FINAL DESIGN REPORT

EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

RESPONSE ACTION CONTRACT (RAC), REGION I

For
U.S. Environmental Protection Agency

By
Tetra Tech NUS, Inc.

EPA Contract No. 68-W6-0045
EPA *Work Assignment* No. 054-RDRD-0189
TtNUS Project No. N3998

July 2001

TETRA TECH NUS, INC.

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Project Manager

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EASTERN SURPLUS COMPANY
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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) Region I has requested that Tetra Tech NUS, Inc. (TtNUS) prepare a Final Design for the Eastern Surplus Company Superfund Site (the Site) located in Meddybemps, Maine, under Contract No. 68-W6-0045, Work Assignment No. 054-RDRD-0189.

The Final Design (FD) presents the information that will be used to implement the remedy selected in the September 2000 Record of Decision (ROD) to address the Site contamination and threats to human health and the environment. The RD integrates the information developed during: the Remedial Investigation (RI), the Non-Time-Critical Removal Action (NTCRA) construction and testing of the interim groundwater extraction and treatment system, and the 2001 pre-design investigation.

In 1998, sufficient information had been developed for EPA to determine that a NTCRA was necessary to address the contaminated Site soils and groundwater. As a result, a soil (source) removal action was completed during the summer of 1999 while an interim groundwater extraction and treatment system was constructed in late-1999 to prevent the offsite migration of contaminants. The NTCRA groundwater response action selected was deemed to be consistent with any likely long-term response actions, considering the nature of the contaminants, which consisted of aqueous-phase volatile organic compounds (VOCs) and metals. As a result of the soil removal action, only the contaminated groundwater remained as a long-term threat to human health and the environment.

A Feasibility Study (FS) was completed in August 1999 to evaluate various groundwater remediation options. One option that was identified consisted of groundwater containment (through hydraulic control using extraction wells) and the use of enhanced flushing and in-situ treatment methods.

During this period, the transfer of property ownership from the Potentially Responsible Parties and the identification of significant archaeological resources at the Site were issues that needed to be resolved between various stakeholders before EPA could complete the ROD. In year 2000, to bridge the period between the completion of the RI/FS and the initiation of the

Remedial Design while the Site-related issues were being addressed, EPA authorized TtNUS to implement an in-situ oxidation pilot test.

A pilot test study was deemed necessary because while in-situ oxidation had been used at sites with either contaminated soil or overburden groundwater, it had not been used to address contaminated bedrock because of its heterogeneous nature and uncertainties associated with delivering the reagents into the fractured bedrock environment.

In July 2000, TtNUS initiated the Phase 1 pilot test to assess the applicability and effectiveness of the in-situ oxidation in limited portions of the groundwater plumes. Phase 1 operated through March 2001. The preliminary Phase 1 pilot test results were then used to plan and implement the Phase 2 pilot test (addressing more extensive areas of the groundwater plumes), which was part of the RD's pre-design investigation activities. During Phase 2, a network of injection wells and temporary oxidant addition wells were installed.

The ROD was signed in September 2000 and the selected remedial action was the restoration of groundwater to drinking water standards. The ROD is presented in Appendix A to this Final Design.

As a result of the NTCRA, all material components of the ROD-selected groundwater response action remedy (groundwater extraction and treatment, in-situ oxidation, and enhanced flushing) identified in the EPA's 2000 ROD have already been constructed or are presently being installed. This RD presents the compilation of information and data to demonstrate that the groundwater extraction and treatment system constructed during the NTCRA, and that the injection wells and addition wells installed during the pilot study, meet the objectives of the ROD-selected remedy for the Site.

1.1 Objective

The objective of the Final Design is to compile the information developed to date to demonstrate that the systems constructed or installed at the Site will implement the remedial remedy selected by the ROD.

1.2 Final Design Report Organization

The Final Design report includes the following:

- Summary of the ROD, the basic applicable or relevant and appropriate requirements (ARARs), and the performance criteria for the Remedial Action.
- The basis of design for the long-term groundwater response action.
- The final design drawings for the NTCRA groundwater extraction, treatment, and discharge system, including an updated Site plan with the most current surveyed locations of all key features.

Three other documents supplement the Final Design report. The Preliminary Design report (TtNUS, March 2001) was prepared as a compilation of analytical data for environmental media and evaluations that helped to establish the baseline Site conditions, provided a summary of the extraction wells and treatment effectiveness, and identified data uncertainties to be evaluated during the pre-design investigation.

The Groundwater and Extraction System Operation and Maintenance (O&M) Manual (TtNUS, July 2001) for the extraction wells system and treatment plant is being prepared separately and provides the overview of extraction or treatment system components, manufacturers' specifications and instructions, and information regarding the operation and maintenance of the components. A Quality Assurance Project Plan for Long-Term Monitoring (TtNUS, February 2001) was prepared separately to provide the procedures and the quality assurance requirements for the sampling and analysis to evaluate the effectiveness of the selected remedy.

Section 1 of the Final Design presents summaries of the Site history, site geology and hydrogeology, environmental contamination, the ROD, descriptions of the selected remedy, key ARARs, and the Remedial Action performance criteria. Section 2 presents extraction wells system design. Section 3 presents the Service Air System design. The treatment system design is presented in Section 4. The groundwater discharge design and the treatment building design are presented in Sections 5 and 6, respectively. The in-situ oxidation design is presented in Section 7. A summary of the overall O&M for the Remedial Action (RA) is presented in Section 8. Section 9 discusses the long-term monitoring. The RA Cost Estimate is presented in Section 10. Section 11 presents the projected schedule for the RA.

1.3 Project Background

This section provides a synopsis of the Site description and Site history. More detailed information may be found in other documents prepared for the RI/FS and past EPA and State response actions.

1.3.1 Site Location and Description

The Eastern Surplus Company Superfund Site is located in Meddybemps, Maine, in Washington County, which is generally located in the northeastern coastal portion of the state (Figure 1-1). The Site is approximately 70 miles east-northeast of Bangor, Maine, at a latitude of 45° 02' 20" north, and a longitude of 67° 21' 30" west, and has been assigned the Site CERCLIS number MED981073711. The Site was formerly a 4.9-acre junkyard bounded by Meddybemps Lake to the north, by Mill Pond and the Dennys River to the east, by Route 191 to the south, and by private property and Stone Road to the west (Figure 1-2). The Eastern Surplus Company was a former surplus and salvage operation that operated from approximately 1946 until 1976. During that time, numerous hazardous materials and chemicals were brought to and stored on Site including drums and cans containing solvents; calcium carbide, compressed gas cylinders, electrical transformers, capacitors, and old ammunition. The Site was also occupied by numerous defunct equipment, machinery, and vehicles.

The Final Remedial Investigation Report, Eastern Surplus Company Site, Meddybemps, Maine (TtNUS, July 1999) provides detailed Site background information and history, descriptions of the physical features and demographics, descriptions of Site hydrogeology and geology, evaluations of environmental contamination, and assessment of human health risks. Additional hydrogeologic evaluations are presented in several U.S. Geological Survey reports that are appended to the RI report. The Eastern Surplus Superfund Site Ecological Risk Assessment (Roy F. Weston, July 1999) report evaluates the potential for adverse ecological risks associated with releases of hazardous chemicals from the Site. Preliminary descriptions of Native American cultural resources discovered at the Site are presented in the Results of the

Phase I and Phase II Archaeological Testing of the Eastern Surplus Company Superfund Site, Meddybemps, Washington County, Maine (Archaeological Research Consultants, Inc., 2000).

To date, all identified hazardous materials, contaminated soils containing chemicals in excess of the NTCRA action levels, and debris have been removed and were disposed of off-Site as part of EPA's response actions during 1998 and 1999. In 1999, the Site was graded, stabilized, and revegetated. Currently the Site is occupied by the groundwater treatment plant, two extraction well systems, and an infiltration gallery to recharge treated groundwater. In addition, an array of temporary direct-push drive points has been installed to facilitate the addition of chemical oxidants to destroy VOCs in two groundwater plumes.

1.3.2 Site History

The Site was originally used for farmland and was the location of a mill. The After Action Report for Eastern Surplus Site (Roy F. Weston, January 1991) prepared for the EPA provides the following synopsis of the Site history. The property abutting the Dennys River was acquired in August 1946 by Mr. Harry Smith, Sr. (deceased). Mr. Smith, owner of the Eastem Surplus Company, began storing equipment and materials on the Site in October 1946. In addition, Mr. Smith generated electrical power with a hydroelectric power unit on the Dennys River until approximately 1966, and ran a military surplus business in a building at the southeast corner of the Site until approximately 1976. In discussions with EPA, Mr. Harry Smith, Jr. indicated that the Eastem Surplus Company stopped receiving surplus and salvage goods at this location by 1973. Thereafter, the surplus and salvage materials were received at another property owned by Mr. Smith, Jr. in Meddybemps, Maine.

- **Maine Removal Action (1985 – 1986)**

The Maine Department of Environmental Protection (MEDEP) received complaints about the Site and conducted a Site visit on October 11, 1985. During that inspection, the MEDEP found large volumes of scrap metal, junk cars, old appliances, miscellaneous military personnel equipment, and a variety of hazardous materials and/or substances were present on the Site. The hazardous materials or substances found included compressed gas cylinders, 55-gallon drums, 5-gallon cans of chemicals (paints, solvent, and thinners), small containers with chemicals, a trailer full of calcium carbide, electrical transformers, capacitors and switches, and old ammunition.

The MEDEP initiated a removal in December 1985 and ceased operations in May 1986 due to lack of funding, and requested federal assistance at that time. Because conditions at the Eastern Surplus Company Site met the criteria in Section 300.65 in the National Oil and Hazardous Substances Contingency Plan for an immediate removal action, a request for an Immediate Removal Action (Action Memorandum) was approved by EPA on November 17, 1986.

- **EPA Actions (1986 – 1990)**

From 1986 until 1990, the EPA and Department of Defense (DOD) performed sampling and removed large quantities of hazardous materials and substances, including drums, cans, gas cylinders, and transformers. Source sampling conducted during this period was coordinated by the MEDEP and EPA identified the presence of PCBs, chlorinated organic solvents, heavy metals, acids, oils, asbestos, and pesticides. Environmental sampling indicated that many of the contaminants had been released to soils, groundwater, and sediments at the Site. Despite the removal actions performed by the State and EPA and the DOD, hazardous substances in containers remained on Site and in the Site's environmental media.

- **NPL Listing**

The Site was listed to the National Priorities List (NPL) in 1996 allowing for Superfund monies to be used to address the Site contamination issues through the Remedial Investigation/Feasibility Study process.

- **Remedial Investigation and Feasibility Study**

The Remedial Investigation was initiated in 1996 to delineate the extent of contamination, identify potential contaminant migration pathways, and to assess potential risks to human health and to the environment. The RI evaluated contaminant presence in soils, groundwater, surface water, sediments, air, and biota. Results of the RI are presented in the Remedial Investigation Report (TtNUS, 1999).

The Feasibility Study was completed in August 1999, and addressed the groundwater plumes because contaminated soils had been removed from the Site under the NTCRA. The FS identified in-situ chemical oxidation and enhanced flushing as two methods that could supplement groundwater extraction and treatment and could result in quicker achievement of the remedial action objective (restoration of groundwater quality).

- **1998 NTCRA**

While the RI was ongoing, in 1998 EPA determined that a NTCRA was necessary to protect human health and to prevent further contaminant migration off Site (see Section 1.3.3 for more details). In 1999, the NTCRA resulted in the excavation and offsite disposal of all contaminated soils exceeding the removal action levels and the construction of an interim groundwater extraction and treatment system for hydraulic control of two contaminant plumes. The groundwater extraction and treatment system was brought on line in January 2000 and has been operated since then to evaluate system performance and to optimize system operations. Descriptions of the groundwater extraction and treatment system are presented in Sections 2 and 3, respectively.

- **Phases I and II Archaeological Investigation (1999)**

Anecdotal information provided by local residents indicated that Native American artifacts (i.e., projectile points or "arrowheads") had been found at the Site. The National Historic Preservation Act (16 USC 470 *et seq*; 36 CFR 800) requires federal entities to identify and consider any impacts to historic properties prior to any actions. Because of the concern that the NTCRA's intrusive activities could result in impacts to historical materials, an archaeological evaluation was initiated in April 1999. The field evaluation consisted of a Site walkthrough and subsequently the Phases I and II test excavations of 107 50-centimeter square (cm^2) test holes and 25 1-meter square (m^2) test units by Archaeological Research Consultants, Inc. The archaeological excavations determined that Site 96.02 (the designation of the Site under the Maine Prehistoric Archaeology Site Survey files) contained cultural materials and resources that could contribute significantly to the understanding of prehistoric history. EPA has determined that the Site is eligible for listing in the National Register of Historic Places and as such, the National Historic Preservation Act requirements must be followed.

- **Phases III Archaeological Investigation (2000)**

As a result of the unavoidable adverse effect to the historic and cultural resources at the Site, EPA entered into a Memorandum of Agreement (MOA) with the State Historic Preservation Officer, the Passamaquoddy Indian Tribe, and the National Advisory Council for Historic Preservation. The MOA describes the mitigation activities that EPA would perform to compensate for the adverse effects. The mitigation involved the data recovery of native American artifacts from an area of the Site that was previously undisturbed. Because of the unavoidable NTCRA intrusive activities that was implemented, a mitigation plan was developed to perform a Phase III archaeological investigation in the northern portion of the Site. From July through October 2000, the University of Maine-Farmington's Archaeology Research Center (UMF ARC) completed 200 1-m^2 test units and identified 127 cultural features (formations in soils indicative of human activity) and recovered numerous artifacts to be cleaned, cataloged, and evaluated. The laboratory evaluations are on going.

- **Record of Decision (2000)**

A Record of Decision for the Site was signed in September 2000 that identified the selected long-term remedy for the site. A summary of the ROD remedial objectives is provided in Section 1.4 of this document. The primary objective is the restoration of groundwater quality to drinking water standards.

- **In-Situ Chemical Oxidation Pilot Test (2000 – 2001)**

During the transition period from the RI/FS completion to the signing of the ROD in September 2000, a pilot test was conducted to assess the potential application and effectiveness of in-situ oxidation of residual VOCs in the core portions of the two groundwater plumes associated with the Site. Phase 1 was initiated in July 2000. Aquifer conditions and groundwater monitoring were conducted through September 2000. Additional doses of the oxidizer sodium permanganate were added during Phase 1. Monitoring and sampling continued through April 2001. At that time, Phase 2 was initiated using oxidant delivery methods to better distribute the permanganate into the bedrock aquifer. In June 2001, after the permanganate had some time to react, groundwater samples were collected and analyzed to evaluate the effectiveness of the effectiveness of the delivery methods. The details of the pilot test and the Phases 1 and 2 results are presented in Section 7.

- <u>Additional Phase II Archaeological Evaluations (2001)</u>

The areas in which RW-10, RW-11, MW-39B, and MW-40B are situated were not evaluated during the archaeological investigation programs of 1999 or 2000 because no intrusive activities were projected. Because groundwater sampling data from 2000 indicated a greater northern plume extent, hydrogeologic evaluations determined that more extraction wells were needed to augment the northern plume extraction wells. In June and July 2001, UMF ARC was requested by TtNUS to evaluate the areas surrounding these wells and a proposed 3-foot wide by 90-foot long piping trench. Because test units excavated by UMF ARC identified archaeological resources, EPA and TtNUS determined that construction of the trench would result in significant disturbance. The area surrounding each borehole was investigated. All features were identified and artifacts recovered for future laboratory evaluations, and a 3-foot radius surrounding each borehole was cleared for future construction of well vaults.

1.3.3 1998 NTCRA

Using information developed while the RI was in progress, EPA determined that a NTCRA was necessary to eliminate sources of soil, groundwater, and sediment contamination to protect human health, groundwater quality, and ecological receptors. An Action Memorandum was signed on July 27, 1998 authorizing the NTCRA implementation.

The NTCRA initiated during the fall 1998 resulted in: the excavation and removal of soils contaminated by volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and metal contaminants of concern; removal of numerous drums, containers, and compressed gas cylinders containing hazardous materials; and the demolition and removal of a large dilapidated onsite building. All contaminated soils exceeding the NTCRA cleanup action levels were removed and backfilled with clean materials.

As the result of the NTCRA, contaminated soils were excavated and removed from areas overlying the northern and southern plumes, thus eliminating continuing sources of groundwater contamination. The NTCRA soil cleanup levels for VOCs were based on the Maine Remedial

Action Guidelines (RAGs) for the protection of groundwater quality. The PCBs action level was derived from EPA risk-based action levels and the Maine RAGs for direct exposures. The metals action levels were based on protection of human health considerations. During the NTCRA, all onsite soils with contamination exceeding action levels were excavated and sent for offsite disposal.

The second component of the NTCRA was the installation of an interim extraction and treatment system in the northern and southern plumes to capture contaminated groundwater, to maximize contaminant mass removal, and to prevent offsite migration of the contaminant plume. The northern component of this system was brought on line in January 2000 while the southern extraction wells were completed and activated in June 2001. Several shakedown periods have been implemented to assess the hydraulic capture and treatment effectiveness. The principal goal of the NTCRA groundwater response action was to address the VOC and metals contaminants in the overburden and shallow bedrock units.

Low concentrations of VOCs had been detected in some of the northern plume deep bedrock boreholes during 1999, which were evaluated by TtNUS during year 2000 under the Phase 1 pilot test. Additional monitoring wells were installed in both the shallow and deep bedrock aquifer units to evaluate VOCs presence during 2000 and 2001. More recent groundwater data indicate that the VOCs extent in the northern plume has extended southward to the vicinity of monitoring wells RW-7 and MW-4. The extraction wells network for the NTCRA has been expanded by increasing the number of wells to create a larger capture zone. This will allow the extraction system to capture contaminated groundwater in both the deep and shallow bedrock units, as well as from the overburden units.

1.3.4 Site Geology and Hydrogeology

This section summarizes the geology and hydrogeology that applies to the Eastern Surplus Company Site.

1.3.4.1 Surficial Geology

The Site is underlain by unconsolidated surficial deposits that in turn overly crystalline bedrock. The surficial deposits are glacial in origin. During the last (Wisconsinan) glaciation (14,000 to

25,000 years ago), glacial ice advanced over the region, in a southeasterly direction, scouring the bedrock surface. As the glacier advanced, preexisting unconsolidated materials and weathered, fractured bedrock were ground up, incorporated into the ice and deposited at the base of ice as glacial till. Approximately 15,000 and 17,000 years ago, the glacier retreated from it's terminal position on the Continental Shelf and reached the present Maine coast by 14,000 years ago (Thompson and Borns, 1985), and because the land was depressed by the weight of glacial ice, the region was inundated by seawater to a depth of 300 ft. As the ice margin retreated, glacial meltwater streams deposited stratified, coarse-grained sediment at the ice margin while finer-grained sand, silt and clay was deposited from meltwater currents into the deeper water on the sea floor. Also, sediments were deposited from meltwater streams beneath glacial ice as subaqueous fans of stratified sand or as non-stratified, till-like sediment on the seafloor.

On the western margin of the Site, along Stone Road, a ridge of coarse-grained sand and gravel deposits marks the former location of the ice margin. The Meddybemps Delta, a significant sand and gravel aquifer, located about 0.5 mile west of the Site, represents a second location of the former ice margin as it retreated from the area. The contact between topset and foreset (inclined) beds of sediment at the Meddybemps Delta represents a former sea level at a present elevation of 204 ft (Thompson and Others, 1989).

Figure 1-2 is a Site plan that includes the locations of wells and two geologic cross sections. Figure 1-3 is a geologic cross section aligned approximately perpendicular to groundwater flow and through the line of extraction wells in the northern VOC plume. Similarly, Figure 1-4 is a profile through the southern plume line of extraction wells. Both cross sections serve to illustrate the geology, saturated thickness under non-pumping and pumping conditions, and the extent of PCE dissolved in groundwater from the most current set of data (June 2001).

The glacial outwash coarse-grained sand and gravel deposit (subaqueous fan), located along Stone Road, grades to coarse to medium sand beneath the central and southern portions of the Site. These deposits overlie bedrock or glacial till, range in thickness from 0 to 14 ft and appear to extend to the Dennys River. As shown by Figure 1-3, the subaqueous fan pinches out against glacial-till in the northern portion of the Site. Glacial till or till-like deposits consist of an unsorted mixture of pebbles, cobbles and boulders in a finer grained matrix of sand and silt. Boulders are common along the top of glacial till at a depth ranging from 11 to 14 ft below ground surface (bgs). The thickness of glacial till ranges from 0 to 15 ft on the west side of the Dennys River, increasing to 40 ft on the east side. Glacial till may be absent along the Dennys River.

As shown by both Figures 1-3 and 1-4, finer-grained glaciomarine deposits (Presumpscott Formation) overlie glacial till and coarse-grained subaqueous sand and gravel. These deposits consist of mostly silt with lesser fine sand and clay. The thickness of these fine-grained deposits ranges from 0 ft along the western margin of the Site to 20 ft in the southern portion. In addition, a discontinuous boulder/cobble zone occurs in some areas beneath the Site. This unit may be part of glacial till or fractured bedrock and extend east of the Dennys River to monitoring well MW-16B.

The natural surficial deposits are overlain by fill in some areas of the Site. The fill consists of silty sand and gravel. The thickness of fill ranges from 0 to 20 ft. During the NTCRA, fill was placed in excavations in both the northern and southern portions of the Site. Both areas are north of Route 191. In both locations, the excavation extended to the top of rock. The total depth of excavation ranged from 0 to 10 ft in the northern area, and from 0 to 20 ft in the southern area.

1.3.4.2 Bedrock Geology

Plutonic igneous rocks of the Gabbro-diorite intrusive complex and the Meddybemps Granite characterize the regional bedrock geology. These igneous plutons intruded metasedimentary and metavolcanic rocks of the Cookson Group of the St. Croix belt of the coastal lithotectonic block during the Lower Devonian. The St. Croix belt is a northeast-trending, 20-mile wide band of metasedimentary and metavolcanic rocks that occurs along the Maine coast from Waldoboro through the Calais area into New Brunswick, Cambrian to Ordovician in age. The Cookson Group of rocks were recumbently folded and thrust-faulted northwest over younger metasedimentary rocks in the Fredericton trough before intrusion of the igneous plutons during the Devonian.

The Meddybemps Granite is light-colored, medium-grained, plutonic igneous rock that consists of quartz, plagioclase feldpsar, potassium feldspar, biotite, amphibole, apatite, zircon and opaque minerals. The elemental composition of these minerals consists primarily of silica, alumina, calcium, magnesium, potassium, sodium, iron and manganese.

The Gabbro-diorite intrusive complex consists of fine to medium grained gabbro, diorite and gabbro-diorite. Gabbro is black to salt and pepper colored and consists primarily of plagioclase, hornblende, biotite, augite, orthoclase, apatite, zircon, sphene, epidote and opaque minerals. The elemental composition of these minerals consists primarily of silica, magnesium, alumina, iron, calcium, sodium, potassium, and manganese.

According to regional bedrock mapping (Ludman and Hill, 1990), the Gabbro-diorite intrusive complex is delineated generally as an oval shaped body in plan view with the western margin along Stone Road, with margins that extends approximately 0.5 miles from the Site to the north, south and east. The Meddybemps granite is mapped west of Stone Road and beyond the margin of the Gabbro-diorite complex. The regional delineation is generally consistent with geologic and borehole geophysical logs for the Site with the exception equigranular and foliated diorite occurs beneath overburden in the central portion of the Site in the vicinity of the infiltration gallery (G1 through G-5), and in the northern portion near the Dennys River (RW-1). Meddybemps granite and/or diorite intrusions into the Gabbro-diorite complex were noted in boring and/or geophysical logs at wells located in the northern portion of the Site (RW-3, RW-5, RW-8, MW-39B, MW-40B, MW-41B, MW-42B, MW-43B, IN-1B, IN-2B, IW-1, IW-3, IW-4). Regional mapping indicated foliated diorite is intruded by Meddybemps granite at a small island east of Pierce Island in Meddybemps Lake. Also, Ludman and Hill (1990), reported commingling of Meddybemps granite and gabbro producing the amoeboid pillows occur at a hill along cliff exposures 2 km west of Blanchard corner (4 miles southeast of the Site).

Meddybemps granite was not encountered in boreholes in the southern plume area of the Site, where boreholes generally penetrated less than 100 ft of bedrock. The deepest borehole in the vicinity of the Site is located immediately east of the Dennys River and north of Route 191 (Smith Well). A geophysical log of this well indicated possible granite from 244 to 421 ft (end of borehole).

1.3.4.3 Bedrock Fractures

Slickensides, sheared and polished surfaces, which are evidence of brittle fracturing, occur in rock outcrops throughout the Calais Quadrangle (Ludman and Hill 1990). High-angle faults that strike both north and northwest are mapped within 10 miles of the site. The nearest fault to the Site, shown on the Bedrock Map of the Calais Quadrangle (Ludman and Hill, 1980), trends northwest-southeast and is inferred about 1 mile northeast of the Site. The Dennys River is oriented in northeast-southwest north of Route 191 and is oriented northwest-southeast south of Route 191. The orientation of the River may be influenced locally by the bedrock structure. Felsic and mafic plutons in the Calais quadrangle, including the Meddybemps Granite and the Gabbro-diorite intrusive complex, have undergone three episodes of deformation (D4, D5 and D6), after earlier recumbent folding and faulting.

The D4 deformation was synchronous with emplacement of gabbros (Ludman and Hill, 1990). North-trending, high-angle normal faults are associated with D4 deformation. The D4 faults are recognized by the local development of cataclastic fabrics in narrow zones aligned within 10 degrees of north-south; by similarly domainal close-spaced cleavage striking north and dipping steeply to vertically; small-scale north-trending upright folds; and local disruption of earlier structures (Ludman and Hill 1990). North-striking high-angle faults are mapped 7 to 10 miles northwest of the site; they are part of the Princeton-Crawford fault zone, which forms the boundary between the Fredericton trough and the St. Croix belt. In the adjacent Big Lake quadrangle, D4 faults were located by their topographic expression of valleys and aligned depressions oriented north-south.

The next episode of deformation, (D5), is associated with several northeast and north trending, strike-slip faults and the ENE-trending segment of the South Princeton-Crawford fault zone. Cataclastic fabrics and silicified zones were developed in the metasedimentary rocks and granites, and chloritized and/or serpentinized zones in the mafic rocks. Slickensides and small drag folds show mostly dextral strike-slip movement. An important exception was along the South Princeton-Crawford fault zone, approximately 7 to 10 miles northwest of the site where earlier (D4) displacement was dominantly dip-slip, but reactivated later (D5) as a sinistral strike-slip offset.

Northwest and west-northwest trending shear zones are associated with the next episode of deformation (D6). Pluton contacts were offset in the eastern portion of the Calais quadrangle. Shear zones are commonly silicified and contain quartz veins. Subhorizontal slickensides and vertically plunging Z-shaped drag folds indicate sinistral strike-slip separation of these faults. Sinistral kinks observed also. Northwest-striking faults occur between 1 and 7 miles northeast of the site.

The last deformation of bedrock in the area resulted from removal of the weight of the continental ice sheet which created a low-angle fractures parallel or subparallel to the bedrock surface. These fractures are referred to as unroofing joints by the USGS.

Geologic and borehole geophysical logs indicate the upper few feet of bedrock are weathered, broken and contain unroofing joints. Bedrock fractures are oriented in three primary directions based on studies by the USGS (Hansen and Others, 1999):

- a low-angle set striking NNE and dipping WNW;
- a high-angle set striking NNE and dipping ESE; and
- a second high-angle set striking ENE to E (nearly EW) and dipping SSE to S.

In contrast to the total fracture population, most of the water-yielding fractures dip to the south. In general, most of the high-angle water-yielding fractures generally strike NNE or ENE and dip ESE or SSE; and the low-angle water-yielding fractures generally strike NNE to WNW and dip WNW to SSW (Hansen and Others, 1999).

1.3.4.4 Site Hydrogeology

The groundwater beneath the site appears to exist in two aquifers: the surficial aquifer that exists in the overburden deposits and the bedrock aquifer. Generally, the depth to groundwater ranges from 4 to 10 feet below ground surface (bgs) in the northern portion of the site and from 12 to 20 feet bgs in the southern portion of the site.

Groundwater levels throughout the Site respond to recharge from precipitation and snowmelt. In addition, the northern-most portion of the Site responds to lake level changes. Groundwater levels vary throughout the year and follow water-level trends in Meddybemps Lake (Lyford and

Others 1998). Water level data collected by the USGS in 1996-97 showed the highest lake and groundwater levels occurred in late December and early January after a fall recharge and runoff period. Water levels declined during January to March when most of the precipitation fell as snow and levels rose again during the spring thaw in April. When water levels were high, the saturated thickness ranged from 0 to 5 feet over a majority of the site, with the exception of two areas, where the saturated thickness ranged from 5 to 10 feet. The first area is located in the central portion of the site, in the vicinity of MW-4S and MW-5S; and the second area is located in the southern portion of the site, in the vicinity of MW-17S and MW-18S extending to the south across Route 191 to MW-11S and the Dennys River.

While groundwater levels in both the overburden and bedrock aquifers in June 1998 were not as high in some areas as in April 1997, the June 1998 levels were up to 5 feet higher in elevation than those measured in November 1998. A comparison the vertical hydraulic gradient at paired wells indicated a downward vertical hydraulic gradient during 1996-98 with the exception of a slight upward gradient observed at the MW-11S and MW-11B well pair by the USGS during 1996-97.

The surficial and bedrock aquifers are interconnected hydraulically; however, the differences in hydrostatic head measured in wells in the different aquifers, and the differences in responses to precipitation observed indicate that the two aquifers are separate to some degree, and the bedrock aquifer may be under semi-confined conditions. High angle fractures are potential pathways for migration of groundwater from the shallow to deeper bedrock and vice versa. Low angle fractures are potential pathways for groundwater migration in all directions. Comparison of the potentiometric levels between the surficial and bedrock aquifers for June and November 1998 (RI Report), shows a vertical downward head difference between the bedrock and surficial aquifers in many areas beneath and surrounding the site.

