D AUTO	***14 CLORANE ST***	***0 - 1/8 WSW***	***B8***	***21***
PAGLIAS AUTO SALES & SERVICE	***40 WHITFORD ST***	***0 - 1/8 WNW***	***9***	***21***
RAYS SERVICE CENTER	***33 CLORANE ST***	***0 - 1/8 W***	***C10***	***24***
B & R AUTO & TRUCK REPAIR	***33 CLORANE ST***	***0 - 1/8 W***	***C11***	***25***
FAMILY TRANSPORT INC	***33 CLORAINE ST***	***0 - 1/8 W***	***C12***	***25***
NYNEX CTL OFF	***2556 W SHORE RD***	***0 - 1/8 S***	***D14***	***26***
R & R MACHINE CO	***50 CLORANE ST***	***1/8 - 1/4 WNW***	***15***	***26***
SUNOCO SERVICE STA HERBS	***2548 W SHORE RD***	***1/8 - 1/4 S***	***18***	***30***
VEMALINE CHIP COOLERS INC	***33 STRAWBERRY FIELD RD***	***1/8 - 1/4 W***	***21***	***38***
PUTNAM EQUIPMENT SERVICE INC	***49-B STRAWBERRY FIELD R***	***1/8 - 1/4 W***	***23***	***40***
FIRST STUDENT	***112 GALLWAY ST***	***1/8 - 1/4 NW***	***F24***	***43***
C L MARINE INC	***2501 W SHORE ROAD***	***1/8 - 1/4 SE***	***G28***	***48***

Lower Elevation	Address	Dist / Dir	Map ID	Page
WARWICK CITY OF D P W	***925R SANDY LN***	***0 - 1/8 SW***	***A5***	***11***
POWER BRAKES INC	***2625 W SHORE RD***	***1/8 - 1/4 SW***	***E20***	***34***

EXECUTIVE SUMMARY

STATE AND LOCAL RECORDS

The State Hazardous Waste Sites records. The data come from the Dept. of Env. Management.

A review of the SHWS list, as provided by EDR, and dated 04/05/2006 has revealed that there are 5 SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WARWICK CITY DUMP (SEE SW FILE Facility Status: Inactive	SANDY LANE	1/8 - 1/4 ENE	17	30
TRUK-AWAY LANDFILL Facility Status: Active Facility Status: Active	***INDUSTRIAL DRIVE***	***1/2 - 1 NNW***	***33***	***51***
E T C O CORD PRODUCTS Facility Status: Active	***333 STRAWBERRY FIELD RD***	***1/2 - 1 WNW***	***34***	***52***
BUTTONWOODS DRY CLEANERS Facility Status: Active	***207 BUTTONWOODS AVE***	***1/2 - 1 WSW***	***35***	***55***

Lower Elevation	Address	Dist / Dir	Map ID	Page
MUNICIPAL AUTO SALES Facility Status: Inactive	2628 WEST SHORE ROAD	1/8 - 1/4 WSW	22	40

LUST: Leaking Underground Storage Tank Facilities.

A review of the LUST list, as provided by EDR, and dated 04/05/2006 has revealed that there are 7 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
GETTY SERVICE STA 68003 Facility Status: Soil Removal Only; No Further Action Required	***1015 SANDY LN***	***0 - 1/8 WSW***	***B6***	***16***
NEW ENGLAND TELEPHONE COMPANY Facility Status: Inactive; Investigation/Remed. Complete,No Further Action Required	***2556 WEST SHORE RD***	***0 - 1/8 S***	***D13***	***25***
RYDER Facility Status: Inactive; Investigation/Remed. Complete,No Further Action Required	112 GALLWAY STREET	1/8 - 1/4 NW	F26	47
TEXACO STATION Facility Status: Soil Removal Only; No Further Action Required	2501 WEST SHORE ROAD	1/8 - 1/4 SE	G29	50

Lower Elevation	Address	Dist / Dir	Map ID	Page
HERB'S SUNOCO Facility Status: Soil Removal Only; No Further Action Required	***2648 WEST SHORE RD***	***1/8 - 1/4 WSW***	***30***	***50***
DB MART Facility Status: Inactive; Investigation/Remed. Complete,No Further Action Required	2400 WEST SHORE ROAD	1/4 - 1/2 SE	31	51
CEDAR SWAMP PUMPING STATION Facility Status: Soil Removal Only; No Further Action Required	***CEDAR SWAMP RD***	***1/4 - 1/2 NNE***	***32***	***51***

EXECUTIVE SUMMARY

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Management's Master List of UST Facilities & Their Associated Tanks.

A review of the UST list, as provided by EDR, and dated 02/01/2006 has revealed that there are 8 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
SANDY LANE GETTY	1015 SANDY LN	0 - 1/8 WSW	B7	20
NEW ENGLAND TELEPHONE COMPANY	***2556 WEST SHORE RD***	***0 - 1/8 S***	***D13***	***25***
VACANT (FORMERLY ALMACS, INC)	2574 WEST SHORE RD	1/8 - 1/4 SW	16	30
FIRST STUDENT	***112 GALLWAY ST***	***1/8 - 1/4 NW***	***F24***	***43***
WEST SHORE ROAD TEXACO	2501 WEST SHORE RD	1/8 - 1/4 SE	G27	47

Lower Elevation	Address	Dist / Dir	Map ID	Page
CITY OF WARWICK D.P.W. YARD	925 SANDY LN	0 - 1/8 SW	A4	10
JANCO CENTRAL INC.	2625 WEST SHORE RD	1/8 - 1/4 SW	E19	34
HERB'S SUNOCO	***2648 WEST SHORE RD***	***1/8 - 1/4 WSW***	***30***	***50***

AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Management's Master List of AST Facilities & Their Associated Tanks.

A review of the AST list, as provided by EDR, and dated 04/03/2006 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
RYDER STUDENT TRANSPORTATION S	112 GALLWAY ST.	1/8 - 1/4 NW	F25	47

MANIFEST: Hazardous waste manifest information

A review of the MANIFEST list, as provided by EDR, and dated 09/30/2005 has revealed that there are 10 MANIFEST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
GETTY SERVICE STA 68003	***1015 SANDY LN***	***0 - 1/8 WSW***	***B6***	***16***
PAGLIAS AUTO SALES & SERVICE	***40 WHITFORD ST***	***0 - 1/8 WNW***	***9***	***21***
RAYS SERVICE CENTER	***33 CLORANE ST***	***0 - 1/8 W***	***C10***	***24***
R & R MACHINE CO	***50 CLORANE ST***	***1/8 - 1/4 WNW***	***15***	***26***
SUNOCO SERVICE STA HERBS	***2548 W SHORE RD***	***1/8 - 1/4 S***	***18***	***30***
VEMALINE CHIP COOLERS INC	***33 STRAWBERRY FIELD RD***	***1/8 - 1/4 W***	***21***	***38***
PUTNAM EQUIPMENT SERVICE INC	***49-B STRAWBERRY FIELD R***	***1/8 - 1/4 W***	***23***	***40***
FIRST STUDENT	***112 GALLWAY ST***	***1/8 - 1/4 NW***	***F24***	***43***

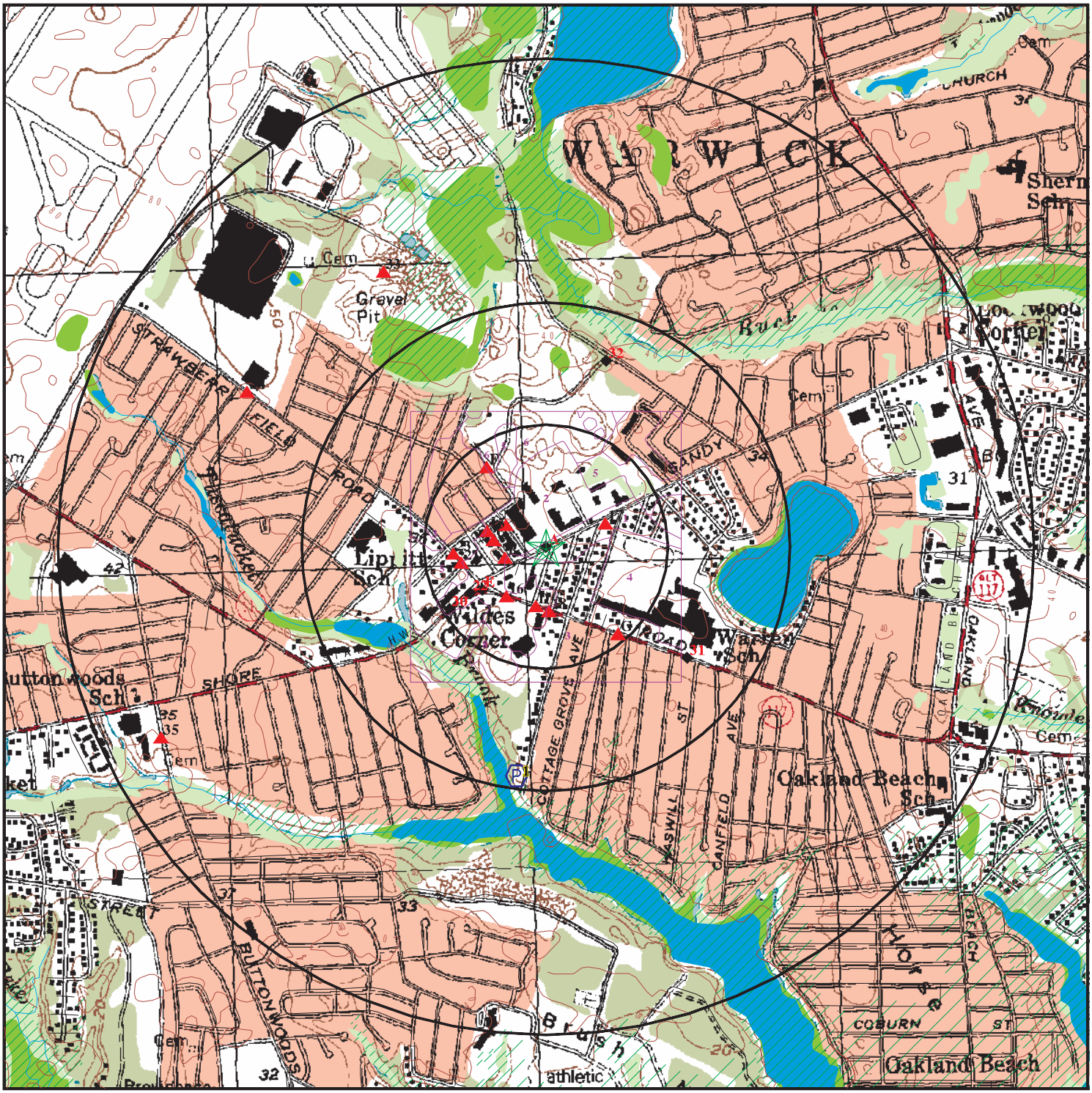
Lower Elevation	Address	Dist / Dir	Map ID	Page
WARWICK CITY OF D P W	***925R SANDY LN***	***0 - 1/8 SW***	***A5***	***11***
POWER BRAKES INC	***2625 W SHORE RD***	***1/8 - 1/4 SW***	***E20***	***34***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
SPRING GREEN CORPORATION	SHWS
GREEN (T.F.) AIRPORT (FORMER HILLSGROVE)	SHWS
WARWICK OPERATIONAL MAINTENANCE SHOP #	SHWS
WARWICK ORGANIZATIONAL MAINTENANCE SH	SHWS
INSKIP AUTOCENTER DEALERSHIP	SHWS
WELLINGTON WETLAND MITIGATION AREA	SHWS
RI DOT LINCOLN AVE MAINTENANCE FACILITY	SHWS
OTO PROPERTIES, LLC	SHWS
CRB INCORPORATED	SHWS
GREEN (T.F.) AIRPORT	SHWS
APPANOAG BRIDGE	SHWS
ROCKY POINT	SHWS
AUBURN TOOL & DYE (SEE NJD FILE)	SHWS
HERFF JONES	SHWS, AUL
WARWICK COVE DUMP	SHWS
NATIONAL GRID - E.G. SUBSTATION	SHWS
TRUK-AWAY (AIRPORT) LANDFILL	SWF/LF
WARWICK COMPOST FACILITY & MRF	SWF/LF
AIRPORT HANGER III DOT MAINT FACILITY (I	LUST
ANDY'S AUTO REPAIR (FORMER)	LUST
WILLIAM SHIELDS JR. POST 43	LUST
LAKE SHORE DRIVE PUMPING STATION	UST
WILLIAMS SHIELD JR. POST 43	UST
WOMEN'S CENTER	UST
SENIOR CENTER (WARWICK)	UST
BROWN'S FARM/SPRING GARDEN ESTATE	UST
HERB'S SUNOCO	CT MANIFEST
J&M SVC CTR., INC.	CT MANIFEST
DAIRY MART, INC.	CT MANIFEST
HAMA ARMITURE	CT MANIFEST
POWER BRAKE	CT MANIFEST
CUMBERLAND FARMS	NY MANIFEST
JANNELL TRUCK BODY	NY MANIFEST
VISTAWALL ARCH	NY MANIFEST
NYNEX	RCRA-SQG
NEW ENGLAND AUTO BODY	RCRA-SQG, FINDS

OVERVIEW MAP - 01714247.200r



☆ 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

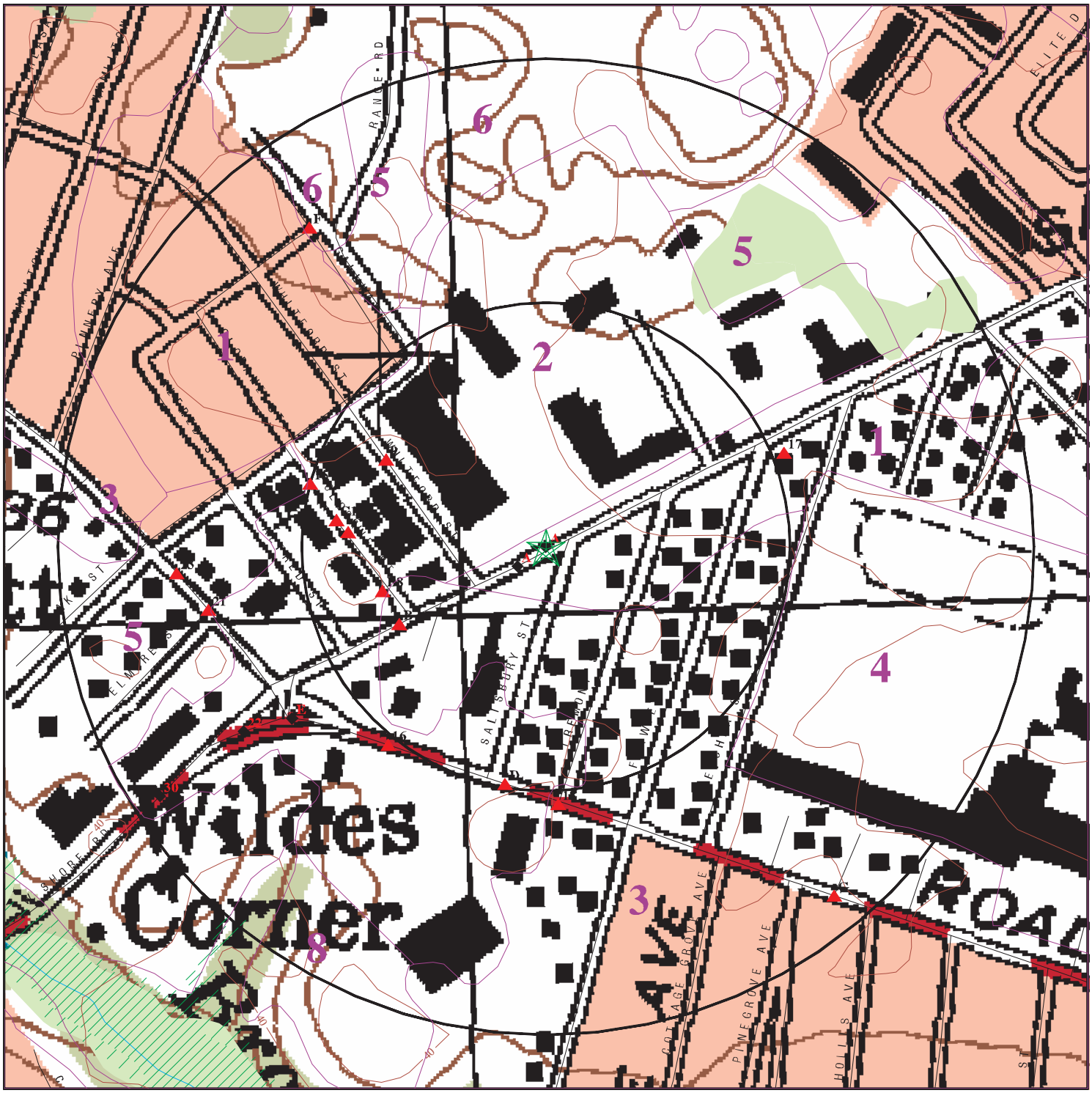
🟩 National Wetland Inventory

🟩 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:	PT Lloyd S. Cooper III USARC	CLIENT:	CH2M Hill
ADDRESS:	885 SANDY LANE WARWICK RI 02889	CONTACT:	Mary Beth Jacques
		INQUIRY #:	01714247.200r
LAT/LONG:	41.7069 / 71.4150	DATE:	July 12, 2006

DETAIL MAP - 01714247.200r



- 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

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: PT Lloyd S. Cooper III USARC	CLIENT: CH2M Hill
ADDRESS: 885 SANDY LANE WARWICK RI 02889	CONTACT: Mary Beth Jacques
LAT/LONG: 41.7069 / 71.4150	INQUIRY #: 01714247.200r DATE: July 12, 2006

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
FEDERAL RECORDS								
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.	X	0.250	8	7	NR	NR	NR	15
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	X	TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
State Haz. Waste	X	1.000	0	2	0	3	NR	5
State Landfill		0.500	0	0	0	NR	NR	0
LUST	X	0.500	2	3	2	NR	NR	7
UST	X	0.250	3	5	NR	NR	NR	8
AST		0.250	0	1	NR	NR	NR	1
MANIFEST	X	0.250	4	6	NR	NR	NR	10
SPILLS		TP	NR	NR	NR	NR	NR	0
AUL		0.500	0	0	0	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
LEAD		TP	NR	NR	NR	NR	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0

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
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		TP	NR	NR	NR	NR	NR	0
EDR Historical Cleaners		TP	NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
Target
Property

US ARMY RESERVE
885 SANDY LN
WARWICK, RI 02886

RCRA-SQG
FINDS
MANIFEST
NY MANIFEST

1001225526
RIR000015552

Site 1 of 5 in cluster A

Actual:
52 ft.

RCRAInfo:

Owner: US ARMY RESERVE 94TH RSC
(978) 796-2238
EPA ID: RIR000015552

Contact: BOB GAGNON
(401) 253-0451

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RI MANIFEST:

Manifest Docket Number:	MAK713618
Waste Description:	OIL SOL
Quantity:	1000.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	CYN OIL CORP
Transporter EPA ID:	MAD082303777
ID:	123314
GEN Cert Date:	6/17/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000015552
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	MA01
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	C Y N OIL CORP
TSDF ID:	MAD082303777
Data Source:	DCW
Date Imported:	3/30/2000 13:24:07
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	1000
Fee Reported:	Not reported

Manifest Docket Number:	NYG1714599

US ARMY RESERVE (Continued) **1001225526**

Waste Description:	AEROSOLS
Quantity:	2.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	FRANKLIN ENV SVS INC
Transporter EPA ID:	MAD084814136
ID:	141368
GEN Cert Date:	9/29/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000015552
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	Not reported
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHEAST ENV SVS INC
TSDF ID:	NYD057770109
Data Source:	JAN
Date Imported:	3/22/2000 15:02:38
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	2
Fee Reported:	Not reported

Manifest Docket Number:	NYG1714599
Waste Description:	CHROMIUM
Quantity:	19.00
WT/Vol Units:	P
Item Number:	2
Transporter Name:	FRANKLIN ENV SVS INC
Transporter EPA ID:	MAD084814136
ID:	141370
GEN Cert Date:	9/29/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000015552
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D007
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHEAST ENV SVS INC
TSDF ID:	NYD057770109
Data Source:	JAN

US ARMY RESERVE (Continued) **1001225526**

Date Imported:	3/22/2000 15:02:38
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	19
Fee Reported:	Not reported
Manifest Docket Number:	NYG1714626
Waste Description:	FLAM LIQ
Quantity:	12.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	FRANKLIN ENV SVS INC
Transporter EPA ID:	MAD084814136
ID:	141371
GEN Cert Date:	9/29/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000015552
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHEAST ENV SVS INC
TSDF ID:	NYD057770109
Data Source:	JAN
Date Imported:	3/22/2000 15:03:19
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	12
Fee Reported:	Not reported
Manifest Docket Number:	NYG1714626
Waste Description:	FLAM LIQ
Quantity:	38.00
WT/Vol Units:	P
Item Number:	3
Transporter Name:	FRANKLIN ENV SVS INC
Transporter EPA ID:	MAD084814136
ID:	141373
GEN Cert Date:	9/29/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000015552
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported

US ARMY RESERVE (Continued) **1001225526**

Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHEAST ENV SVS INC
TSDF ID:	NYD057770109
Data Source:	JAN
Date Imported:	3/22/2000 15:03:19
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	38
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
3 additional RI MANIFEST: record(s) in the EDR Site Report.

NY MANIFEST:

Document ID:	NYG1692423
Manifest Status:	Not reported
Trans1 State ID:	MAD084814136
Trans2 State ID:	Not reported
Generator Ship Date:	09/15/1999
Trans1 Recv Date:	09/15/1999
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	09/17/1999
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	RIR000015552
Trans1 EPA ID:	NYD057770109
Trans2 EPA ID:	Not reported
TSDF ID:	Z46928TN
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00231
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	00074
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	99
Facility Type:	Generator
EPA ID:	RIR000015552
Facility Name:	MOTORPOOL COOPER ARC-PR COOPER USAR CTR
Facility Address:	885 SANDY LN
Facility City:	WARWICK
Facility Zip 4:	Not reported
Country:	USA
County:	Not reported
Mailing Name:	MOTORPOOL COOPER ARC-PR COOPER USAR CTR
Mailing Contact:	RAFAEL CORTES

US ARMY RESERVE (Continued) **1001225526**

Mailing Address: 885 SANDY LN
Mailing City: WARWICK
Mailing State: RI
Mailing Zip: 02886
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 508-884-6151

Click this hyperlink while viewing on your computer to access
2 additional NY MANIFEST: record(s) in the EDR Site Report.

A2 **US ARMY RESERVE TRAINING CENTER** **UST** **U001212000**
Target Property **885 SANDY LN** **N/A**
WARWICK, RI

Site 2 of 5 in cluster A

Actual: 52 ft.

UST:

Facility ID:	1668	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	12000 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	1961-03-01 00:00:00
Facility ID:	1668	Tank ID:	2
Tank Status:	Permanently Closed	Tank Capacity:	1000 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	1961-03-01 00:00:00

A3 **U S ARMY RESERVE CENTER** **SHWS** **S105077980**
Target Property **885 SANDY LANE** **LUST** **N/A**
WARWICK, RI

Site 3 of 5 in cluster A

Actual: 52 ft.

HWS:
Facility Status: Active
Project Code: USAR-HWM
Project Code Desc: State
Project Date: 6/7/2001

LUST:
Project Number: 3593-ST
Project Date: 4/30/1999
Tank Status: Inactive; Investigation/Remed. Complete, No Further Action Required

---

A4 **CITY OF WARWICK D.P.W. YARD** **UST** **U001211742**
SW **925 SANDY LN** **N/A**
< 1/8 **WARWICK, RI**
93 ft.

Site 4 of 5 in cluster A

Relative: Lower

Actual: 47 ft.

UST:

Facility ID:	1304	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	10000 Gals
Tank Substance:	DIESEL	Date Installed:	1965-04-01 00:00:00

CITY OF WARWICK D.P.W. YARD (Continued) **U001211742**

Facility ID:	1304	Tank ID:	3
Tank Status:	Permanently Closed	Tank Capacity:	1000 Gals
Tank Substance:	GASOLINE	Date Installed:	1965-05-01 00:00:00
Facility ID:	1304	Tank ID:	5
Tank Status:	In Use	Tank Capacity:	6000 Gals
Tank Substance:	GASOLINE	Date Installed:	1999-03-11 00:00:00
Facility ID:	1304	Tank ID:	4
Tank Status:	In Use	Tank Capacity:	12000 Gals
Tank Substance:	DIESEL	Date Installed:	1999-03-10 00:00:00
Facility ID:	1304	Tank ID:	2
Tank Status:	Permanently Closed	Tank Capacity:	5000 Gals
Tank Substance:	GASOLINE	Date Installed:	1965-05-01 00:00:00

A5 **WARWICK CITY OF D P W** **RCRA-SQG** **1000436844**
SW **925R SANDY LN** **FINDS** **RID980671622**
< 1/8 **WARWICK, RI 02886** **MANIFEST**
93 ft. **CT MANIFEST**

Site 5 of 5 in cluster A

Relative: Lower

Actual: 47 ft.

RCRAInfo:

Owner: CITY OF WARWICK
(401) 738-2000
EPA ID: RID980671622

Contact: CHRISTOPHER BENEDUCE
(401) 737-4360

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: Violations exist

Regulation Violated: 5.02
Area of Violation: CONTINGENCY PLAN
Date Violation Determined: 04/14/1998
Actual Date Achieved Compliance: 01/03/2001

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 12/03/2000
Penalty Type: Not reported

Regulation Violated: 7.02
Area of Violation: PERSONNEL TRAINING RECORDS
Date Violation Determined: 04/14/1998
Actual Date Achieved Compliance: 01/03/2001

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 12/03/2000
Penalty Type: Not reported

Regulation Violated: 5.04 5.02
Area of Violation: CONTAINER MGT=SAT'LITE ACCUMS/CONTAINER
Date Violation Determined: 04/14/1998
Actual Date Achieved Compliance: 01/03/2001

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 12/03/2000
Penalty Type: Not reported

Regulation Violated: 5.02

WARWICK CITY OF D P W (Continued) **1000436844**

Area of Violation: GENERATOR INSPECTION SCHEDULE & LOG
Date Violation Determined: 04/14/1998
Actual Date Achieved Compliance: 01/03/2001

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 12/03/2000
Penalty Type: Not reported

Regulation Violated: 5.04 5.02
Area of Violation: CONTAINER MGT=SAT'LITE ACCUMS/CONTAINER
Date Violation Determined: 04/14/1998
Actual Date Achieved Compliance: 01/03/2001

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 12/03/2000
Penalty Type: Not reported

There are 5 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
RCRA CEI done W/ Screening Checklist	CONTINGENCY PLAN	20010103
	PERSONNEL TRAINING RECORDS	20010103
	CONTAINER MGT=SAT'LITE ACCUMS/CONTAINER	20010103
	GENERATOR INSPECTION SCHEDULE & LOG	20010103
	CONTAINER MGT=SAT'LITE ACCUMS/CONTAINER	20010103

FINDS:
Other Pertinent Environmental Activity Identified at Site:
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RI MANIFEST:
Manifest Docket Number: MAK064688
Waste Description: GAS WAT
Quantity: 627.00
WT/Vol Units: G
Item Number: 1
Transporter Name: WESTERN OIL INC

WARWICK CITY OF D P W (Continued) **1000436844**

Transporter EPA ID:	RI5000009118
ID:	119220
GEN Cert Date:	1/19/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID980671622
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D018
Waste Code2:	D001
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	UNITED OIL RECOVERY INC
TSDF ID:	CTD021816889
Data Source:	DCW
Date Imported:	9/13/2000 11:46:30
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	5016
Fee Reported:	Not reported

Manifest Docket Number:	MAK070637
Waste Description:	PAINT REL MAT
Quantity:	4.00
WT/Vol Units:	G
Item Number:	2
Transporter Name:	CYN OIL CORP
Transporter EPA ID:	MAD082303777
ID:	119409
GEN Cert Date:	11/17/1998 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID980671622
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	HERITAGE ENVIRONMENTAL SER
TSDF ID:	VTD982766537
Data Source:	DCW
Date Imported:	11/2/2000 9:26:38
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	32
Fee Reported:	Not reported

WARWICK CITY OF D P W (Continued) **1000436844**

Manifest Docket Number:	MAK070637
Waste Description:	PAINT REL MAT
Quantity:	20.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CYN OIL CORP
Transporter EPA ID:	MAD082303777
ID:	119408
GEN Cert Date:	11/17/1998 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID980671622
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	HERITAGE ENVIRONMENTAL SER
TSDF ID:	VTD982766537
Data Source:	DCW
Date Imported:	11/2/2000 9:26:38
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	160
Fee Reported:	Not reported

Manifest Docket Number:	MAK070651
Waste Description:	WAS PAINT
Quantity:	55.00
WT/Vol Units:	G
Item Number:	2
Transporter Name:	CYN OIL CORP
Transporter EPA ID:	MAD082303777
ID:	119411
GEN Cert Date:	11/17/1998 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID980671622
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	D008
Waste Code3:	D035
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	HERITAGE ENVIRONMENTAL SER
TSDF ID:	VTD982766537

WARWICK CITY OF D P W (Continued) **1000436844**

Data Source:	DCW
Date Imported:	11/2/2000 9:27:17
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	440
Fee Reported:	Not reported
Manifest Docket Number:	MAK070651
Waste Description:	WAS PAINT
Quantity:	55.00
WT/Vol Units:	G
Item Number:	4
Transporter Name:	CYN OIL CORP
Transporter EPA ID:	MAD082303777
ID:	119413
GEN Cert Date:	11/17/1998 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID980671622
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	D007
Waste Code3:	D008
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	HERITAGE ENVIRONMENTAL SER
TSDF ID:	VTD982766537
Data Source:	DCW
Date Imported:	11/2/2000 9:27:17
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	440
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
161 additional RI MANIFEST: record(s) in the EDR Site Report.