The configuration of the potentiometric surface of the overburden aquifer shows the general direction of groundwater flow beneath the site is in a southeast direction toward the Dennys River. This indicates that the Dennys River is the local discharge point for the surficial and shallow bedrock aquifer. A more southerly component of flow occurs in the northern part of the site in the vicinity of Meddybemps Lake. Recharge from the Lake probably causes groundwater flow in a south-southwest direction toward a wetland area located on the west side of the river in the vicinity of the dam. Hydraulic conductivity of the coarse-grained glaciomarine sediments ranges from 17 to 78 ft/day and from about 0.1 to 1.0 ft/day for wells completed in glacial till (Lyford and Others, 1999).

The groundwater flow directions in the fractured bedrock aquifer varies across the site. In the northern portion of the Site, groundwater flow is generally in a south-southwest direction toward the Dennys River. Vertical hydraulic gradients under non-pumping conditions indicate the potential for upflow in well clusters located near Meddybemps Lake (MW-34B, MW-28B) and near the east bank of the Dennys River (MW-37B) and along the west bank of the Dennys River in the southern portion of the Site (MW-11B). The potential for downflow exists at well couplets located in the northern portion of the Site (MW-29B, MW-35B, MW-36B, IN-1B, IN-2B) and east of the Dennys River (MW-15B, MW-16B). Transmissivities in the fractured bedrock are reported to range from 0.03 to 150 ft^2/day (Lyford and Others, 1999). Similar to slightly higher transmissivity ranging approximately from 65 to 225 ft^2/day were found in the shallow bedrock in the vicinity of recovery well RW-4 located in the shallow bedrock in the northern plume and at recovery well RWS-5 located in the shallow bedrock in the southern plume (TtNUS, 1999).

In general, groundwater flow across the Site (west side of Dennys River) is generally southeast toward the Dennys River, and groundwater flow on the east side of the Dennys River is southwest toward the River. The Dennys River represents a groundwater discharge area. Section 1.3.5.3 of this report describes the nature and extent of contamination at the Site. In this section, groundwater quality data is presented and evaluated for contaminants detected in the groundwater at the Site. The data presented in those sections show two separate groundwater contaminant plumes beneath the Site. The chemicals of concern in those plumes are primarily VOCs, particularly tetrachloroethene (PCE) and trichloroethene (TCE).

1.3.5 Site Contamination

Summaries of Site environmental contamination are provided in this section of the report. This information provides the basis for remedial action activities.

1.3.5.1 Surface Water

Surface water samples were collected during the RI (during the period spanning 1996 through 1998) to assess the status of contaminants (organics and metals) that could be present in this environmental medium as the result of past waste disposal or releases at the Site, or through offsite contaminant migration. Surface water samples were collected from: background locations in the northern and western portions of Meddybemps Lake, Meddybemps Lake in the vicinity of the Site, Mill Pond, the Dennys River (both upper and lower reaches), a tributary to the Dennys River, and the Dead Stream. Detailed descriptions of the sampling, laboratory analysis, and analytical results are presented two reports: the Remedial Investigation Surface Water and Sediment Sampling Summary Report (Roy F. Weston, Inc. 1999) and the Remedial Investigation Report (TtNUS, July 1999). In 1999, additional surface water samples were collected to establish pre-NTCRA conditions adjacent to the Site in Mill Pond and slightly downstream of the bridge on Route 191. The analytical results are presented in the June 1999 Sampling – Data Summary Report (TtNUS, August 1999). A detailed compilation of surface water analytical data is presented in the Preliminary Design Report (TtNUS, March 2001).

The September 2000 ROD indicated that while several chemicals and metals detected in surface water adjacent to the Site exceeded Ambient Water Quality Criteria (AWQC), adverse effects were unlikely based on the magnitude of exceedances. While past removal actions have limited or prevented further migration of Site contaminants into the surface water bodies adjacent to the Site, long-term monitoring was specified in the ROD to ensure the protectiveness of the Remedial Action. Table 1-1 presents the surface water contaminants of concern identified in the ROD.

1.3.5.2 Sediments

Sediment samples were collected with the surface water samples (described above) during the RI. Sediment samples were collected from: background locations in the northern and western portions of Meddybemps Lake, Meddybemps Lake in the vicinity of the Site, Mill Pond, the Dennys River (both upper and lower reaches), a tributary to the Dennys River, and the Dead Stream. Detailed descriptions of the sampling, laboratory analysis, and analytical results are presented in two reports: the Remedial Investigation Surface Water and Sediment Sampling Summary Report (Roy F. Weston, Inc. 1999) and the Remedial Investigation Report (TtNUS, July 1999). In 1999, additional sediment samples were collected to establish pre-NTCRA conditions adjacent to the Site in Mill Pond and slightly downstream of the bridge on Route 191. The analytical results are presented in the June 1999 Sampling – Data Summary Report (TtNUS, August 1999). Following the completion of the contaminated soil removal during the summer of 1999, sediment samples were collected and analyzed for PCB homologs to assess the post-NTCRA conditions to verify that the removal action did not result in unintended contaminant mobilization or releases. The compilation of sediment data is presented in the Preliminary Design Report (TtNUS, March 2001).

In the ROD, EPA noted that while various organic compounds and metals exceeded sediment quality benchmarks, a closer review of the data identified the presence and concentration of certain COCs in the background were comparable to those detected in the lake and the Dennys River, and that several COC concentrations in sediments were observed to decline by 1999. Based on the magnitude of exceedances of the sediment benchmarks, and considering the declining sediment concentrations, EPA concluded that direct exposure of aquatic organisms to these metals would be unlikely to result in adverse effects. While past removal actions have limited or prevented further migration of Site contaminants into the sediments adjacent to the Site, long-term monitoring was specified in the ROD to ensure the protectiveness of the Remedial Action. Table 1-1 presents the surface water contaminants of concern identified in the ROD.

1.3.5.3 Groundwater

Groundwater samples were collected during the RI (during the period spanning 1996 through 1998) to assess the status contaminants that could be present in the aquifer as the result of past waste disposal or releases at the Site, or through offsite migration. Groundwater samples were collected from these areas of the aquifer: upgradient, northern and southern plumes, non- and plume areas. Detailed descriptions of the sampling, laboratory analysis, and analytical results are presented two reports: the Remedial Investigation Groundwater Sampling Summary Report (Roy F. Weston, Inc. 1999) and the Remedial Investigation Report (TtNUS, July 1999). Since 1999, additional groundwater samples were collected to further assess the presence of groundwater contamination in the bedrock aquifer; the results were presented in two reports: June 1999 Sampling – Data Summary Report (TtNUS, August 1999) and the Supplemental Bedrock Investigation Report (TtNUS, March 2000). Additional groundwater data were collected during several year 2000 sampling events in support of the Phase 1 in-situ chemical oxidation pilot test initiated in July 2000. Analytical results compiled from January through December 2000 are presented in the Preliminary Design Report (TtNUS, March 2001).

Analytical data for groundwater samples collected during March and April 2001 are presented in Table 1-3 of this Final Design. Table 1-4 presents the most recent comprehensive round of groundwater sampling results (June 2001). Table 1-5 presents provides a chronological summary of PCE concentrations detected in northern and southern plume wells.

Because of the dynamic nature of groundwater, the result of the contaminated soil removal during the 1999 NTCRA, and the ongoing in-situ chemical oxidation pilot test, the chemical composition of the northern and southern plumes has been altered since the completion of the RI in 1999.

- **Northern Plume**

In the northern portion of the Site, groundwater occurs in both the overburden and bedrock units and discharges into Mill Pond. The overburden and bedrock units are connected and because of the seasonal rise and fall of the water table, contaminated bedrock groundwater can enter into the overburden unit. During the RI, PCE was identified as the principal contaminant of concern detected in both the overburden and bedrock aquifers at levels greatly exceeding the federal MCLs and the Maine MEGs. Groundwater in the bedrock has been and is still more contaminated than in the overburden unit. Prior to the Phase 1 pilot test, the highest detected PCE concentration in this plume was 7,200 μg/L in MW-35B1. The most contaminated portion of the northern plume (bounded approximately by wells MW-20B, MW-34B, MW-35N, IN-1B, and IN-2B) is located under an area where, prior to the NTCRA, highly contaminated soils and leaking containers or paints and solvent were situated. The current (June 2001) interpreted extent of PCE in the overburden, upper bedrock, and lower bedrock units following the in-situ sodium permanganate ($NaMnO_4$) applications are depicted in Figure 1-5, 1-6, and 1-7, respectively.

Northern Plume Overburden Aquifer – As the result of the NTCRA, contaminated soil overlying the northern plume were removed in 1999 and are no longer sources of PCE leaching to groundwater. Because the overburden unit is seasonally dry, groundwater samples could not be obtained consistently to evaluate dissolved-phase PCE presence. However, MW-3S previously contained 3,000 μg/L during April/May 2000 (prior to Phase 1 additions), which could be attributed to contaminated bedrock groundwater that rose into the overburden unit due to seasonal fluctuations of the water table (MW-3B contained 12,000 μg/L in April/May 2000).

The March/April 2001 data indicate that in the southern portion of this plume (MW-42S, MW-43S, MW-44S, MW-45S, and MW-46S), PCE is present in the overburden unit probably due to contaminated bedrock groundwater entering into the upper unit because of seasonal conditions. This assessment is supported by the soils samples collected from borings advanced in this area during the 2001 pre-design investigation. Soil samples were collected from both the shallow intervals (2 to 4 feet depth) and from just above the top of bedrock in several boreholes (MW-42S, MW-44S, MW-45S, and MW-46S). Table 1-6 presents the sampling data. PCE was only detected in the MW-45S boring at 8 ug/kg, which indicates that PCE levels in the overburden wells are not attributable to the soils. Therefore, overburden groundwater will continue to be contaminated periodically under seasonal conditions that allow bedrock contamination to recharge the overburden units.

<u>Northern Plume Bedrock Aquifer</u> – The June 2001 data (Table 1-5) indicate that the PCE is predominantly present in the shallow bedrock unit rather than in the deep bedrock unit, as evidenced by the higher concentrations in the nested wells (wells with the B1 designation). PCE was detected at a maximum of 2500 μg/L in MW-20B, which historically has had elevated VOC levels. Similarly, other shallow bedrock wells in the core of the northern plume (MW-34B1, MW-35B1, IN-1B1, and IN-2B1) also had elevated PCE levels. In the lower bedrock unit, PCE concentrations are lower (below 100 μg/L). Previously, lower unit PCE levels had been higher, but following permanganate addition, the PCE levels have decreased.

The lateral extent of PCE contamination in the deep bedrock appears to be expanding in a southwesterly direction from the most contaminated portion of the plume. PCE has been detected in MW-39B1 and MW-39B2 at elevated concentrations (2,000 and 1,600 μg/L, respectively) during December 2000. PCE concentrations in RW-7B1 and RW-7B2 have gradually increased since 1999. PCE has now been detected in MW-4B at low concentrations (13 μg/L), although this had not been detected previously. Dissolved phase PCE migrating in the lower rock unit may account for the observed PCE concentration increases. Seasonal fluctuations in the groundwater elevations coupled with groundwater extraction could be altering the bedrock hydraulic conditions and may be fostering PCE mobilization.

The current vertical extent of the plume is estimated to extend down to 100 to 200 feet below top of the bedrock surface, based on sampling results acquired through June 2001. The top of the bedrock surface and the shallow fractures are seasonally unsaturated and are likely retaining residual PCE that could affect the shallow bedrock and deeper bedrock units during infiltration events. PCE in the shallow fractures is probably present in the dissolved phase in the water-bearing fractures, as residual non-aqueous phase liquid (NAPL) and dissolved phase components within the closed-end fractures, and as PCE that has diffused into the bedrock matrix. The elevated PCE concentrations (exceeding 1 percent solubility) in groundwater samples collected from the shallow bedrock indicate the potential presence of PCE NAPL. Neither NAPL (as actual droplets in samples) nor indications of NAPL (i.e., coating or droplets adhering to sampling apparatus) have been observed during any of the groundwater sampling events. Dissolved-phase PCE detected in the deeper fracture groundwater samples may have migrated through high-angle fractures connected to the upper, more fractured bedrock.

Effects of Permanganate Addition

Despite the initial addition in July 2000 (Phase 1) of sodium permanganate ($NaMnO_4$) into MW-34B1, MW-35B1, IN-1B, and IN-2B, high PCE concentrations (up to 16,000 μg/L) were detected during September 2000. PCE concentrations had increased unexpectedly to levels not previously encountered at the Site.

Even after the second dose of $NaMnO_4$ (during September 2000) was added into these four wells and into MW-20B, PCE was again detected at elevated concentrations (up to 22,000 μg/L) during November 2000. By December 2000, PCE concentrations in the northern plume wells appeared to have returned to levels comparable to the pre-pilot test conditions (up to 6,800 μg/L).

A third dose was added into the core of the northern plume during January 2001 in an effort to oxidize the remaining PCE in the core portion of the plume. However, the March/April 2001 sampling results indicate that PCE levels were still comparable to November and December 2000 conditions.

In April and May 2001, Phase 2 of the pilot test was initiated and $NaMnO_4$ was added into the top of bedrock through direct-push drive points and directly into the bedrock wells. This approach provided a more widespread distribution of oxidizer to address the fractures at the bedrock surface and in the shallow bedrock unit where residual PCE was most likely present.

The June 2001 results indicate that PCE concentrations in the northern plume bedrock have declined to pre-pilot test conditions after the larger dose of permanganate addition.

The increases in the PCE levels since the start of the pilot test in July 2000 may be attributable to this VOC being released from organic matter present in the aquifer that was oxidized by the sodium permanganate. One possible explanation is that the organic matter may be composed of oils that were components of paints and solvents, which were released when containers stored in this area corroded and breached. Because the depth to bedrock is relatively shallow, the solvents and paints (bearing PCE) migrated into the shallow bedrock. Fluctuations in the water table and periodic precipitation events likely forced the oils and solvents into the top of bedrock and shallow bedrock units. The PCE remains adsorbed to these oils and will gradually dissolve. However, addition of the $NaMnO_4$ resulted in the oxidation of the oil, thus allowing the PCE to become more mobile. It is possible that the organic carbon may also consist of naturally occurring humic materials, especially at the bedrock interface. Similarly, addition of the $NaMnO_4$ oxidized the humic materials, thus releasing the PCE.

The trend in the data indicates that PCE concentrations are declining in the northern bedrock aquifer. However, more long-term monitoring will be needed to determine whether the PCE levels have reached another plateau because the oxidation was only partially effective, or whether the concentrations will continue to decline because the organic matter in the top of bedrock and shallow bedrock have been oxidized allowing the PCE to be mobilized.

The persistent presence of PCE in the northern plume may also be the result of inadequate contact between the oxidizer and the VOC, or that more oxidizer need to be added. Because of the fractured bedrock environment, there are likely multiples of dead end fractures that the oxidizer, as a liquid, cannot enter. Therefore, these dead end fractures contain residual PCE that gradually partition to the primary fractures and result in the elevated detected PCE concentrations. Seasonal fluctuations in the groundwater elevations coupled with groundwater extraction could be altering the bedrock hydraulic conditions and may be fostering PCE mobilization.

In summary, PCE, as dissolved phase and possibly minute quantities of NAPL, are likely present in the shallow and deep bedrock (top of rock, shallow and deep fractures, closed-end fractures, and the bedrock matrix) and are continuing sources of groundwater contamination that need to be addressed. Although sodium permanganate additions have resulted in some notable changes in the northern plume PCE concentrations, it appears that more treatment will be required during the Remedial Action.

- **Southern Plume**

In the southern portion of the Site and area south of Route 191, overburden and bedrock groundwater discharge in a southeasterly direction into Mill Pond and the Dennys River. The RI identified PCE as the principal contaminant in the southern plume, which originates in the southern portion of the Site and extends offsite into an adjoining property. The RI identified VOC-contaminated soil presence in the southern area portion of the Site that was the source of contaminated overburden and bedrock groundwater. The onsite contaminated soils were removed during the 1999 NTCRA response action. Figures 1-8 and 1-9 depict the current interpreted extent of the PCE contamination (exceeding MCLs and MEGs) in the overburden and the bedrock aquifers, respectively, following the application of $NaMnO_4$ in July 2000. Historically, the overburden aquifer was more contaminated than the bedrock aquifer, and the most contaminated portion of the plume is situated in the area of MW-8S.

<u>Southern Plume Overburden Aquifer</u> – Because of the 1999 NTCRA removal of contaminated soils, residual VOCs contamination in the overburden aquifer is expected to be minimal or nonexistent. Outside of the fenced perimeter and south of the Site, no soil excavation was performed because VOCs contamination was expected to be present only within the saturated overburden. The plume extends southward to the vicinity of extraction wells RWS-1.

Review of Table 1-5 indicates that PCE concentrations have decreased to below 100 μg/L after the initial $NaMnO_4$ addition and recirculation of groundwater during July and August 2000. PCE in MW-8S (historically the most contaminated southern plume well at 1600 μg/L) had declined to 34 μg/L by June 2001. The data indicate that the in-situ oxidation coupled with removal of contaminated soil appear to have been effective in decreasing PCE presence in the most contaminated portion of the southern plume.

<u>Southern Plume Bedrock Aquifer</u> – The southern plume bedrock aquifer PCE concentrations have decreased since the contaminated soil removal and the initial application of $NaMnO_4$.

PCE concentrations in most bedrock wells have decreased to below 10 μg/L, with the exception of IS-2B, and extraction wells RWS-3 and RWS-55, which also receive overburden groundwater (hence the higher PCE concentrations). The initial dose of $NaMnO_4$ in conjunction with recirculation of permanganate-rich groundwater appear to have been very effective in decreasing the PCE presence in the bedrock aquifer.

In summary, PCE concentrations in the southern plume have decreased as the result of source removal (contaminated soil) application of sodium permanganate into the most contaminated portion of the southern plume, and recirculation of permanganate-rich groundwater.

1.4 ROD Objective

The overall remedial objective of the ROD is the restoration of the contaminated groundwater to drinking water standards through extraction and treatment. The selected remedy represents a comprehensive approach that addresses all current and potential future risks at the Site. The remediation objectives as defined in the ROD consist of the following:

- Prevent the ingestion of groundwater containing contaminants that exceed federal or state maximum contaminant levels (MCLs), non-zero maximum contaminant level goals (MCLGs), State of Maine maximum exposure guidelines (MEGs), or in their absence, an excess cancer risk of 1E-06 or a Hazard Quotient of 1 per contaminant.

- Prevent, to the extent practicable, the off-site migration of groundwater with contamination above cleanup levels.

- Restore groundwater quality to federal and state MCL, non-zero MCLGs, state MEGs, or in their absence, an excess cancer risk of 1E-06 or a Hazard Quotient of 1 per contaminant.

- Provide long-term monitoring of surface water, sediments, groundwater, and biota to verify that the cleanup action at the Site is protective of human health and the environment.

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial actions, is cost effective, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable. The selected remedy satisfies the statutory preference for treatment as a principal component of the remedial action.

1.4.1 Components of the Selected Remedy

The September 2000 ROD selected the long-term remedy for the Eastern Surplus Company Site that includes the following:

1. Extraction and treatment of contaminated groundwater in two distinct plumes (northern and southern). Groundwater from each of the two contaminated plumes will be extracted and treated by a common treatment system. Each groundwater extraction system will be designed to prevent off-site migration of contaminated groundwater and to restore the aquifer to drinking water standards.

2. The groundwater extraction system will be enhanced by flushing treated water and/or the injection of a chemical reagent to facilitate the removal of contamination.

3. Land-use restrictions in the form of deed restrictions, such as easements and covenants to prevent ingestion of groundwater and disturbance of archaeological resources, will be used to control the two Site parcels agreed to be owned by the State of Maine. The State of Maine has agreed to impose institutional controls that run with the land for these parcels. Institutional controls shall also be implemented on those other Site properties where groundwater contamination is located until groundwater meets cleanup levels.

4. Long-term monitoring of groundwater, surface water, and sediments will be performed to evaluate the success of the remedial action. Additional biota sampling (fish, mammals, and plants) may also be performed, as necessary.

5. Portions of the mitigation of adverse effects upon the archaeological resources at the Site, caused by the NTCRA's soil excavation in 1999, will be performed as part of the remedial action.

6. Five-year reviews will be performed to assess protectiveness until cleanup goals have been met.

The specifics of the selected remedy are presented on page 62 of the ROD, items a – e, and are further described in pages 63 and 64 of the ROD.

1.4.2 Environmental Media Contaminants of Concern

As the result of the RI and the human health risk assessment, contaminants of concern (COCs) were identified for the northern groundwater plume and the southern groundwater plume. The COCs selected in the ROD are presented in Table 1-2 (based on Table 30 of the ROD) of this report. COCs exceeding the drinking water standards include the Federal Maximum Contaminant Levels (MCLs) and the State of Maine's Maximum Exposure Guidelines (MEGs). Tetrachloroethene (PCE) and manganese are the primary COCs to be addressed under the RA, although other VOCs and metals exceeding the MCLs or MEGs, are present in the aquifer.

As the result of Ecological Risk Assessment (ERA) prepared for the Site, EPA determined that while various chemicals detected in Meddybemps Lake, Mill Pond, and the Dennys River exceeded surface water quality benchmarks, the concentrations detected were comparable to those detected in background locations or at concentrations that do not require a response action. Hence, EPA concluded that the presence of certain detected chemicals in the surface water bodies adjacent to the Site were unlikely to result in significant adverse aquatic ecological effects. However, because benchmarks were exceeded, EPA had determined that long-term monitoring of these surface water bodies for these COCs is appropriate to ensure protection of the environment. The COCs of interest for long-term monitoring are presented in Table 1-1 (based on Table 27 of the ROD).

Based on the results of the ERA, EPA concluded that polychlorinated biphenyls (PCBs), pesticides, and several metals detected in the sediments adjacent to the Site (in Meddybemps Lake, Mill Pond, and the Dennys River) exceeded sediment quality benchmarks. However, by close examination of the results (magnitude by which the benchmarks were exceeded, presence of COCs in background locations, decrease in sediment concentrations between 1996 to 1999), EPA concluded that COCs detected in the sediments were unlikely to pose adverse ecological effects to benthic organisms that become directly exposed. However, because benchmarks were exceeded, EPA had determined that long-term monitoring of sediments in Meddybemps Lake, Mill Pond, and the Dennys River is appropriate to ensure protection of the environment. The COCs of interest for long-term monitoring are presented in Table 1-1 (based on Table 27 of the ROD).

1.5 Summary of Applicable or Relevant and Appropriate Requirements

As presented in the ROD, the selected remedy complies with federal ARARs and more stringent state ARARs. The ARARs designated for the Eastern Surplus Company Site are presented in pages 71 through 76 of the ROD (which is presented in Appendix A to this FD report). The key ARARs include the drinking water standards and State guidelines that have been used to establish interim groundwater cleanup goals and to define levels for treating extracted groundwater and subsurface discharge in the aquifer. The chemical-specific and action-specific ARARs include the Safe Drinking Water Act Maximum Contaminant Levels (MCLs) and the Maine Maximum Exposure Guidelines (MEGs). Location-specific ARARs directly applicable to the Site include the National Historic Preservation Act (16 USC 470 et seq; 40 CFR 800), the Protection of Wetlands (E.O. 11990, 40 CFR 6.302(a) and the Maine Wetland Protection Rules (06-096 CMR Chapter 310, Section 1).

Subsequent to the completion of the FS in 1999, the initiation of the NTCRA extraction wells in January 2000, and the issuance of the ROD in September 2000, changes in the MCLs and the MEGs have occurred that could affect the preparation of the final design for the extraction wells and treatment system. These changes are discussed in the following sections.

Table 1-7 presents a comparison of the MCLs, 1992 MEGs, and the 2000 MEGs for all chemicals. The allowable limits for various chemicals differ between the three sets of criteria. The ROD indicates that the interim groundwater cleanup levels will be based on the MCLs and the 1992 MEGs (which were promulgated), and based on 2000 MEGs if an MCL, non-zero-MCLG, or 1992 MEG is unavailable.

1.5.1 MCL Considerations

The ROD has identified drinking water standards (the Safe Drinking Water Act MCLs and non-zero MCLGs) as Groundwater Interim Cleanup Levels and as goals for treating extracted groundwater. Should MCLs be revised in the future, then the Groundwater Interim Cleanup Levels for the Eastern Surplus Company Site will need to be updated. The MCL for arsenic was lowered from 50 μg/L to 10 μg/L, as published in the Federal Register, Volume 66, Number 14, pages 6975 to 7066 (January 22, 2001). However, this regulation has been retracted for further evaluation. The potential change in the arsenic MCL in the future could affect treatment requirements and reinjection of treated groundwater. The levels of arsenic in site groundwater detected during the RI are consistent with those seen in background wells or residential wells in the area.

1.5.2 MEG Considerations

The ROD identified the Maine Standards for Hazardous Waste Facilities, Miscellaneous Units (06-096 CMR Chapter 854, Section 15) as an ARAR. This regulation requires that a miscellaneous unit shall be closed in a manner such that hazardous waste shall not appear in groundwater or surface water exceeding the Maximum Exposure Guidelines (MEGs). The MEGs were originally issued in 1992. In January 2000, the MEGs were revised and updated, resulting in changes in the allowable levels for several principal Site chemicals including PCE and manganese. The 1992 MEGs for PCE and manganese were 3 μg/L and 200 μg/L, respectively. The year 2000 MEGs for PCE and manganese are 7 μg/L and 500 μg/L, respectively. However, the hazardous waste regulation references the 1992 MEG specifically. Therefore, the numerical limits of the 1992 MEGs are still in effect rather than the year 2000 MEG limits. As a consequence, evaluation of current groundwater and treatment analytical results will be based on the 1992 MEGs rather than the more current year 2000 MEGs. Should 06-096 CMR Chapter 854, Section 15 be revised in the future, then the Groundwater Interim Cleanup Levels for the Eastern Surplus Company Site will need to be updated. Changing the allowable limits for MEGs will affect how the contaminant plume will be defined and the extent of treatment required.

1.5.3 National Historic Preservation Act Considerations

The ROD identified the National Historic Preservation Act (16 USC 470 et seq; 36 CFR 800) as one of the ARARs for the Site, considering the quantities and the quality of archaeological resources found during 1999 and 2000.

One of the main tenets of Section 106 of the National Historic Preservation Act (NHPA) is to attempt to avoid or minimize impact to archaeological resources. Section 106, states "The goal of the consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties" (36 CFR Part 800.1(a)). Recent revisions to Section 106 policy includes archaeological data recovery as an "adverse effect" with the intention of encouraging other forms of mitigation, "including avoidance and preservation in place, to protect archaeological sites" (36 CFR Part 800.5(a)(2)(iii)).

While disturbance of cultural features was unavoidable during the NTCRA , data recovery was performed for the areas where the extraction well vaults and the piping trenches were installed. Therefore, during the RA, should the need arise to excavate portions of the Site that were not previously disturbed during the NTCRA or have not been cleared through an archaeological evaluations (Phases I and II), the requirements of the NHPA will need to be followed.

1.6 Performance Criteria for the Remedial Action

The September 2000 ROD has established interim numerical cleanup levels for groundwater COCs, as presented in Table 1-2 (based on Table 30 of the ROD, included in Appendix A of this Final Design Report).

The ROD's performance criteria specify that the Interim Cleanup Levels must be met throughout the contaminated groundwater plumes and cannot be exceeded in any well at the Site.

During the RA, should new numerical limits for the above-listed COCs or should new COCs be identified as the results of newly promulgated ARARs or modified ARARs, then those revised Interim Cleanup Levels will need to met at the completion of the RA at all points of compliance (i.e., at all Site wells).

2.0 EXTRACTION WELLS SYSTEM DESIGN

This section provides the design criteria, a summary of the groundwater extraction wells system performance, and the selected configurations for the final design of the extraction wells system.

2.1 Extraction Wells System Design Criteria

There are two primary purposes of the extraction wells system: (1) to prevent the offsite migration of contaminated groundwater (exceeding the ROD-specified cleanup levels) that occurs in the northern and southern plumes; and (2) facilitate the restoration of groundwater to cleanup levels through extraction and treatment of contaminated groundwater. The extraction wells need to capture a combined maximum flow rate of 30 gallons per minute (gpm) from the northern and southern plumes to achieve capture. The northern component of flow is 8 gpm and the southern component is 12 gpm based on Site data for a total of 20 gpm. The system is designed to accommodate an additional 10 gpm, to cover wet periods.

The extraction wells system is composed of the pneumatic pumps installed in wells, the well vaults, and the process piping. Groundwater is extracted from a series of shallow or deep bedrock wells using bladderless, pneumatically operated pumps. The wells are protected by vaults that are installed below grade.

In the northern plume, the extraction wells system needs to address contaminated groundwater that is present in the overburden, shallow bedrock, and deep bedrock aquifer units. The overburden unit is seasonally dry and the highest groundwater PCE concentrations are present in the shallow bedrock unit. In the southern plume, the extraction well system needs to address contaminated groundwater that occurs principally in the overburden unit and only minimally in the shallow bedrock unit.

Hydraulic containment using extraction wells was selected during the design phase of the 1998 NTCRA so that contaminated groundwater in both the overburden and bedrock units could be captured. Other options considered included the use of interceptor trenches, which were eliminated because of the need to extract contaminated bedrock groundwater at depth.

The criteria governing the design and construction of the extraction wells system include:

- PCE plumes lateral and vertical extent
- well spacing
- well yields
- depth of wells
- capture of groundwater from both overburden and bedrock units

2.2 Extraction Well System Design Basis and Assumptions

The basis for the Final Design of the extraction wells system was derived from information developed during aquifer investigations (from the RI and supplemental investigations), the 1999 NTCRA pre-design investigation, the compilation of operating data for the NTCRA extraction wells system from January 2000 through April 2001, and additional hydrogeologic evaluations conducted during the RD phase.