CT MANIFEST:

Year:	2000
Manifest ID:	CTF0889431
TSDF EPA ID:	CTD002593887
TSDF Name:	BRIDGEPORT UNITED RECYCLE (FORMERLY HITCHCOCK GAS)
TSDF Address:	50 CROSS STREET
TSDF City,St,Zip:	BRIDGEPORT, CT 06608
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	01/21/00
Transporter EPA ID:	CTD021816889
Transporter Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
Transporter Country:	USA
Transporter Phone:	Not reported

WARWICK CITY OF D P W (Continued) **1000436844**

Trans 2 Date:	01/24/00
Trans 2 EPA ID:	CTD021816889
Trans 2 Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	RID980671622
Gererator Phone:	4017374360
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	01/21/00
Date Received:	02/03/00
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Click this hyperlink while viewing on your computer to access
2 additional CT MANIFEST: record(s) in the EDR Site Report.

B6 **GETTY SERVICE STA 68003** **RCRA-SQG** **1000445279**
WSW **1015 SANDY LN** **FINDS** **RID987472164**
< 1/8 **WARWICK, RI 02886** **LUST**
448 ft. **MANIFEST**
CT MANIFEST

Site 1 of 3 in cluster B

Relative:
Equal

Actual:
53 ft.

RCRAInfo:

Owner:	GETTY PETROLEUM CORP
	(401) 555-1212
EPA ID:	RID987472164
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LUST:

Project Number:	3511-LS
Project Date:	6/25/1990
Tank Status:	**Soil Removal Only; No Further Action Required**

RI MANIFEST:

Manifest Docket Number:	RIG0171990
Waste Description:	COMBUSTIBLE LIQUID N.O.S. (NAPTHA,PETROL
Quantity:	7.00
WT/Vol Units:	G
Item Number:	1

GETTY SERVICE STA 68003 (Continued) **1000445279**

Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	164356
GEN Cert Date:	11/29/2000 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987472164
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	Chem-Pak Cor
TSDF ID:	RID 08480284
Data Source:	MD-ELEC
Date Imported:	4/13/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	56
Fee Reported:	Not reported

Manifest Docket Number:	RIG0175803
Waste Description:	COMBUSTIBLE LIQUID N.O.S. (NAPTHA,PETROL
Quantity:	5.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	165077
GEN Cert Date:	2/21/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987472164
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	Chem-Pak Cor
TSDF ID:	RID 08480284
Data Source:	MD-ELEC
Date Imported:	7/10/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	40

GETTY SERVICE STA 68003 (Continued) **1000445279**

Fee Reported:	Not reported
Manifest Docket Number:	RIG0179610
Waste Description:	COMBUSTIBLE LIQUID N.O.S. (NAPTHA,PETROL
Quantity:	8.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	165807
GEN Cert Date:	5/30/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987472164
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	Chem-Pak Cor
TSDF ID:	RID084802842
Data Source:	MD-ELEC
Date Imported:	7/10/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	64
Fee Reported:	Not reported
Manifest Docket Number:	RIG0187697
Waste Description:	COMBUSTIBLE LIQUID N.O.S. (NAPTHA,PETROL
Quantity:	8.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	166581
GEN Cert Date:	11/28/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987472164
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported

GETTY SERVICE STA 68003 (Continued) **1000445279**

TSDF Name:	Chem-Pak Cor
TSDF ID:	RID084802842
Data Source:	MD- ELEC
Date Imported:	12/26/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	64
Fee Reported:	Not reported
Manifest Docket Number:	RIG0184043
Waste Description:	COMBUSTIBLE LIQUID N.O.S. (NAPTHA,PETROL
Quantity:	8.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	166341
GEN Cert Date:	8/22/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987472164
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	Chem-Pak Cor
TSDF ID:	RID084802842
Data Source:	MD-ELEC
Date Imported:	10/3/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	64
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
4 additional RI MANIFEST: record(s) in the EDR Site Report.

CT MANIFEST:

Year:	1993
Manifest ID:	CTF0235687
TSDF EPA ID:	CTD002593887
TSDF Name:	HITCHCOCK GAS ENGINE CO
TSDF Address:	50 CROSS STREET
TSDF City,St,Zip:	BRIDGEPORT, CT 06608
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	01/14/93
Transporter EPA ID:	CTD002593887
Transporter Name:	HITCHCOCK GAS ENGINE CO

GETTY SERVICE STA 68003 (Continued) **1000445279**

Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	RID987472164
Gererator Phone:	Not reported
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	01/14/93
Date Received:	01/16/93
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Click this hyperlink while viewing on your computer to access
1 additional CT MANIFEST: record(s) in the EDR Site Report.

B7 **SANDY LANE GETTY** **UST** **U001211468**
WSW **1015 SANDY LN** **N/A**
< 1/8 **WARWICK, RI**
448 ft.

Site 2 of 3 in cluster B

Relative:
Equal

Actual:
53 ft.

UST:

Facility ID:	901	Tank ID:	3
Tank Status:	Permanently Closed	Tank Capacity:	5000 Gals
Tank Substance:	GASOLINE	Date Installed:	1964-06-01 00:00:00
Facility ID:	901	Tank ID:	7
Tank Status:	Permanently Closed	Tank Capacity:	5000 Gals
Tank Substance:	GASOLINE	Date Installed:	1964-06-01 00:00:00
Facility ID:	901	Tank ID:	5
Tank Status:	Permanently Closed	Tank Capacity:	5000 Gals
Tank Substance:	GASOLINE	Date Installed:	1964-06-01 00:00:00
Facility ID:	901	Tank ID:	2
Tank Status:	In Use	Tank Capacity:	10000 Gals
Tank Substance:	GASOLINE	Date Installed:	1989-10-01 00:00:00
Facility ID:	901	Tank ID:	4
Tank Status:	In Use	Tank Capacity:	10000 Gals
Tank Substance:	GASOLINE	Date Installed:	1989-10-01 00:00:00
Facility ID:	901	Tank ID:	9
Tank Status:	Permanently Closed	Tank Capacity:	550 Gals
Tank Substance:	WASTE OIL	Date Installed:	1964-06-01 00:00:00

SANDY LANE GETTY (Continued) **U001211468**

Facility ID:	901	Tank ID:	8
Tank Status:	Permanently Closed	Tank Capacity:	550 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	1964-06-01 00:00:00
Facility ID:	901	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	6000 Gals
Tank Substance:	GASOLINE	Date Installed:	1964-06-01 00:00:00
Facility ID:	901	Tank ID:	6
Tank Status:	In Use	Tank Capacity:	10000 Gals
Tank Substance:	GASOLINE	Date Installed:	1989-10-01 00:00:00

B8
WSW
< 1/8
457 ft.

Relative:
Higher

Actual:
60 ft.

C D AUTO **RCRA-SQG 1000982180**
14 CLORANE ST **FINDS RI5000002279**
WARWICK, RI 02886

Site 3 of 3 in cluster B

RCRAInfo:

Owner:	CURTIS A DARLING
	(401) 739-9412
EPA ID:	RI5000002279
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

9
WNW
< 1/8
493 ft.

Relative:
Higher

Actual:
58 ft.

PAGLIAS AUTO SALES & SERVICE **RCRA-SQG 1000284267**
40 WHITFORD ST **FINDS RID982544082**
WARWICK, RI 02886 **MANIFEST**
CT MANIFEST

RCRAInfo:

Owner:	JOSEPH PAGLIA
	(401) 555-1212
EPA ID:	RID982544082
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

PAGLIAS AUTO SALES & SERVICE (Continued) **1000284267**

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RI MANIFEST:

Manifest Docket Number:	MAK083567
Waste Description:	TOLUENE/XYLENE
Quantity:	360.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	ADVANCED ENV TECH SVS
Transporter EPA ID:	NJD080631369
ID:	120014
GEN Cert Date:	10/26/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID982544082
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	F003
Waste Code3:	F005
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	CLEAN HARBORS OF BRAINTREE INC
TSDF ID:	MAD053452637
Data Source:	JAN
Date Imported:	4/7/2000 9:41:42
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	2880
Fee Reported:	Not reported

Manifest Docket Number:	CTC0225133
Waste Description:	PAINT MAT
Quantity:	85.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	HAZCO
Transporter EPA ID:	VAD980831580
ID:	264789
GEN Cert Date:	3/7/1989 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID982544082
Number Of Containers:	0
Container Type:	Not reported

PAGLIAS AUTO SALES & SERVICE (Continued) **1000284267**

Waste Code1:	F003
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	EWR
TSDF ID:	CTD072138969
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

CT MANIFEST:

Year:	1990
Manifest ID:	CTC0253144
TSDF EPA ID:	CTD072138969
TSDF Name:	ENVIRONMENTAL WASTE RESOURCES, INC.
TSDF Address:	130 FREIGHT STREET
TSDF City,St,Zip:	WATERBURY, CT 06702
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	05/09/90
Transporter EPA ID:	ILD099202681
Transporter Name:	CHEMICAL WASTE MANAGEMENT, INC. (TRANSPORTER)
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	RID982544082
Gererator Phone:	4017371113
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Yes
Discrepancies:	No
Date Shipped:	05/09/90
Date Received:	05/11/90
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Click this hyperlink while viewing on your computer to access
2 additional CT MANIFEST: record(s) in the EDR Site Report.

C10
West
< 1/8
536 ft.

Relative:
Higher

Actual:
57 ft.

RAYS SERVICE CENTER
33 CLORANE ST
WARWICK, RI 02886

RCRA-SQG
MANIFEST

1000801652
RID987492824

Site 1 of 3 in cluster C

RCRAInfo:

Owner: ED CERLO
(401) 732-1515
EPA ID: RID987492824

Contact: RAYMOND GARDINER-JR
(401) 738-8859

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

RI MANIFEST:

Manifest Docket Number:	MAM882636
Waste Description:	OIL
Quantity:	250.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CLEAN HARBORS
Transporter EPA ID:	MAD039322250
ID:	131725
GEN Cert Date:	2/19/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987492824
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	R010
Waste Code2:	MA98
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	MURPHYS WASTE OIL SERVICE
TSDF ID:	MAD066588005
Data Source:	JAN
Date Imported:	3/13/2001 8:17:58
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	2000
Fee Reported:	Not reported

C11 **B & R AUTO & TRUCK REPAIR** **RCRA-SQG** **1000875639**
West **33 CLORANE ST** **FINDS** **RID987489598**
< 1/8 **WARWICK, RI 02886**
536 ft.

Site 2 of 3 in cluster C

Relative:
Higher

RCRAInfo:
Owner: ED CERIO
(401) 738-1457
EPA ID: RID987489598

Actual:
57 ft.

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

C12 **FAMILY TRANSPORT INC** **RCRA-SQG** **1001030584**
West **33 CLORAINE ST** **FINDS** **RIR000012583**
< 1/8 **WARWICK, RI 02889**
571 ft.

Site 3 of 3 in cluster C

Relative:
Higher

RCRAInfo:
Owner: FAMILY TRANSPORT INC
(401) 732-5595
EPA ID: RIR000012583

Actual:
55 ft.

Contact: PAUL VANASSE
(401) 732-5595

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

D13 **NEW ENGLAND TELEPHONE COMPANY** **LUST** **U001713859**
South **2556 WEST SHORE RD** **UST** **N/A**
< 1/8 **WARWICK, RI**
650 ft.

Site 1 of 2 in cluster D

Relative:
Higher

LUST:
Project Number: 3524-LS
Project Date: 3/1/1993
Tank Status: **Inactive; Investigation/Remed. Complete, No Further Action Required**

Actual:
56 ft.

NEW ENGLAND TELEPHONE COMPANY (Continued) **U001713859**

UST:

Facility ID:	1213	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	1000 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	2001-04-25 00:00:00
Facility ID:	1213	Tank ID:	2
Tank Status:	In Use	Tank Capacity:	4000 Gals
Tank Substance:	DIESEL	Date Installed:	1992-12-01 00:00:00
Facility ID:	1213	Tank ID:	3
Tank Status:	Permanently Closed	Tank Capacity:	4000 Gals
Tank Substance:	DIESEL	Date Installed:	2001-04-25 00:00:00

D14
South
< 1/8
650 ft.

Relative:
Higher

Actual:
56 ft.

NYNEX CTL OFF **RCRA-SQG 1000112160**
2556 W SHORE RD **FINDS RID000841478**
WARWICK, RI 02886

Site 2 of 2 in cluster D

RCRAInfo:

Owner:	NEW ENGLAND TELEPHONE CO BOSTON MASS (401) 555-1212
EPA ID:	RID000841478
Contact:	MINDA CUTCHER (617) 574-1049
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

15
WNW
1/8-1/4
660 ft.

Relative:
Higher

Actual:
57 ft.

R & R MACHINE CO **RCRA-SQG 1000129190**
50 CLORANE ST **FINDS RID040093130**
WARWICK, RI 02886 **MANIFEST**

RCRAInfo:

Owner:	STEVEN MORTON (401) 555-1212
EPA ID:	RID040093130
Contact:	STEVEN MORTON (401) 738-5472
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

R & R MACHINE CO (Continued) **1000129190**

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RI MANIFEST:

Manifest Docket Number:	MAC394895
Waste Description:	PET NAP
Quantity:	205.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	SK
Transporter EPA ID:	ILD000805911
ID:	284287
GEN Cert Date:	11/10/1987 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID040093130
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	SK
TSDF ID:	MAD000846006
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	MAC410412
Waste Description:	PET NAP
Quantity:	205.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	SK
Transporter EPA ID:	ILD000805911
ID:	284642
GEN Cert Date:	4/21/1988 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID040093130
Number Of Containers:	0
Container Type:	Not reported

R & R MACHINE CO (Continued) **1000129190**

Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	SK
TSDF ID:	MAD000846006
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	MAC510772
Waste Description:	PET NAP
Quantity:	135.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	SK
Transporter EPA ID:	ILD000805911
ID:	289173
GEN Cert Date:	2/22/1988 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID040093130
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	SK
TSDF ID:	MAD000846006
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	MAC504584
Waste Description:	PET NAP
Quantity:	205.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	SK
Transporter EPA ID:	ILD000805911
ID:	288505

R & R MACHINE CO (Continued) **1000129190**

GEN Cert Date:	2/1/1988 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID040093130
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	SK
TSDF ID:	MAD000846006
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	MAC608281
Waste Description:	PET NAP
Quantity:	160.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	SK
Transporter EPA ID:	ILD000805911
ID:	292279
GEN Cert Date:	12/1/1988 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID040093130
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	SK
TSDF ID:	MAD000846006
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

R & R MACHINE CO (Continued) **1000129190**

Click this hyperlink while viewing on your computer to access
68 additional RI MANIFEST: record(s) in the EDR Site Report.

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16 **VACANT (FORMERLY ALMACS, INC)** **UST** **U003378718**
SW **2574 WEST SHORE RD** **N/A**
1/8-1/4 **WARWICK, RI**
684 ft.

Relative:
Higher

Actual:
54 ft.

UST:
Facility ID: 3072 Tank ID: 1
Tank Status: Permanently Closed Tank Capacity: 5000 Gals
Tank Substance: HEATING OIL NO.2 Date Installed: 1960-01-01 00:00:00

---

17 **WARWICK CITY DUMP (SEE SW FILE)** **SHWS** **S104550589**
ENE **SANDY LANE** **N/A**
1/8-1/4 **WARWICK, RI**
694 ft.

Relative:
Higher

Actual:
61 ft.

HWS:
Facility Status: Inactive
Project Code: WRCD-HWM
Project Code Desc: State
Project Date: Not reported

---

18 **SUNOCO SERVICE STA HERBS** **RCRA-SQG** **1000328112**
South **2548 W SHORE RD** **FINDS** **RID000843466**
1/8-1/4 **WARWICK, RI 02886** **MANIFEST**
696 ft. **CT MANIFEST**

Relative:
Higher

Actual:
59 ft.

RCRAInfo:
Owner: SUN OIL COMPANY OF PENNSYLVANIA
(401) 555-1212
EPA ID: RID000843466
Contact: ROBERT LAUBINGER
(617) 875-1371
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RI MANIFEST:
Manifest Docket Number: RIG0245988
Waste Description: RQ WASTE PETROLEUM DISTILLATES NOS
Quantity: 8.00
WT/Vol Units: G
Item Number: a
Transporter Name: UNITED INDUSTRIAL SERVICES

SUNOCO SERVICE STA HERBS (Continued) **1000328112**

Transporter EPA ID:	CTD021816889
ID:	117696
GEN Cert Date:	1/27/2005 0:00:00
Transporter Recpt Date:	1/27/2005 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	1/27/2005 0:00:00
EPA ID:	RID000843466
Number Of Containers:	1
Container Type:	DM
Waste Code1:	D001
Waste Code2:	D039
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	United Oil Recovery Inc
TSDF ID:	RID084802842
Data Source:	RI SPREADSHEET DATA
Date Imported:	8/9/2005 11:03:12
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	64
Fee Reported:	$0.00

Manifest Docket Number:	RIG0246790
Waste Description:	RQ WASTE PETROLEUM DISTILLATES NOS
Quantity:	9.00
WT/Vol Units:	G
Item Number:	a
Transporter Name:	UNITED INDUSTRIAL SERVICES
Transporter EPA ID:	CTD021816889
ID:	105589
GEN Cert Date:	11/2/2004 0:00:00
Transporter Recpt Date:	11/2/2004 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	11/2/2004 0:00:00
EPA ID:	RID000843466
Number Of Containers:	1
Container Type:	DM
Waste Code1:	D001
Waste Code2:	D039
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	United Oil Recovery Inc
TSDF ID:	RID084802842
Data Source:	RI SPREADSHEET DATA
Date Imported:	3/3/2005 15:38:15
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	72
Fee Reported:	$0.00

SUNOCO SERVICE STA HERBS (Continued) **1000328112**

Manifest Docket Number:	MAM730614
Waste Description:	PET DISTILL
Quantity:	9.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED IND SVS
Transporter EPA ID:	CTD021816889
ID:	131010
GEN Cert Date:	5/21/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID000843466
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	ZECCO INC
TSDF ID:	MAD052924495
Data Source:	JAN
Date Imported:	7/19/2001 11:20:45
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	72
Fee Reported:	Not reported

Manifest Docket Number:	MAM722149
Waste Description:	PET DISTILL
Quantity:	9.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED IND SVS
Transporter EPA ID:	CTD021816889
ID:	130396
GEN Cert Date:	2/26/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID000843466
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	ZECCO INC
TSDF ID:	MAD052924495

SUNOCO SERVICE STA HERBS (Continued) **1000328112**

Data Source:	JAN
Date Imported:	3/15/2001 7:06:18
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	72
Fee Reported:	Not reported
Manifest Docket Number:	MAQ059333
Waste Description:	PET DISTILL
Quantity:	9.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED IND SVS
Transporter EPA ID:	CTD021816889
ID:	133031
GEN Cert Date:	4/26/2002 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID000843466
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	ZECCO INC
TSDF ID:	MAD052924495
Data Source:	JAN
Date Imported:	11/20/2002 11:18:07
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	72
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
15 additional RI MANIFEST: record(s) in the EDR Site Report.

CT MANIFEST:

Year:	2000
Manifest ID:	CTF0895826
TSDF EPA ID:	CTD021816889
TSDF Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
TSDF Address:	136 GRACEY AVE.
TSDF City,St,Zip:	MERIDEN, CT 06451
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	01/14/00
Transporter EPA ID:	CTD021816889
Transporter Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
Transporter Country:	USA
Transporter Phone:	Not reported

SUNOCO SERVICE STA HERBS (Continued) **1000328112**

Trans 2 Date:	01/17/00
Trans 2 EPA ID:	CTD021816889
Trans 2 Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	RID000843466
Gererator Phone:	4017323232
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	01/14/00
Date Received:	01/17/00
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Click this hyperlink while viewing on your computer to access
12 additional CT MANIFEST: record(s) in the EDR Site Report.

E19 **JANCO CENTRAL INC.** **UST** **U003208571**
SW **2625 WEST SHORE RD** **N/A**
1/8-1/4 **WARWICK, RI**
828 ft.

Site 1 of 2 in cluster E

Relative:
Lower

Actual:
45 ft.

UST:

Facility ID:	3414	Tank ID:	2
Tank Status:	Permanently Closed	Tank Capacity:	500 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	Not reported
Facility ID:	3414	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	1000 Gals
Tank Substance:	WASTE OIL	Date Installed:	2001-04-25 00:00:00

E20 **POWER BRAKES INC** **RCRA-SQG** **1001091323**
SW **2625 W SHORE RD** **MANIFEST** **RIR000013532**
1/8-1/4 **WARWICK, RI 02886** **CT MANIFEST**
828 ft.

Site 2 of 2 in cluster E

Relative:
Lower

Actual:
45 ft.

RCRAInfo:

Owner:	RENAISSANCE DEVELOPMENT - JANCO (401) 946-4000
EPA ID:	RIR000013532
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

POWER BRAKES INC (Continued) **1001091323**

Violation Status: No violations found

RI MANIFEST:

Manifest Docket Number:	MAM722229
Waste Description:	PET DISTILL
Quantity:	15.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED IND SVS
Transporter EPA ID:	CTD021816889
ID:	130401
GEN Cert Date:	2/26/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000013532
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	ZECCO INC
TSDF ID:	MAD052924495
Data Source:	JAN
Date Imported:	3/15/2001 7:21:09
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	120
Fee Reported:	Not reported

Manifest Docket Number:	CTF0492919
Waste Description:	MIN SPIRITS
Quantity:	15.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED IND SVS
Transporter EPA ID:	CTD021816889
ID:	97719
GEN Cert Date:	4/16/1997 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000013532
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported

POWER BRAKES INC (Continued) **1001091323**

Fee Exempt Code:	Not reported
TSDF Name:	UNITED OIL RECOVERY INC
TSDF ID:	CTD021816889
Data Source:	JAN
Date Imported:	1/28/1998 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	120
Fee Reported:	Not reported
Manifest Docket Number:	CTF0598746
Waste Description:	MIN SPIRITS
Quantity:	16.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED IND SVS
Transporter EPA ID:	CTD021816889
ID:	98629
GEN Cert Date:	7/11/1997 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000013532
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	UNITED OIL RECOVERY INC
TSDF ID:	CTD021816889
Data Source:	JAN
Date Imported:	2/4/1999 15:40:36
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	128
Fee Reported:	Not reported
Manifest Docket Number:	CTF0599300
Waste Description:	MIN SPIRITS
Quantity:	15.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED OIL RECOVERY INC
Transporter EPA ID:	CTD021816889
ID:	274208
GEN Cert Date:	11/27/1996 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000013532
Number Of Containers:	0
Container Type:	Not reported

POWER BRAKES INC (Continued) **1001091323**

Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	UNITED OIL RECOVERY INC
TSDF ID:	CTD021816889
Data Source:	JAN
Date Imported:	5/6/1997 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	CTF0385350
Waste Description:	MIN SPIRITS
Quantity:	15.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	UNITED OIL RECOVERY INC
Transporter EPA ID:	CTD021816889
ID:	273287
GEN Cert Date:	10/9/1996 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RIR000013532
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	UNITED OIL RECOVERY INC
TSDF ID:	CTD021816889
Data Source:	JAN
Date Imported:	2/14/1997 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
5 additional RI MANIFEST: record(s) in the EDR Site Report.

CT MANIFEST:

Year:	2000
Manifest ID:	CTF0936783
TSDF EPA ID:	CTD021816889

POWER BRAKES INC (Continued) **1001091323**

TSDF Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
TSDF Address:	136 GRACEY AVE.
TSDF City,St,Zip:	MERIDEN, CT 06451
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	06/16/00
Transporter EPA ID:	CTD021816889
Transporter Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	06/19/00
Trans 2 EPA ID:	CTD021816889
Trans 2 Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	RIR000013532
Gererator Phone:	4017379992
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	06/16/00
Date Received:	06/19/00
Last modified date:	04/27/04
Last modified by:	IG
Comments:	Not reported

Click this hyperlink while viewing on your computer to access
10 additional CT MANIFEST: record(s) in the EDR Site Report.

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21 West 1/8-1/4 928 ft.
VEMALINE CHIP COOLERS INC **RCRA-SQG** **1000882802**
33 STRAWBERRY FIELD RD **MANIFEST** **RID981062979**
WARWICK, RI 02886 **NY MANIFEST**

Relative: Higher

Actual: 56 ft.

RCRAInfo:

Owner:	PHILIP JOHNSON (401) 555-1212
EPA ID:	RID981062979
Contact:	RODNEY PARE (401) 739-7600
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

RI MANIFEST:

Manifest Docket Number:	NYB1137330
Waste Description:	OIL
Quantity:	165.00
WT/Vol Units:	G
Item Number:	2
Transporter Name:	FRANKS
Transporter EPA ID:	NYD982792814

VEMALINE CHIP COOLERS INC (Continued) **1000882802**

ID:	341712
GEN Cert Date:	7/17/1991 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID981062979
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	R010
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	FRONTIER
TSDF ID:	NYD043815703
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	NYB1137330
Waste Description:	OIL/
Quantity:	330.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	FRANKS
Transporter EPA ID:	NYD982792814
ID:	341711
GEN Cert Date:	7/17/1991 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID981062979
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	F002
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	FRONTIER
TSDF ID:	NYD043815703
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

VEMALINE CHIP COOLERS INC (Continued) **1000882802**

NY MANIFEST:
No Manifest Records Available

22
WSW
1/8-1/4
958 ft.

Relative:
Lower

Actual:
52 ft.

MUNICIPAL AUTO SALES **SHWS** **S104180373**
2628 WEST SHORE ROAD **N/A**
WARWICK, RI

HWS:
Facility Status: **Inactive**
Project Code: MUAS-HWM
Project Code Desc: State
Project Date: 7/1/1999

23
West
1/8-1/4
1001 ft.

Relative:
Higher

Actual:
55 ft.