- PCE Plumes Lateral and Vertical Extent

Northern Plume - The RI Report identified the lateral and vertical extent of PCE in this portion of the aquifer. The RI also noted PCE at depth in the bedrock aquifer and that more detailed evaluations were necessary to better characterize the vertical contaminant extent. Additional data were developed during the 1999 NTCRA pre-design investigation that included the installation of potential recovery wells (RW-series), new monitoring wells and borings, and groundwater sampling. The results of the 1999 investigation are presented in the Pre-Design Investigation Report (TtNUS, September 1999). A supplemental bedrock investigation was conducted from November 1999 through January 2000 that included deep bedrock wells installation and groundwater sampling. Results of this investigation are presented in the Supplemental Bedrock Investigation Report (TtNUS, March 2000). The result indicated PCE presence in the deep bedrock unit to an estimated depth of 100 feet below ground surface (bgs). Additional bedrock wells were installed and sampled during 2000 to support the in-situ oxidation pilot. Monitoring wells were installed during 2001 to support additional aquifer tests and pilot test observations; samples were collected from these well during March/April 2001 and June 2001. The compilation of groundwater analytical data from 1996 through December 2000 is presented in the Preliminary Design Report (TtNUS, March 2001). The March/April and June 2001 data are presented in Tables 1-3 and 1-4, respectively.

As part of the RD pre-design investigation during February through April 2001, additional potential bedrock extraction wells were installed and groundwater samples were collected. Results of the March/April 2001 and June 2001 sampling events were acquired and used to assess PCE trends and to delineate vertical and lateral extent of the northern plume to be addressed during the RA. Figures 1-5 through 1-7 depict the lateral extent of PCE in the northern plume, while Figure 1-3 depicts the vertical extent.

Southern Plume - After the completion of the RI, the southern plume extent of groundwater contamination was determined to be fairly well delineated. Additional wells were installed during the 1999 NTCRA pre-design investigation and groundwater samples were collected. In support of the in-situ chemical oxidation pilot test in 2000, additional overburden and bedrock wells were added and sampled. The compilation of groundwater analytical data from 1996 through December 2000 is presented in the Preliminary Design Report (TtNUS, March 2001). The March/April and June 2001 data are presented in Tables 1-3 and 1-4, respectively. Figures 1-8 and 1-9 depict the lateral extent of PCE in the southern plume, while Figure 1-4 depicts the vertical extent.

- well spacing - The well spacing for both the northern and southern extraction systems was evaluated initially using a preliminary numerical three-dimensional groundwater flow and solute transport model for the Site presented in the Feasibility Study (TtNUS, August, 1999), prior to performing pumping tests in both plumes. The well spacing was initially based on assumed well yields and plume delineations. A line of potential extraction well was installed in both the northern and southern plume to prevent contaminant migration to the Dennys River. Next, a continuous-rate drawdown and recovery test was performed in a selected recovery well in the core of each VOC plume and the results from this test were used to select a subset of extraction wells that would make up the NTCRA extraction well system. During operation of the NTCRA system, groundwater elevations were monitored to evaluate the extent of drawdown and identify data gaps.

  For the northern system, water quality monitoring before and after in-situ pilot testing of $NaMnO_4$ indicated VOCs were migrating beyond the southern margin of the capture zone of the NTCRA system. As a result, a continuous pumping test was performed in the northern plume. The pumping test was performed by installing pneumatic pumps in two deep extraction wells MW-39B and MW-40B and operating these wells using the NTCRA extraction system compressor. The test was conducted for several days, and groundwater levels near the end of the test were contoured. The groundwater contour map indicated a large cone of depression developed in the southern portion of the northern plume area of the Site, indicating that these two extraction wells should be added to the NTCRA system.

Subsequently, one deep extraction well (RW-8) was added downgradient of the core of the plume and three shallow extraction wells (RW-9, -10, -11) were added near the southern margin of the plume to augment the NTCRA system. In addition, four potential injection wells (IW-1 through IW-4) were added upgradient of the northern plume to enhance the flushing of the plume to the extraction wells. This preliminary full-scale extraction system consisting of nine extraction wells (RW-2, -3, -4, -8, -9, -10, -11, MW-39B, and MW-40B) was piped to a temporary treatment system and the effluent was piped to the four injection wells and tested. The total extraction rate from this test was approximately 8 gpm extraction and 8 gpm injection.

Based on the information developed to date, it was determined that MW-35B should be converted into an extraction well as it is situated in the core of the northern plume. This extraction well would be used to accelerate removal of PCE mass where it is located in the core of the plume. Groundwater modeling shows that areas of highest PCE concentration or mass are the areas that take the longest to attenuate. Operation of MW-35B should help reduce the time for the highest concentration area to achieve clean up.

In June 2001, groundwater levels were measured under non-pumping conditions and while the northern and southern extraction systems were operating. Also, an additional round of groundwater level measurements were made in the vicinity of the northern extraction system while treated water was added to four upgradient wells. This groundwater elevation data is summarized in Table 2-1 and contoured on separate figures depicting the northern and southern plumes and wells completed in overburden, shallow bedrock and deeper bedrock.

Figures 2-1 and 2-2, show the configuration of the potentiometric surface in the overburden, and shallow bedrock under non-pumping conditions in the vicinity of the northern plume.

Both figures show groundwater flow is generally from north to south with an easterly component influenced by the Dennys River. Arrows beside bedrock wells on Figure 2-2 indicate the head difference between shallow (generally less than 50 feet into bedrock) and deeper bedrock (50 to 200 feet into bedrock) couplets nested at that location. Arrows pointing down indicate the potential for downward flow from the shallow to deeper bedrock at most locations except for MW-41B where the potential for upflow was measured under non-pumping conditions.

Figures 2-3 and 2-4 show the configuration of the potentiometric surface in the overburden, and shallow bedrock while the northern extraction system is operating. Figure 2-3, relative to Figure 2-1, shows pumping the extraction wells (RW-2, 3, 4, 8, 9, 10, 11, MW-39B, MW-40B) caused the overburden to dewater west and north of MW-43S, where the overburden is generally less than 10 feet in thickness. South and east of MW-43S, the extraction system causes drawdown and curvature of the groundwater contours with flow towards the extraction wells. The extent of capture extends from RW-2 to the north to the vicinity of MW-4B to the south. The capture zone delineation is based on the configuration of the groundwater contours in both the overburden and shallow bedrock.

There is an insufficient number of deep bedrock wells to evaluate capture based on groundwater contours. The vertical extent of capture was evaluated using tracers as presented below.

Figure 2-4 shows the effect of operating the northern extraction system with several feet of drawdown and a stronger easterly component of flow toward the extraction wells in the southern portion of the northern plume. Arrows beside wells indicates the potential for downward flow from the shallow to deeper bedrock at four locations (IN-2B, MW-36B, MW-42B, RW-7), and the potential for upflow at five locations (MW-28B, MW-34B, MW-29B, MW-43B, MW-41B). In comparison with Figure 2-2, the potential for upflow resulted from increased drawdown in the shallow bedrock relative to the deeper bedrock at two locations (MW-28B, MW-34B).

Figures 2-5 and 2-6, show the configuration of the potentiometric surface in the overburden and bedrock, respectively, while both the extraction and injection systems were operating. Measurements on June 14, 2001 indicate the lower portion of the overburden contained some groundwater that may be caused in part by recharge or the influence of adding groundwater to the upgradient injection wells (IW-1 through IW-4). The southerly deflection of groundwater contours south of MW-23S suggests a potential pathway for groundwater recharge from the shallow bedrock upgradient from MW-23S. In comparison to Figure 2-3 (groundwater extraction without injection), groundwater levels were generally from 0.4 to 1.4 ft higher in the southern portion of the northern plume. This may be caused by recharge or a time difference in the time each system was operating before water levels were measured. The extent of capture extends from MW-24B to the north to the vicinity of MW-4B to the south. The capture zone delineation is based on the configuration of the groundwater contours in the overburden and upper bedrock.

Figure 2-6 shows the configuration of the potentiometric surface while the extraction system is pumping and all the treated water is reinjected at IW-1 through IW-4. The configuration of the contours indicates groundwater levels increased in the vicinity of the injection wells causing hydraulic gradients to steepen. Arrows beside nested bedrock wells indicated no change in direction relative to Figure 2-4 (extraction system operating only), except at MW-36B, located in the vicinity of the Dennys River where potential flow directions reversed from downflow to potential upflow. The extent of capture extends from MW-24B to the north to the vicinity of MW-4B to the south. The capture zone delineation is based on the configuration of the groundwater contours in the overburden and shallow bedrock. The extent of drawdown measured on June 22, 2001 is also shown on geologic cross section AA' (Figure 1-2).

The hydraulic testing of this preliminary full-scale northern extraction well system was further tested with the addition of chloride and bromide tracers. Prior to adding the tracers, a baseline was measured that consisted of field parameters (groundwater level, pH, conductivity, temperature, chloride and bromide) in selected wells. After measuring baseline, the chloride tracer was added to the deeper portion of MW-35B (61 to 106 ft bgs) located below the core of the plume to evaluate the vertical extent of influence by the extraction system. Shortly thereafter (within 1 hour), the bromide tracer was added in equal amounts to each of the injection (IW-) wells. The results of the tracer testing indicated the preliminary full-scale extraction and injection system was capable of capturing the lateral and vertical extent of the northern VOC plume. Not to be unexpected in a fractured bedrock environment, the tracer results indicated chloride tracer was detected at monitoring well

MW-36B located between the extraction wells and the Dennys River. Additional testing would be required to evaluate whether chloride at MW-36B could be captured by deeper extraction wells (MW-39B, MW-40B) located south of MW-36B2.

For the southern extraction system, water quality monitoring before and after in-situ pilot testing of $NaMnO_4$ indicated the VOC plume was in decline and the NTCRA extraction system was adequate as a full-scale system.

Figures 2-7 and 2-8 show the configuration of the potentiometric surface in the overburden, and shallow bedrock under non-pumping conditions in the vicinity of the southern plume. Both figures show groundwater flow is generally from northwest to southeast toward the Dennys River.

Figures 2-9 and 2-10 show the configuration of the potentiometric surface in the overburden and shallow bedrock while the southern extraction system is operating. Figure 2-9 relative to Figure 2-7, shows pumping the extraction wells (RWS-1, 3, 5, 6, 7) caused drawdown and shifting of the contours from west to east. Groundwater elevations decreased from 0.6 ft to 3 ft or more. Comparison of Figures 2-8 and 2-10 (non-pumping and pumping conditions in the upper 100 ft of bedrock), indicated a larger cone of depression in the upper bedrock. This is expected because the storage coefficient of the fractured bedrock is several orders of magnitude less than that of the overburden. The extent of capture extends generally from RWS-8 to the north to RWS-1 to the south. The capture zone delineation is based on the configuration of the groundwater contours in both the overburden and shallow bedrock. The extent of drawdown measured on June 11, 2001 is also shown on geologic cross section BB' (Figure 1-3).

- well yield - The yield of each well was initially assumed during modeling based on the Site hydrogeology. After the potential set of extraction wells were installed, the well actual well yield was measured during the single well pumping tests described above. The total flow rate for the northern system (10 extraction wells) is 8 gpm and the total for the southern system (5 extraction wells) is 12 gpm based on Site data. The total flow for the combined system is 20 gpm. The system is designed for 30 gpm to take into account additional flow that can occur during wet periods. Well yields and measured flow rates are listed on Table 2-2 for each of the extraction wells along with well screen information.

- depths of wells - The depths of the extraction wells were selected based on the vertical extent of VOCs determined from the sampling of discrete vertical intervals that were isolated using dual straddle packers. The vertical intervals were selected based on the results of drilling and/or borehole geophysics that indicated the location of significant water-bearing fractures. Table 2-2 provides details of the extraction wells including the screened or open intervals and the depths at which extraction pumps are installed to achieve hydraulic capture.

- capture of groundwater from both overburden and bedrock units - The basis is for capture is discussed above and is further detailed in Section 2.3.

2.3 Hydraulic Capture Data

The capture zones of the northern and southern extraction wells are based upon the drawdown and configuration of groundwater contours in the surficial and bedrock aquifers while the system is operating. Figures 1-3 and 1-4 are cross-sections that show the vertical extent of contamination and the configuration of the groundwater surface in both the surficial and bedrock aquifers. Figures 1-5 through 1-9 show the extent of PCE in the surficial and bedrock aquifers. Figures 2-1 through 2-9 show groundwater elevation contours for the surficial and bedrock aquifers in the northern and southern plume under non-pumping, pumping extraction wells and pumping extraction and injection wells (applies to the northern plume only). Comparison of these figures shows the current extent of influence by operation of the northern and southern extraction systems. Groundwater elevation data compiled during June 2001 used to develop the groundwater elevation contours are presented in Table 2-1.

2.4 Performance Data

This section provides descriptions of the extraction wells system, which consist of the pneumatic pumps, the well vaults, and the piping.

2.4.1 Well Configurations

The design basis for the RA well configurations (number, spacing, installed depths, etc.) is based on the computer modeling, the well installation and single well tests conducted during past hydrogeologic evaluations.

Performance to Date - To date, the full complement of the northern extraction wells are estimated to be able to capture the contaminated groundwater in the overburden, shallow and deep bedrock units, as presented in Section 2.2. While the seven new bedrock wells were temporarily outfitted with pneumatic pumps to support the hydrogeologic test, the total of nine wells in the northern plume has been effective in achieving hydraulic containment as discussed previously. The NTCRA's southern extraction well system has also been effective in preventing offsite contaminant migration.

2.4.2 Pneumatic Pumps

The design basis for the RA groundwater extraction was based on the operation and performance history of the eight pneumatic pumps (three northern wells, five southern wells) that were operated under the NTCRA from January 2000 through April 2001. Clean Environment Equipment AP-3, bottom-loading, short-barrel AutoPumps were used.

The AutoPump is a pneumatic liquid extraction pump that pumps in pulses. It has an operating pressure of 5-80 pounds per square inch (psi) and a pumping capacity of up to approximately 7 gpm. This pump is controllerless, meaning the pump operation is automatic, based solely on water levels in the well without requiring surface controls (i.e. level switches). A pneumatic pump was also preferable because in some extraction wells, the yield was very low (0.5 gpm or lower), which would have been too low a rate for a submersible electric pump.

The pump is installed below the water table at the desired drawdown elevation. Groundwater enters the AutoPump pump chamber through a one-way check valve located at the bottom of the pump. As the chamber fills, a float rises inside. When the float reaches the uppermost portion of its travel, it shifts a pneumatic valve and the fluid in the pump chamber is forced out of the pump by compressed air. When the pump chamber is emptied, the float falls to its lowermost position and shifts the pneumatic valve to exhaust the compressed air and allow the pump chamber to refill.

Three hoses connect to the pump with brass, quick-connect, dry-type fittings. The hoses include a 1-inch inside diameter (ID) water discharge hose, a 3/8-inch ID air supply line, and a 3/8-inch ID air exhaust hose.

Each pump is supplied with a single stage air regulator (with manual water trap drain) to control the air pressure delivered to each pump. Pump pressure may be increased or decreased, depending on the head losses the pump has to overcome in order to force the water to the treatment building. Normal operating pressure for the extraction pumps at the Eastern Surplus Site is approximately 60 - 80 psi.

Each pump is also equipped with a cycle counter that records the number of times that the pump cycles (i.e. fills and discharges). The counter provides information for flow calculation, maintenance, service, and statistical purposes with negligible loss in air pressure or performance. The counter is attached to the "pump side" of the air regulator with brass quick connect, dry-type fittings.

Summary of Performance during NTCRA - In general, the pneumatic pumps have operated with minimal problems. During January 2001, maintenance was required to ensure continuous operation of the extraction pumps. The pumps were shipped back to the manufacturer for inspection and overhaul. The stroke was shortened for each pump and the needle and seat were replaced, as necessary.

The cycle counter failed at RW-2 during the week of March 27, 2000, which did not affect the pneumatic pump's operation. A replacement part was ordered and during the week of April 3, 2000 this cycle counter was replaced.

On May 8, 2001 the top of the regulator at RWS-7 came off causing a rapid air leak. A new top was installed and the regulator operated normally.

2.4.3 Extraction Wells

- Well Construction - The NTCRA extraction wells are constructed in 5-inch diameter boreholes drilled approximately 25 feet into bedrock. The wells are screened in the bedrock with 4-inch ID 0.01-inch slotted PVC screen and cased from the bedrock to the ground surface with 4-inch ID PVC solid riser pipe.

- Well Vaults - Each NTCRA extraction well is housed within a 4-foot diameter, 6-inch thick, H-20 rated, concrete manhole vault that extends to a maximum of six feet below grade. The bottom of the vault is open and seated on approximately 12 inches of ¾-inch crushed stone. The extraction wells extend to approximately 1-foot above the bottom of the vault. Penetrations in the side of the manhole wall allow for connection to the groundwater discharge pipeline, the air supply pipeline, and the electrical service line.

  Each vault is also fitted with a lockable, flush mounted, aluminum hatch cover. The hatch cover is spring loaded and requires a hexagonal key to open. One key was supplied with each hatch cover.

  While the pumps operated during early November 2000, it was noted that low pumping rates and low flow resulted in periodic freezing of the water in the 1-inch PVC discharge lines in the vaults. It was determined that the aluminum hatches allowed excessive heat loss. To remedy the periodic freezing conditions in the well vaults, the water line and compressed air lines were insulated. Utility lights were installed with 100-watt bulbs to produce heat within the vault chamber; which was sufficient to keep the discharge lines from freezing even during the coldest winter temperatures because the wells were well insulated except at the hatches.

  Because the vaults are installed in ground and have only one entry/exit way, TtNUS has determined that this constituted a confined space entry condition. Because the wells are open to the ambient air, VOCs from the groundwater could potentially accumulate in the vault. However, periodic monitoring with portable instruments by samplers and by Site personnel have not identified any accumulation of VOCs in these vaults. Based on these evaluations, TtNUS has determined that the well vaults constitute a non-permit required confined space entry condition. Therefore, all sampling or service requiring entry into the vaults will require the presence of two workers on site.

- Electrical Service – Because the pneumatic pumps rely only on compressed air to lift extracted groundwater from below grade and to force flow in the discharge line, electrical power was not required. However, a convenience electrical outlet is installed within each well vault. The power supplied is 110-volt AC, 15-amp, GFI-protected service. Typically this service outlet can support small power tools, lighting, or other small electrical appliances. Note that all of the northern plume vaults (and similarly the southern plume vaults) are on the same circuit (15 amp total). If appliances are connected to all vaults at the same time, the circuit breaker may trip or the appliances may not run at their optimum efficiency.

  To date, the outlets have been used to provide lighting during inspections or service, when required. For groundwater sampling, the outlets have been used to power either Wattera or peristaltic pumps for nearby wells. Groundwater samples from the extraction wells are collected directly from the discharge line through sampling ports.

Summary of Performance during NTCRA – In February 2001, pneumatic pumps were installed in two existing northern plume bedrock wells (MW-39B and MW-40B) to support the injection/flushing test and to assess the extraction efficiency of the wells. Because of incomplete seals and apparently insufficient development in the two bedrock boreholes at the bedrock/overburden interface, silt entered into the wells and were pumped to the treatment system. The seals were corrected and the siltation problem was addressed.

Siltation has been observed to occur in the northern bedrock extraction wells, which is expected as the aquifer is gradually flushed. The silt accumulation will be removed from all extraction wells prior to the northern system activation for the RA.

During April 2001 the southern plume pumps were turned off to meet the air demand from the new northern plume pumps, which were used for a tracer test. Meanwhile, due to the time of year, the aquifer was experiencing recharge primarily from snowmelt infiltration, and water was seeping into RWS-5, a recovery well in the southern plume, through a hole in the side of the vault. The hole was plugged with a plumber's plug, which stopped seepage into the vault. Before the hole was plugged water seeped into the bottom of the manhole, which consists of crushed stone lying on top of sand. On the west side of the manhole floor (near the discharge line), and around the borehole the floor has settled slightly. However, this has not affected the stability of the vault or extraction well.

Water also periodically ponds inside the manhole of RWS-1 to a depth of approximately 1 foot from infiltration entering into the bottom of the well through the sand and crushed stone bedding. RWS-1 is situated topographically lower than the other extraction wells, and water in the piping trench may be draining into the well. This has not caused any operational issues and the accumulated water can be readily evacuated with a sump pump.

2.4.4 Piping

For the NTCRA extraction wells, water is pumped to the top of each well through a 1-inch ID, nylon-reinforced, clear PVC hose. The hose is then connected to the main 3-inch ID system influent pipeline. Each connection is fitted with a 1-inch ID ball valve to allow isolation of each extraction pump in the event the pump needs to be removed from service.

The pipeline that conveys extracted groundwater to the treatment plant consists of 3-inch ID, fusion-welded, polypropylene pipe manufactured by Simtech. All piping (i.e. groundwater, air, electrical) is installed in a common pipe trench extending from the extraction well vaults to the treatment building. Each trench extends to approximately 6 feet below grade and includes a metallic utility locator tape, which was installed approximately 2 feet below grade.

The polypropylene pipe was selected because sections could be joined through fusion welding, rather than using pipe that required solvent welding. The use of solvents was avoided to prevent further addition of VOCs into the extracted groundwater to be treated.

Summary of Performance during NTCRA - To date, operational problems for the 3-inch polypropylene piping have been minimal. In October 2000, the fusion weld on the discharge line in RWS-1 came apart. By visual inspection it was noted that original fusion weld was imperfect. Discharge from this extraction well was temporarily stopped while the weld was repaired. No other fusion welds have failed.

2.5 Selected Design for Extraction Well System

Using the operational information developed during the NTCRA and data regarding plume extent and aquifer test data, the final design of the extraction wells systems was developed.

2.5.1 Well Configuration

The northern and southern plume extraction well configurations for the RA are depicted in Figure 2-11. Drawing No. 1 depicts the extraction well and piping layout.

The southern plume extraction wells configuration (location and number of wells) for the RA will remain the same as during the NTCRA. The array of extraction wells has been effective in capturing the southern plume and preventing offsite migration. The hydraulic capture data presented in Section 2.3 indicates effective containment for the southern plume.

For the northern plume, the extraction wells RW-2, RW-3, and RW-4 under the NTCRA were able to capture the contaminant plume that was delineated during 1998 (with some refinement based on 1999 data). However, by early 2000, TtNUS determined that the northern plume lateral and vertical extent was larger than previously estimated. Therefore, additional extraction wells were needed to supplement the northern extraction wells. Since the expanded area of contamination was identified during the shakedown period for the NTCRA, extraction wells including RW-8, RW-9, RW-10, RW-11, MW-39B, MW-40B, and MW-35B have been added to the NTCRA groundwater control system. Aquifer tests in the northern plume performed during 2001 indicate that these new extraction wells are capable of capturing the contaminated groundwater in the overburden, shallow, and deep bedrock units of the aquifer. No new extraction wells will be necessary as part of RA.

2.5.2 Pneumatic Pumps

The Clean Environment Equipment AP-3 AutoPump liquid extraction pump used during the NTCRA (described in Section 2.4.2) was selected for use in the new northern plume extractions wells based on past the pumps past performance and simplicity of operation. The air regulators used during the NTCRA were selected for use in the new extraction wells that comprise the RA system.

2.5.3 Extraction Wells

The selected design for the new northern plume extraction wells will be consistent with those installed for the NTCRA. Minor modifications will be made to facilitate sampling. Extraction wells construction details are depicted in Drawing No. 2.

All new extraction wells will be constructed in the same manner as the wells installed during the NTCRA: a 4-foot diameter, 6-inch thick, H-20 rated, concrete manhole well vault installed 5 feet below grade. The open-bottom well vaults on seated on approximately 12 inches of ¾-inch crushed stone. The extraction wells extend to approximately 1-foot above the bottom of the vault.

For all extraction wells except penetrations in the side of the manhole walls will be used to connect to the groundwater discharge pipeline, the air supply pipeline, and the electrical service line.

Each vault will be fitted with a lockable, flush-mounted, aluminum hatch cover. The spring loaded hatch cover will be insulated to reduce heat loss from the vault during cold weather conditions.

2.5.4 Piping

The piping selected for all new extraction wells will be the same material used in the NTCRA extraction wells. The 3-inch ID polypropylene pipe manufactured by Simtech is fusion-weldable.

Piping for four of the seven new extraction wells (RW-10, RW-11, MW-39B, and MW-40B) will be installed at ground surface and will consist of Simtech 3-inch ID polypropylene pipe that will be wrapped with a heat tracing system and by at least 2 inches of closed cell insulation. Construction details are provided in Drawing No. 2A. The heat tracing system will consist of a self-regulating heating cable that can vary its power output relative to the temperature of the surface of the pipe or the vessel. The heating cable shall consist of two 16 AWG or larger nickel-plated copper bus wires, embedded in a self-regulating polymeric core that controls power output so that the cable can be used directly on plastic or metallic pipes. The heating cable shall provide 5 Watts/foot (W/ft) with a self-regulating index of 0.060 Watts/degree

Fahrenheit. Because the line is to be installed in a utility box and covered (and therefore difficult to inspect), and potentially wet, a closed-cell Corning Foamglas insulation is specified. Electrical power to the insulated pipe will be provided by a separate service line routed to the extraction wells from the treatment plant.

The insulated pipe will be installed at grade extending from MW-40B to RW-11, to RW-10, to MW-39B, and finally to RW-9. Extracted groundwater from these wells will be conveyed by the insulated pipe into the RW-9 well vault, where it is connected to the 3-inch discharge line that connects to the in the main piping trench.

For protection, the insulated pipe, along with the air line and the electrical conduit will be installed in Synertech Products Plastibeton™ Model 2012 high-density polymer concrete (HDPC) utility channels. The channels have rectangular cross-sections with interior dimensions of 12 inches height and 20 inches width, and are manufactured in 9 feet 10 inch (3 meter) lengths. The channels have a load rating of H-20 and are suitable for surface use (i.e., when installed flush with grade, can be driven over). The channels have smooth interiors to prevent deterioration of cable sheathings. The HDPC is non-porous and is resistant to freeze-thaw degradation. The channel sections will be installed at grade to provide maximum protection.

2.6 Remedial Action Performance Evaluation of Hydraulic Containment

Hydraulic containment of the northern and southern plumes by their respective extraction systems should be monitored periodically to assure efficient removal and treatment of Site contaminants within the capture zone of each system. Efficient removal implies cleanup of Site contaminants in groundwater to achieve cleanup goals in as short a time period as possible.

In order to maintain efficient removal, it is necessary to monitor groundwater levels in extraction and injection wells, draw groundwater contours, and delineate the extent of capture. The capture zone can be compared to the extent of groundwater contamination to evaluate whether pumping rates should be adjusted to assure efficient removal and treatment. The time to reach cleanup goals will be driven by the time required for the cleanup of the core of the plume. Therefore, the drawdown should be greatest in the center-most extraction well located closest to the core of the plume and drawdown decreased with distance from the center of the plume. The capture zone resulting from this type of drawdown configuration should reduce the travel distance of contaminants to wells thereby reducing the travel time or cleanup time. Groundwater elevations in Table 2-1 were calculated, as a first approximation, to evaluate whether further enhancements can be made to reduce travel distances.

It is anticipated each plume will diminish in size and volume with increasing time of operation. As each plume shrinks and cleanup goals are met at the fringes of each plume, it may be possible to shutdown the outer extraction wells. The southern plume has already diminished in size, such that extraction well RWS-1 can be inactivated.

Section 9.1 provides details on the evaluation of hydraulic capture during the RA.

2.7 Equipment List

Item Number	Number Required	Name/Description
1		Pneumatic Pumps • Type: bottom-loading, short-barrel • Construction: stainless steel, acetal, viton, nylon, fiberglass, epoxy, and brass • Special Features: controllerless • Dimensions: 42-in length x 2.63-in diameter • Capacity: 7 gpm • Manufacturer & Model: Clean Environment Equipment AP-3 Autopump, or equivalent
2		Well Vaults • Type: vertical, cylindrical, vault manhole • Construction: 4000 psi concrete, H-20 rated, aluminum hatch • Special Features: open bottom, 12-in polypropylene, steel-reinforced steps • Dimensions: 4-foot diameter, 6-inch thick, extends to a maximum of 6 feet below grade, 24-in x 24-in aluminum hatch • Manufacturer & Model: American Concrete Industries, 4' Diameter Standard Well Vault Manhole, or equivalent
3		Piping • Type: polypropylene, PN10 • Construction: fusion-welded, HDB rating of 1600 psi • Pressure rating: 150 psi • Special Features: chemical resistant • Dimensions: 3-inch ID • Manufacturer & Model: Simtech, SR Series, or equivalent

Item Number	Number Required	Name/Description
4		Piping Insulation • Type: Rigid, closed cell nominal 2-inch thick enclosure • Manufacturer & Model: Corning Foamglas
5		Utility Box • Type: rectangular utility enclosure channels with removable tops (for servicing) • Construction: Light-weight, high-density polymer concrete • Load Rating: H-20 • Special Features: smooth interior, nonporous • Dimensions: 12 inches high (int.) x 20 inches (int.) wide by 9 feet 10 inches, each. • Manufacturer & Model: Synertech Products Model 2012

3.0 SERVICE AIR SYSTEM

This section provides the design criteria, a summary of the system's performance, and the selected configurations for the final design of the Service Air Systems.

3.1 Service Air System Design Criteria

The purpose of the Service Air System is to provide dry, filtered, compressed air to the pneumatic pumps so that groundwater can be displaced from the aquifer and conveyed to the treatment plant.

The NTCRA Service Air System (SAS-1) consists of an air compressor package, an air dryer, and an air supply pipe. The air compressor and dryer are housed in the treatment system building. The air supply line was installed in the piping trench approximately 5 feet below ground surface. The air delivery components are described in the following sections that include, as appropriate, summaries of their operating histories.

The criteria governing the design and construction of the Service Air System include:

- Providing compressed air with a pressure of at least 80 psig to each of the pneumatic pumps. Air regulators are then used to adjust the compressed air pressure to each individual pneumatic pump.

- Providing compressed air for up to 12 pneumatic pumps operating simultaneously.

3.2 Service Air Design Basis and Assumptions

The design basis for the RA Service Air System was based on the operating history for the system installed and operated under the 1998 NTCRA from January 2000 through April 2001. The NTCRA Service Air System was designed to provide compressed air to submersible pneumatic pumps in three northern plume extraction wells (RW-2, RW-3, and RW-4) and in five southern plume extraction wells (RWS-1, RWS-3, RWS-5, RWS-6, and RWS-7), which had a combined design yield of 20 gpm. The Final Design calls for a total yield of 30 gpm from the combined northern and southern system extraction wells, and the air delivery system will need to provide sufficient quantities of compressed air, at greater than 80 psi, to drive 15 pneumatic pumps (10 in the northern wells and 5 in the southern wells).

During the period from January 2000 through April 2001, the Service Air System using one 5-hp compressor was able to deliver compressed air at the desired pressures (> 80 psig) to each of the eight pneumatic groundwater extraction pumps used in the NTCRA system. During 2001, six additional extraction wells were equipped with pneumatic pumps to support the aquifer test and to periodically provide hydraulic capture during the Phase 2 pilot test addition of sodium permanganate. The single air compressor was able to sustain operation of the these ten northern plume extraction pumps

3.3 Performance Data

Operating and maintenance information compiled while the Service Air System was in operation during the NTCRA is summarized below.

3.3.1 Air Compressor Package

An Ingersoll-Rand Model No. OL5D5, oil-less, single stage, air-cooled, reciprocating compressor was used to deliver 16.5 standard cubic feet per minute (scfm) of free air at an intake pressure is 14.7 pounds per square in absolute (psia) and a discharge pressure of 100 pounds per square in gauge (psig). The compressor is belt-driven by a 5-horsepower (hp) electric motor. An oil-less compressor was specified so as not to introduce petroleum hydrocarbon VOCs into the extraction wells.

The intake to the air compressor is located outside of the Treatment Building. An air filter is located at the intake along with an air cooler. Ambient air is drawn through the cooler by a fan driven directly by the compressor motor. The cooler includes a thermal bypass valve used to maintain proper operating temperature.

The air compressor is equipped with: an intake silencer, an automatic drain valve, an automatic receiver condensate blowdown valve that is connected to the equalization tank, a discharge minimum pressure/check valve a high pressure shutdown switch, a high discharge temperature switch, an 80-gallon air receiver tank, and other switches, fittings, and appurtenances required for the control of the compressor operation.

The pre- and post-air filters are designed to remove liquid, aerosols, rust, scale, dirt, and other particles 10 micron and larger from the compressor air stream. The filters are cartridge type and constructed of several layers of glass fibers in an in-depth arrangement with a high percentage of void space to allow maximum accumulation of particles and resist clogging due to sticky and gummy residues.

The Service Air System operated from January 2000 through February 2001, providing compressed air for 3 northern plume and 5 southern plume groundwater extraction pumps. In March 2001, the five additional extraction wells were installed and equipped with pneumatic pumps to support an aquifer test and to provide hydraulic containment during applications of sodium permanganate during April and May 2001. During the period of March through May 2001, the Service Air System readily provided compressed air to the northern wells extraction pumps; the southern system wells were not online during this period. In May 8, 2001, as a test, three of the southern plume wells (RWS-1, RWS-3, and RWS-5) were brought on line to see whether the compressor could provide an adequate air supply to 14 pneumatic pumps. This test indicated that while adequate pressure could be provided (60 – 80 psi), the compressor operated almost continuously. However, with only RWS-5 (the most productive well in southern plume) added, the compressor cycled off and on at a rate comparable to supplying compressed air to only the northern plume extraction wells.

<u>Summary of Performance during NTCRA</u> – Overall, some problems were encountered with the compressor during the interim operating period. However, the repairs needed were minor and included replacement of small parts. However, by May 2001 (after 15 months), the compressor motor had to be replaced.

In February 2000, the air line from the compressor broke. Repairs were made and system was operating by the end of the day.

During the week of May 1, 2000, the compressor failed to start on low side of air pressure cycle. The circuit breaker was tripped by hand and the compressor was back to normal operating conditions.

In August 2000, when the southern extractions wells were brought on line, a solenoid on the air compressor was observed to be bleeding air excessively. The solenoid was taken apart and pebbles were found inside that appeared to be keeping the solenoid open. These pebbles were removed and the reassembled solenoid was back to normal operation. This problem occurred intermittently over the next several weeks. After review of the air delivery system, it was concluded that during the construction of the southern plume recovery wells, pebbles were inadvertently introduced into the air line during installation in the piping trench. The pebbles were removed by blowing compressed air through the air line. The solenoid has operated normally since then.

On May 5, 2001, it was noted that one of the compressor piston heads was not taking in air. The piston head was taken apart and the air inlet value was observed to be worn and in need of replacement. As a temporary fix, this valve was turned over and the compressor was put back online until a new valve came in.

On May 25, 2001, the compressor piston head was not taking in air again and the valve was replaced. At this time the piston valve assembly was rebuilt and the compressor motor was replaced.

3.3.2 Air Dryer

A Premier Air Systems, Model PH20AF00, heatless, twin-tower, desiccant air dryer was used to remove excessive moisture from the compressed air supply during the NTCRA implementation period. The dryer ensures intake air has a maximum dew point of minus 40°F at 120 psig. Drying is accomplished by passing the hot air supplied by the compressor over a bed of activated alumina desiccant. Once the drying desiccant bed has timed out on the adsorption cycle, it is switched off line and depressurized. Dry purge air is then introduced in a counter flow direction to reactivate this bed. At the end of the reactivation period, the tower is re-pressurized before being put back into service. The system has two towers to allow one tower to be in operation while the other is being reactivated. The air dryer unit is equipped with a control box, which includes a power-on light and a moisture indicator.

Summary of Performance during NTCRA – The air dryer failed once during the start up period. The air dryer was shipped from the manufacturer with a valve that was installed incorrectly. This error was corrected and the air dryer has operated properly since then.

3.3.3 Air Distribution Piping

Service air was delivered to the pneumatic pump from the compressor through a 1-inch diameter plastic pipe that is specifically designed for compressed air. The pipe is manufactured by Chem-Aire™ from a formulation of acrylonitrile butadiene styrene (ABS) modified extensively to produce a homogeneous, shatter-resistant piping system for strength, ductility, and impact resistance. The ABS material used in manufacturing Chem-Aire™ meets ASTM D3965, cell classification 54322.

The air supply pipe is buried in the common pipe trench along with the groundwater influent pipe and the electrical conduit.

Summary of Performance during NTCRA - To date, the air supply pipe has not experienced any major operational difficulties. Pebbles were inadvertently introduced into the air line during construction and installation of the piping trench (as described previously in Section 3.3.1).

3.4 Selected Design for Service Air System

Using the information developed during the NTCRA operation period of the Service Air System and the delivery of compressed air to the pneumatic pumps, the final design of the RA service air systems was developed.

The selected design for the supply of dry, filtered, compressed air for the RA extraction system will consist of two Service Air Systems (SAS-1 and SAS-2). The current NTCRA Service Air System will be supplemented by a second system (SAS-2) that is configured in the same way as the NTCRA system based on its proven performance during the operational period and the ability to provide sufficient compressed air to the pneumatic pumps in various configurations. The two Service Air Systems will share common air distribution piping.

During the operation of the NTCRA groundwater extraction system, the single 5-HP air compressor was able to provide sufficient compressed air to the pneumatic pumps to maintain a maximum pumping rate of 20 gpm and could provide an adequate air supply for either the northern or southern extraction wells. One factor considered is that the southern plume PCE concentrations have been decreasing and it is likely that within the next several years, the southern extraction system would no longer be required. Therefore, having twin 5-hp Service Air Systems allows one system to be shut down and maintained in standby mode.

SAS-1 (the original NTCRA system) will be moved to accommodate the expansion of the treatment system components. Drawing No. 3 depicts the process flow diagram, while Drawing No. 5 presents the piping and instrumentation diagram. Drawing No. 5 depicts the locations of SAS-1 and SAS-2 within the treatment system.

3.4.1 Air Compressor Packages

The air compressor package for each of the service air systems is as described in Section 3.3.1 of this Final Design document. The Ingersoll-Rand Model No. OL5D5, oil-less, single stage, air-cooled, reciprocating compressor driven by a 5-hp electric motor was selected.

3.4.2 Air Dryers

Air dryers to be used with the service air packages are as described in Section 3.3.2 of this Final Design document, and will consist of the Premier Air Systems, Model PH20AF00, heatless, twin-tower, desiccant, units.

3.4.3 Air Distribution Piping

The air distribution piping to be used to connect the new northern plume wells will be the same as used during the NTCRA, and will consist of the Chem-Aire™ ABS 1-inch diameter pipe.

3.5 Remedial Action Performance Evaluation

The performance of the service air system during the RA can be evaluated at startup and throughout the 2-month shakedown period for the groundwater extraction and treatment system.

The extraction wells will be operated at capacity of up to 30 gpm for combined northern and southern extraction wells, depending on amount of groundwater to be controlled hydraulically. During this period, the pressure provided by the compressors will be monitored periodically to ensure that a nominal 100 psig reading is provided in the receiver tanks. Pressure at each pneumatic pump will be monitored to ensure that a service pressure of at least 80 psig is available (after head loss through transmission).

3.6 Equipment List

ITEM NUMBER	NUMBER REQUIRED	NAME/DESCRIPTION
SAS-1, SAS-2	2	**Service Air System** Each system includes: • One (1) 5 HP, 17.5 cfm @ 100 psig, oil-less, single stage, air-cooled, twin-cylinder, reciprocating air compressor with 80-gallon receiver tank. Ingersoll-Rand OL5D5. • One (1) 20 cfm/100 psig heatless, twin-tower dessicant air dryer. Premier Air Systems PH20AF00.

4.0 TREATMENT SYSTEM DESIGN

This section provides the design criteria, a summary of the system's performance, and the selected configurations for the final design of the groundwater treatment system.

4.1 Treatment System Design Criteria

The purpose of the treatment system is to remove contaminants from groundwater produced by the extraction wells to the cleanup criteria specified in the ROD, which include drinking water standards, or the MEGs.

The criteria governing the design and construction of the treatment system include:

- removing suspended solids from the influent stream to protect process units,
- removing VOCs, particularly PCE, from the groundwater to meet discharge requirements (MCLs or MEGs),
- removing metals from the from the groundwater to meet discharge requirements (MCLs or MEGs),
- treat up to 30 gpm of extracted groundwater.

While the system design specifies 30 gpm, in the event a higher volume of flow needs to be treated, this can be readily accomplished by adding more GAC and IX units installed in parallel with the existing units. The NTCRA system was designed to include the flexibility to increase or decrease treatment capacities because of uncertainties regarding total aquifer yields in 1998. As discussed previously, there is also uncertainty whether the southern plume would need to be treated after the Phase 2 sodium permanganate addition (planned for fall 2001). Total treatment capacity may be below 15 gpm at that time.

4.2 Treatment System Design Basis and Assumptions

The final design of the treatment system for the RA is based on the operating data for the system installed during the NTCRA. Operation data from January 2000 through April 2001 were used. Sampling data collected from the process stream at various locations in the treatment train allowed TtNUS to evaluate treatment effectiveness.

For the NTCRA, an interim treatment system was designed and constructed to address a 20 gpm process flow rate. For the Final Design, a 30 gpm flow rate was selected based on the additional hydrogeologic evaluation of the northern plume and the larger extent of the plume that required hydraulic containment.

During the NTCRA, groundwater was pumped from the northern and southern extraction wells to a treatment system located in the building at the front of the Site, adjacent to Route 191. Treatment of extracted groundwater consists of the following sequential process steps:

- Equalization to blend the groundwater from the various extraction wells and to allow a steady flow through the treatment system.

- Filtration to remove suspended solids or particles that might otherwise interfere with the treatment processes.

- Liquid-phase granulated activated carbon (GAC) adsorption to remove dissolved VOCs of concern (i.e., PCE and TCE).

- Ion exchange (IX) to remove dissolved metals of concern (i.e., manganese)

The treated groundwater is finally pumped to a discharge pipeline that conveys it to an infiltration gallery for re-introduction into the aquifer. The infiltration gallery is situated approximately 200 feet north of the treatment building.

The groundwater treatment system is controlled by a variety of level, flow, and pressure controls and includes fail-safe alarm controls that will shut the system down in the event of component failure (e.g., pipe rupture, tank overflow, filter clogging).

4.3 Performance Data

The operating and maintenance information compiled while the treatment system was in operation during the NTCRA are summarized below.

4.3.1 Equalization

Equalization for the NTCRA interim treatment system consisted of one Equalization Tank and one Transfer Pump.

4.3.1.1 Equalization Tank

The NTCRA interim treatment system employed a one-piece, 220-gallon polyethylene vessel as an equalization tank. Because the extraction pumps operate intermittently, the Equalization Tank (T-1) allowed balancing of the flow, mixing of the influent streams from the two plumes, and helped to eliminate pump surge. The Equalization Tank also serves as a reservoir for groundwater so that a steady flow of water can be batch treated through the system process units. The Equalization Tank is mounted on a steel skid, tank is equipped with a cover and is vented to the outdoors.

Influent connections to the Equalization Tank included: 1) groundwater influent from the extraction wells, 2) discharge from the treatment building floor sump, and 3) condensate blowdown from the compressor of the Service Air System.

High- and low-level controls were installed in the Equalization Tank to operate the Transfer Pump. A high-high level switch was used to shut down the system and prevent overflow of the Equalization Tank.

Summary of Performance during NTCRA - During February 2001, the influent entering into the equalization tank had a high suspended solids content that settled at the bottom of the tank. Approximately one half of a 55-gallon drum of particles was removed using wet-dry vacuum. The cause of these suspended solids was believed to be from monitoring wells MW-39B and MW-40B that had just been converted into temporary bedrock extraction wells. Pneumatic pumps were installed in these wells to support an aquifer test. Because of incomplete seals and insufficient development after well construction, suspended solids were drawn into the pumps and sent to the treatment system causing the particle filters to become clogged. The seals were repaired and after the wells were developed, the suspended solids content declined.

4.3.1.2 Transfer Pump

For the NTCRA interim treatment system, a Goulds Model JM3558, 2-hp pump equipped with a Baldor motor was used to transfer water from the Equalization Tank through the process units and into the infiltration gallery. The pump is totally enclosed-fan cooled (TEFC), has a stainless steel shaft with ball bearings, and has a polyethylene pump seal. The Transfer Pump has a maximum operating pressure of 125 psig, with capacities of 75-150 gpm with heads from 39-150 feet.

Summary of Performance during NTCRA - The Transfer Pump came from the manufacturer with a faulty seal, which was replaced and the pump has been operating normally to date. No other problems were identified during the interim period of operation.

4.3.2 Filtration

Particle filters were installed in the NTCRA interim treatment system to remove suspended solids prior to the transferring the process water to protect the activated carbon adsorbers and the ion exchange units. Two types of particle filters were used: 1) a cartridge-type filter that removed larger suspended solids from the influent prior to entering the equalization tank, and 2) a bag filter designed to remove finer suspended solids prior to the groundwater being pumped through the GAC and IX units.

The NTCRA interim treatment system used a Hayward Star-Clear™ Model C-500 cartridge filter with Unicel, Model C-8600 replacement filters. The filter has a flow rate capacity of 50 gpm. The replacement cartridge is designed to remove suspended solids greater than 20 microns in size.

A secondary particle filtration unit, Rosedale Model No. FLT-4201, equipped with disposable bag filters, removed particulate matter from the process stream. Model PE10P4SH disposable bag filters manufactured by Flow Solutions, Inc. of Clark, New Jersey, were used. This filtration unit has a maximum operating pressure of 200 psig. The disposable filter is designed to remove suspended solids greater than 10 microns.

Summary of Performance during NTCRA – Typically, the bag filters of the particle filtration unit need to be replaced at a frequency of approximately once a month. When new extraction wells were brought on line, the filters received increased loading of suspended solids until the wells were fully developed. While wells are typically developed after construction, it is likely the fines in the filter pack or well annulus. With extended extraction well operation, suspended solids (fines) will be drawn to the extraction wells. In addition, the pilot test additions of sodium permanganate resulted in the formation of manganese dioxide, an insoluble precipitate that is very fine. Some of the bag filters were coated with a colloidal substance that was believed to have the manganese floc. However, as the aquifer was flushed, the fines were removed and the system returned to normal operations.

The presence of fines in groundwater has resulted in accumulation in the Equalization Tank, as discussed in Section 4.3.1.

With higher solids loading, the 10-micron bag filter needed to be replaced once weekly. When a high suspended particle load enters into the Equalization Tank, the fines tend not to settle out and continue into the bag filter, which may increase the change out frequency to multiple times a day.

4.3.3 Liquid-Phase GAC Adsorption

The NTCRA interim treatment system is equipped with two pairs of GAC units that remove organic contaminants from the groundwater. As the water passes through the GAC, it adsorbs the contaminants. Each pair of GAC units is configured as follows: two units connected in series, the first as the primary unit removing the bulk of the contamination and the second adsorber serving as a polisher and backup in case the first unit exhibits breakthrough. There are two pairs of GAC Adsorption Units connected in parallel to a common header pipe.

The liquid-phase GAC adsorption process removes the dissolved VOCs of concern (i.e., PCE and TCE) from the groundwater. As the groundwater percolates through the GAC, VOCs are adsorbed upon its active sites until most of these sites are occupied, at which point VOCs start breaking through and it is time to take the spent GAC out of service and replace it with fresh material.

Each GAC Adsorption unit is a Carbtrol, Model HP-P200 carbon steel vessel with an epoxy-mastic coating that contains 200 pounds of GAC. The maximum operating pressure is 125 psig. However, the system is designed to operate at a maximum of 50 psig and 10 gpm per GAC pair (20 gpm system total) providing a water contact time of 10 minutes per GAC Adsorption Unit. The units are also equipped with ball valves to isolate each unit and quick disconnects to allow easy removal for spent carbon change out.

Summary of Performance during NTCRA – Review of the analytical data for the treatment system effluent has shown that VOCs have been removed from the treated groundwater and met discharge limits.

The GAC Adsorption Units have been changed out twice: October 2000 and April 2001. In March 2001, carbon fines were observed in the effluent from sample port EF2 while taking samples. One possible explanation for the carbon fines may be because some unreacted sodium permanganate from the aquifer had entered into the GAC Adsorption Units and caused deterioration of the carbon mass. The GAC reacts with permanganate and consumes it. The carbon acts as a permanganate polisher. Another reason may be that the surging of flow from the transfer pump to could have caused erosion of the GAC, although this is less likely because carbon fines had not been observed previously. A dose of permanganate was added in January 2001; some residual could have entered into the treatment system from the extraction wells.

4.3.4 Ion Exchange (IX)

For the NTCRA interim system, four IX Units were installed primarily to reduce the concentration of dissolved iron and manganese from the groundwater prior to discharge. However, the IX Units are not ion-specific and will remove other metals or dissolved solids as well. The IX Units were added to the treatment system in August 2000.

Each unit is a Culligan Model No. OO-4441-04 manufactured by Park Corporation, designed for a maximum flow rate of 5 gpm. The four IX Units are connected in parallel to a common header where the flow is evenly distributed to the four units. The units are equipped with quick disconnects to allow easy removal for off-site regeneration of the ion exchange resin.

Each unit is packed with approximately 1.4 cubic feet of IX media. The IX resin is IONAC C-249, which is a strong acid cation exchange resin operating in a sodium, or operating cycle. It comes in bead form and is a cross-linked styrene divinylbenzene for maximum stability.

Summary of Performance during NTCRA – To date, the treated groundwater manganese levels have been below the ROD goals. In April 2001, the IX resin was changed out for the first time because pressure build up were noted in the IX Units, which indicated plugging. This event occurred after carbon fines were noted in the GAC Adsorption Unit effluent. It is reasonable to conclude that the carbon fines were plugging the IX resin.

Most of the dissolved manganese occurs in the northern plume because the naturally occurring manganese is reduced and becomes aqueous as a byproduct of PCE degradation. The addition of sodium permanganate will help to oxidize the dissolved phase manganese and cause it to drop out of solution. This effect is not pervasive throughout the northern plume because of permanganate distribution issues. As PCE residual mass is oxidized or removed, the tendency for the naturally-occurring manganese to be mobilized will decrease.

During the operation of the NTCRA interim treatment system, it was noted that low concentrations of thallium were infrequently detected in the influent and effluent samples. Based on evaluation of the analytical methods and the instruments (ion coupled plasma - ICP) used for typical metals analysis, there is the possibility that false positive thallium values could be generated. A summary of influent and effluent chemical data is presented in Table 4-1. This problem has been observed at a variety of EPA sites. EPA has acknowledged this issue and has drafted new protocols for thallium analysis using graphite furnace AA. TtNUS will be evaluating new metals analytical data for the Eastern Surplus Company Site and will perform additional sampling and have the analysis performed using graphite furnace AA to eliminate method bias. In the event thallium detects (above clean up goals) are valid, then the design of the IX units will be modified to address this metal.

Groundwater sampling data for June 2001 do not identify any detectable thallium in over 60 samples.

4.3.5 Piping, Valves, Fittings

For the NTCRA interim treatment system, the construction and sizes of piping, valves and miscellaneous fittings within the treatment system varied depending on the application. Water was pumped through 3.0-inch ID, 2.0-inch ID, 1.0-inch ID, and 0.75-inch ID chlorinated polyvinyl chloride (CPVC) piping. Sections of 1-inch ID nylon-reinforced, clear, flexible PVC hose are also used to connect piping to inlets and outlets on the GAC Adsorption Units and IX Units. Treated groundwater is discharged to the infiltration gallery through 3-inch ID polypropylene piping.

A variety of valves are used throughout the treatment system, including ball, gate, check, and flow control. These valves are made of several materials including brass, PVC, and CPVC.

4.3.6 Process Controls

The NTCRA interim treatment system is controlled by several control switches and a programmable logic controller (PLC) located in the Treatment Building. All switches and process monitoring devices are connected through the PLC. The PLC is programmable in that the user can program the logic and sequencing of switches and control circuits.

Under normal operation, air is delivered to the extraction well vaults at a constant supply, but at high pressure (approximately 100-125 psig). The air pressure is reduced to approximately 60-80 psig by the air regulator located at each extraction well in order to operate the pumps. As discussed previously, the pumps are controllerless. As long as the water level in the well is above the pump and the pump chamber can fill and there is sufficient air pressure delivered to the pumps, the pumps will continue to pump water without interruption. However, pumping rates will vary from well to well depending on the recharge capacity or yield of the individual well.

Because of the variability in flows from each well, groundwater is collected in the Equalization Tank so that it can be treated in batches. This allows for a constant flow of groundwater being delivered to the filters, thus optimizing treatment efficiencies. Once groundwater is delivered to the Equalization Tank, it is conveyed through the remainder of the treatment system via the Transfer Pump. The pump is controlled by level switches mounted inside of the Equalization

Tank. When the water level in the tank rises to a preset height, the pump engages and transfers the water through the unit processes and to the discharge gallery. When the water level drops to a preset level, another level switch is tripped and the pump is shut down thus stopping the treatment process.

The remainder of the process controls are designed to either monitor the treatment process or protect various components in the event of equipment failure. First, downstream of the transfer pump, there is a pressure regulating valve (Honeywell Braukmann Model DS05) that governs the pressure of water being delivered to the filters. Each filter has a maximum operating pressure that can be exceeded if the transfer pump were allowed to operate unrestricted. The pressure regulator valve ensures that the flow to the filters never exceeds 50 psig. The operating pressure is reported to and read at the control panel using a Dwyer Series 635S pressure transmitter and Series 1000 Process Indicator.

Monitoring instruments include a flow meter that monitors flow and reports it at a digital readout at the control panel. The flow meter is a Badger RCDL Nutating Disc Meter and a Badger Model FT-1 Transmitter sending the signal to a Badger Model ER-9 Digital Resettable Totalizer and Rate Flow Indicator located on the control panel.

Although the treatment system is designed to operate unattended on automatic mode, it is also capable of being operated in a manual override mode. A manual pump switch controlling the Transfer Pump is located on the control panel. When engaged, this switch will operate the Transfer Pump independently of the Equalization Tank switches.

4.4 Selected Design

The selected design of the groundwater treatment system is presented in the following sections by process functions. Drawing No. 3 depicts the process flow diagram while Drawing No. 4 presents the piping and instrument diagram. Drawing No. 5 presents the layout of process equipment within the treatment building.

4.4.1 Equalization

Based on the performance of the equalization tank used during the interim period of operation during the NTCRA, the final design selected for the RA treatment system equalization process includes a Primary Equalization Tank (T1), a Secondary Equalization Tank (T-2), and a Transfer Pump (P-1).

4.4.1.1 Equalization Tanks

Based on the single equalization tank performance and the need to accommodate a larger flow, two equalization tanks connected in series were specified for the final design. The purpose of the Primary and Secondary Equalization Tanks is to blend the groundwater streams from the various extraction wells and to dampen sudden variations of flow to the treatment system. The Primary and Secondary Equalization Tanks consist of two 220-gallon polyethylene, single-piece vessels, Chem-Tainer Model IC3563IC. These tanks are connected near the bottom by a 6-inch diameter sleeve so that water in each of the tanks remains at the same level. The tanks are mounted on a steel skid and are equipped with a cover, a 2-inch bottom drain (to facilitate clean out of accumulated fines), and a vent to the outdoors.

Influent connections to the Primary Equalization Tank include: 1) groundwater influent from the extraction wells, 2) discharge from the treatment building Sump Pump (P-2), and 3) condensate blowdown from the Service Air Systems (SAS-1, SAS-2).

A control system is provided to maintain a relatively constant liquid level in the equalization tanks. This system consists of a level-measuring element (LE-1) installed in the Secondary Equalization Tank and a panel-mounted level indicator-controller (LIC-1). This system regulates the variable-speed drive of the Transfer Pump so as to maintain the liquid level in the equalization tanks as constant as possible to avoid excessive cycling (start and stop) of the Transfer Pump. High- and low-level switches (LSH-1, LSL-1) are also installed in the Secondary Equalization Tank to start and stop the Transfer Pump. Finally, a high-high level switch (LSHH-1) is installed in the Secondary Equalization Tank to activate an alarm and shutdown the compressors of the Service Air Systems, thus stopping operation of the groundwater extraction pumps and preventing overtopping of the equalization tanks.

4.4.1.2 Transfer Pump

For the final design, a variable speed drive motor was selected to provide a more continuous flow of groundwater water through the process units, which would result in less surging and more efficient treatment. The Transfer Pump conveys groundwater from the Secondary Equalization Tank through the remainder of the treatment system and into the infiltration gallery. The Transfer Pump is a horizontal, centrifugal-type, Goulds Model 3656S-22BF1J5E0, equipped with an Aquavar variable-speed drive and a 3500 revolution per minute (rpm), 3 hp, TEFC electric motor. The Transfer Pump has a design discharge flowrate of 30 gpm at 115 feet total dynamic head (TDH). If needed, the impeller of the pump can be replaced to provide a maximum flow of 35 gpm at 125 to 130 feet TDH.

A high-pressure switch (PSH-1) is fitted on the discharge of the Transfer Pump to activate an alarm and stop the pump to prevent it from "dead heading" in case of excessive pressure drop in the downstream process units.

4.4.2 Filtration

For the final design of the RA system filtration, the two-stage filtration approach used during the NTCRA approach was retained to removes suspended solid particles from the process flow to protect the downstream GAC adsorption and IX units from premature fouling. To maximize filter cycle, i.e., the length of time between filter element replacements, filtration is performed in two stages with a first stage for the removal of larger particles followed by a second stage for the removal of finer particles.

Both the First Stage Bag Filter (BF-1) and Second Stage Bag Filter (BF-2) are Rosedale Model 6-30-2P-1-150-C-V-PB fitted with a No. 9 size bag element with filter area of 3.4 square feet (ft^2). For ease of operation, filtration is performed with units equipped with disposable bag-type filter elements. Initially the First Stage and Second Stage Bag Filters will be fitted with polyester bag elements with pore sizes of 25-micron (Model PE-25-P9S) and 15-micron (Model PE-15-P9S), respectively. These pore sizes may subsequently be adjusted based upon ongoing operating experience.

Pressure gauges are fitted at the inlet and outlet of each filter (PI-1 to PI-3) to measure pressure drop and determine the need to replace the bag elements. A high differential pressure switch is also provided for each filter (DPSH-1, DPSH-2) to detect and alarm excessive pressure drop.

4.4.3 Liquid-Phase GAC Adsorption

Based on the performance of the GAC units during the NTCRA, this configuration was retained for the final design of the treatment system. For the final design, one additional GAC units will be installed to increase process capacity to 30 gpm (10 gpm per GAC pair).

For the final design, there is a total of six GAC Adsorption Units (GAC-1 through GAC-6) configured as three parallel pairs operating in series. The lead units of each pair (GAC-1, GAC-3, GAC-5) remove the bulk of dissolved VOCs while the lag units (GAC-2, GAC-4, GAC-6) serve as polishers to remove residual VOC concentrations or as back-ups in case of a breakthrough in the lead units. When the GAC in the lead units becomes exhausted, these units are taken out of service, the lag units are moved into the lead position, and units filled with fresh GAC are placed into the lag position. The exhausted GAC is then taken offsite to be regenerated.

Two oversized (3-inch ID) piping headers are used to distribute groundwater to the lead GAC Adsorption Units and to transmit groundwater from the lead to the lag GAC Adsorption Units with a minimum of preferential flow to any unit. Valves and quick-couplings are provided on these headers for easy hook-up or disconnection of any GAC Adsorption Unit to or from any position within the GAC system. The header transmitting groundwater from the lead to the lag GAC Adsorption Units also includes a GAC Bag Filter (BF-3) to prevent the potential carryover of GAC fines from the lead to the lag units.