PUTNAM EQUIPMENT SERVICE INC **RCRA-SQG** **1000875613**
49-B STRAWBERRY FIELD RD **FINDS** **RID987488194**
WARWICK, RI 02886 **MANIFEST**

RCRAInfo:
Owner: JOE W PUTNAM
(401) 885-6591
EPA ID: RID987488194
Contact: JOE W PUTNAM
(401) 885-6591
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RI MANIFEST:

Manifest Docket Number:	O/F48245
Waste Description:	OIL FILTERS
Quantity:	100.00
WT/Vol Units:	P
Item Number:	17805
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	142577
GEN Cert Date:	10/10/2002 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987488194
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	Not reported
Waste Code2:	Not reported
Waste Code3:	Not reported

PUTNAM EQUIPMENT SERVICE INC (Continued) **1000875613**

Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	Chem-Pak Corporation
TSDF ID:	RID084802842
Data Source:	MD- ELEC
Date Imported:	12/5/2002 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	100
Fee Reported:	Not reported

Manifest Docket Number:	O/F52747A
Waste Description:	OIL FILTERS
Quantity:	100.00
WT/Vol Units:	P
Item Number:	a
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	36066
GEN Cert Date:	1/15/2003 0:00:00
Transporter Recpt Date:	1/15/2003 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	1/15/2003 0:00:00
EPA ID:	RID987488194
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	, ,
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	Chem-Pak Corporation
TSDF ID:	RID084802842
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	100
Fee Reported:	Not reported

Manifest Docket Number:	RIG0207433
Waste Description:	WASTE COMBUSTIBLE LIQUID N.O.S.
Quantity:	15.00
WT/Vol Units:	G
Item Number:	a
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	37333
GEN Cert Date:	2/7/2003 0:00:00
Transporter Recpt Date:	2/7/2003 0:00:00
Transporter 2 Recpt Date:	Not reported

PUTNAM EQUIPMENT SERVICE INC (Continued) **1000875613**

TSDF Recpt Date:	2/7/2003 0:00:00
EPA ID:	RID987488194
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	0.00
TSDF Name:	Chem-Pak Corporation
TSDF ID:	RID084802842
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	120
Fee Reported:	Not reported

Manifest Docket Number:	RIG0214099
Waste Description:	RQ WASTE PETROLEUM DISTILLATES NOS
Quantity:	15.00
WT/Vol Units:	G
Item Number:	a
Transporter Name:	UNITED INDUSTRIAL SERVICES
Transporter EPA ID:	CTD021816889
ID:	59231
GEN Cert Date:	4/2/2003 0:00:00
Transporter Recpt Date:	4/2/2003 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	4/2/2003 0:00:00
EPA ID:	RID987488194
Number Of Containers:	1
Container Type:	DM
Waste Code1:	D001, ,
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	United Oil Recovery Inc
TSDF ID:	RID084802842
Data Source:	united Ind data
Date Imported:	8/12/2003 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	120
Fee Reported:	Not reported

Manifest Docket Number:	RIG0217833
Waste Description:	WASTE PETROLEUM DISTILLATES NOS
Quantity:	16.00
WT/Vol Units:	G

PUTNAM EQUIPMENT SERVICE INC (Continued) **1000875613**

Item Number:	a
Transporter Name:	UNITED INDUSTRIAL SERVICES
Transporter EPA ID:	CTD021816889
ID:	93582
GEN Cert Date:	7/23/2003 0:00:00
Transporter Recpt Date:	7/23/2003 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	7/23/2003 0:00:00
EPA ID:	RID987488194
Number Of Containers:	Not reported
Container Type:	Not reported
Waste Code1:	D001,D039,
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	United Oil Recovery Inc
TSDF ID:	Not reported
Data Source:	United Spreadsheet Data
Date Imported:	9/12/2003 15:10:01
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	128
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
8 additional RI MANIFEST: record(s) in the EDR Site Report.

F24
NW
1/8-1/4
1075 ft.

Relative:
Higher

Actual:
58 ft.

FIRST STUDENT
112 GALLWAY ST
WARWICK, RI 02886

RCRA-SQG **1000211270**
FINDS **RID987466240**
UST
MANIFEST

Site 1 of 3 in cluster F

RCRAInfo:

Owner:	FIRST STUDENT INC
	(314) 275-8161
EPA ID:	RID987466240
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site:

PCS (Permit Compliance System) is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

FIRST STUDENT (Continued) **1000211270**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

RI MANIFEST:

Manifest Docket Number:	MAK247888
Waste Description:	OIL
Quantity:	250.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CLEAN HARBORS
Transporter EPA ID:	MAD039322250
ID:	121306
GEN Cert Date:	8/19/1999 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987466240
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	MA98
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	MURPHYS WASTE OIL SERVICE
TSDF ID:	MAD066588005
Data Source:	JAN
Date Imported:	10/4/1999 14:20:33
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	2000
Fee Reported:	Not reported

Manifest Docket Number:	RIG0008279
Waste Description:	PET NAP
Quantity:	10.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	381773
GEN Cert Date:	6/26/1990 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987466240
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported

FIRST STUDENT (Continued) **1000211270**

Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	CHEM PAK
TSDF ID:	RID084802842
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported
Manifest Docket Number:	RIG0010979
Waste Description:	PET NAP
Quantity:	10.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CYCLE SOLVE CORPORATION
Transporter EPA ID:	RID982194987
ID:	384266
GEN Cert Date:	11/12/1990 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987466240
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	CHEM PAK
TSDF ID:	RID084802842
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported
Manifest Docket Number:	MAK780627
Waste Description:	PET OIL
Quantity:	275.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CLEAN HARBORS
Transporter EPA ID:	MAD039322250
ID:	124838
GEN Cert Date:	6/9/1998 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported

FIRST STUDENT (Continued) **1000211270**

EPA ID:	RID987466240
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	R010
Waste Code2:	MA98
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	MURPHYS WASTE OIL SERVICE
TSDF ID:	MAD066588005
Data Source:	DCW
Date Imported:	3/29/2001 7:50:42
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	2200
Fee Reported:	Not reported

Manifest Docket Number:	MAK789163
Waste Description:	PET OIL
Quantity:	100.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	CLEAN HARBORS
Transporter EPA ID:	MAD039322250
ID:	125341
GEN Cert Date:	8/7/1998 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987466240
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	R010
Waste Code2:	MA98
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	MURPHYS WASTE OIL SERVICE
TSDF ID:	MAD066588005
Data Source:	DCW
Date Imported:	1/24/2001 12:02:34
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	800
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
54 additional RI MANIFEST: record(s) in the EDR Site Report.

FIRST STUDENT (Continued) **1000211270**

UST:

Facility ID:	402	Tank ID:	3
Tank Status:	Permanently Closed	Tank Capacity:	4000 Gals
Tank Substance:	DIESEL	Date Installed:	1975-04-01 00:00:00
Facility ID:	402	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	6000 Gals
Tank Substance:	GASOLINE	Date Installed:	1975-04-01 00:00:00
Facility ID:	402	Tank ID:	2
Tank Status:	Permanently Closed	Tank Capacity:	4000 Gals
Tank Substance:	DIESEL	Date Installed:	1975-04-01 00:00:00

F25 **RYDER STUDENT TRANSPORTATION SERVICES** **AST** **A100115168**
NW **112 GALLWAY ST.** **N/A**
1/8-1/4 **WARWICK, RI 02889**
1076 ft.

Site 2 of 3 in cluster F

Relative: Higher

Actual: 58 ft.

AST:

Latitude\\Longitude:	Not reported
Tank Constuction:	Double-Wall Steel
Secondary Containment:	Yes
Tank id:	1
Number of Gallons:	6000gal
Product Stored:	Diesel
Facility Classification:	Commercial
Date of Installation:	/ /
Tank Status:	Check on Status
Mailing Adress:	160 Pennington Rd., Suite 16-119, Lawerenceville, NJ, 08648
Contact Person:	Carrie Anne Vinch
Facility Telephone:	609-896-8066
Last inspection Date:	Not reported

F26 **RYDER** **LUST** **1002706432**
NW **112 GALLWAY STREET** **N/A**
1/8-1/4 **WARWICK, RI**
1076 ft.

Site 3 of 3 in cluster F

Relative: Higher

Actual: 58 ft.

LUST:

Project Number:	3582-LS
Project Date:	9/15/1998
Tank Status:	**Inactive; Investigation/Remed. Complete, No Further Action Required**

G27 **WEST SHORE ROAD TEXACO** **UST** **U001211168**
SE **2501 WEST SHORE RD** **N/A**
1/8-1/4 **WARWICK, RI**
1223 ft.

Site 1 of 3 in cluster G

Relative: Higher

Actual: 59 ft.

WEST SHORE ROAD TEXACO (Continued) **U001211168**

UST:

Facility ID:	441	Tank ID:	9
Tank Status:	Permanently Closed	Tank Capacity:	8000 Gals
Tank Substance:	DIESEL	Date Installed:	1986-10-01 00:00:00
Facility ID:	441	Tank ID:	7
Tank Status:	Permanently Closed	Tank Capacity:	10000 Gals
Tank Substance:	GASOLINE	Date Installed:	1986-10-01 00:00:00
Facility ID:	441	Tank ID:	6
Tank Status:	Permanently Closed	Tank Capacity:	12000 Gals
Tank Substance:	GASOLINE	Date Installed:	1986-10-01 00:00:00
Facility ID:	441	Tank ID:	10
Tank Status:	Permanently Closed	Tank Capacity:	1000 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	1986-10-01 00:00:00
Facility ID:	441	Tank ID:	5
Tank Status:	Permanently Closed	Tank Capacity:	550 Gals
Tank Substance:	WASTE OIL	Date Installed:	1956-04-01 00:00:00
Facility ID:	441	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	6000 Gals
Tank Substance:	GASOLINE	Date Installed:	1971-04-01 00:00:00
Facility ID:	441	Tank ID:	11
Tank Status:	Permanently Closed	Tank Capacity:	550 Gals
Tank Substance:	WASTE OIL	Date Installed:	1986-10-01 00:00:00
Facility ID:	441	Tank ID:	4
Tank Status:	Permanently Closed	Tank Capacity:	1000 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	1956-04-01 00:00:00
Facility ID:	441	Tank ID:	3
Tank Status:	Permanently Closed	Tank Capacity:	6000 Gals
Tank Substance:	GASOLINE	Date Installed:	1971-04-01 00:00:00
Facility ID:	441	Tank ID:	8
Tank Status:	Permanently Closed	Tank Capacity:	10000 Gals
Tank Substance:	GASOLINE	Date Installed:	1986-10-01 00:00:00
Facility ID:	441	Tank ID:	2
Tank Status:	Permanently Closed	Tank Capacity:	6000 Gals
Tank Substance:	GASOLINE	Date Installed:	1971-04-01 00:00:00

G28 **C L MARINE INC** **RCRA-SQG** **1000144296**
SE **2501 W SHORE ROAD** **FINDS** **RID987471232**
1/8-1/4 **WARWICK, RI 02889** **CT MANIFEST**
1223 ft.

Site 2 of 3 in cluster G

Relative:
Higher

Actual:
59 ft.

C L MARINE INC (Continued) **1000144296**

RCRAInfo:
Owner: STAR ENTERPRISES
(401) 555-1212
EPA ID: RID987471232

Contact: SANDRA BIENVENU
(713) 241-2258

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CT MANIFEST:

Year:	1995
Manifest ID:	MAH429985
TSDF EPA ID:	CTD021816889
TSDF Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
TSDF Address:	136 GRACEY AVE.
TSDF City,St,Zip:	MERIDEN, CT 06451
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	03/14/95
Transporter EPA ID:	CTD021816889
Transporter Name:	UNITED OIL RECOVERY INC./UIS DBA ADVANCED LIQ. REC
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	/ /
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
Generator EPA ID:	RID987471232
Gererator Phone:	Not reported
Generator Address:	Not reported
Generator City,State,Zip:	Not reported
Generator Country:	Not reported
Special Handling:	Not reported
Discrepancies:	Not reported
Date Shipped:	03/14/95
Date Received:	03/14/95
Last modified date:	04/26/04
Last modified by:	IG
Comments:	Not reported

Click this hyperlink while viewing on your computer to access additional CT MANIFEST: detail in the EDR Site Report.

G29
SE
1/8-1/4
1223 ft.

Relative:
Higher

Actual:
59 ft.

TEXACO STATION **LUST** **S103350109**
2501 WEST SHORE ROAD **N/A**
WARWICK, RI

Site 3 of 3 in cluster G

LUST:
Project Number: 3549-LS
Project Date: 3/17/1995
Tank Status: Soil Removal Only; No Further Action Required

30
WSW
1/8-1/4
1242 ft.

Relative:
Lower

Actual:
46 ft.

HERB'S SUNOCO **LUST** **U003208461**
2648 WEST SHORE RD **UST** **N/A**
WARWICK, RI

LUST:
Project Number: 3546-LS
Project Date: 3/10/1995
Tank Status: Soil Removal Only; No Further Action Required

UST:

Facility ID:	3138	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	4000 Gals
Tank Substance:	GASOLINE	Date Installed:	1960-08-01 00:00:00
Facility ID:	3138	Tank ID:	6
Tank Status:	Permanently Closed	Tank Capacity:	550 Gals
Tank Substance:	HEATING OIL NO.2	Date Installed:	1960-08-01 00:00:00
Facility ID:	3138	Tank ID:	4
Tank Status:	Permanently Closed	Tank Capacity:	4000 Gals
Tank Substance:	GASOLINE	Date Installed:	1960-08-01 00:00:00
Facility ID:	3138	Tank ID:	3
Tank Status:	Permanently Closed	Tank Capacity:	4000 Gals
Tank Substance:	GASOLINE	Date Installed:	1960-08-01 00:00:00
Facility ID:	3138	Tank ID:	7
Tank Status:	In Use	Tank Capacity:	8000 Gals
Tank Substance:	GASOLINE	Date Installed:	1995-07-01 00:00:00
Facility ID:	3138	Tank ID:	2
Tank Status:	Permanently Closed	Tank Capacity:	4000 Gals
Tank Substance:	GASOLINE	Date Installed:	1960-08-01 00:00:00
Facility ID:	3138	Tank ID:	5
Tank Status:	Permanently Closed	Tank Capacity:	550 Gals
Tank Substance:	WASTE OIL	Date Installed:	1960-08-01 00:00:00
Facility ID:	3138	Tank ID:	8
Tank Status:	In Use	Tank Capacity:	8000 Gals
Tank Substance:	GASOLINE	Date Installed:	1995-07-01 00:00:00

31
SE
1/4-1/2
1943 ft.

DB MART **LUST** **S102779471**
2400 WEST SHORE ROAD **N/A**
WARWICK, RI

Relative:
Lower

Actual:
51 ft.