Pressure gauges are provided at the inlet (PI-3) and outlet (PI-4) of the lead GAC Adsorption Units and at the inlet (PI-5) and outlet (PI-6) of the lag GAC Adsorption Units to indicate pressure drop through these units. Two of the same gauges (PI-4, PI-5) can also be used to measure pressure drop through the GAC Bag Filter and determine the need to replace its bag element. A high differential pressure switch (DPSH-3) is also provided to detect and alarm excessive pressure drop through the overall GAC adsorption system.

Each GAC Adsorption Unit consists of the Carbtrol, Model HP-P200 that contains 200 pounds of GAC. The units are constructed of carbon steel with an epoxy-mastic coating. The maximum operating pressure is 125 psig. However, the system is designed to operate at a maximum pressure of approximately 50 psig with a flowrate of 10 gpm per pair of GAC Adsorption Units, for a total system design flowrate of 30 gpm. This provides an empty-bed contact time (EBCT) of approximately 10 minutes.

To protect the lag GAC units in the event carbon fines are released from the lead GAC units, a GAC Bag Filter was specified. A Rosedale Model 4-12-1 ½ P-1-150-C-V-PB fitted with a No. 4 size bag element (filter area of 1.0 ft^2) will be used. Initially the GAC Bag Filter will be fitted with a polyester bag element with pore size of 10-micron (Model PE-10-P4S). This pore size may subsequently be adjusted based upon ongoing operating experience.

To better evaluate the performance of each lead GAC unit, sampling ports were specified after each of the three lead GAC units (GAC1, GAC3, and GAC5).

4.4.4 Ion Exchange (IX)

Because the IX resin removes not only the metals of concem but also most other cations and because the metals of concern have to be removed to very low concentrations, the IX system has been oversized to provide the necessary exchange capacity. There are a total of four IX Units (IX-1 through IX-4) operating in parallel. An oversized (3-inch ID) piping header is used to distribute groundwater to the IX Units with a minimum of preferential flow to any unit. Valves and quick-couplings are provided on this header for easy hook-up or disconnection of any IX Unit to or from any position within the IX system (see Drawing No. 6).

Pressure gauges are provided at the inlet (PI-6) and outlet (PI-7) of the IX Units to indicate pressure drop through these units. A high differential pressure switch (DPSH-4) is also provided to detect and alarm excessive pressure drop through the overall IX system.

Each IX Unit is a US Filter, Model ZWDJ02594 that contains 3.6 ft^3 of cation exchange resin operating in the sodium cycle. The units are constructed of ABS-lined fiberglass. The maximum throughput of each IX Unit is 15 gpm, for a total system capacity of up to 60 gpm. However, the system is designed to operate at a normal operating flow rate of 30 gpm.

As indicated previously, the combined average manganese influent from both the northern and southern plumes have been below the 200 ug/L MEG, which is the effluent quality concentration required for discharge to the aquifer (see Table 4-1). However, the contribution of manganese from the northern plume is somewhat higher than from the southern plume. In the event the southern plume no longer needs to be remediated, than the influent manganese concentrations entering the treatment system will be higher. In this event, more frequent change out of the ion exchange media will be necessary in order to address manganese and other cations naturally present in the groundwater (i.e., calcium, magnesium, etc.).

More actual operating data under full 30 gpm flow will be required to determine the actual ion exchange frequency.

Based on the recent June 2001 plume-wide addition of oxidizer into the northern plume, this will likely cause dissolved phase manganese to precipitate out of solution. Therefore, influent concentrations will likely decline. If after the 2-month RA shakedown period the influent concentrations are consistently below the discharge criteria, then IX Units will be placed in standby mode to conserve the IX media, which is costly.

4.4.5 Piping, Valves, and Fittings

Using the NTCRA operating data and the need to increase treatment capacity to 30 gpm, some of the process piping has been upgraded to the next size, thus reducing head losses and maintaining flow velocities to below 5 feet/second.

Process piping for the final system will consist of 3.0-inch ID, 2.0-inch ID, 1.0-inch ID, and 0.75-inch ID chlorinated polyvinyl chloride (CPVC) piping. Sections of 1-inch ID nylon-reinforced, clear, flexible PVC hose are also used to connect piping to inlets and outlets on the GAC Adsorption Units and IX Units. Treated groundwater is discharged to the infiltration gallery through the existing 3-inch ID polypropylene piping.

A variety of valves are used throughout the treatment system, including ball, gate, check, and flow control. These valves are made of several materials including brass, PVC, and CPVC.

4.4.6 Instrumentation and Controls

To provide better operating efficiency and performance monitoring, the final design incorporates additional instrumentation and controls, including improved flow control, alarming of critical process conditions, and remote monitoring capabilities through a telemetry system.

4.4.6.1 Process Controls

Normal operation of the groundwater treatment system is controlled by the previously mentioned level control system (LE-1/LIC-1) and level switches (LSH-1, LSL-1). Flow through the treatment system is also monitored by a flow indication system (FE-1/FT-1/FQI-1). These instruments are connected to a panel-mounted programmable logic controller (PLC), NAS Model FP0-A21.

Because of the variability in flows from each extraction well, groundwater is first collected in the Primary and Secondary Equalization Tanks so that it can be delivered at a reasonably constant rate of flow through the downstream process units for optimum treatment efficiency. From the Primary and Secondary Equalization Tanks, groundwater is conveyed through the entire treatment system by the Transfer Pump.

As previously mentioned, operation of the Transfer Pump is normally controlled both by a level control system and level switches. The level control system consists of a level-measuring element (LE-1) mounted in the Secondary Equalization Tank and a panel-mounted level indicator controller (LIC-1). The level switches are both mounted in the Secondary Equalization Tank and include a high-level switch (LSH-1) and a low-level switch (LSL-1). When the water level in the equalization tanks rises to a first preset height, the high-level switch starts the Transfer Pump, after which the level indicator-controller of the level control system regulates pump speed (and thus discharge flow) so as to maintain the liquid level as close as possible to a second preset height. If the liquid level drops to a third preset height, the low-level switch stops the Transfer Pump. The level control system also provides an indication of the liquid level in the equalization tanks both on the control panel and remotely through the telemetry system. A manually-operated flow-control valve (FCV-1) is also provided in the discharge pipe of the Transfer Pump for fine-tuning of the flow and level control process, as may be necessary. The level-measuring element of the level control system is a Time Mark Model 450. The level indicator controller of the level control system is a Time Mark Model 4042.

A flow indication system monitors the groundwater flowrate through the treatment system and reports it both on the control panel and remotely through the telemetry system. The flow indication system consists of a flow-measuring element (FE-1), a local flow transmitter (FT-1) and a panel-mounted flow indicator-totalizer (FQI-1). The flow-measuring element is a Badger Model RCDL M40 nutating-disc type flow meter installed between the Second Stage Bag Filter and the GAC Adsorption Units. The local flow transmitter is a Badger Model FT-1 and the flow indicator-totalizer is a digital readout Badger Model ER-9.

Although the system is designed to operate unattended in an automatic mode, it is also capable of being operated in a manual override mode. For this purpose, the panel-mounted "ON-OFF-AUTO" selector switch of the Transfer Pump is placed in the "ON" position, which bypasses the automatic controls and operates this pump manually.

4.4.6.2 Alarmed Conditions and Telemetry System

Several faulty operating conditions are alarmed and these alarms are remotely transmitted via the telemetry system. Triggering of an alarm automatically stops the compressor of the Air Service Systems and activates an air solenoid that opens and rapidly discharges all air from the receiver tank and air supply line to the groundwater extraction pumps, thus shutting down these pumps. Alarmed conditions are reported both on the control panel and remotely through the telemetry system. The following operating conditions are alarmed:

1) **Abnormally high liquid level in the equalization tanks** - This condition could result from excessive incoming groundwater flow from the extraction pumps or insufficient outgoing flow to the treatment system due to a failure in that system, such as excessive pressure drop through one or more of the process units. This condition is detected by a high-high-level switch (LSHH-1) mounted in the Secondary Equalization Tank and connected to the PLC and telemetry unit.

2) **Abnormally high Transfer Pump discharge pressure** - This condition would most likely result from an obstruction in the pump discharge line, such as a malfunctioning

valve or an excessive pressure drop through one of the process units. In addition to shutting off the Service Air Systems compressors, this condition also automatically shuts off the Transfer Pump. This condition is detected by a high-pressure switch (PSH-1) mounted in the discharge line of the Transfer Pump and connected to the PLC and telemetry unit.

3) **Excessive pressure drop through the First or Second Stage Bag Filter** - This condition would result from premature plugging of the bag element of these filters due to a higher than usual concentration of suspended solids in the incoming groundwater. This condition is detected by high differential pressure switches (DPSH-1, DPSH-2) mounted in parallel to each bag filter and connected to the PLC and telemetry unit. These switches are Climair Series 930.8X.

4) **Excessive pressure drop through the GAC Adsorption Units** - This condition would result from an excessive buildup of suspended solids in these units. This buildup could be caused either by a failure of the upstream bag filters or by a higher than usual concentration of suspended solids in the incoming groundwater, or both. Excessive solids buildup could also result from greater than expected leakage of GAC fines from the lead GAC Adsorption Units, and either premature plugging of the GAC Bag Filter or failure of that filter and the resultant plugging of the lag GAC Adsorption Units. This condition is detected by a high differential pressure switch (DPSH-3) mounted in parallel to the GAC Adsorption Units and connected to the PLC and telemetry unit. This switch is a Climair Series 930.8X.

5) **Excessive pressure drop through the IX Units** - This condition would result from an excessive buildup of suspended solids in these units. This buildup could be caused either by a failure of the upstream bag filters or by a higher than usual concentration of suspended solids in the incoming groundwater, or both. Although this is less likely, excessive pressure drop could also result from deterioration of the IX resin itself, which would result in the buildup of fine particles within the units. This condition is detected by a high differential pressure switch (DPSH-4) mounted in parallel to the IX Units and connected to the PLC and telemetry unit. This switch is a Climair Series 930.8X.

6) **Abnormally high liquid level in the treatment building floor sump** - This condition would most likely result from failure of the Sump Pump but could also be caused by excessive flow to the floor sump due to a catastrophic leakage in the treatment system. This condition is detected by a high-high-level switch (LSHH-2) mounted in the treatment building floor sump and connected to the PLC and telemetry system.

7) **Abnormally high liquid level in the treated groundwater infiltration gallery** - This condition could result either from excessive groundwater discharge flow to the gallery or from a deterioration of the gallery's percolation characteristics. This condition is detected by a high-level switch (LSH-3) mounted in the observation manhole of the infiltration gallery and connected to the PLC and telemetry unit.

When an alarmed condition occurs, the telemetry unit, Sensaphone Model Scada 3000, receives an electronic signal from the PLC and automatically calls up to four predetermined telephone numbers (i.e., TtNUS office, TtNUS local technician, ME DEP, etc.) with one of the following four messages:

- Abnormally high liquid level in the equalization tanks.
- Abnormally high Transfer Pump discharge pressure.
- Abnormally high liquid level in the treatment building floor sump.
- Common Trouble, which covers all other alarmed conditions.

4.5 Remedial Action Performance Evaluation

The performance of the treatment system during the RA will be evaluated at startup and throughout a 2-month shakedown period.

Throughout this period, the treatment system will be operated as close as possible to its design capacity of 30 gpm. The treatment system will be inspected weekly and water samples will be collected from each sampling station and analyzed for COCs (VOCs and metals). Samples will also be collected for general water chemistry parameters (alkalinity, hardness, total organic carbon [TOC], and total suspended solids [TSS]) to evaluate the effectiveness of each stage of the treatment system for the 2 months shakedown duration.

Particular attention will be paid to the rate of TSS removal and differential pressure build-up through the First- and Second-Stage Filtration Units and to the concentration of metals of concern in the IX Units influent and effluent. As required, the pore size of the disposable bag filter elements will be adjusted to provide the necessary balance between TSS removal efficiency and frequency of replacement. Also as required, the IX Units will be operated or kept off-line.

Table 4-2 presents the summary of treatment plant samples to be collected during the startup/shakedown period. To assess the quality of the groundwater entering the extraction wells, samples will also be collected as presented in Table 4-2.

4.6 Equipment List

4.6.1 Tanks

Item Number	Number Required	Name/Description
T-1, T-2	2	Primary Equalization Tanks • Type: vertical, cylindrical, closed top with vent • Construction: polyethylene • Special Features: 6-in bottom connection to existing Secondary Equalization Tank & 2-in bottom drain valve • Dimensions: 35-in diameter x 63-in height • Capacity: 220 gallons • Manufacturer & Model: Chem-Tainer IC3563IC, or equivalent

4.6.2 Pumps

Item Number	Number Required	Name/Description
P-1	1	Transfer Pump • Type: horizontal, centrifugal, variable-speed drive • Rating: 30 gpm @ 115 ft TDH • Motor: 3 HP, 3500 RPM • Manufacturer & Model: Goulds 3656S-22BF1J5E0 with Aquavar drive, or equivalent

4.6.3 Suspended Solids Separation Equipment

Item Number	Number Required	Name/Description
BF-1	1	First Stage Bag Filter • Type: pressurized housing with single bag filter element • Configuration: vertical, cylindrical, side inlet, bottom outlet • Construction: carbon steel, 150 psi rating, 2-in NPT inlet & outlet • Filter Bag: polyester, 25 micron pores, No. 9 size, 3.4 ft^2 filter area • Design Operating Flowrate: up to 100 gpm • Dimensions: 8-in diameter x 50-in height • Manufacturer & Model: Rosedale 6-30-2P-1-150-C-V-PB, or equivalent
BF-2	1	Second Stage Bag Filter • Type: pressurized housing with single bag filter element • Configuration: vertical, cylindrical, side inlet, bottom outlet • Construction: carbon steel, 150 psi rating, 2-in NPT inlet & outlet • Filter Bag: polyester, 15 micron pores, No. 9 size, 3.4 ft^2 filter area • Design Operating Flowrate: up to 100 gpm • Dimensions: 8-in diameter x 50-in height • Manufacturer & Model: Rosedale 6-30-2P-1-150-C-V-PB, or equivalent
BF-3	1	GAC Bag Filter • Type: pressurized housing with single bag filter element • Configuration: vertical, cylindrical, side inlet, bottom outlet • Construction: carbon steel, 150 psi rating, 1½-in NPT inlet & outlet • Filter Bag: polyester, 10 micron pores, No. 4 size, 1.0 ft^2 filter area • Design Operating Flowrate: up to 50 gpm • Dimensions: 5.5-in diameter x 12-in height • Manufacturer & Model: Rosedale 4-12-1 ½P-1-150-C-V-PB, or equivalent

4.6.4 Dissolved Organic Compounds Removal Equipment

Item Number	Number Required	Name/Description
GAC-1 to GAC-6	6	GAC Adsorption Units • Type: liquid-phase pressurized units • Construction: polyethylene tank, polypropylene nozzles • Connections: top-mounted 1-in FNPT inlet & outlet • GAC Capacity: 6.5 ft^3 or 200 lbs • Design Operating Flowrate: up to 10 gpm • Dimensions: 16-in diameter x 69-in height • Manufacturer & Model: Carbtrol HP-P200, or equivalent

4.6.5 Dissolved Metals Removal Equipment

Item Number	Number Required	Name/Description
IX-1 To IX-4	4	IX Units • Type: liquid-phase pressurized cation exchange unit • Construction: ABS-lined fiberglass tank, PVC nozzles • Connections: top-mounted 1-in union female inlet & outlet • Resin Volume & Type: 3.6 ft^3 strong cation (sodium cycle) • Design Operating Flowrate: up to 15 gpm • Dimensions: 14-in diameter x 50-in height • Manufacturer & Model: US Filter ZWDJ0 2594, or equivalent

4.6.6 Instrumentation and Controls

Item Number	Number Required	Name/Description
FE/FT/FQI-1	1	Treatment System Flow Totalizer System • In-line positive-displacement type 1-inch diameter flow element, Badger Model RDCL M40 or equivalent • Meter-mounted mechanical type flow transmitter, Badger Model FT-1 or equivalent • Panel-mounted digital flow totalizer, Badger Model ER-9 or equivalent
FE/FT/FQI-2	1	North Plume Flow Totalizer System • In-line positive-displacement type 1-inch diameter flow element, Badger Model RDCL M40 or equivalent • Meter-mounted mechanical type flow transmitter, Badger Model FT-1 or equivalent • Panel-mounted digital flow totalizer, Badger Model ER-9 or equivalent

Item Number	Number Required	Name/Description
FE/FT/FQI-3	1	South Plume Flow Totalizer System • In-line positive-displacement type 1-inch diameter flow element, Badger Model RDCL M40 or equivalent • Meter-mounted mechanical type flow transmitter, Badger Model FT-1 or equivalent • Panel-mounted digital flow totalizer, Badger Model ER-9 or equivalent
FCV-1	1	Flow Control Valve
LCS-1	1	Equalization Tank Level Control System • Tank-mounted (T-2) measuring element (LE-1): Time Mark 450, or equivalent • Tank-mounted (T-2) HI and LO level switches (LSH-1, LSL-1) • Panel-mounted indicator-controller (LIC-1): Time Mark 4042, or equivalent
PI-1 to PI-7	7	Pressure Indicators • 0-100 psi indicating range • Manufacturer & Model: Ashcroft Type 1279, or equivalent
DPSH-1 to DPSH-4	4	High Differential Pressure Switches • Type: adjustable diaphragm-type switch • Function: alarms high differential pressure through First- or Second-Stage Bag Filters, or GAC Adsorption.Units, or IX Units. • Manufacturer & Model: Climair Series 930.8X, or equivalent
	1	Telemetry System • Type: auto-dialer • Function: relays operating data to remote monitoring station • *Manufacturer & Model: Sensaphone Scada 3000, or equivalent*

5.0 GROUNDWATER DISCHARGE

This section provides the design criteria, a summary of the infiltration gallery performance, and the selected configuration for the final design.

Design Criteria

The purpose of the infiltration gallery is to discharge the treated groundwater back into the underlying aquifer. The infiltration gallery has operated without problems since January 2000 without problems.

While direct discharge to the Dennys River is permissible, requirements for discharge are more stringent than for drinking water quality. Therefore, recharge of treated water (drinking water quality) into the underlying aquifer is the most reasonable and cost-effective measure.

Design Basis

The infiltration gallery was designed during the NTCRA to accommodate at least 20 gpm of discharge from the treatment building. Periodic evaluations of the infiltration gallery through visual observations through the inspection hatch have not identified any operational problems. Neither mounding of groundwater or evidence of biofouling within the infiltration gallery have been noted.

For the final design, the infiltration gallery specifications were evaluated to assess whether the system as build can adequately handle a 30 gpm process flow. Review of the discharge calculations indicate that initially, the northern and southern extraction system will be operating at 23 to 30 gpm. With increasing time of groundwater extraction operation, the contaminant plumes will shrink and cleanup goals will be met beginning with the outermost extraction wells that will cause reductions in the process flow and the discharges to the infiltration gallery. This has already occurred in the southern plume, where extraction well RWS-1 has already met the 3 μg/L goal for PCE.

Selected Design

The selected design is the current infiltration gallery. Treated water is pumped through 3-inch ID polypropylene piping to an underground leaching gallery where it gradually percolates back into the aquifer. Generally, the infiltration gallery is a 100-foot long by 6-foot wide trench, approximately 6-10 feet below grade. The trench is backfilled with approximately 2 feet of ¾-inch crushed stone, which is wrapped in geotextile filter fabric to prevent clogging of the stone by the surrounding soils. Water is distributed through the stone through a 4-inch ID ABS plastic, perforated drainage pipe. The gallery location and construction details are provided in Drawing No. 1.

During the RA shakedown period, the infiltration gallery will be inspected weekly to assess whether mounding is occurring, and to inspect for fouling.

6.0 TREATMENT BUILDING

The groundwater treatment system is located within a small pre-engineered building constructed during the NTCRA in 1999. The only utilities available at the Site are electric and telephone. Water and sewer are not available. The building elevations and electrical layout are depicted on Drawing No. 7.

The design criteria for the treatment building are to provide an enclosure of sufficient size to house and protect all treatment system components, provide necessary utilities, and provide a means to remove water from the building floor in the event of a leak.

The interior space within the treatment building is sufficient to accommodate the expansion of the treatment system, including the addition of new process units (i.e., second equalization tank, new GAC units, etc.). Therefore the selected design of the treatment building is the existing structure. Half of the treatment building had been used to date as an office and supply storage area. However, the expansion of the treatment system will require much more of the floor space. The office and supply storage will be moved out of the treatment building into a modular office unit that will be installed adjacent to the treatment building.

6.1 Building Structure and Foundation

The building foundation is a 6-inch thick, wire mesh reinforced concrete slab. The slab is supported on the perimeter by 4-foot high by 8-inch thick, steel reinforced concrete frost walls. The foundation footings are approximately 1 foot-8 inches wide by 10 inches high steel reinforced concrete. There are several penetrations in the floor slab to accommodate groundwater piping, electrical conduit, and the air supply piping. The floor slab also has a sump cast into it with the floor pitching towards the sump. Refer to the attached drawings for construction details and locations of floor penetrations and conduit.

The building is a pre-engineered structure measuring 24 feet in length by 16 feet in width with a 10-foot eave height. The roofing and siding is constructed of panel aluminum. The building is insulated. The building has one 36-inch wide steel man-door, one 8 feet by 8 feet steel rollup door, and a 36-inch wide by 24-inch high aluminum slider style window with locks. There is also a louvered vent along the northern wall to allow for ventilation during the summer months.

6.2 Utilities

6.2.1 Electrical

Electrical service to the treatment system and to the extraction wells are provided by a 200-amp, 240 volt, single-phase service that is brought in through overhead connections from Route 191. The service panel is located on the rear wall of the building. Several convenience outlets (some are GFIs) are located along the interior walls of the building.

6.2.2 Telephone

One telephone line is currently installed in the building. Service is provided by overhead connections from Stone Road.

6.2.3 Lighting

Exterior lighting is provided by motion sensor and photo-sensor controlled floodlights located above the overhead roll-up door. Lights are normally left in the "on" position and activate automatically at dusk and if motion is detected within a certain preset radius from the sensor. The sensitivity of the sensors is adjustable.

Interior lighting is provided by six flush-mounted, 4-foot long, fluorescent light fixtures.

6.2.4 Heat

Heat for the building interior is provided by a single, ceiling-mounted, electric space heater, BRKO Model HUL-524TA. The heater is thermostat controlled. The thermostat is located on the rear wall and is normally set to 55 degrees Fahrenheit (°F) whenever the building is not occupied.

6.3 Floor Sump Pump

A Sump Pump (P-2) is installed in the floor sump to transfer water from that sump to the Primary Equalization Tank. The Sump Pump is a 0.5 hp submersible centrifugal, Master Plumber utility pump. This pump comes complete with its own float start-stop switch controls for automatic operation based upon liquid level in the sump. The floor sump must be periodically inspected and cleaned, as necessary, to remove any foreign materials or dirt/sand that may have fallen into the sump. The sump is covered with an aluminum cover to prevent objects from falling in and to prevent injury. The cover should always be kept in-place, except when servicing the Sump Pump or sump.

7.0 IN-SITU TREATMENT DESIGN

This section provides the design criteria, a summary of the in-situ oxidation pilot test performance, and the final design in-situ oxidation treatment.

7.1 In-Situ Treatment Design Criteria

The purpose of the in-situ treatment is to decrease residual PCE mass in the northern and southern plumes such that groundwater quality is restored or that the time required for remediation could be greatly shortened.

As the result of the 1998 NTCRA, VOC-contaminated soils were removed from the areas overlying the northern and southern plumes. Under the RA, the contaminated groundwater in the northern plumes overburden, and the shallow and deep bedrock units will need to be addressed. The majority of contamination resides in the shallow fractured bedrock unit. In the southern plume, the residual contamination is present in the overburden unit and only a minimal amount remains in the shallow bedrock unit. Detailed descriptions of the plumes were presented previously in Section 1.3.5.3, as depicted in Figures 1-5 through 1-9.

As presented previously, an in-situ chemical oxidation study was completed in two phases at the Site. Phase 1 was initiated in July 2000 and concluded in March 2001. The objective Phase 1 was to evaluate whether chemical oxidants could be effectively delivered into the water-bearing fractures in the bedrock aquifer within the most contaminated portions of the contaminant plumes, and whether PCE concentration could be decreased. The heterogeneous nature of the bedrock fractures and the low permeability of some of the fracture sets made it difficult to estimate how effective the chemical oxidation could be. While in-situ oxidation has been employed at various sites for remediation, these had been all contaminated overburden aquifers or unsaturated soils. Delivery and distribution of the oxidizer in a relatively homogenous aquifer material are more implementable than in a fractured bedrock environment. The Phase 1 test results provided crucial empirical information in determining whether in-situ chemical oxidation was viable for the Eastern Surplus Company Site and whether an expanded Phase 2 test would be implemented.

The Phase 2 pilot test objective was to further evaluate the effectiveness of in-situ chemical oxidation in decreasing groundwater PCE presence in the northern and southern plumes to below remediation goals (drinking water standards). The Phase 2 pilot test consisted of continuing the application of sodium permanganate into the northern and southern plumes on a more widespread basis, and varying how permanganate would be applied. As a supplement to the in-situ oxidation tests, enhanced flushing tests were performed to assess whether altering the groundwater flow through the bedrock aquifer could stimulate PCE removal.

In-situ treatment makes use of the current array of monitoring wells screened in the overburden and the bedrock units of the aquifer, and the temporary reagent addition well points.

The criteria governing the design and implementation of in-situ treatment include:

- lateral and vertical extent of the PCE in the northern and southern plumes,
- hydrogeology of the bedrock units,
- delivery and effectiveness of the reagents into less accessible portions of the bedrock aquifer,
- accelerating the removal of residual VOCs from the aquifer through flushing.

7.2 Design Basis and Assumptions

The basis of design for RA in-situ treatment was information developed during the in-situ chemical oxidation pilot tests performed to date at the Site, from information developed during aquifer investigations (from the RI and supplemental investigations), the 1999 NTCRA pre-design investigation, and additional hydrogeologic evaluations conducted during the RD phase.

Information regarding the hydrogeology of the aquifer units and the extent of groundwater contamination were presented previously in Sections 1.3.4 and 1.3.5, respectively.

Evaluation of reagent delivery and distribution, and effect of oxidation were performed under the pilot test that ran from July 2000 through June 2001. The accelerated flushing of the aquifer was evaluated in enhanced flushing test completed in March 2001.

The design basis for in-situ treatment was predicated on the conceptual model of groundwater contamination based on observations of PCE distribution in the various aquifer units and knowledge of some of the Site history relating to how solvents were released at the ground surface overlying the current plume areas.

Conceptual Model of PCE Contamination

This section provides an overview of the conceptual model of where PCE contamination is believed to distributed in the Site groundwater plumes. The conceptual model was used to formulate the technical approach to implementing the pilot test. In-situ chemical oxidation and enhanced flushing were two methods considered during the FS that could potentially result in the quicker achievement of cleanup objectives. Therefore, the design of the pilot tests took into consideration where the VOCs potentially reside in the overburden and bedrock aquifers and how VOCs may be effectively removed or destroyed.

Overburden aquifers, considered to generally consist of homogeneous porous media, are more easily characterized than bedrock aquifers. The design and placement of injection wells or extraction systems can be used to effectively address overburden aquifer contamination. Almost all of the in-situ chemical oxidation remediation programs have been effectively conducted in overburden aquifers. Conceptually, the VOCs detected in the overburden aquifer are likely adsorbed to the organic carbon in the soil matrix, or are present as aqueous- or NAPL-phase chemicals in the pore water. The VOCs are mobilized by infiltration, diffusion, dissolution, and advection. At the Site, NAPL is not believed to be present in the overburden aquifer: to date, no evidence of NAPL has been detected during sampling or drilling (no sheen in recirculated water) in overburden borings, and the low concentrations of PCE detected do not suggest potential NAPL presence.

In a heterogeneous bedrock aquifer, there is much less certainty as to how well bedrock fractures and contaminants can be characterized. A field investigation program including well installation and borehole geophysics was implemented to characterize the extent of contamination and aquifer tests, and a tracer injection test was used to assess how well the various fractures are connected. Despite these investigation measures, characterizing the bedrock aquifer, flow within the bedrock system, and contaminant extent, are at best approximate. Conceptually, VOCs may be present in the aqueous or NAPL phase in the connected bedrock fractures, in the bedrock matrix (primary porosity, although low), or in closed-end fractures. VOCs in these portions of the bedrock aquifer are mobilized through diffusion, dissolution and advection.

At the Site, NAPL, in ganglia (minute quantities) as opposed to "pools", are believed to be present in the northern bedrock aquifer based on the persistent elevated PCE concentrations detected in both upper and deep bedrock fractures despite the removal of the heavily contaminated soils during the NTCRA. Based on the data acquired during the RI and the Phase 1 pilot test, it is reasonable to conclude that PCE is likely present in both aqueous and NAPL phases (as PCE NAPL, as PCE dissolved in oils), in the connected fractures, in the bedrock matrix, and in the closed-end fractures. The PCE may be dissolved in oils that could have seeped from the releases that occurred at the ground surface in the northeastern portion of the Site. NAPL has been never been detected during sampling or drilling (no sheen in recirculated water) of the bedrock borings.

Selection of Oxidizer

Chemical oxidation is the process by which the oxidation state of a compound is raised to change the chemical form of the compound to render it less toxic, or to change its solubility or stability. This process has been used traditionally in ex-situ applications to treat water, municipal wastewater, or industrial wastewater to destroy organic compounds, to remove soluble iron and manganese, or to control odors. In more recent times, chemical oxidants have been used in a variety of in-situ pilot tests and full-scale applications to destroy residual organic compound contamination in soils and in aquifers.