LUST:
Project Number: 3566-LS
Project Date: 5/12/1997
Tank Status: Inactive; Investigation/Remed. Complete, No Further Action Required

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32
NNE
1/4-1/2
2116 ft.

CEDAR SWAMP PUMPING STATION **LUST** **U001213034**
CEDAR SWAMP RD **UST** **N/A**
WARWICK, RI

Relative:
Lower

Actual:
40 ft.

LUST:
Project Number: 3554-LS
Project Date: 9/5/1995
Tank Status: Soil Removal Only; No Further Action Required

UST:

Facility ID:	3005	Tank ID:	1
Tank Status:	Permanently Closed	Tank Capacity:	2500 Gals
Tank Substance:	DIESEL	Date Installed:	1976-03-01 00:00:00

33
NNW
1/2-1
3458 ft.

TRUK-AWAY LANDFILL **CERCLIS** **1000842803**
INDUSTRIAL DRIVE **SHWS** **RID987493822**
WARWICK, RI 02886 **FINDS**

Relative:
Equal

Actual:
53 ft.

CERCLIS Classification Data:
Federal Facility: Not a Federal Facility
Non NPL Status: Other Cleanup Activity: State-Lead Cleanup
NPL Status: Not on the NPL

CERCLIS Assessment History:

Assessment:	DISCOVERY	Completed:	06/01/1981
Assessment:	PRELIMINARY ASSESSMENT	Completed:	04/01/1982
Assessment:	SITE INSPECTION	Completed:	08/01/1982
Assessment:	SITE REASSESSMENT	Completed:	08/02/2001

CERCLIS Site Status:
Low

FINDS:
Other Pertinent Environmental Activity Identified at Site:
CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System) is the Superfund database that is used to support management in all phases of the Superfund program. The system contains information on all aspects of hazardous waste sites, including an inventory of sites, planned and actual site activities, and financial information.

HWS:
Facility Status: Active
Project Code: TRUK-HWM
Project Code Desc: State
Project Date: 7/8/1999

Facility Status: Active
Project Code: TRUK-SFA
Project Code Desc: Cercla
Project Date: Not reported

34 WNW 1/2-1 3642 ft. **E T C O CORD PRODUCTS**
333 STRAWBERRY FIELD RD
WARWICK, RI 02887

RCRA-SQG 1000385240
SHWS RID001197045
FINDS
MANIFEST

Relative: Higher

Actual: 58 ft.

RCRAInfo:
Owner: LEESONA CORPORATION
(401) 739-7100
EPA ID: RID001197045
Contact: THOMAS KARN
(401) 738-1211

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: Violations exist

Regulation Violated: Not reported
Area of Violation: GENERATOR-ALL REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 12/17/1985
Actual Date Achieved Compliance: 04/30/1986

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 01/08/1986
Penalty Type: Not reported

Regulation Violated: Not reported
Area of Violation: GENERATOR-ALL REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 12/17/1985
Actual Date Achieved Compliance: 04/18/1986

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 01/08/1986
Penalty Type: Not reported

There are 2 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Non-Financial Record Review	GENERATOR-ALL REQUIREMENTS (OVERSIGHT)	19860430
Compliance Schedule Evaluation	GENERATOR-ALL REQUIREMENTS (OVERSIGHT)	19860418
Compliance Evaluation Inspection	GENERATOR-ALL REQUIREMENTS (OVERSIGHT)	19860430
	GENERATOR-ALL REQUIREMENTS (OVERSIGHT)	19860418

FINDS:
Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HWS:
Facility Status: Active
Project Code: FLFA-HWM
Project Code Desc: State
Project Date: 2/19/1992

RI MANIFEST:
Manifest Docket Number: RIA0011561
Waste Description: HW LIQ
Quantity: 5028.00
WT/Vol Units: G
Item Number: 1

E T C O CORD PRODUCTS (Continued) **1000385240**

Transporter Name:	INLAND
Transporter EPA ID:	MAD095869459
ID:	347527
GEN Cert Date:	4/14/1987 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID001197045
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	F007
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	ETICAM
TSDF ID:	RID980906980
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	RIG0213244
Waste Description:	NON RCRA / NON DOT REGULATED WASTE
Quantity:	320.00
WT/Vol Units:	G
Item Number:	a
Transporter Name:	UNITED INDUSTRIAL SERVICES
Transporter EPA ID:	CTD021816889
ID:	98054
GEN Cert Date:	3/26/2004 0:00:00
Transporter Recpt Date:	3/26/2004 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	3/26/2004 0:00:00
EPA ID:	RID001197045
Number Of Containers:	8
Container Type:	DM
Waste Code1:	NONE
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	United Oil Recovery Inc
TSDF ID:	RID084802842
Data Source:	RI SPREADSHEET DATA
Date Imported:	12/22/2004 17:00:47
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	2560

E T C O CORD PRODUCTS (Continued) **1000385240**

Fee Reported:	$0.00
Manifest Docket Number:	RIG0216823
Waste Description:	NON DOT/ NON RCRA REGULATED WASTE
Quantity:	120.00
WT/Vol Units:	G
Item Number:	b
Transporter Name:	UNITED INDUSTRIAL SERVICES
Transporter EPA ID:	CTD021816889
ID:	59354
GEN Cert Date:	4/30/2003 0:00:00
Transporter Recpt Date:	4/30/2003 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	4/30/2003 0:00:00
EPA ID:	RID001197045
Number Of Containers:	3
Container Type:	DM
Waste Code1:	R010, ,
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	United Oil Recovery Inc
TSDF ID:	RID084802842
Data Source:	united Ind data
Date Imported:	8/12/2003 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	960
Fee Reported:	Not reported
Manifest Docket Number:	RIG0216823
Waste Description:	RQ HAZARDOUS WASTE SOLID NOS (OIL)
Quantity:	75.00
WT/Vol Units:	P
Item Number:	a
Transporter Name:	UNITED INDUSTRIAL SERVICES
Transporter EPA ID:	CTD021816889
ID:	59392
GEN Cert Date:	4/30/2003 0:00:00
Transporter Recpt Date:	4/30/2003 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	4/30/2003 0:00:00
EPA ID:	RID001197045
Number Of Containers:	1
Container Type:	DM
Waste Code1:	NONE, ,
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported

E T C O CORD PRODUCTS (Continued) **1000385240**

TSDF Name:	United Oil Recovery Inc
TSDF ID:	RID084802842
Data Source:	united Ind data
Date Imported:	8/12/2003 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	75
Fee Reported:	Not reported
Manifest Docket Number:	RIG0221870
Waste Description:	WASTE PETROLEUM DISTILLATES NOS
Quantity:	110.00
WT/Vol Units:	G
Item Number:	a
Transporter Name:	UNITED INDUSTRIAL SERVICES
Transporter EPA ID:	CTD021816889
ID:	63805
GEN Cert Date:	5/28/2003 0:00:00
Transporter Recpt Date:	5/28/2003 0:00:00
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	5/28/2003 0:00:00
EPA ID:	RID001197045
Number Of Containers:	Not reported
Container Type:	Not reported
Waste Code1:	D001, ,
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	United Oil Recovery Inc
TSDF ID:	RID084802842
Data Source:	united Ind data
Date Imported:	8/12/2003 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	880
Fee Reported:	Not reported

Click this hyperlink while viewing on your computer to access
8 additional RI MANIFEST: record(s) in the EDR Site Report.

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35 **BUTTONWOODS DRY CLEANERS** **RCRA-SQG** **1000882957**
WSW **207 BUTTONWOODS AVE** **SHWS** **RID987475670**
1/2-1 **WARWICK, RI 02886** **FINDS**
4646 ft. **MANIFEST**

Relative:
Higher

Actual:
61 ft.

BUTTONWOODS DRY CLEANERS (Continued) **1000882957**

RCRAInfo:
Owner: THEODORE SHULTERBRANDT
(401) 555-1212
EPA ID: RID987475670

Contact: THEODORE SHULTERBRANDT
(401) 738-4116

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: Violations exist

Regulation Violated: 262
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 02/17/1993
Actual Date Achieved Compliance: 08/25/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/17/1993
Penalty Type: Not reported

Regulation Violated: Not reported
Area of Violation: GENERATOR-OTHER REQUIREMENTS
Date Violation Determined: 06/16/1992
Actual Date Achieved Compliance: 08/25/1994

Enforcement Action: INITIAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 07/01/1992
Penalty Type: Proposed Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 02/17/1993
Penalty Type: Proposed Monetary Penalty

Penalty Summary:

Penalty Description	Penalty Date	Penalty Amount	Lead Agency
Proposed Monetary Penalty	7/1/1992	10000	STATE

There are 2 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Non-Financial Record Review	GENERATOR-OTHER REQUIREMENTS	19940825
	GENERATOR-GENERAL REQUIREMENTS	19940825
Compliance Evaluation Inspection	GENERATOR-OTHER REQUIREMENTS	19940825
	GENERATOR-GENERAL REQUIREMENTS	19940825
Sampling Inspection	GENERATOR-OTHER REQUIREMENTS	19940825

FINDS:
Other Pertinent Environmental Activity Identified at Site:
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HWS:
Facility Status: Active
Project Code: BPL-HWM
Project Code Desc: State
Project Date: Not reported

BUTTONWOODS DRY CLEANERS (Continued) **1000882957**

RI MANIFEST:

Manifest Docket Number:	MAF038672
Waste Description:	PCE
Quantity:	450.00
WT/Vol Units:	P
Item Number:	1
Transporter Name:	GEN CHEM
Transporter EPA ID:	MAD019371079
ID:	309997
GEN Cert Date:	9/24/1991 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987475670
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	F002
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	GEN CHEM
TSDF ID:	MAD019371079
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

Manifest Docket Number:	MAG0905690
Waste Description:	PCE
Quantity:	55.00
WT/Vol Units:	G
Item Number:	1
Transporter Name:	GEN CHEM
Transporter EPA ID:	MAD019371079
ID:	319501
GEN Cert Date:	6/12/1992 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	RID987475670
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	F002
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	GEN CHEM

BUTTONWOODS DRY CLEANERS (Continued) **1000882957**

TSDF ID:	MAD019371079
Data Source:	Not reported
Date Imported:	Not reported
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	0
Fee Reported:	Not reported

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
USA COUNTY	1007953283	HERB'S SUNOCO	2648 W. SHORE RD. WARWICK	02886	CT MANIFEST
USA COUNTY	1007953075	J&M SVC CTR., INC.	1710 WEST SHORE RD. WARWICK	02889	CT MANIFEST
WARWICK	S106114106	SPRING GREEN CORPORATION	1550 / 1564 WARWICK AVENUE		SHWS
WARWICK	S106664410	AIRPORT HANGER III DOT MAINT FACILITY (I	AIRPORT ROAD		LUST
WARWICK	S106664312	GREEN (T.F.) AIRPORT (FORMER HILLSGROVE)	AIRPORT ROAD		SHWS
WARWICK	S106664319	WARWICK OPERATIONAL MAINTENANCE SHOP #	AIRPORT ROAD		SHWS
WARWICK	S106664320	WARWICK ORGANIZATIONAL MAINTENANCE SH	AIRPORT ROAD		SHWS
WARWICK	S106859385	INSKIP AUTOCENTER DEALERSHIP	1517 BALD HILL ROAD / 1075 CEN		SHWS
WARWICK	S106859388	WELLINGTON WETLAND MITIGATION AREA	BYFIELD STREET		SHWS
WARWICK	1007209079	NYNEX	MH C-10 W SHORE & CHURCH AVE	02886	RCRA-SQG
WARWICK	S105176734	TRUK-AWAY (AIRPORT) LANDFILL	INDUSTRIAL DRIVE		SWF/LF
WARWICK	U001213130	LAKE SHORE DRIVE PUMPING STATION	LAKE SHORE DR		UST
WARWICK	S106664318	RI DOT LINCOLN AVE MAINTENANCE FACILITY	LINCOLN AVENUE		SHWS
WARWICK	1007908898	DAIRY MART, INC.	855 POST ROAD (ROUTE 1)		CT MANIFEST
WARWICK	S106114103	OTO PROPERTIES, LLC	POST ROAD		SHWS
WARWICK	S103247513	CRB INCORPORATED	7605 POST ROAD		SHWS
WARWICK	S105617970	GREEN (T.F.) AIRPORT	POST ROAD		SHWS
WARWICK	S106250489	APPANOAG BRIDGE	POST ROAD		SHWS
WARWICK	S105176736	WARWICK COMPOST FACILITY & MRF	RANGE ROAD		SWF/LF
WARWICK	S107167490	ROCKY POINT	ROCKY POINT AVENUE (OFF OF) /		SHWS
WARWICK	S106114095	AUBURN TOOL & DYE (SEE NJD FILE)	191 SECOND AVENUE		SHWS
WARWICK	U004023065	WILLIAMS SHIELD JR. POST 43	662 WEST SHORE RD	02889	UST
WARWICK	1007913617	HAMA ARMITURE	3630 WEST SHORE RD.		CT MANIFEST
WARWICK	1007945003	POWER BRAKE	2625 WEST SHORE RD.		CT MANIFEST
WARWICK	1009246958	CUMBERLAND FARMS	1196 W SHORE RD		NY MANIFEST
WARWICK	U003544189	WOMEN'S CENTER	WEST SHORE RD		UST
WARWICK	U003544187	SENIOR CENTER (WARWICK)	WEST SHORE RD		UST
WARWICK	S107673483	ANDY'S AUTO REPAIR (FORMER)	2987 WEST SHORE ROAD	02886	LUST
WARWICK	S107673485	WILLIAM SHIELDS JR. POST 43	662 WEST SHORE ROAD	02889	LUST
WARWICK	U001212303	BROWN'S FARM/SPRING GARDEN ESTATE	SPRING GREEN RD		UST
WARWICK	1009246840	JANNELL TRUCK BODY	333 STRAWBERRY FIELD ROAD	02886	NY MANIFEST
WARWICK	1009246948	VISTAWALL ARCH	333 STRAWBERRY FIELD RD	02886	NY MANIFEST
WARWICK	S105537123	HERFF JONES	VINE AVENUE		SHWS, AUL
WARWICK	S107673513	WARWICK COVE DUMP	WARWICK NECK AVE / SAMUEL CO		SHWS
WARWICK	1004779363	NEW ENGLAND AUTO BODY	26 WHITFORD ST	02886	RCRA-SQG, FINDS
WARWICK	S106664317	NATIONAL GRID - E.G. SUBSTATION	WILLIAMS STREET		SHWS

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: 04/19/2006
Date Data Arrived at EDR: 05/05/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 17

Source: EPA
Telephone: N/A
Last EDR Contact: 05/05/2006
Next Scheduled EDR Contact: 07/31/2006
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 8
Telephone: 303-312-6774

EPA Region 4
Telephone 404-562-8033

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 04/19/2006
Date Data Arrived at EDR: 05/05/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 17

Source: EPA
Telephone: N/A
Last EDR Contact: 05/05/2006
Next Scheduled EDR Contact: 07/31/2006
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: 04/19/2006
Date Data Arrived at EDR: 05/05/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 17

Source: EPA
Telephone: N/A
Last EDR Contact: 05/05/2006
Next Scheduled EDR Contact: 07/31/2006
Data Release Frequency: Quarterly

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
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 05/23/2006
Next Scheduled EDR Contact: 08/21/2006
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 02/01/2006
Date Data Arrived at EDR: 03/21/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 23

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 06/22/2006
Next Scheduled EDR Contact: 09/18/2006
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: 02/01/2006
Date Data Arrived at EDR: 03/21/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 23

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 06/23/2006
Next Scheduled EDR Contact: 09/18/2006
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
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 05/21/2006
Next Scheduled EDR Contact: 09/04/2006
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

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: 03/09/2006
Date Data Arrived at EDR: 04/27/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 33

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 08/21/2006
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
Date Data Arrived at EDR: 01/12/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 40

Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Last EDR Contact: 04/26/2006
Next Scheduled EDR Contact: 07/24/2006
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/14/2006
Next Scheduled EDR Contact: 07/17/2006
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
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/03/2006
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
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

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
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: 703-692-8801
Last EDR Contact: 05/12/2006
Next Scheduled EDR Contact: 08/07/2006
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
Date Data Arrived at EDR: 01/19/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 33

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
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: 04/26/2006
Date Data Arrived at EDR: 04/27/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 33

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/12/2006
Next Scheduled EDR Contact: 09/11/2006
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
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 04/25/2005
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/13/2006
Next Scheduled EDR Contact: 07/24/2006
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: 04/13/2006
Date Data Arrived at EDR: 04/28/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 32

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

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
Date Data Arrived at EDR: 11/28/2005
Date Made Active in Reports: 01/30/2006
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 06/21/2006
Next Scheduled EDR Contact: 09/18/2006
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
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 12/31/2003
Date Data Arrived at EDR: 07/13/2005
Date Made Active in Reports: 08/17/2005
Number of Days to Update: 35

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 06/22/2006
Next Scheduled EDR Contact: 09/18/2006
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
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 04/12/2006
Next Scheduled EDR Contact: 07/17/2006
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: 03/29/2006
Date Data Arrived at EDR: 04/26/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 34

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 06/19/2006
Next Scheduled EDR Contact: 09/18/2006
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 03/31/2006
Date Data Arrived at EDR: 04/26/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 34

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 06/19/2006
Next Scheduled EDR Contact: 09/18/2006
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
Date Data Arrived at EDR: 05/11/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 03/06/2006
Next Scheduled EDR Contact: 07/17/2006
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
Date Data Arrived at EDR: 04/21/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/11/2006
Next Scheduled EDR Contact: 07/17/2006
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: 12/27/2005
Date Data Arrived at EDR: 02/08/2006
Date Made Active in Reports: 02/27/2006
Number of Days to Update: 19

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 08/07/2006
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: 04/12/2006
Date Data Arrived at EDR: 04/26/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 34

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/03/2006
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: 02/09/2006
Date Data Arrived at EDR: 03/29/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 62

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Semi-Annually

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: 04/27/2006
Date Data Arrived at EDR: 05/02/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 28

Source: EPA
Telephone: N/A
Last EDR Contact: 04/03/2006
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
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/05/2006
Next Scheduled EDR Contact: 09/04/2006
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
Date Data Arrived at EDR: 06/17/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/30/2006
Next Scheduled EDR Contact: 09/11/2006
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: State Hazardous Waste Sites

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: 04/05/2006
Date Data Arrived at EDR: 04/25/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-3872
Last EDR Contact: 06/26/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Quarterly

SWF/LF: Solid Waste Management Facilities

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: 04/05/2006
Date Data Arrived at EDR: 04/25/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 06/26/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Quarterly

LUST: Leaking Underground Storage Tank Facilities

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.

Date of Government Version: 04/05/2006
Date Data Arrived at EDR: 04/25/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-3872
Last EDR Contact: 06/26/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Quarterly

UST: Underground Storage Tank Facility Master List

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: 02/01/2006
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/03/2006
Number of Days to Update: 18

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/15/2006
Next Scheduled EDR Contact: 08/14/2006
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 04/03/2006
Date Data Arrived at EDR: 04/03/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 38

Source: Department of Environmental Management
Telephone: 401-222-3872
Last EDR Contact: 06/05/2006
Next Scheduled EDR Contact: 09/04/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 06/19/2006
Next Scheduled EDR Contact: 09/18/2006
Data Release Frequency: Annually

SPILLS: Oil & Hazardous Material Response Log/Spill Report

Date of Government Version: 11/15/2004
Date Data Arrived at EDR: 02/04/2005
Date Made Active in Reports: 03/24/2005
Number of Days to Update: 48

Source: Dept. of Environmental Management
Telephone: 401-222-3872
Last EDR Contact: 04/27/2006
Next Scheduled EDR Contact: 07/10/2006
Data Release Frequency: Varies

AUL: ELUR Listing
Environmental Land Use Restriction is the legal document placed in land evidence records that restricts a property to certain uses that are consistent with the approved Remediation Action Work Plan.

Date of Government Version: 06/05/2006
Date Data Arrived at EDR: 06/06/2006
Date Made Active in Reports: 07/10/2006
Number of Days to Update: 34

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 06/05/2006
Next Scheduled EDR Contact: 09/04/2006
Data Release Frequency: Varies

BROWNFIELDS: Brownfields Site List
Brownfields are real properties where the expansion, redevelopment or reuse may be complicated by the actual or potential presence of a hazardous substance, pollutant, or contaminat.

Date of Government Version: 10/02/2003
Date Data Arrived at EDR: 10/07/2003
Date Made Active in Reports: 10/21/2003
Number of Days to Update: 14

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 06/05/2006
Next Scheduled EDR Contact: 09/04/2006
Data Release Frequency: Semi-Annually

NPDES: Permit and Facility Data
A listing of permitted wastewater facilities

Date of Government Version: 05/23/2006
Date Data Arrived at EDR: 06/08/2006
Date Made Active in Reports: 07/10/2006
Number of Days to Update: 32

Source: Department of Environmental Management
Telephone: 401-222-4700
Last EDR Contact: 05/18/2006
Next Scheduled EDR Contact: 09/18/2006
Data Release Frequency: Varies

AIRS: Air Emissions Listing
A listing of facilities with air emissions.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/12/2006
Number of Days to Update: 39

Source: Department of Environmental Management
Telephone: 401-222-2808
Last EDR Contact: 05/03/2006
Next Scheduled EDR Contact: 07/24/2006
Data Release Frequency: Varies

LEAD: Lead Inspections Database
The listing includes Highest Risk Premises which are properties declared unsafe for habitation by children under age six (6), and Properties with Multiple Poisonings, which are properties that have been the source of multiple lead poisonings and are not currently lead safe.

Date of Government Version: 04/04/2006
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 40

Source: Department of Health, Environmental Lead Program
Telephone: 401-222-1417
Last EDR Contact: 04/14/2006
Next Scheduled EDR Contact: 07/17/2006
Data Release Frequency: Quarterly

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: 05/12/2006
Next Scheduled EDR Contact: 08/07/2006
Data Release Frequency: Semi-Annually

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
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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.

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: 06/14/2006
Next Scheduled EDR Contact: 09/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 04/24/2006
Date Made Active in Reports: 05/02/2006
Number of Days to Update: 8

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: 05/31/2006
Next Scheduled EDR Contact: 08/28/2006
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: 06/12/2006
Next Scheduled EDR Contact: 09/11/2006
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 05/17/2006
Number of Days to Update: 61

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 05/15/2006
Next Scheduled EDR Contact: 08/14/2006
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 05/02/2006
Number of Days to Update: 46

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 07/11/2006
Next Scheduled EDR Contact: 10/09/2006
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.

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: Day Care Provider Listing
Source: Department of Children, Youth & Families
Telephone: 401-528-3624

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 Classification Data
Source: Dept. of Administration/Statewide Planning
Telephone: 401-222-6483

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PT LLOYD S. COOPER III USARC
885 SANDY LANE
WARWICK, RI 02889

TARGET PROPERTY COORDINATES

Latitude (North):	41.70690 - 41° 42' 24.8''
Longitude (West):	71.415 - 71° 24' 54.0''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	299067.8
UTM Y (Meters):	4619839.5
Elevation:	53 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	41071-F4 EAST GREENWICH, RI
Most Recent Revision:	2000

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).

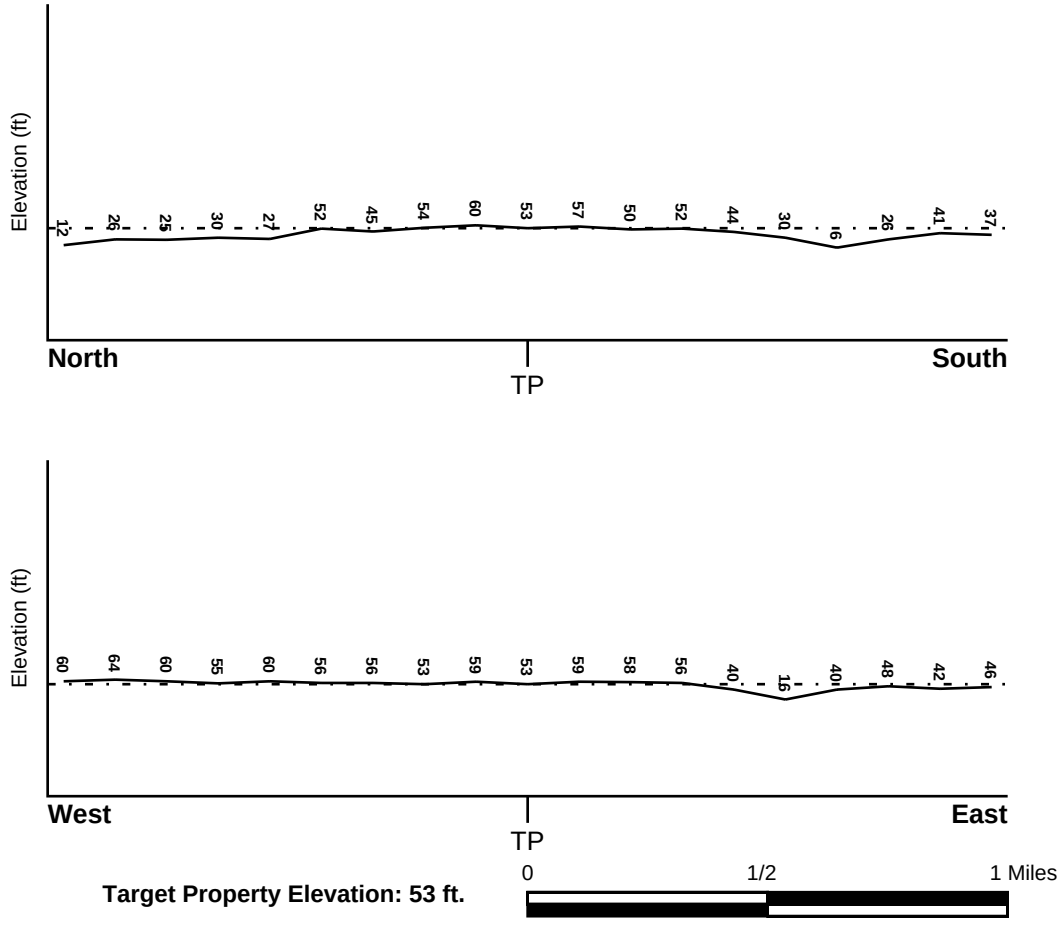
TOPOGRAPHIC INFORMATION

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 SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 53 ft.