For groundwater applications, chemical oxidation has been used to decrease organic compound levels in overburden aquifers (saturated soils) much faster than would occur through the gradual desorption and diffusion of groundwater contaminants for the aquifer materials. Typically, injection wells are installed to deliver the chemical oxidants to subsurface soils or into aquifers. The effectiveness of chemical oxidation is highly dependent on the ability for the oxidizing agents to come into contact with the contaminants and that there is adequate contact time. Therefore, the successful implementation in-situ chemical oxidation is highly dependent on accurate characterization of site-specific geology, hydrogeology, and contaminant distribution to determine the proper siting of injection wells and the ability to deliver oxidizers into the contaminated aquifers.

Technology vendors currently employ various chemical oxidants including potassium or sodium permanganate, hydrogen peroxide, Fenton's reagent (iron catalyzed hydrogen peroxide), or ozone to destroy residual organics in saturated soils and in overburden groundwater plumes.

Of these oxidants, Fenton's reagent (catalyzed hydrogen peroxide that generates hydroxyl radicals) is the most reactive and would offer greater effectiveness in destroying the chlorinated VOCs present at the Site. However, because of the exothermic nature of the reaction, the potential handling hazards, and proximity to the Dennys River, this oxidant was ruled out.

Permanganate and other reagents offer lesser, but still effective means to oxidize PCE. The following table presents the relative oxidative power of various reagents; permanganate and hydrogen peroxide are comparable in strength:

Reactive Species	Relative Oxidation Power (with chlorine = 1.0)
Fluorine	2.23
Hydroxyl radical	2.06
Atomic oxygen (singlet)	1.78
Hydrogen peroxide	1.31
Permanganate	1.24
Chlorine dioxide	1.15
Hypochlorous acid	1.10
Chlorine	1.0

Source: US Peroxide, on-line reference library
http://www.h2o2/applications/industrialwastewater/fentonsreagent.html

Potassium and Sodium Permanganates - Potassium permanganate ($KMnO_4$) is a strong oxidizer that is commonly used to treat water, wastewater, and effluent from chemical manufacturing. In treating potable water, $KMnO_4$ is used to oxidize iron, manganese, and hydrogen sulfide. In wastewater applications, it can be used to oxidize hydrogen sulfide and odors, as well as destroying organic compounds. $KMnO_4$ is a dark purple crystal that is mixed with water to form solutions of desired strengths and is typically mixed on site prior to use. $KMnO_4$ has a maximum theoretical solubility of about 4 to 5 percent in water (typically a 1 to 3 percent maximum in use). The dissolution of $KMnO_4$ results in a pink- or purple-colored solution.

The color will gradually disappear or become brown or amber as the permanganate ions oxidize organic compounds and metals.

Sodium permanganate ($NaMnO_4$) has gained prominence as an oxidizer and is available commercially as a 40 percent solution, thus providing a substantially greater number of permanganate ions (MnO_4^-) that can be used to oxidize organic contaminants. The $NaMnO_4$ also exhibits similar color quality as the $KMnO_4$ when mixed in with water.

For environmental applications, $KMnO_4$ has been used for the in-situ oxidation of organic contaminants. However, $NaMnO_4$ is gaining favor in both industrial and environmental applications because of the relative ease of handling (no dissolution of crystals required) and greater water solubility. The Phase 1 pilot test at the Eastern Surplus Company Site used sodium permanganate as the preferred oxidant because higher concentrations can be introduced into the aquifer, resulting in more effective oxidation. Permanganate's effectiveness is dependent on the pH and temperature in groundwater.

The oxidation of chlorinated alkenes such as PCE and TCE are as follows:

[PCE] $C_2Cl_4 + 2\ NaMnO_4 \Rightarrow 2\ CO_2\ (aq) + 2\ MnO_2\ (s) + 2NaCl + Cl_2$ [as HOCl or OCL$^-$]

[TCE] $C_2Cl_3H + 2\ NaMnO_4 \Rightarrow 2\ CO_2\ (aq) + 2\ MnO_2\ (s) + 2NaCl + HCl$

For the PCE oxidation pathway, the end products include chlorine gas (Cl_2) that will combine with water to form other oxidants such as hypochlorous acid (HOCl) and hypochlorite (OCl^-), which will further degrade other chlorinated solvents. For the TCE oxidation pathway, the end products include HCl, which will dissociate in water and form HOCl and OCl^-, increasing the variety of oxidants that can react with chlorinated alkenes. The insoluble MnO_2 will remain in the aquifer, coating soil particles or adhering to the bedrock matrix. Because MnO_2 is insoluble and will form precipitates, there exists the possibility that "plugging" of the aquifer may occur. However, the information concerning this phenomenon is inconclusive. The permanganate solution can be delivered into the formation by pumping into existing monitoring wells or strategically located wells. The permanganate has a longer life span (days to several weeks) than the peroxide ion, and is therefore desirable for conditions where sustained reagent presence is warranted. Oxidation of organic compounds using permanganate does not result in the release of heat or off-gasses.

7.3 Performance Data

The results of the pilot tests are summarized below, along with conclusions and uncertainties.

Phase 1

TtNUS subcontracted IT Corporation (IT) to perform Phase I testing. TtNUS and IT met and planned the Phase 1 applications. IT personnel performed the permanganate addition while TtNUS personnel provided oversight and assistance. Initially, a baseline set of field parameters was measured and sodium permanganate was added on July 18 and 20, 2000, to selected wells located in the "core" of both the northern and southern VOC plumes, after. In the northern plume, permanganate was added into the bedrock wells MW-35B1, MW-35B2, IN-1B, and IN-2B. In the southern plume permanganate was added into three overburden wells (MW-3S, MW-33S, IS-2S), two bedrock wells (MW-8B, IS-2B), and a recovery well (RWS-6). Figure 7-1 depicts the locations of wells used during Phase 1.

Subsequently, field parameters were measured daily to monitor the effects of the additions and to monitor anticipated startup of both the northern and southern extraction wells to prevent migration to the Dennys River. The permanganate addition was performed with the groundwater extraction system inactive to provide the maximum reagent contact time in the formation. After the initial addition, permanganate was detected in the one of the southern extraction wells (RWS-5), and the extraction system was activated to prevent potential permanganate discharge into the Dennys River.

The extracted permanganate-rich groundwater was stored temporarily in a 21,000-gallon capacity frac tank. The Phase 1 pilot study was then modified to include recirculating extracted groundwater water with permanganate into upgradient monitoring wells in both the northern and southern VOC plumes to maximize the use of the permanganate and provide a greater distribution of the oxidizer.

- Northern Plume – PCE results from groundwater sampling are presented in Section 1.3.5.3. These results indicated that despite the repeated application of permanganate into the core of the plume, the northern plume PCE concentrations did not decline as expected. Rather, PCE concentrations rose steadily from September through November 2000 and then started to decline in December 2000. By March/April of 2001, PCE concentrations in some of the wells rose again.

Although two additional doses of permanganate were applied (September 2000 and January 2001) after the initial dose, PCE concentrations continued to increase. These increases could be attributed to several possibilities: mobilization of PCE from the upper fracture zone and the top of bedrock, which are typically unsaturated, or possibly oxidation of the oil or organic substrate to which the PCE was adsorbed thus causing it to be mobilized.

Closer inspection of the Phase 1 data also indicate that the aquifer formation may have an oxidation demand comprising minerals in the bedrock matrix, other organics, and dissolved phase metals ions. These components may be preferentially oxidized by the permanganate because they are more easily oxidized than chlorinated ethene compounds. A reasonable hypothesis to explain the increase in PCE is that the substrate (oils or organic carbon) to which the PCE was adsorbed, was oxidized or destroyed by the permanganate. As the organic compounds were destroyed, they could no longer keep the PCE adsorbed. Without a substrate, the PCE will then partition to the aqueous phase. At some point, sufficient portions of the organic substrate will be destroyed, which could result in the faster release of PCE into the aqueous phase. Mobilization of the PCE would be addressed by the extraction wells.

Another set of observations made during Phase 1 was that a number of groundwater samples containing elevated VOCs were collected from wells that had strong permanganate presence. The water in the well was purple to deep purple, indicating a sufficiently high concentration of permanganate. This posed great difficulties in that permanganate was a strong oxidizer and in contact with PCE, the PCE would be completely oxidized in a relatively short period of time (hours to days) depending on temperature or pH. Although the groundwater temperature is typically 10 degrees Celsius, PCE would still degrade in the presence of permanganate.

After evaluating the hydrogeologic setting (fractured bedrock) and how samples are collected, TtNUS concluded that elevated PCE concentrations occurred despite permanganate presence because the permanganate was not well distributed in the bedrock fractures. Rather, the permanganate did not enter into the bedrock fractures because is was added into the wells by direct pouring. Permanganate, being a dense liquid, sank to the bottom of the boreholes with probably minimal penetration into the fractures. During sampling, the well is purged using low-stress (low-flow) techniques to ensure fresh formation fluids are collected. Using low-stress methods, the PCE-contaminated groundwater is drawn from the fractures and mingled with the permanganate in the well borehole. The sample is quickly extracted and treated with sodium thiosulfate to neutralize the permanganate. This neutralization step was developed by TtNUS to prevent bias low or false negative analytical results because the permanganate will continue to oxidize the PCE in the sample bottles. Hence, VOCs were detected in samples that had substantial permanganate presence.

The hypothesis presented lead to the conclusion that permanganate was not being adequately distributed into the shallow bedrock fractures resulting in poor contact between the PCE and the permanganate. Examination of the test approach and results lead TtNUS to conclude that PCE released at the ground surface probably entered into the fractured top of bedrock, into the primary fractures, and into dead-end fractures. To effectively remediate the aquifer, permanganate needed to be delivered to all parts of the bedrock to ensure good contact between contaminant and the oxidizers.

With this hypothesis, Phase 2 was planned and developed by TtNUS and IT.

- Southern Plume - The Phase 1 application of sodium permanganate in conjunction with the removal of contaminated soils in 1999 have been effective in reducing the PCE concentrations in southern plume. Even without the Phase 2 addition, PCE concentrations are declining. In-situ oxidation has been successful in decreasing the southern plume PCE concentrations.

Phase 2

- Northern Plume – Based on Phase 1 results, PCE appeared to be present as aqueous phase and NAPL in the shallow connected bedrock (extending from the top of bedrock surface to the upper bedrock fractures), in some deep bedrock fractures, in the bedrock matrix, and in closed-end fractures. Permanganate needed to be delivered into each of these portions of the bedrock for effective treatment to occur.

Top of Bedrock Application - Approximately 65 direct push (DP) well points (consisting of 0.75-inch slotted PVC) were installed through the overburden material to the top of the bedrock surface (Figure 7-1). The grid pattern approximates the bedrock plume footprint. A 20-foot well spacing was selected based on estimated radius of application for the overburden materials in the northern plume. Permanganate was added into each direct push well so that it could be delivered to the top of the bedrock surface where some residual PCE was expected to be present. The addition proceeded from west to east and ceased within 15 feet of the existing extraction wells. The permanganate was anticipated to flow into the bedrock fractures, probably following the migration pathways where PCE entered into the bedrock aquifer, thus coming into contact with residual PCE in the top of bedrock. This permanganate application was designed to address PCE present in the connected fractures, the bedrock matrix, and the closed-end fractures that comprise the fractured bedrock surface.

After permanganate was added into the first two rows of DP wells, field observations indicated that permanganate was not observed in nearby wells, indicating that the permanganate was not distributing across the top of rock. When the permanganate was applied, a number of the DP wells were dry. Without a saturated top of bedrock, the permanganate could not be dispersed. It is also possible that the permanganate became absorbed into the soil matrix. Because of this lack of dispersal, a set of intermediate DP wells were installed between the original drive points. Permanganate was also added followed by an equal volume of water to help disperse it.

To assess the dispersal range of one DP point, water was added into one drive point situated in the middle of four DP wells that formed a 20-foot square grid. Although several hundreds of gallons of water were added, water was not observed in the four corner DP wells. This field test indicated that permanganate was not being dispersed and was possibly being absorbed into the soil matrix.

Based on the results of the dispersal test, one volume of water (equivalent to volume of permanganate solution added) was added into the DP wells to help promote permanganate dispersal and entry into the fractured bedrock.

Shallow and Deep Bedrock Fractures – Four bedrock injection wells (IW-1 through IW-4) were installed to supplement the existing monitoring wells network. In most of the wells, the shallow and deep bedrock fractures were temporarily isolated through the use of packers or the boreholes were completed as pairs of nested 1.25-inch PVC well screens. Permanganate was pumped into MW-20B, MW-34B, MW-35B, IN-1B, and IN-2B under a slight pressure (10 psi) to try and force it into the bedrock fractures. Permanganate was added into each fracture zone. Addition of permanganate into the upper and deep fractures was planned to address PCE presence in the connected fractures, the bedrock matrix, and the closed-end fractures that comprise the shallow and deep bedrock fractures.

- June 2001 Results - The June 2001 PCE results were much more favorable than the results from the several previous sampling rounds. PCE levels had declined and were generally lower than the September, November, and December 2000 conditions. The data represented a downward trend, but also indicated that residual PCE still remained.

Evaluation of the test results and permanganate delivery approach resulted in the conclusion that the permanganate could not be adequately delivered into the bedrock fractures using the techniques employed during Phase 2. There is likely a number of dead-end fractures or fractures with low permeability in which the PCE residual is trapped. Permanganate applied by either direct pour into the wells or through low pressure will only preferentially push the reagent into the primary fractures that are connected. Permanganate cannot be forced into a dead-end fracture because it is already water filled and the water cannot be displaced because there is no exit. Similarly, permanganate under high pressure would be required to force it into low-permeability fractures.

- Southern Plume - Permanganate was not applied to the southern plume because of insufficient supply of compressed air during Phase 2. The single 5-hp compressor's output of compressed air was used exclusively for the northern extraction system because of the addition of seven new extraction wells. Full hydraulic containment was required in the northern plume because of the plume-wide application of permanganate. Even without any additional permanganate addition since July 2000, the PCE concentrations continued to decline. The southern plume had exhibited significant decreases in PCE levels, attributable to a combination of source removal during the NTCRA and the application of permanganate in the overburden unit.

Conclusion

To date, the in-situ oxidation pilot test has produced mixed results. In the northern plume, analysis of the bedrock fracture issues, permanganate delivery methods, and analytical data leads to the conclusion that in-situ oxidation can only be effective if the liquid reagent is delivered into all portions of the bedrock: the connected fractures, the low-permeability fractures, and especially the closed-end fractures. While permanganate is a strong oxidizer and is capable of degrading PCE into harmless compounds, its chemical effectiveness is compromised in the bedrock environment because of the inability to deliver the permanganate effectively into all of the bedrock formation. While this may be the case, other delivery methods may allow for more effectively delivery into the bedrock fractures.

There is also the possibility that the permanganate applied into the DP-wells (to the bottom of the overburden) may have resulted in the absorption of the reagent into the soil matrix. The volume of water added may not have been sufficient to leach the permanganate out of the soil matrix and into the top of bedrock.

The southern plume has been successful due in part contamination being present in the overburden aquifer. The in-situ oxidation was supported by the source removal.

7.4 Selected Design and Alternatives

Northern Plume

For the northern plume, difficulties in delivering the permanganate effectively into the bedrock fractures has likely resulted in the incomplete destruction of PCE. The final design for in-situ treatment will consist of delivery techniques that can better access the closed-end bedrock fractures and possibly the application of other reagents. With the startup of the full-scale groundwater extraction and treatment in late August 2001, in-situ treatment should only be started after the startup and shakedown period has concluded. This would allow for effective evaluation of the new 30-gpm groundwater treatment system.

During the RA, another round of groundwater samples would be collected from the northern plume to evaluate PCE trends, in light of the June 2001 results, which showed decline. A comprehensive round will be collected during fall 2001. The data will be evaluated to determine whether there have been changes to groundwater quality following the full-scale operation of the extraction wells.

As presented previously, it is possible that some of the permanganate applied into the DP-wells is still adsorbed in the soil matrix overlying the bedrock plume. In this situation, with precipitation and infiltration, more water would flush permanganate from the overburden into the top of rock and the shallow bedrock, thus disseminating the permanganate. Therefore, natural infiltration of permanganate to promote dispersal will be allowed for approximately 4 to 6 months after the completion of the shakedown period. Groundwater samples will be collected in spring 2002 to assess whether the PCE concentrations are declining or have stabilized. Once the data have been evaluated, then options are available to address the residual VOCs that may still be present in the bedrock fractures. These options include:

- Installing solid-phase, extruded potassium permanganate pellets in the IW-wells. The pellets would be suspended in the wells in mesh polyethylene bags to provide a continuous, low-dosage concentrations that would pass through the shallow bedrock fractures (where most of the PCE reside). If the PCE levels decline quickly, the mesh bags can be quickly removed thus stopping any further applications. A disadvantage is the addition of permanganate into the aquifer, which can periodically result in permanganate loading to the treatment system and reducing the useful life of the GAC.

- Using both injection and extraction wells, implement enhanced flushing to recirculate permanganate in the formation. This allows for a longer permanganate presence in the aquifer and allowing more PCE oxidation. This approach may not work with the closed-end fractures. Another disadvantage is the formation of manganese dioxide in the aquifer, which could clog pores or small fractures. However, this effect was not evaluated during the pilot test. Manganese dioxide has posed problems for the filtration units in the treatment system; This is expected to be an intermittent condition.

- Depending on test data and Site hydrogeologic conditions, perform another plume-wide wide application of sodium permanganate. However, this approach may result in too high a permanganate load into the aquifer, especially if the Phase 2 load is still absorbed into the soil matrix.

- Using another strong oxidizer such as hydrogen peroxide. While the peroxide tends to decompose rapidly, it could effectively degrade PCE. Other disadvantages include the greater health and safety issues associated with the handling of concentrated hydrogen peroxide. New application wells constructed of stainless steel will likely be needed. In its favor, the only decomposition product would be water when peroxide dissociates. However, delivery of peroxide into the bedrock formation faces the same problems as permanganate.

- Using straddle packers to isolate fractures, dewater the fractures, and then pressure inject an oxidizer into the evacuated fractures. This approach could be applied along the entire vertical length of each bedrock borehole and could also be effective for the closed-end fractures.

- Application of in-situ thermal (steam, resistive heating, etc.) treatment to dewater the fractures, volatilize the VOCs, and vapor extraction to remove VOCs from the bedrock fractures. Disadvantages include requiring large quantities of energy and the need for air emissions control of chlorinated VOCs (catalytic oxidation, adsorption, or condensation). Also, proximity of the lake and recharge of groundwater by the lake could pose significant difficulties in raising the bedrock temperature.

<u>Southern Plume</u>

For the southern plume, the selected design is to add another dose of sodium permanganate because the previous limited application has been effective. Residual PCE concentrations are low and delivery of the reagent into the overburden unit has not been a problem. Permanganate should be added into the DP wells, starting with the most upgradient line of drive points. Sequential rows of the DP wells should be dosed based on field observations of how well the permanganate is dispersing. Overall, based on the pilot test results, application of permanganate into the southern plume wells has been successful.

7.5 Remedial Action Performance Evaluation for Groundwater Quality

Evaluation of the effectiveness of in-situ treatment would be performed during the RA period through monitoring groundwater quality and aquifer responses. Groundwater quality shall be monitored at the frequency presented in the <u>Final Long-Term Monitoring Plan</u> (TtNUS, 2001). A summary of the groundwater monitoring program is presented in Section 9.3 of this Final Design report.

8.0 REMEDIAL ACTION O&M

Operation and maintenance requirements for the RA will consist of O&M actions for the groundwater extraction and treatment system. Details are presented in the Groundwater Extraction and Treatment System Operation and Maintenance Manual (TtNUS, July 2001).

There are no specific O&M requirements for in-situ treatment. Currently, the existing monitoring wells, IW-series injection wells, and DP-addition wells will be used for future reagent additions, if required. As needed, the monitoring and injection wells may need to be re-developed because of siltation. The DP-wells consist of temporary narrow-diameter (0.75-inch ID), slotted PVC pipe. If these are damaged, then they may be easily replaced using a direct-push rig.

9.0 LONG-TERM MONITORING

Long-term monitoring is an inherent component of the Remedial Action to assess the effectiveness and protectiveness of the selected remedy. Descriptions of the long-term monitoring and data evaluation activities for hydraulic containment, surface water quality, and sediment quality are presented in the Long-Term Monitoring Plan (TtNUS, 2001), which is included as Appendix C of this Final Design report.

9.1 Hydraulic Containment

In general, evaluation of the hydraulic containment by the groundwater extraction system consists of: performing a one-day synoptic round of groundwater level measurements; converting groundwater level measurements to elevations; contouring the elevations on a site plan; drawing flow lines perpendicular to the contours; and delineating the extent of capture based on flow lines that terminate at the extraction wells. This method can be used to evaluate the extent of capture in the overburden, upper bedrock, and deeper bedrock during operation of the northern and southern extraction systems.

The frequency for water level measurements and wells to be monitored to determine hydraulic containment are presented in Table 9-1.

In summary, water level measurements will be conducted during the first year at the frequency presented in Table 9-1 to provide more data to better assess the performance of northern extraction wells and to optimize depths at which the pumps need to be set in the long term. The frequency presented above is coincident with the treatment plant sampling program. While data regarding well pump depths were developed during the spring 2001 hydrogeologic evaluation, data for a complete year cycle would be preferable to ensure that the pneumatic pumps are set at the most appropriate depths.

Ten data loggers are currently employed at the Site to monitor specific wells. These data loggers can be used to monitor key wells in the long term, and can be supplemented by additional data loggers, as necessary.

9.2 Treatment System

Long-term monitoring of the treatment system will be required to assess the efficacy of the treatment units and determine whether all contaminants of concern (exceeding either the federal MCLs or the Maine MEGs) identified in the ROD are being removed from the extracted groundwater prior to discharge to the infiltration gallery.

While the primary function of sampling and analyzing of process water is to ensure ROD objectives are being met, the sampling is also conducted to maintain the treatment efficacy of the system. Sampling and analysis provides the necessary information to assess breakthrough in the activated carbon units or the ion exchange units so that spent carbon or ion exchange media can be changed out and replaced with virgin or regenerated materials, respectively. As was performed during years 2000 and 2001, the process flow shall be sampled and analyzed during the long-term program for VOCs and TAL metals. VOCs shall be analyzed using EPA Method 6280B while metals shall be analyzed using SW-846, Method 6010B/7470A.

Tentatively, during the groundwater extraction and treatment system shakedown period, treatment plant and extraction well samples will be collected weekly for two months (9 events). After that period, treatment plant samples will be collected once every 2 weeks for 2 additional months (4 events). After that, sampling will be conducted monthly for 1 year. At the end of the 1st year, the data will be evaluated to determine the appropriate sampling frequency and chemical analyses to be performed. Table 9-2 provides a listing of the sampling stations and chemical analyses to be performed.

Data Compilation and Evaluation

Previous treatment plant data received from CLP and DAS laboratories were validated in accordance with the Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses (1996) under Tier validation. For data comparability, the baseline analytical results shall be validated in accordance with the EPA Region I guidelines for Tier I validation for VOCs and metals.

The analytical results shall then be compared to the current versions of the federal MCLs and the Maine MEGs and all exceedances shall be identified.

For the first year annual report, the treatment plant sample data obtained after the RA initiation shall be compared with previous sampling results obtained during 2000 and 1999 to assess the quality of groundwater entering the treatment plant and the effectiveness of treatment.

At the end of each year, the analytical results should be evaluated to determine whether to modify the frequency of monitoring or the suite of chemical analysis should chemical concentrations be observed to decline. At the five-year review, EPA shall evaluate the trends in the groundwater plumes, assess whether the remediation goals have been achieved, and determine whether continued monitoring will be required. Data will be reported monthly and in annual reports.

If after two consecutive months discharge levels exceed discharge criteria by 20 percent (and if changes/modifications of treatments units or process operations do not resolve the problem), than a corrective action plan and weekly sampling will be implemented to diagnose the problem.

EPA had tentatively indicated that variations of up to 20 percent above discharge criteria for a single sampling event would not be considered significant.

9.3 Groundwater Quality

After the RA initiation, long-term monitoring shall be conducted periodically to assess the status of groundwater contamination, to assess whether significant changes in groundwater contamination have occurred, and provide data to assess whether the selected remedy is still protective of human health and the environment.

There are currently 105 wells on site. Of these, an estimated 77 wells are situated within the northern and southern plumes. Semi-annual sampling is proposed for the first five years after the RA initiation. Sampling could be performed during the spring and fall of each year. Selected wells shall be sampled during each semi-annual event.

During the spring long-term monitoring event, all wells in the northern and southern plumes, and approximately half of the wells in non-plume areas shall be sampled for VOCs and metals. In the fall sampling event, all wells in the northern and southern plumes, and approximately half of the wells in non-plume areas shall be sampled.

9.4 Surface Water Quality

A tentative long-term annual monitoring program is proposed for surface water sampling for the first 10 years after the initiation of the RA and is presented in Table 9-3. After all baseline sampling analytical results have been compiled and evaluated, the long-term monitoring requirements (sampling stations and analyses) will be finalized.

The tentative long-term annual monitoring includes collecting surface water samples from 10 stations in the Lake, Mill Pond, and the Upper Dennys River for the analysis of PCBs (as homologs) and metals. Three surface water stations will be added from the Lower Dennys River during the 5-year review (anticipated for 2005).

9.5 Sediment Quality

A tentative program for annual sediment sampling is proposed for the first 10 years after the initiation of the RA and is presented in Table 9-3. The tentative monitoring program shall include a total of 25 stations in Meddybemps Lake, Mill Pond, and the Upper Dennys River. Lake and Mill Pond samples will be analyzed for SVOCs, PCBs (as homologs), and metals. Upper Dennys River samples will be analyzed for PCBs (as homologs) and metals. Long-term monitoring of the Lower Dennys River would be performed during the 5-year review and the collected samples would be analyzed for PCBs and metals.

9.6 Biota

This long-term monitoring program will be developed after the July 2001 baseline surface water and sediment sampling analytical results have been received from the analytical laboratories, compiled, and evaluated. At that time, EPA will meet with the Maine DEP and other appropriate parties to determine the need for a biota sampling program, and if so, the nature of the program.

10.0 REMEDIAL ACTION COST ESTIMATE

This section provides the detailed cost estimate for the implementation of the Remedial Action for a 10-year period.