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

Target Property County	FEMA Flood Electronic Data
KENT, RI	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 4454090005E

Additional Panels in search area: 4454090006E

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
EAST GREENWICH	YES - refer to the Overview Map and Detail Map

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.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
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

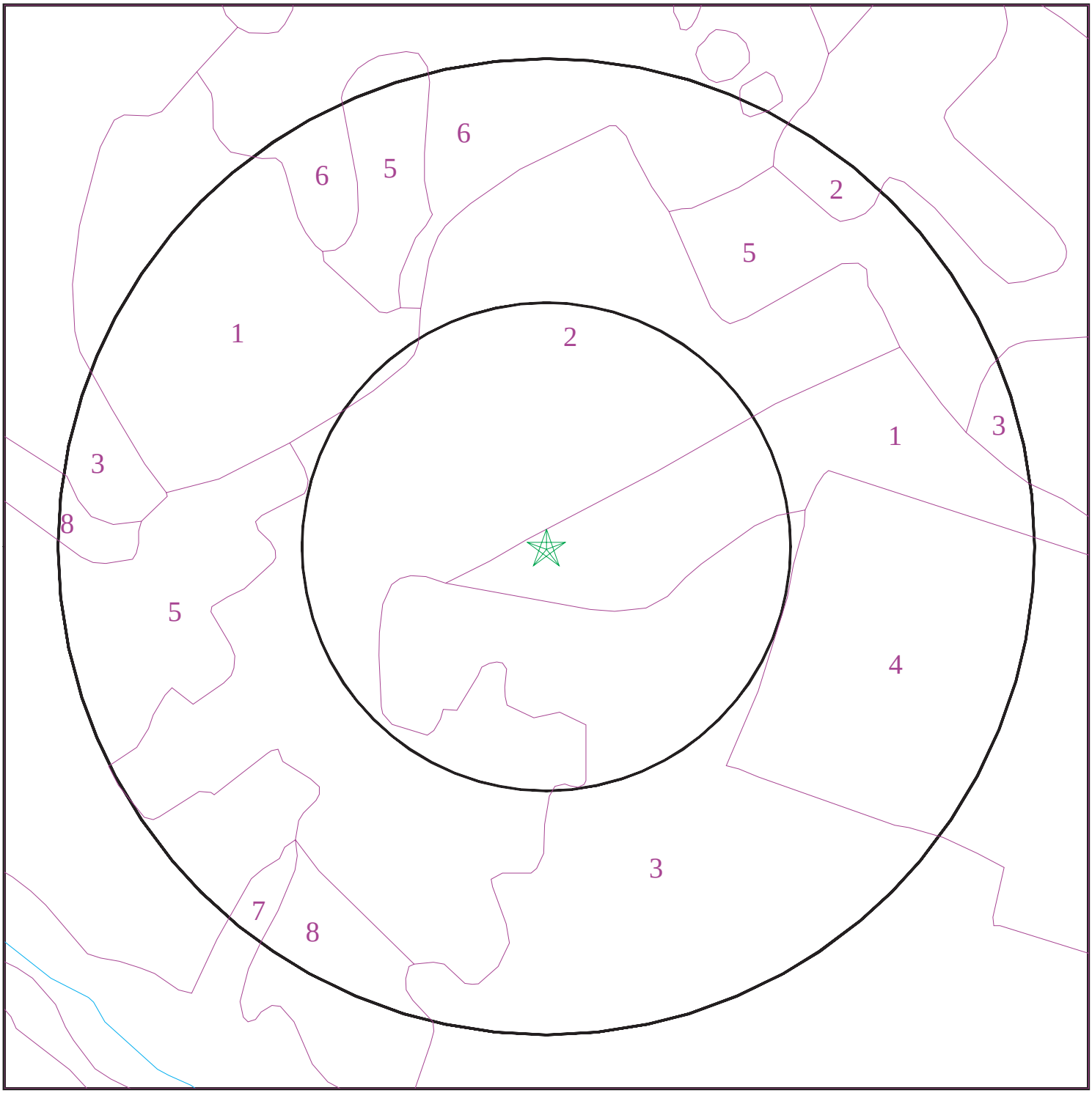
Era:	Paleozoic
System:	Pennsylvanian
Series:	Pennsylvanian
Code:	PP *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

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).

SSURGO SOIL MAP - 01714247.200r



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	PT Lloyd S. Cooper III USARC	CLIENT:	CH2M Hill
ADDRESS:	885 SANDY LANE WARWICK RI 02889	CONTACT:	Mary Beth Jacques
LAT/LONG:	41.7069 / 71.4150	INQUIRY #:	01714247.200r
		DATE:	July 12, 2006

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

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. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: MERRIMAC

Soil Surface Texture: sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	12 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
2	12 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
3	25 inches	60 inches	stratified	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 3.60

Soil Map ID: 2

Soil Component Name:	URBAN LAND
Soil Surface Texture:	Not reported
Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil has not been ranked with a hydric criteria.

Corrosion Potential - Uncoated Steel:	Not Reported
Depth to Bedrock Min:	> 0 inches
Depth to Bedrock Max:	> 0 inches

No Layer Information available.

Soil Map ID: 3

Soil Component Name:	MERRIMAC
Soil Surface Texture:	sandy loam
Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	LOW
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	12 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
2	12 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
3	25 inches	60 inches	stratified	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 3.60

Soil Map ID: 4

Soil Component Name: URBAN LAND

Soil Surface Texture: variable

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil has not been ranked with a hydric criteria.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 10 inches

Depth to Bedrock Max: > 10 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

Soil Map ID: 5

Soil Component Name: MERRIMAC

Soil Surface Texture: sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	12 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
2	12 inches	25 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
3	25 inches	60 inches	stratified	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 3.60

Soil Map ID: 6

Soil Component Name: DUMPS

Soil Surface Texture: Not reported

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil has not been ranked with a hydric criteria.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Bedrock Max: > 0 inches

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	60 inches	sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 20.00 Min: 6.00	Max: 7.30 Min: 5.10

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 7

Soil Component Name: SCARBORO

Soil Surface Texture: mucky - 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: Very poorly. Soils are wet to the surface most of the time. Depth to water table is less than 1 foot, or is ponded.

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

Soil Layer Information

	Boundary			Classification			
Layer	**Upper**	**Lower**	**Soil Texture Class**	**AASHTO Group**	**Unified Soil**	**Permeability Rate (in/hr)**	**Soil Reaction (pH)**
1	0 inches	5 inches	mucky - fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 4.50
2	5 inches	24 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 4.50
3	24 inches	60 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 4.50

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 8

Soil Component Name: HINCKLEY

Soil Surface Texture: gravelly - sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively. Soils have very high and high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information

	Boundary			Classification			
Layer	**Upper**	**Lower**	**Soil Texture Class**	**AASHTO Group**	**Unified Soil**	**Permeability Rate (in/hr)**	**Soil Reaction (pH)**
1	0 inches	10 inches	gravelly - sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 3.60
2	10 inches	17 inches	gravelly - loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 3.60
3	17 inches	60 inches	stratified	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 20.00 Min: 20.00	Max: 6.00 Min: 3.60

Soil Map ID: 9

Soil Component Name:	WATER
Soil Surface Texture:	Not reported
Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Excessively. Soils have very high and high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil has not been ranked with a hydric criteria.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Bedrock Max: > 0 inches

No Layer Information available.

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

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	RI2000176	1/4 - 1/2 Mile South

Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 01714247.200r

0 1/4 1/2 1 Miles

- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- EPA Designated Sole Src. Aq.

SITE NAME:	PT Lloyd S. Cooper III USARC	CLIENT:	CH2M Hill
ADDRESS:	885 SANDY LANE WARWICK RI 02889	CONTACT:	Mary Beth Jacques
LAT/LONG:	41.7069 / 71.4150	INQUIRY #:	01714247.200r
		DATE:	July 12, 2006

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **South** **1/4 - 1/2 Mile** **Lower**	**FRDS PWS**	**RI2000176**

PWS ID:	RI2000176	PWS Status:	Active
Date Initiated:	7706	Date Deactivated:	Not Reported
PWS Name:	Y'S OWL NURSERY (KENT YMCA) 900 CENTERVILLE RD WARWICK, RI 02886		
Addressee / Facility:	System Owner/Responsible Party MILDRED PLOUFFE 900 CENTERVILLE RD WARWICK, RI 02886		
Facility Latitude:	41 42 00	Facility Longitude:	071 25 00
City Served:	Not Reported		
Treatment Class:	Untreated	Population:	00000084

PWS currently has or had major violation(s) or enforcement: No

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: RI Radon

Radon Test Results

County	Total Sites	Avg	Std Dev	# Sites<4 pCi/L	# Sites>=4&<20 pCi/L	# Sites>20 pCi/L	Max
KENT	1459	3.70	5.19348	1046	387	26	61.9

Federal EPA Radon Zone for KENT County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 02889

Number of sites tested: 11

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.900 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.900 pCi/L	100%	0%	0%

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 Classification Data
Source: Dept. of Administration/Statewide Planning
Telephone: 401-222-6483

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

Community and Non-Community Wells
Source: Department of Environmental Management
Telephone: 401-277-2234
Public wells serving at least 25 residents or 15 service connections year round. Public wells serving at least 25 persons at least 60 days of the year.

EPA-Approved Sole Source Aquifers in Rhode Island
Source: EPA
Sole source aquifers are defined as an aquifer designated as the sole or principal source of drinking water for a given aquifer service area; that is, an aquifer which is needed to supply 50% or more of the drinking water for the area and for which there are no reasonable alternative sources should the aquifer become contaminated.

OTHER STATE DATABASE INFORMATION

RADON

State Database: RI Radon
Source: Department of Health
Telephone: 401-222-2438
Radon Test Results

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

Fax To: CH2M Hill
Contact: Mary Beth Jacques
Fax : 404-229-9152
Date: 07/12/2006

Fax From: Bart Sobieralski
EDR
Phone: 1-800-352-0050

EDR PUR-IQ® Report

"the intelligent way to conduct historical research"

for
PT Lloyd S. Cooper III USARC
885 SANDY LANE
WARWICK, RI 02889
Lat./Long. 41.70690 / 71.41500
EDR Inquiry # 01714247.200r

The EDR PUR-IQ report facilitates historical research planning required to complete the Phase I ESA process. The report identifies the *likelihood* of prior use coverage by searching proprietary EDR-Prior Use Reports® comprising nationwide information on: city directories, fire insurance maps, aerial photographs, historical topographic maps, flood maps and National Wetland Inventory maps.

Potential for EDR Historical (Prior Use) Coverage - Coverage in the following historical information sources may be used as a guide to develop your historical research strategy:

1. City Directory:	Coverage exists for portions of WARWICK, RI for 2000, 2001
2. Fire Insurance Map:	When you order online any EDR Package or the EDR Radius Map with EDR Sanborn Map Search/Print, you receive site specific Sanborn Map coverage information at no charge.
3. Aerial Photograph:	Aerial photography coverage may exist for portions of Kent County. Please contact your EDR Account Executive for information about USGS photos available through EDR.
4. Topographic Map:	The USGS 7.5 min. quad topo sheet(s) associated with this site:

Historical: Coverage exists for Kent County

Current: Target Property: TP | 2000 | 41071-F4 East Greenwich, RI

EDR's network of professional researchers, located throughout the United States, accesses the most extensive national collections of city directory, fire insurance maps, aerial photographs and historical topographic map resources available for WARWICK, RI. These collections may be located in multiple libraries throughout the country. To ensure maximum coverage, EDR will often assign researchers at these multiple locations on your behalf. Please call or fax your EDR representative to authorize a search.

EDR - HISTORICAL SOURCE(S) ORDER FORM

CH2M Hill
Mary Beth Jacques
Account # 1592163

PT Lloyd S. Cooper III USARC
885 SANDY LANE
WARWICK, RI 02889
Kent County
Lat./Long. 41.70690 / 71.41500
EDR Inquiry # 01714247.200r

Should you wish to change or add to your order, fax this form to your EDR account executive:

Bart Sobieralski
Ph: 1-800-352-0050 Fax: 1-800-231-6802

Reports

___ EDR Sanborn Map® Search/Print

___ EDR Fire Insurance Map Abstract

___ EDR Multi-Tenant Retail Facility® Report

___ EDR City Directory Abstract

___ EDR Aerial Photo Decade Package

___ USGS Aerial 5 Package

___ USGS Aerial 3 Package

___ EDR Historical Topographic Maps

___ Paper Current USGS Topo (7.5 min.)

___ Environmental Lien Search

___ Chain of Title Search

___ NJ MacRaes Industrial Directory Report

___ EDR Telephone Interview

Shipping:

___ Email
___ Express, Next Day Delivery — RUSH SERVICE IS AVAILABLE
___ Express, Second Day Delivery
___ Express, Next day Delivery — Customer Account — Acct # _____
___ Express, Second Day Delivery — Customer Account — Acct # _____
___ U.S. Mail

Thank you

The EDR-City Directory
Abstract

PT Lloyd S. Cooper III USARC
885 SANDY LANE
WARWICK, RI 02889

Inquiry Number: 1714247.204

Monday, July 24, 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

EDR City Directory Abstract

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening report designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

SUMMARY

- ***City Directories:***

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1985 through 2005. (These years are not necessarily inclusive.) A summary of the information obtained is provided in the text of this report.

Date EDR Searched Historical Sources: July 24, 2006

Target Property:
885 SANDY LANE
WARWICK, RI 02889

Year	Uses	Source
1985	Address Not Listed in Research Source	Cole Criss-Cross Directory
1990	Address Not Listed in Research Source	Cole Criss-Cross Directory
1995	US Government Army	Cole Criss-Cross Directory
2000	US Government Army	Cole Criss-Cross Directory
2005	US Government Army	Cole Criss-Cross Directory

Adjoining Properties

SURROUNDING

Multiple Addresses
WARWICK, RI 02889

Year	Uses	Source
1985	****Sandy Lane****	Cole Criss-Cross Directory
	Residence (840)	Cole Criss-Cross Directory
	Residence (863)	Cole Criss-Cross Directory
	Residence (898)	Cole Criss-Cross Directory
	No other addresses in 835-999 range	Cole Criss-Cross Directory
1990	****Sandy Lane****	Cole Criss-Cross Directory
	Residence (840)	Cole Criss-Cross Directory
	Residence (863)	Cole Criss-Cross Directory
	Residence (898)	Cole Criss-Cross Directory
	No other addresses in 835-999 range	Cole Criss-Cross Directory
1995	****Sandy Lane****	Cole Criss-Cross Directory

Year	***Uses***	***Source***
1995	Apartment Building (835)	Cole Criss-Cross Directory
	Residence (840)	Cole Criss-Cross Directory
	Residence (863)	Cole Criss-Cross Directory
	Residence (898)	Cole Criss-Cross Directory
	No other addresses in 835-999 range	Cole Criss-Cross Directory
2000	****Sandy Lane****	Cole Criss-Cross Directory
	Apartment Building (835)	Cole Criss-Cross Directory
	Residence (840)	Cole Criss-Cross Directory
	Residence (863)	Cole Criss-Cross Directory
	Residence (898)	Cole Criss-Cross Directory
	Residence (956)	Cole Criss-Cross Directory
	No other addresses in range	Cole Criss-Cross Directory
2005	****Sandy Lane****	Cole Criss-Cross Directory
	Apartment Building (835)	Cole Criss-Cross Directory
	Residence (840)	Cole Criss-Cross Directory
	Residence (863)	Cole Criss-Cross Directory
	Residence (898)	Cole Criss-Cross Directory
	Residence (956)	Cole Criss-Cross Directory
	No other addresses in range	Cole Criss-Cross Directory