In progress

11.0 PROPOSED REMEDIAL ACTION SCHEDULE

In progress

REFERENCES

REFERENCES

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TABLES

TABLE 1 – 1
SURFACE WATER AND SEDIMENT COCs
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Habitat Name/ Type	Medium	COC	Protective Level	Units	Basis	Objective
Meddybemps Lake, Mill Pond, & Dennys River	Surface Water	Aluminum	87	ug/L	a	Maintenance of healthy freshwater
		Barium	4	ug/L	b	
		Lead	0.5	ug/L	a	
		Silver	0.36	ug/L	b	
	Sediment	Benzo(a)anthracene	320	ug/kg	c	Maintenance of invertebrate community species diversity and abundance
		Benzo(a)pyrene	370	ug/kg	c	
		Benzo(g,h,i)perylene	170	ug/kg	c	
		Benzo(k)fluoranthene	240	ug/kg	c	
		Fluoranthene	750	ug/kg	c	
		Indeno(1,2,3-cd)pyrene	200	ug/kg	c	
		Phenanthrene	560	ug/kg	c	
		Pyrene	490	ug/kg	c	
		Dieldrin	2	ug/kg	c	
		Endrin	3	ug/kg	c	
		Methoxychlor	19	ug/kg	d	
		Sum of PCB Homologs	190	ug/kg	d	
		Arsenic	6	mg/kg	c	
		Chromium	26	mg/kg	c	
		Copper	16	mg/kg	c	
		Lead	31	mg/kg	c	
		Manganese	460	mg/kg	c	
		Nickel	16	mg/kg	c	

Notes:

Based on Table 27 of Record of Decision for the Eastern Surplus Company Superfund Site (EPA, Sep. 2000). The COCs have been identified for the purpose of long-term monitoring of environmental media after the initiation of the Remedial Action.

a - benchmarks from Maine Statewide Water Quality (1998) - Endpoint = CCC; values of certain metals adjusted to hardness of 25 mg/L
b - benchmarks from Suter and Tsao (1996) - Endpoint = Second Chronic Values (Tier II)
c - benchmarks from Jaagumagi (1995) - endpoint = Lowest Effect Level
d - benchmarks from Ingersoll et al. (1996) - endpoint = NEC

TABLE 1 - 2
GROUNDWATER COCs
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Chemicals of Concern	Cancer Classification/ Target Endpoint	Interim Cleanup Level (µg/L) (1)	Basis (2)
1,1,2 trichloroethane	C	3	MEG
Trichloroethene	B2	5	MCL
Tetrachloroethene	B2	3	MEG
Chloromethane	C	3	MEG
methylene chloride	B2	5	MCL
Total polychlorinated biphenyls (PCBs) as	B2	0.05	MEG
bis (2-ethyl hexyl)phthalate	C	6	MCL
cis-1,2 dichloroethene	liver	70	MCL/MCLG
manganese	central nervous system	200	MEG
antimony	blood	6	MCL/MCLG
cadmiun	kidney	5	MCL/MCLG
lead	central nervous system	15	Action Level
xylene	central nervous system	600	MEG
1,1-dichloroethane	none observed	5	MEG

Notes:

1. Based on Table 30 of September 2000 Record of Decision
2. MCL – federal Maximum Contaminant Level
   MCLG - federal Maximum Contaminant Level Goal
   MEG – Maine 1992 Maximum Exposure Guideline

TABLE 1 - 3
MARCH/APRIL 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Location			IN1B		IN2B		IS1B		IS1S		MW-20B		MW-31S	
Sample Number			ESTA-GW-IN1B-031301		ESTA-GW-IN2B-031301		ESTA-GW-IS1B-031501		ESTA-GW-IS1S-031501		ESTA-GW-MW20B-031301		ESTA-GW-MW31S-031601	
Date Sampled			3/13/2001		3/13/2001		3/15/2001		3/15/2001		3/13/2001		3/16/2001	
QC Identifier	MCL	MEG_1992	None		None		None		None		None		None	
Volatile Organic Analysis (UG/L)			D01182		D01183		D02859		D02860		D01184		D02872	
1,1,1,2-Tetrachloroethane		70	0.7	J	1	U	1	U	1	U	2		1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5		5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U	1	U
2-Hexanone				NA		NA		NA		NA		NA		NA
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U	3	U	3	U	3	U
Acetone			10		22		5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide			1	U	0.5	J	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U	2	U	2	U	2	U
Chloroform	80		1	U	0.8	J	1	U	1	U	1	U	1	U
Chloromethane		3	2	U	2	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U	1	U
Dibromomethane			2	U	2	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	1	U	1	B	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	22		2		37		54		8000		56	
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U	2		0.6	J
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U	1	U

TABLE 1 - 3 (cont.)
MARCH/APRIL 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Location			MW-3? B1		MW-34B2		MW-35B1		MW-35B2		MW-36B1	
Sample Number			ESTA-?W-MW34B1-031301		ESTA-GW-MW34B2-031301		ESTA-GW-MW35B1-031301		ESTA-GW-MW35B2-031301		ESTA-GW-MW36B1-031301	
Date Sampled			3/13/2001		3/13/2001		3/13/2001		3/13/2001		3/13/2001	
QC Identifier	MCL	MEG_1992	None		None		None		None		None	
Volatile Organic Analysis (UG/L)			D01185		D01186		D01187		D02449		D02450	
1,1,1,2-Tetrachloroethane		70	2		1	U	2		1	J	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	12		1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	0.6	J	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone			NA		NA		NA		NA		NA	
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U	3	U	3	U
Acetone			5	U	6		5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide			1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U	2	U	2	U
Chloroform	80		1	U	0.8	J	1	U	4		1	U
Chloromethane		3	2	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1		1	U	4	
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane			2	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	5		1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	0.6	J	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	0.5	JB	1	B	1	U	1	U	0.9	JB
n-Butylbenzene			1	U	1	U	1		1	U	1	U
n-Propylbenzene			1	U	1	U	2		1	U	1	U
Naphthalene		25	1	U	1	U	12		1	U	1	U
p-Isopropyltoluene			1	U	1	U	0.8	J	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	0.6	J	1	U	1	U
Tetrachloroethene	5	3	7400	*	1	J	9700	*	360	*	15	
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	41		5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	0.9	J	1	U	1	U	1	U	2	
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U

TABLE 1 - 3 (cont.)
MARCH/APRIL 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Location			MW-36B2		MW-39B		MW-39B		MW-40B		MW-4B	
Sample Number			ESTA-GW-MW36B2-031301		ESTA-GW-MW39B-031401		ESTA-GW-DUP02-031401		ESTA-GW-MW40B-031401		ESTA-GW-MW4B-031401	
Date Sampled			3/13/2001		3/14/2001		3/14/2001		3/14/2001		3/14/2001	
QC Identifier	MCL	MEG_1992	None		Field Dup ESTA-GW-MW39B-031401		Field Dup. ESTA-GW-MW39B-031401		None		None	
Volatile Organic Analysis (UG/L)			D02451		D02880		D02887		D02881		D02879	
1,1,1,2-Tetrachloroethane		70	10	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	10	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			10	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	10	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	10	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	10	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			10	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			10	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	10	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	10	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			10	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	20	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			20	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		10	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	10	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	10	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			10	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	10	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			10	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		10	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			10	U	1	U	1	U	1	U	1	U
2-Butanone		170	50	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			10	U	1	U	1	U	1	U	1	U
2-Hexanone				NA		NA		NA		NA		NA
4-Chlorotoluene			10	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			30	U	3	U	3	U	3	U	3	U
Acetone			50	U	5	U	5	U	5	U	5	U
Benzene	5	5	10	U	1	U	1	U	1	U	1	U
Bromobenzene			10	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	10	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		10	U	1	U	1	U	1	U	1	U
Bromoform	80		10	U	1	U	1	U	1	U	1	U
Bromomethane		10	20	U	2	U	2	U	2	U	2	U
Carbon Disulfide			10	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	10	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		10	U	1	U	1	U	1	U	1	U
Chloroethane			20	U	2	U	2	U	2	U	2	U
Chloroform	80		10	U	1	U	1	U	1	U	1	U
Chloromethane		3	20	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	6	J	0.7	J	0.6	J	1	U	1	U
cis-1,3-Dichloropropene			10	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		10	U	1	U	1	U	1	U	1	U
Dibromomethane			20	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	20	U	2	U	2	U	2	U	2	U
Ethyl Ether			10	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	10	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	10	U	1	U	1	U	1	U	1	U
Isopropylbenzene			10	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	50	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	10	U	0.9	JB	1	B	0.8	JB	0.9	JB
n-Butylbenzene			10	U	1	U	1	U	1	U	1	U
n-Propylbenzene			10	U	1	U	1	U	1	U	1	U
Naphthalene		25	10	U	1	J	2		1	U	1	U
p-Isopropyltoluene			10	U	1	U	1	U	1	U	1	U
sec-Butylbenzene			10	U	1	U	1	U	1	U	1	U
Styrene	100	5	10	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			10	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	810		500	*	520	*	2		13	
Toluene	1000	1400	10	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	50	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	10	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			10	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			50	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	11		4		4		1	U	1	U
Trichlorofluoromethane		2300	10	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	10	U	1	U	1	U	1	U	1	U

TABLE 1 - 3 (cont.)
MARCH/APRIL 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Location			MW-8B1		MW-8B1		MW-8S		MW41B		MW41B2	
Sample Number			ESTA-GW-MW8B1-03150		ESTA-GW-DUP03-031501		ESTA-GW-MW8S-031601		ESTA-GW-MW41B-041001		ESTA-GW-MW41B2-041101	
Date Sampled			3/15/2001		3/15/2001		3/16/2001		4/10/2001		4/11/2001	
QC Identifier	MCL	MEG_1992	Field Dup ESTA-GW-MW8B1-031501		Field Dup ESTA-GW-MW8B1-031501		None		None		None	
Volatile Organic Analysis (UG/L)			D02870		D02878		D02871		D02912		D02921	
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	0.6	J	0.6	J	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone				NA		NA		NA		NA		NA
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U	3	U	3	U
Acetone			5	U	5	U	5	U	11		12	
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide			1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U	2	U	2	U
Chloroform	80		1	U	1	U	1	U	1	U	1	U
Chloromethane		3	2	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	5		4	
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane			2	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	0.6	JB	0.7	JB	0.6	JB	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	2		2		44		300	E	220	E
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	1	U	1	U	1	U	10		8	
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U

TABLE 1 - 3 (cont.)
MARCH/APRIL 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Location			MW42B1		MW42B1		MW42B2		MW42S		MW43B	
Sample Number			ESTA-GW-MW42B1-041001		ESTA-GW-DUP01-041001		ESTA-GW-MW42B2-041101		ESTA-GW-MW42S-041101		ESTA-GW-MW43B1-041201	
Date Sampled			4/10/2001		4/10/2001		4/11/2001		4/11/2001		4/12/2001	
QC Identifier	MCL	MEG_1992	Field Dup. ESTA-GW-MW42B1-041001		Field Dup. ESTA-GW-MW42B1-041001		None		None		None	
Volatile Organic Analysis (UG/L)			D02813		D02814		D02920		D02922		D02927	
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone				NA		NA		NA		NA		NA
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U	3	U	3	U
Acetone			5	U	5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide			1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U	2	U	2	U
Chloroform	80		1	U	1	U	1	U	1	U	1	U
Chloromethane		3	2	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	0.7	J	3	
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane			2	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U	1	
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	150		140		160		300	E	840	E
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U	1	
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U

Sample Location			MW43S2		MW43S		MW43S		MW44S		MW45S	
Sample Number			ESTA-GW-MW43S2-041201		ESTA-GW-MW43S-041101		ESTA-GW-DUP02-041101		ESTA-GW-MW44S-041201		ESTA-GW-MW45S-041301	
Date Sampled			4/12/2001		4/11/2001		4/11/2001		4/12/2001		4/13/2001	
QC Identifier	MCL	MEG_1992	None		Field Dup. ESTA-GW-MW43S-041101		Field Dup. ESTA-GW-MW43S-041101		None		None	
Volatile Organic Analysis (UG/L)			D02928		D02923		D02924		D02926		D02930	
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone				NA		NA		NA		NA		NA
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U	3	U	3	U
Acetone			5	U	17		14		5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide			1	U	1	U	1	U	1	U	2	
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U	2	U	2	U
Chloroform	80		1	U	1	U	1	U	1	U	1	U
Chloromethane		3	2	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	4		7		5		3		1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane			2	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U
Naphthalene		25	6		1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	1200	E	760	E	820	E	360	E	27	
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	10		2		0.9	J	1		1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U

TABLE 1 - 3 (cont.)
MARCH/APRIL 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Location			MW46S		RW-3		RW-4		RW-5		RW-7B1	
Sample Number			ESTA-GW-MW46S-041301		ESTA-GW-RW3-031401		ESTA-GW-RW4-031401		ESTA-GW-RW5-031401		ESTA-GW-RW7B1-031401	
Date Sampled			4/13/2001		3/14/2001		3/14/2001		3/14/2001		3/14/2001	
QC Identifier	MCL	MEG_1992	None		None		Field Dup. ESTA-GW-RW4-031401		None		None	
Volatile Organic Analysis (UG/L)			D02929		D02882		D02883		D02884		D02885	
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	0.6	J	0.6	J	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone				NA		NA		NA		NA		NA
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U	3	U	3	U
Acetone			22		5	U	5	U	5	U	5	
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide			1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U	2	U	2	U
Chloroform	80		1	U	1	U	1	U	1	U	1	U
Chloromethane		3	2	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	1	U	4		22		1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane		-	2	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	1	U	1	B	0.7	JB	1	U	1	B
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene		.	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	90		2400	*	1700	*	18		500	*
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3 5-			5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	1	U	8		31		1	U	1	J
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U

Sample Location			RW08		RW09		RW10		RW11		RW4	
Sample Number			ESTA-GW-RW08-041001		ESTA-GW-RW09-041001		ESTA-GW-RW10-041001		ESTA-GW-RW11-041001		ESTA-GW-DUP01-031401	
Date Sampled			4/10/2001		4/10/2001		4/10/2001		4/10/2001		3/14/2001	
QC Identifier	MCL	MEG_1992	None		None		None		None		Field Dup. ESTA-GW-RW4-031401	
Volatile Organic Analysis (UG/L)			D02917		D02918		D02915		D02916		D02886	
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone				NA		NA		NA		NA		NA
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U	3	U	3	U
Acetone			5	U	5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U	2	U	2	U
Carbon Disulfide			1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U	2	U	2	U
Chloroform	80		1	U	1	U	1	U	1	U	1	U
Chloromethane		3	2	U	2	U	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	1		4		4		1		16	
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane			2	U	2	U	2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U	0.5	JB
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	270	E	693	E	610	E	150		1900	
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	5	6		9		8		1	U	26	
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	*2*	*0.15*	*1*	*U*	*1*	*U*	*1*	*U*	*1*	*U*	*1*	*U*

TABLE 1 - 3 (cont.)
MARCH/APRIL 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Location			RWS-4		RWS-5		RWS-6	
Sample Number			ESTA-GW-RWS4-031501		ESTA-GW-RWS5-031501		ESTA-GW-RWS6-031501	
Date Sampled			3/15/2001		3/15/2001		3/15/2001	
QC Identifier	MCL	MEG_1992	None		None		None	
Volatile Organic Analysis (UG/L)			D02873		D02874		D02875	
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	2		1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	2	U	2	U	2	U
1,2-Dibromoethane			2	U	2	U	2	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U
2-Hexanone				NA		NA		NA
4-Chlorotoluene			1	U	1	U	1	U
4-Methyl-2-Pentanone			3	U	3	U	3	U
Acetone			5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U
Bromomethane		10	2	U	2	U	2	U
Carbon Disulfide			1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U
Chloroethane			2	U	2	U	2	U
Chloroform	80		1	U	1	U	1	U
Chloromethane		3	2	U	2	U	2	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U
Dibromomethane			2	U	2	U	2	U
Dichlorodifluoromethane		1050	2	U	2	U	2	U
Ethyl Ether			1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U
Isopropylbenzene			1	U	1	U	1	U
Methyl tert-Butyl Ether		50	5	U	5	U	5	U
Methylene Chloride	5	48	0.7	JB	1	U	0.9	JB
n-Butylbenzene			1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U
sec-Butylbenzene			1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U
Tetrachloroethene	5	3	45		13		3	
Toluene	1000	1400	1	U	1	U	1	U
Total Xylenes	10000	600	5	U	5	U	5	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U
Trichlorobenzene, 1,3,5-			5	U	5	U	5	U
Trichloroethene	5	5	0.9	J	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U

NOTES:

MCL - Maximum Contaminant Level criteria taken from "Drinking Water Regulations and Health Advisories", US EPA Report #822-B-96-002, October 1996.
MEG - Maine Maximum Exposure Guideline criteria taken from "Summary of State and Federal Drinking Water Guidelines", Maine State Department of Human Services, revised Oct. 1996.
U - Not detected
J - Quantitation approximate
B - Detected in Blank
E - Exceeded Calibration Range
UJ - Detection limit approximate
NA - Not analyzed
* - From dilution analysis

TABLE 1 - 4
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-IN1B1		ESRD-GW-IN1B2		ESRD-GW-IN2B1		ESRD-GW-IN2B2		ESRD-GW-IS1B	
Sample Location			IN1B1		IN1B2		IN2B1		IN2B2		IS1B	
Date Sampled			6/12/2001		6/12/2001		6/12/2001		6/12/2001		6/11/2001	
QC Identifier			None		None		None		None		None	
Sample ID			D03251		D03252		D03253		D03254		D03220	
	MCL	MEG 1992										
Volatile Organic Analysis (UG/L)												
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone			1	U	1	U	1	U	1	U	5	U
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U	5	U
Acetone			5	U	5	U	6		22		2	J
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	2		1	U	1		1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-IN1B1		ESRD-GW-IN1B2		ESRD-GW-IN2B1		ESRD-GW-IN2B2		ESRD-GW-IS1B	
Sample Location			IN1B1		IN1B2		IN2B1		IN2B2		IS1B	
Date Sampled			6/12/2001		6/12/2001		6/12/2001		6/12/2001		6/11/2001	
QC Identifier			None		None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	*2600*	E	*25*		*1400*	E	*7*		3	
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	5	3		1	U	1		1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)			D03286				D03285				D03284	
Decachlorobiphenyl (209)			0.1000	U		NA	0.1000	U		NA	0.1000	U
Total Dichlorobiphenyls			0.006000	U		NA	0.005000	U		NA	0.004000	U
Total Heptachlorobiphenyls			0.03000	U		NA	0.03000	U		NA	0.02000	U
Total Hexachlorobiphenyls			0.03000	U		NA	0.03000	U		NA	0.02000	U
Total Monochlorobiphenyls			0.007000	U		NA	0.007000	U		NA	0.006000	U
Total Nonachlorobiphenyls			0.07000	U		NA	0.07000	U		NA	0.05000	U
Total Octachlorobiphenyls			0.05000	U		NA	0.04000	U		NA	0.03000	U
Total Pentachlorobiphenyls			0.03000	U		NA	0.02000	U		NA	0.02000	U
Total Tetrachlorobiphenyls			0.01000	U		NA	0.01000	U		NA	0.01000	U
Total Trichlorobiphenyls			0.007000	U		NA	0.007000	U		NA	0.006000	U
Sum of PCB Homologs	0.5	0.05	0.1000	U		NA	0.1000	U		NA	0.1000	U
TAL Metal Analysis (UG/L)			MA0BB7		MA0BB8		MA0BB9		MA0BC0		MA0B93	
Aluminum		1430	*1750*		168	U	797		168	U	841	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.0	U	4.0	U	4.0	U	5.7	B
Barium	2000	1500	51.6	B	3.1	B	31.8	B	3.0	B	8.2	B
Beryllium	4		0.51	B	0.20	U	0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			27100		21400		38000		9180		33700	
Chromium	100	100	1.6	B	18.2		16.2		*127*		15.0	
Cobalt			1.5	B	1.1	U	1.1	B	1.1	U	1.8	B
Copper	1300		1.8	B	0.70	U	1.1	B	4.4	B	3.9	B
Iron			1220		197		651		158		6410	
Lead	15	20	5.9		1.5	U	1.7	B	1.5	U	1.7	B
Magnesium			6080		3230	B	5310		685	B	13200	
Manganese		200	*3550*		*8570*		*8330*		*88100*		*22400*	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	4.4	B	1.5	U	1.5	U	1.5	U	11.2	B
Potassium			1750	B	2220	B	1660	B	2780	B	3060	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	9.5		3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	5.0	B	1.6	B
Sodium			16600		49900		20100		96300		64700	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			1.1	B	0.90	U	0.90	U	0.90	U	0.90	U
Zinc			15.4	B	0.80	U	2.5	B	7.0	B	21.5	

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-IS1S		ESRD-GW-IS2B		ESRD-GW-IS2S		ESRD-GW-MW4B	
Sample Location			IS1S		IS2B		IS2S		MW4B	
Date Sampled			6/13/2001		6/11/2001		6/13/2001		6/13/2001	
QC Identifier			None		None		None		None	
Sample ID			D03276		D03226		D03266		D03273	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	5	U	1	U	5	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	1	J	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-IS1S		ESRD-GW-IS2B		ESRD-GW-IS2S		ESRD-GW-MW4B	
Sample Location			IS1S		IS2B		IS2S		MW4B	
Date Sampled			6/13/2001		6/11/2001		6/13/2001		6/13/2001	
QC Identifier			None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	***44***		***21***		***48***		***8***	
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	0.7	J	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)			D03276		D03283		D03266			
Decachlorobiphenyl (209)			0.08000	U	0.07000	U	0.1000	U		NA
Total Dichlorobiphenyls			0.004000	U	0.003000	U	0.005000	U		NA
Total Heptachlorobiphenyls			0.02000	U	0.01000	U	0.02000	U		NA
Total Hexachlorobiphenyls			0.02000	U	0.01000	U	0.02000	U		NA
Total Monochlorobiphenyls			0.005000	U	0.004000	U	0.007000	U		NA
Total Nonachlorobiphenyls			0.04000	U	0.04000	U	0.05000	U		NA
Total Octachlorobiphenyls			0.03000	U	0.02000	U	0.03000	U		NA
Total Pentachlorobiphenyls			0.02000	U	0.01000	U	0.02000	U		NA
Total Tetrachlorobiphenyls			0.008000	U	0.006000	U	0.01000	U		NA
Total Trichlorobiphenyls			0.005000	U	0.004000	U	0.007000	U		NA
Sum of PCB Homologs	0.5	0.05	0.08000	U	0.07000	U	0.1000	U		NA
TAL Metal Analysis (UG/L)			MA0BE4		MA0B99		MA0BD4		MA0BE1	
Aluminum		1430	168	U	168	U	225		*4700*	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.0	U	4.0	U	4.0	U
Barium	2000	1500	8.2	B	1.7	U	5.7	B	28.6	B
Beryllium	4		0.20	U	0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			31400		5940		27500		54200	
Chromium	100	100	1.2	B	3.1	B	1.1	B	18.7	
Cobalt			1.1	U	1.1	U	1.1	U	36.2	B
Copper	1300		0.70	U	0.91	B	0.70	U	4.9	B
Iron			93.8	B	6060		277		4530	
Lead	15	20	1.5	U	1.5	U	1.5	U	2.1	B
Magnesium			11400		2040	B	7950		10100	
Manganese		200	11.4	B	*2690*		107		140	
Mercury	2	2	0.10	U	0.10	U	0.17	B	0.10	U
Nickel		150	5.7	B	5.1	B	2.2	B	43.7	
Potassium			2250	B	2610	B	1980	B	1810	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			29500		27700		15000		6570	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	0.90	U	0.90	U	1.3	B
Zinc			4.1	B	0.80	U	2.1	B	95.6	

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-DUP06		ESRD-GW-MW8B		ESRD-GW-MW8S		ESRD-GW-MW10B	
Sample Location			MW4S		MW8B		MW8S		MW10B	
Date Sampled			6/13/2001		6/11/2001		6/12/2001		6/11/2001	
QC Identifier			Field Dup. ESRD-GW-MW4S		None		None		None	
Sample ID			D03274		D03227		D03237		D03222	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	2	J	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	5	U	5	U	5	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	18		5	U	5	U
Acetone			5	U	51		5		5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-DUP06		ESRD-GW-MW8B		ESRD-GW-MW8S		ESRD-GW-MW10B	
Sample Location			MW4S		MW8B		MW8S		MW10B	
Date Sampled			6/13/2001		6/11/2001		6/12/2001		6/11/2001	
QC Identifier			Field Dup ESRD-GW-MW4S		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	1	U	4		**34**		1	U
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	630	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)					D03282		D03281			
Decachlorobiphenyl (209)				NA	0.07000	U	0.1000	U		NA
Total Dichlorobiphenyls				NA	0.004000	U	0.006000	U		NA
Total Heptachlorobiphenyls				NA	0.01000	U	0.02000	U		NA
Total Hexachlorobiphenyls				NA	0.01000	U	0.02000	U		NA
Total Monochlorobiphenyls				NA	0.005000	U	0.007000	U		NA
Total Nonachlorobiphenyls				NA	0.04000	U	0.06000	U		NA
Total Octachlorobiphenyls				NA	0.02000	U	0.04000	U		NA
Total Pentachlorobiphenyls				NA	0.02000	U	0.03000	U		NA
Total Tetrachlorobiphenyls				NA	0.008000	U	0.01000	U		NA
Total Trichlorobiphenyls				NA	0.005000	U	0.007000	U		NA
Sum of PCB Homologs	0.5	0.05		NA	0.07000	U	0.1000	U		NA
TAL Metal Analysis (UG/L)			MA0BE2		MA0BA0		MA0BA3		MA0B95	
Aluminum		1430	168	U	*1610*		*1640*		168	U
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	8.7	B	8.8	B	4.0	U
Barium	2000	1500	13.6	B	6.9	B	21.0	B	1.7	U
Beryllium	4		0.20	U	0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			35200		1300	B	68900		12100	
Chromium	100	100	1.7	B	5.5	B	10.8		0.88	B
Cobalt			1.1	U	1.3	B	1.8	B	1.1	U
Copper	1300		1.1	B	8.8	B	4.2	B	0.70	U
Iron			333		12900		2870		1130	
Lead	15	20	1.5	U	11.9		3.0		1.5	U
Magnesium			3310	B	660	B	19100		5600	
Manganese		200	50.3		*10700*		*422*		43.8	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	4.4	B	7.4	B	6.3	B	1.5	U
Potassium			1510	B	5600		4580	B	970	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	1.0	B	0.80	U	0.80	U
Sodium			4780	B	199000		61700		6330	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	2.3	B	3.5	B	0.90	U
Zinc			38.1		14800		56.2		4.3	B

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW10S		ESRD-GW-MW11B		ESRD-GW-MW11S		ESRD-GW-MW15B1	
Sample Location			MW10S		MW11B		MW11S		MW15B1	
Date Sampled			6/13/2001		6/11/2001		6/12/2001		6/14/2001	
QC Identifier			None		None		None		Field Dup. ESRD-GW-MW15B1	
Sample ID			D03265		D03228		D03238		D03296	
	MCL	**MEG 1992**								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	5	U	5	U	1	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW10S		ESRD-GW-MW11B		ESRD-GW-MW11S		ESRD-GW-MW15B1	
Sample Location			MW10S		MW11B		MW11S		MW15B1	
Date Sampled			6/13/2001		6/11/2001		6/12/2001		6/14/2001	
QC Identifier			None		None		None		Field Dup. ESRD-GW-MW15B1	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	1	U	1	U	1	U	1	U
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)									D03296	
Decachlorobiphenyl (209)				NA		NA		NA	0.09000	U
Total Dichlorobiphenyls				NA		NA		NA	0.004000	U
Total Heptachlorobiphenyls				NA		NA		NA	0.02000	U
Total Hexachlorobiphenyls				NA		NA		NA	0.02000	U
Total Monochlorobiphenyls				NA		NA		NA	0.005000	U
Total Nonachlorobiphenyls				NA		NA		NA	0.05000	U
Total Octachlorobiphenyls				NA		NA		NA	0.03000	U
Total Pentachlorobiphenyls				NA		NA		NA	0.02000	U
Total Tetrachlorobiphenyls				NA		NA		NA	0.007000	U
Total Trichlorobiphenyls				NA		NA		NA	0.005000	U
Sum of PCB Homologs	0.5	0.05		NA		NA		NA	0.09000	U
TAL Metal Analysis (UG/L)			MA0BD3		MA0BA1		MA0BA4		MA0BF3	
Aluminum		1430	253		336		*1840*		*2140*	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	6.2	B	**12.8**		**11.2**	
Barium	2000	1500	2.2	B	3.7	B	9.4	B	31.7	B
Beryllium	4		0.20	U	0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.32	B
Calcium			10300		11100		56100		5860	
Chromium	100	100	0.70	U	3.7	B	3.8	B	1.5	B
Cobalt			1.1	U	1.1	U	1.4	B	1.1	U
Copper	1300		0.70	U	2.3	B	4.0	B	5.0	B
Iron			366		6340		3180		1250	
Lead	15	20	1.5	U	1.5	U	1.6	B	2.3	B
Magnesium			3200	B	6110		16500		1300	B
Manganese		200	14.3	B	76.7		150		165	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	1.5	U	6.2	B	5.3	B	3.8	B
Potassium			1360	B	1580	B	3540	B	1720	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			7570		5860		17700		52000	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	0.90	U	3.4	B	3.7	B
Zinc			16.7	B	9.0	B	22.0		48.3	

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-DUP07		ESRD-GW-MW15B2		ESRD-GW-MW15S		ESRD-GW-MW16B1	
Sample Location			MW15B1		MW15B2		MW15S		MW16B1	
Date Sampled			6/14/2001		6/14/2001		6/14/2001		6/14/2001	
QC Identifier			Field Dup. ESRD-GW-MW15B1		None		None		None	
Sample ID			D03297		D03298		D03300		D03306	
	MCL	**MEG 1992**								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	1	U	1	U	1	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-DUP07		ESRD-GW-MW15B2		ESRD-GW-MW15S		ESRD-GW-MW16B1	
Sample Location			MW15B1		MW15B2		MW15S		MW16B1	
Date Sampled			6/14/2001		6/14/2001		6/14/2001		6/14/2001	
QC Identifier			Field Dup ESRD-GW-MW15B1		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	1	U	1	U	1	U	1	U
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)			D03297						D03306	
Decachlorobiphenyl (209)			0.1000	U		NA		NA	0.2000	U
Total Dichlorobiphenyls			0.004000	U		NA		NA	0.006000	U
Total Heptachlorobiphenyls			0.03000	U		NA		NA	0.03000	U
Total Hexachlorobiphenyls			0.03000	U		NA		NA	0.03000	U
Total Monochlorobiphenyls			0.005000	U		NA		NA	0.007000	U
Total Nonachlorobiphenyls			0.07000	U		NA		NA	0.08000	U
Total Octachlorobiphenyls			0.04000	U		NA		NA	0.05000	U
Total Pentachlorobiphenyls			0.02000	U		NA		NA	0.02000	U
Total Tetrachlorobiphenyls			0.008000	U		NA		NA	0.01000	U
Total Trichlorobiphenyls			0.005000	U		NA		NA	0.007000	U
Sum of PCB Homologs	0.5	0.05	0.1000	U		NA		NA	0.2000	U
TAL Metal Analysis (UG/L)			MA0BF4		MA0BF5		MA0BF7		MA09L9	
Aluminum		1430	1210		*2530*		168	U	*13000*	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		**10.7**		7.1	B	**10.9**		**16.7**	
Barium	2000	1500	29.1	B	53.3	B	4.6	B	135	B
Beryllium	4		0.20	U	0.20	U	0.20	U	1.4	B
Cadmium	5	5	0.33	B	0.30	U	0.30	U	0.30	U
Calcium			6000		9900		35400		15700	
Chromium	100	100	0.80	B	2.2	B	0.70	U	5.1	B
Cobalt			1.1	U	1.1	U	1.1	U	1.5	B
Copper	1300		4.0	B	4.2	B	0.70	U	11.0	B
Iron			724		1640		79.6	B	7440	
Lead	15	20	1.5	U	1.5	U	1.5	U	8.8	
Magnesium			943	B	1980	B	4400	B	5960	
Manganese		200	166		148		49.5		139	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	3.2	B	6.9	B	1.5	U	7.8	B
Potassium			1570	B	2030	B	1210	B	3180	
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			51600		43400		8410		61100	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			4.0	B	2.4	B	0.90	U	6.8	B
Zinc			53.0		98.5		4.0	B	113	

Sample Number			ESRD-GW-MW16B2		ESRD-GW-MW16S		ESRD-GW-MW18S	
Sample Location			MW16B2		MW16S		MW18S	
Date Sampled			6/14/2001		6/14/2001		6/13/2001	
QC Identifier			None		None		Field Dup. ESRD-GW-MW18S	
Sample ID			D03305		D03304		D03262	
	MCL	**MEG 1992**						
Volatile Organic Analysis (UG/L)								
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U
2-Hexanone			1	U	1	U	1	U
4-Chlorotoluene			1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U
Acetone			5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U

Sample Number			ESRD-GW-MW16B2		ESRD-GW-MW16S		ESRD-GW-MW18S	
Sample Location			MW16B2		MW16S		MW18S	
Date Sampled			6/14/2001		6/14/2001		6/13/2001	
QC Identifier			None		None		Field Dup ESRD-GW-MW18S	
sec-Butylbenzene			1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U
Tetrachloroethene	5	3	1	U	1	U	*24*	
Toluene	1000	1400	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)					D03304		D03262	
Decachlorobiphenyl (209)				NA	0.1000	U	0.07000	U
Total Dichlorobiphenyls				NA	0.004000	U	0.004000	U
Total Heptachlorobiphenyls				NA	0.02000	U	0.02000	
Total Hexachlorobiphenyls				NA	0.02000	U	0.1100	
Total Monochlorobiphenyls				NA	0.006000	U	0.005000	U
Total Nonachlorobiphenyls				NA	0.06000	U	0.03000	U
Total Octachlorobiphenyls				NA	0.04000	U	0.02000	U
Total Pentachlorobiphenyls				NA	0.02000	U	0.02000	U
Total Tetrachlorobiphenyls				NA	0.009000	U	0.02000	EMPC
Total Trichlorobiphenyls				NA	0.006000	U	0.005000	U
Sum of PCB Homologs	0.5	0.05		NA	0.1000	U	*0.150000*	
TAL Metal Analysis (UG/L)			MA09L8		MA09L7		MA0BD0	
Aluminum		1430	*19800*		168	U	168	U
Antimony	6		3.5	B	3.0	U	3.0	U
Arsenic	10		*25.6*		8.6	B	4.0	U
Barium	2000	1500	576		2.3	B	11.3	B
Beryllium	4		2.7	B	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U
Calcium			23600		20900		23400	
Chromium	100	100	3.9	B	1.0	B	2.5	B
Cobalt			3.5	B	1.1	U	1.1	U
Copper	1300		13.3	B	1.2	B	1.2	B
Iron			12900		54.6	U	54.6	U
Lead	15	20	*28.2*		1.5	U	1.5	U
Magnesium			7540		4150	B	6040	
Manganese		200	*384*		1.8	B	63.0	
Mercury	2	2	0.10	U	0.10	U	0.10	U
Nickel		150	8.9	B	1.5	U	10.7	B
Potassium			5600		1910		1540	B
Selenium	50	10	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U
Sodium			88800		6240		5830	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U
Vanadium			11.2	B	2.9	B	0.90	U
Zinc			138		3.2	B	3.2	B

Sample Number			ESRD-GW-DUP05		ESRD-GW-MW19B		ESRD-GW-MW20B		ESRD-GW-MW22B	
Sample Location			MW18S		MW19B		MW20B		MW22B	
Date Sampled			6/13/2001		6/11/2001		6/12/2001		6/11/2001	
QC Identifier			*Field Dup. ESRD-GW-MW18S*		*None*		*None*		*None*	
Sample ID			D03263		D03223		D03232		D03221	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	5	U	1	U	5	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	5	U	110		5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	3		1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-DUP05		ESRD-GW-MW19B		ESRD-GW-MW20B		ESRD-GW-MW22B	
Sample Location			MW18S		MW19B		MW20B		MW22B	
Date Sampled			6/13/2001		6/11/2001		6/12/2001		6/11/2001	
QC Identifier			Field Dup ESRD-GW-MW18S		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	*22*		1	U	*2200*	E	1	U
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	2		1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)			D03263							
Decachlorobiphenyl (209)			0.06000	U		NA		NA		NA
Total Dichlorobiphenyls			0.003000	U		NA		NA		NA
Total Heptachlorobiphenyls			0.09000			NA		NA		NA
Total Hexachlorobiphenyls			0.1100			NA		NA		NA
Total Monochlorobiphenyls			0.004000	U		NA		NA		NA
Total Nonachlorobiphenyls			0.03000	U		NA		NA		NA
Total Octachlorobiphenyls			0.02000	U		NA		NA		NA
Total Pentachlorobiphenyls			0.01000	U		NA		NA		NA
Total Tetrachlorobiphenyls			0.01000	EMPC		NA		NA		NA
Total Trichlorobiphenyls			0.004000	U		NA		NA		NA
Sum of PCB Homologs	0.5	0.05	*0.210000*			NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BD1		MA0B96		MA0BC5		MA0B94	
Aluminum		1430	168	U	168	U	188	B	442	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.7	B	4.0	U	8.1	B
Barium	2000	1500	11.0	B	2.0	B	5.1	B	1.7	U
Beryllium	4		0.20	U	0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			23600		27200		19100		19300	
Chromium	100	100	2.3	B	0.70	U	14.2		19.2	
Cobalt			1.1	U	1.1	U	1.1	U	3.0	B
Copper	1300		1.1	B	0.70	U	7.5	B	15.2	B
Iron			54.6	U	54.6	U	340		17600	
Lead	15	20	1.5	U	1.5	U	1.5	U	2.3	B
Magnesium			6060		6470		2410	B	11500	
Manganese		200	58.0		1.1	B	*1060*		*433*	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	11.0	B	1.5	U	2.3	B	14.3	B
Potassium			1550	B	1630	B	1290	B	2000	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			5940		4340	B	33700		12900	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	0.90	U	0.90	U	0.90	U
Zinc			5.0	B	3.2	B	6.5	B	25.2	

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW23B		ESRD-GW-DUP04		ESRD-GW-MW24B	
Sample Location			MW23B		MW23B		MW24B	
Date Sampled			6/12/2001		6/12/2001		6/13/2001	
QC Identifier			Field Dup. ESRD-GW-MW23B		Field Dup. ESRD-GW-MW23B		None	
Sample ID			D03255		D03256		D03269	
	MCL	**MEG 1992**						
Volatile Organic Analysis (UG/L)								
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U
2-Hexanone			1	U	1	U	1	U
4-Chlorotoluene			1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U
Acetone			3600	E	3700	E	5	U
Benzene	5	5	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	22		27		1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U

Sample Number			ESRD-GW-MW23B		ESRD-GW-DUP04		ESRD-GW-MW24B	
Sample Location			MW23B		MW23B		MW24B	
Date Sampled			6/12/2001		6/12/2001		6/13/2001	
QC Identifier			Field Dup. ESRD-GW-MW23B		Field Dup. ESRD-GW-MW23B		None	
sec-Butylbenzene			1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U
Tetrachloroethene	5	3	*300*		*610*	E	1	U
Toluene	1000	1400	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U
Trichloroethene	5	5	*22*		*35*		1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)								
Decachlorobiphenyl (209)				NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BC1		MA0BC2		MA0BD7	
Aluminum		1430	283		213		759	
Antimony	6		3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.0	U	4.0	U
Barium	2000	1500	2.5	B	2.3	B	3.0	B
Beryllium	4		0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U
Calcium			30400		29900		21400	
Chromium	100	100	1.2	B	1.1	B	2.6	B
Cobalt			1.1	U	1.1	U	2.0	B
Copper	1300		0.70	U	1.3	B	3.8	B
Iron			504		397		3720	
Lead	15	20	1.5	U	1.5	U	2.3	B
Magnesium			7530		7210		6080	
Manganese		200	108		86.1		*305*	
Mercury	2	2	0.10	U	0.10	U	0.10	U
Nickel		150	1.8	B	2.1	B	4.4	B
Potassium			2140	B	2110	B	1400	B
Selenium	50	10	3.5	B	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U
Sodium			15300		14900		10900	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	0.90	U	2.8	B
Zinc			4.0	B	9.4	B	48.3	

Sample Number			ESRD-GW-MW25B		ESRD-GW-DUP02		ESRD-GW-MW25S	
Sample Location			MW25B		MW25B		MW25S	
Date Sampled			6/11/2001		6/11/2001		6/13/2001	
QC Identifier			Field Dup. ESRD-GW-MW25B		Field Dup. ESRD-GW-MW25B		None	
Sample ID			D03224		D03225		D03264	
	MCL	MEG 1992						
Volatile Organic Analysis (UG/L)								
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U
2-Hexanone			5	U	5	U	1	U
4-Chlorotoluene			1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U
Acetone			5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1		1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U

Sample Number			ESRD-GW-MW25B		ESRD-GW-DUP02		ESRD-GW-MW25S	
Sample Location			MW25B		MW25B		MW25S	
Date Sampled			6/11/2001		6/11/2001		6/13/2001	
QC Identifier			Field Dup. ESRD-GW-MW25B		Field Dup. ESRD-GW-MW25B		None	
sec-Butylbenzene			1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U
Tetrachloroethene	5	3	1	U	1	U	2	
Toluene	1000	1400	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)							D03264	
Decachlorobiphenyl (209)				NA		NA	0.07000	U
Total Dichlorobiphenyls				NA		NA	0.003000	U
Total Heptachlorobiphenyls				NA		NA	0.04000	EMPC
Total Hexachlorobiphenyls				NA		NA	0.05000	
Total Monochlorobiphenyls				NA		NA	0.004000	U
Total Nonachlorobiphenyls				NA		NA	0.04000	U
Total Octachlorobiphenyls				NA		NA	0.02000	U
Total Pentachlorobiphenyls				NA		NA	0.02000	U
Total Tetrachlorobiphenyls				NA		NA	0.007000	U
Total Trichlorobiphenyls				NA		NA	0.005000	U
Sum of PCB Homologs	0.5	0.05		NA		NA	*0.090000*	
TAL Metal Analysis (UG/L)			MA0B97		MA0B98		MA0BD2	
Aluminum		1430	*1520*		*1740*		218	
Antimony	6		3.0	U	3.0	U	3.0	U
Arsenic	10		6.9	B	4.0	U	4.0	U
Barium	2000	1500	8.0	B	9.1	B	4.5	B
Beryllium	4		0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U
Calcium			18900		20000		13400	
Chromium	100	100	3.8	B	4.3	B	0.70	U
Cobalt			2.4	B	3.0	B	1.1	U
Copper	1300		5.3	B	6.5	B	1.1	B
Iron			2250		2680		265	
Lead	15	20	2.0	B	2.3	B	1.5	U
Magnesium			4410	B	4730	B	3330	B
Manganese		200	138		163		27.7	
Mercury	2	2	0.10	U	0.10	U	0.10	U
Nickel		150	9.0	B	10.8	B	3.5	B
Potassium			1940	B	2050	B	979	B
Selenium	50	10	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U
Sodium			12000		12100		3580	B
Thallium	2	0.4	3.9	U	3.9	U	3.9	U
Vanadium			1.9	B	2.3	B	0.90	U
Zinc			15.9	B	18.9	B	5.9	B

Sample Number			ESRD-GW-MW26B		ESRD-GW-MW27B		ESRD-GW-MW28B1		ESRD-GW-MW28B2	
Sample Location			MW26B		MW27B		MW28B1		MW28B2	
Date Sampled			6/14/2001		6/13/2001		6/13/2001		6/13/2001	
QC Identifier			None		None		None		None	
Sample ID			D03299		D03270		D03268		D03267	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	1	U	1	U	1	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			11		5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-MW26B		ESRD-GW-MW27B		ESRD-GW-MW28B1		ESRD-GW-MW28B2	
Sample Location			MW26B		MW27B		MW28B1		MW28B2	
Date Sampled			6/14/2001		6/13/2001		6/13/2001		6/13/2001	
QC Identifier			None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	1	U	1		2		1	
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BF6		MA0BD8		MA0BD6		MA0BD5	
Aluminum		1430	447		*1690*		*1580*		966	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.0	U	4.0	U	4.0	U
Barium	2000	1500	25	B	25.7	B	78.3	B	26.8	B
Beryllium	4		0.20	U	0.20	U	0.29	B	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			3940	B	21200		50900		57900	
Chromium	100	100	1.3	B	2.5	B	1.2	B	5.6	B
Cobalt			1.1	U	2.0	B	1.1	U	1.1	U
Copper	1300		6.0	B	2.7	B	2.4	B	1.3	B
Iron			1020		2580		1020		1310	
Lead	15	20	1.5	U	1.5	U	1.5	B	1.5	U
Magnesium			1660	B	5560		6660		7190	
Manganese		200	16.4		152		120		*408*	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	3.5	B	5.5	B	1.5	U	4.7	B
Potassium			1870	B	1350	B	2080	B	2050	B
Selenium	50	10	3.4	U	3.4	U	3.6	B	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			20600		12100		15500		12700	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	3.4	B	1.6	B	2.6	B
Zinc			717		25.1		18.3	B	15.7	B

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW29B1		ESRD-GW-MW29B2		ESRD-GW-MW30S		ESRD-GW-MW31S	
Sample Location			MW29B1		MW29B2		MW30S		MW31S	
Date Sampled			6/12/2001		6/12/2001		6/13/2001		6/13/2001	
QC Identifier			None		None		None		None	
Sample ID			D03233		D03234		D03280		D03279	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	1	U	1	U	5	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	1	U
Acetone			5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA	5	U
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-MW29B1		ESRD-GW-MW29B2		ESRD-GW-MW30S		ESRD-GW-MW31S	
Sample Location			MW29B1		MW29B2		MW30S		MW31S	
Date Sampled			6/12/2001		6/12/2001		6/13/2001		6/13/2001	
QC Identifier			None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	*12*		5		*17*		***43***	
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BC6		MA0BC7		MA0BE8		MA0BE7	
Aluminum		1430	*4930*		249		168	U	168	U
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.0	U	4.0	U	4.0	U
Barium	2000	1500	270		29.6	B	6.7	B	3.2	B
Beryllium	4		0.80	B	0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			73400		63200		14300		18500	
Chromium	100	100	2.9	B	1.1	B	0.70	U	0.94	B
Cobalt			2.5	B	1.1	U	1.1	U	1.1	U
Copper	1300		3.6	B	0.70	U	0.89	B	0.70	U
Iron			2990		103		54.6	U	54.6	U
Lead	15	20	5.8		1.5	B	1.5	U	1.5	U
Magnesium			8130		6500		7030		5470	
Manganese		200	*222*		37.4		5.1	B	3.9	B
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	4.1	B	1.5	U	2.9	B	1.6	B
Potassium			3380	B	1920	B	2580		2130	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			15900		9070		10000		25600	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			2.7	B	0.90	U	0.90	U	0.90	U
Zinc			28.0		4.2	B	5.3	B	1.8	B

Sample Number			ESRD-GW-MW32S		ESRD-GW-MW33S		ESRD-GW-MW34B1		ESRD-GW-MW34B2	
Sample Location			MW32S		MW33S		MW34B1		MW34B2	
Date Sampled			6/13/2001		6/13/2001		6/12/2001		6/12/2001	
QC Identifier			None		None		None		None	
Sample ID			D03278		D03277		D03240		D03241	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	1	U	5	U	1	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	5	U	5	U	8	
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	2		1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW32S		ESRD-GW-MW33S		ESRD-GW-MW34B1		ESRD-GW-MW34B2	
Sample Location			MW32S		MW33S		MW34B1		MW34B2	
Date Sampled			6/13/2001		6/13/2001		6/12/2001		6/12/2001	
QC Identifier			None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	***38***		***55***		***1200***	E	***8***	
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1		1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BE6		MA0BE5		MA0BA6		MA0BA7	
Aluminum		1430	168	U	168	U	***12300***		185	B
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.0	U	**29.0**		4.0	U
Barium	2000	1500	3.9	B	3.5	B	191	B	3.1	B
Beryllium	4		0.20	U	0.20	U	0.90	B	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			22600		26200		26200		30700	
Chromium	100	100	1.3	B	0.70	U	48.2		37.3	
Cobalt			1.1	U	1.1	U	16.5	B	1.1	U
Copper	1300		0.70	U	0.70	U	36.6		0.70	U
Iron			54.6	U	68.4	B	37800		220	
Lead	15	20	1.5	U	1.5	U	***21.3***		1.5	U
Magnesium			7230		7280		7100		4580	B
Manganese		200	4.1	B	34.9		***11000***		***12000***	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	3.1	B	1.5	U	38.2	B	1.5	U
Potassium			2230	B	2660	B	2990	B	2580	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	1.8	B	0.80	U
Sodium			10000		10400		22700		45000	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	0.90	U	23.0	B	0.90	U
Zinc			1.3	B	4.5	B	83.7		1.9	B

Sample Number			ESRD-GW-MW35B1		ESRD-GW-MW36B1		ESRD-GW-MW36B2		ESRD-GW-MW37B	
Sample Location			MW35B1		MW36B1		MW36B2		MW37B	
Date Sampled			6/12/2001		6/12/2001		6/12/2001		6/14/2001	
QC Identifier			None		None		None		None	
Sample ID			D03239		D03257		D03231		D03301	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1		1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			5	U	1	U	1	U	1	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	55		5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	8		1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW35B1		ESRD-GW-MW36B1		ESRD-GW-MW36B2		ESRD-GW-MW37B	
Sample Location			MW35B1		MW36B1		MW36B2		MW37B	
Date Sampled			6/12/2001		6/12/2001		6/12/2001		6/14/2001	
QC Identifier			None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	***2400***	E	***730***	E	***46***		1	U
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	2		***6***		3		1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BA5		MA0BC3		MA0BC4			
Aluminum		1430	1210		*22300*		*3850*			NA
Antimony	6		3.0	U	**10.4**	B	**10.7**	B		NA
Arsenic	10		6.5	B	**15.7**		4.0	U		NA
Barium	2000	1500	48.5	B	550		30.4	B		NA
Beryllium	4		0.20	U	**5.2**		0.20	U		NA
Cadmium	5	5	0.30	U	0.30	U	0.30	U		NA
Calcium			32100		38800		14100			NA
Chromium	100	100	9.6	B	6.9	B	13.4			NA
Cobalt			1.1	U	4.5	B	7.3	B		NA
Copper	1300		3.4	B	10.8	B	11.1	B		NA
Iron			1550		15300		7040			NA
Lead	15	20	3.0	B	***40.4***		3.5			NA
Magnesium			4320	B	14100		12400			NA
Manganese		200	*373*		*708*		*221*			NA
Mercury	2	2	0.10	U	0.10	U	0.10	U		NA
Nickel		150	7.5	B	12.8	B	58.4			NA
Potassium			1710	B	5890		1960	B		NA
Selenium	50	10	3.4	U	3.4	U	3.4	U		NA
Silver		50	0.80	U	0.80	U	0.80	U		NA
Sodium			33000		53800		36500			NA
Thallium	2	0.4	3.9	U	3.9	U	3.9	U		NA
Vanadium			1.7	B	7.6	B	3.2	B		NA
Zinc			158		117		37.0			NA

Sample Number			ESRD-GW-MW37B1		ESRD-GW-MW37B2		ESRD-GW-MW37SB		ESRD-GW-MW38B	
Sample Location			MW37B1		MW37B2		MW37SB		MW38B	
Date Sampled			6/14/2001		6/14/2001		6/14/2001		6/14/2001	
QC Identifier			None		None		None		None	
Sample ID			D03302		D03303				D03307	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U		NA	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U		NA	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U		NA	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U		NA	1	U
1,1-Dichloroethane		70	1	U	1	U		NA	1	U
1,1-Dichloroethene	7	7	1	U	1	U		NA	1	U
1,1-Dichloropropene			1	U	1	U		NA	1	U
1,2,3-Trichlorobenzene			1	U	1	U		NA	1	U
1,2,3-Trichloropropane		40	1	U	1	U		NA	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U		NA	1	U
1,2,4-Trimethylbenzene			1	U	1	U		NA	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U		NA	1	U
1,2-Dibromoethane			1	U	1	U		NA	1	U
1,2-Dichlorobenzene	600		1	U	1	U		NA	1	U
1,2-Dichloroethane	5	5	1	U	1	U		NA	1	U
1,2-Dichloropropane	5	5	1	U	1	U		NA	1	U
1,3,5-Trimethylbenzene			1	U	1	U		NA	1	U
1,3-Dichlorobenzene		85	1	U	1	U		NA	1	U
1,3-Dichloropropane			1	U	1	U		NA	1	U
1,4-Dichlorobenzene	75		1	U	1	U		NA	1	U
2,2-Dichloropropane			1	U	1	U		NA	1	U
2-Butanone		170	5	U	5	U		NA	5	U
2-Chlorotoluene			1	U	1	U		NA	1	U
2-Hexanone			1	U	1	U		NA	1	U
4-Chlorotoluene			1	U	1	U		NA	1	U
4-Methyl-2-Pentanone			5	U	5	U		NA	5	U
Acetone			5	U	5	U		NA	7	
Benzene	5	5	1	U	1	U		NA	1	U
Bromobenzene			1	U	1	U		NA	1	U
Bromochloromethane		92	1	U	1	U		NA	1	U
Bromodichloromethane	80		1	U	1	U		NA	1	U
Bromoform	80		1	U	1	U		NA	1	U
Bromomethane		10	1	U	1	U		NA	1	U
Carbon Disulfide			1	U	1	U		NA	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U		NA	1	U
Chlorobenzene	100		1	U	1	U		NA	1	U
Chloroethane			1	U	1	U		NA	1	U
Chloroform	80		1	U	1	U		NA	1	U
Chloromethane		3	1	U	1	U		NA	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U		NA	1	U
cis-1,3-Dichloropropene			1	U	1	U		NA	1	U
Dibromochloromethane	80		1	U	1	U		NA	1	U
Dibromomethane			1	U	1	U		NA	1	U
Dichlorodifluoromethane		1050	1	U	1	U		NA	1	U
Ethylbenzene	700	700	1	U	1	U		NA	1	U
Hexachlorobutadiene		1	1	U	1	U		NA	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U		NA	1	U
Methyl tert-Butyl Ether		50	1	U	1	U		NA	1	U
Methylene Chloride	5	48	1	U	1	U		NA	1	U
n-Butylbenzene			1	U	1	U		NA	1	U
n-Propylbenzene			1	U	1	U		NA	1	U
Naphthalene		25	1	U	1	U		NA	1	U
p-Isopropyltoluene			1	U	1	U		NA	1	U

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW37B1		ESRD-GW-MW37B2		ESRD-GW-MW37SB		ESRD-GW-MW38B	
Sample Location			MW37B1		MW37B2		MW37SB		MW38B	
Date Sampled			6/14/2001		6/14/2001		6/14/2001		6/14/2001	
QC Identifier			None		None		None		None	
sec-Butylbenzene			1	U	1	U		NA	1	U
Styrene	100	5	1	U	1	U		NA	1	U
tert-Butylbenzene			1	U	1	U		NA	1	U
Tetrachloroethene	5	3	2		1	U		NA	1	U
Toluene	1000	1400	1	U	1	U		NA	1	U
Total Xylenes	10000	600	1	U	1	U		NA	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U		NA	1	U
trans-1,3-Dichloropropene			1	U	1	U		NA	1	U
Trichloroethene	5	5	1	U	1	U		NA	1	U
Trichlorofluoromethane		2300	1	U	1	U		NA	1	U
Vinyl Chloride	2	0 15	1	U	1	U		NA	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0 5	0 05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BF9		MA0BG0		MA0BF8		MA09M0	
Aluminum		1430	*3480*		*14500*		168	U	210	
Antimony	6		3.0	U	3 0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	**12.4**		4.0	U	4.0	U
Barium	2000	1500	51.2	B	296		4.1	B	1.9	B
Beryllium	4		0.43	B	2.7	B	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			16200		26300		22200		13700	
Chromium	100	100	3.4	B	4.1	B	0.70	U	0.70	U
Cobalt			2.3	B	3.1	B	1.1	U	1.1	U
Copper	1300		3 6	B	7.0	B	0.70	U	1.7	B
Iron			3080		8350		54.6	U	9510	
Lead	15	20	2 1	B	**17.8**		1.5	U	1.5	U
Magnesium			3650	B	7660		4870	B	4050	B
Manganese		200	234		206		9.8	B	68.2	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	5 0	B	11 2	B	1.5	U	1.7	B
Potassium			2850	B	5930		1720	B	1900	
Selenium	50	10	3.4	U	3 4	U	3 4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			21600		34800		12100		5630	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			1.3	B	4.0	B	0.90	U	0.90	U
Zinc			56.5		87 9		1.9	B	6.7	B

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-MW39B		ESRD-GW-MW40B		ESRD-GW-MW42S		ESRD-GW-RW2	
Sample Location			MW39B		MW40B		MW42S		RW2	
Date Sampled			6/12/2001		6/12/2001		6/14/2001		6/12/2001	
QC Identifier			None		None		None		None	
Sample ID			D03245		D03242		D03295		D03250	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			5	U	1	U	1	U	1	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-MW39B		ESRD-GW-MW40B		ESRD-GW-MW42S		ESRD-GW-RW2	
Sample Location			MW39B		MW40B		MW42S		RW2	
Date Sampled			6/12/2001		6/12/2001		6/14/2001		6/12/2001	
QC Identifier			None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	*160*		*11*		*100*		*64*	
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	[illegible]	2		1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BB1		MA0BA8		MA09M4		MA0BB6	
Aluminum		1430	168	U	*5460*		*3450*		592	
Antimony	6		**9.0**	B	3.0	U	3.0	U	3.0	U
Arsenic	10		9.2	B	4.2	B	4.0	U	4.0	U
Barium	2000	1500	1.8	B	30.7	B	14.8	B	5.7	B
Beryllium	4		0.20	U	0.24	B	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			24000		24500		19400		24100	
Chromium	100	100	1.1	B	13.4		9.1	B	1.6	B
Cobalt			1.1	U	3.3	B	5.2	B	1.7	B
Copper	1300		1.0	B	13.6	B	6.7	B	5.0	B
Iron			54.6	U	7760		5050		690	
Lead	15	20	1.5	U	1.8	B	1.8	B	1.7	B
Magnesium			4210	B	8040		7500		5990	
Manganese		200	16.3		175		*286*		*364*	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	1.9	B	10.9	B	17.1	B	4.1	B
Potassium			1250	B	2630	B	1240		1450	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			14000		7660		6790		9860	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	9.2	B	3.5	B	0.93	B
Zinc			84.8		27.5		52.9		7.7	B

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-GW-RW3		ESRD-GW-RW4		ESRD-GW-RW7B1		ESRD-GW-DUP08	
Sample Location			RW3		RW4		RW7B1		RW7B1	
Date Sampled			6/13/2001		6/12/2001		6/15/2001		6/15/2001	
QC Identifier			None		None		Field Dup. ESRD-GW-RW7B1		Field Dup. ESRD-GW-RW7B1	
Sample ID			D03272		D03249		D03309		D03310	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			1	U	1	U	1	U	1	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U
Acetone			5	U	5	U	5	U	8	
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	2		10		1		1	
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-RW3		ESRD-GW-RW4		ESRD-GW-RW7B1		ESRD-GW-DUP08	
Sample Location			RW3		RW4		RW7B1		RW7B1	
Date Sampled			6/13/2001		6/12/2001		6/15/2001		6/15/2001	
QC Identifier			None		None		Field Dup. ESRD-GW-RW7B1		Field Dup. ESRD-GW-RW7B1	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	*2000*	E	*1000*	E	*220*		*220*	
Toluene	1000	1400	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	*10*		*17*		2		2	
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BE0		MA0BB5		MA09M1		MA09M2	
Aluminum		1430	168	U	168	U	*3260*		*2480*	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		4.0	U	4.0	U	4.0	U	4.0	U
Barium	2000	1500	5.6	B	4.6	B	105	B	107	B
Beryllium	4		0.20	U	0.20	U	0.44	B	0.38	B
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			29800		33300		29100		29000	
Chromium	100	100	0.70	U	1.3	B	2.1	B	1.6	B
Cobalt			2.8	B	9.1	B	1.4	B	1.1	U
Copper	1300		0.79	B	7.6	B	3.8	B	3.2	B
Iron			187		760		2660		2420	
Lead	15	20	1.5	U	1.5	U	3.5		4.4	
Magnesium			4870	B	6790		11900		11800	
Manganese		200	*2320*		*2710*		158		158	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	5.8	B	4.8	B	7.3	B	6.7	B
Potassium			1890	B	2210	B	2500		2490	
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.80	U	0.80	U
Sodium			12100		11200		11600		11700	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			0.90	U	0.90	U	1.7	B	1.4	B
Zinc			6.2	B	13.6	B	288		286	

Sample Number			ESRD-GW-RW7S		ESRD-GW-RW8		ESRD-GW-DUP03		ESRD-GW-RW9	
Sample Location			RW7S		RW8		RW8		RW9	
Date Sampled			6/15/2001		6/12/2001		6/12/2001		6/12/2001	
QC Identifier			None		Field Dup. ESRD-GW-RW8		Field Dup. ESRD-GW-RW8		None	
Sample ID					D03247		D03248		D03246	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70		NA	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200		NA	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane				NA	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3		NA	1	U	1	U	1	U
1,1-Dichloroethane		70		NA	1	U	1	U	1	U
1,1-Dichloroethene	7	7		NA	1	U	1	U	1	U
1,1-Dichloropropene				NA	1	U	1	U	1	U
1,2,3-Trichlorobenzene				NA	1	U	1	U	1	U
1,2,3-Trichloropropane		40		NA	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70		NA	1	U	1	U	1	U
1,2,4-Trimethylbenzene				NA	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2		NA	1	U	1	U	1	U
1,2-Dibromoethane				NA	1	U	1	U	1	U
1,2-Dichlorobenzene	600			NA	1	U	1	U	1	U
1,2-Dichloroethane	5	5		NA	1	U	1	U	1	U
1,2-Dichloropropane	5	5		NA	1	U	1	U	1	U
1,3,5-Trimethylbenzene				NA	1	U	1	U	1	U
1,3-Dichlorobenzene		85		NA	1	U	1	U	1	U
1,3-Dichloropropane				NA	1	U	1	U	1	U
1,4-Dichlorobenzene	75			NA	1	U	1	U	1	U
2,2-Dichloropropane				NA	1	U	1	U	1	U
2-Butanone		170		NA	5	U	5	U	5	U
2-Chlorotoluene				NA	1	U	1	U	1	U
2-Hexanone				NA	5	U	5	U	5	U
4-Chlorotoluene				NA	1	U	1	U	1	U
4-Methyl-2-Pentanone				NA	5	U	5	U	5	U
Acetone				NA	5	U	5	U	5	U
Benzene	5	5		NA	1	U	1	U	1	U
Bromobenzene				NA	1	U	1	U	1	U
Bromochloromethane		92		NA	1	U	1	U	1	U
Bromodichloromethane	80			NA	1	U	1	U	1	U
Bromoform	80			NA	1	U	1	U	1	U
Bromomethane		10		NA	1	U	1	U	1	U
Carbon Disulfide				NA	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7		NA	1	U	1	U	1	U
Chlorobenzene	100			NA	1	U	1	U	1	U
Chloroethane				NA	1	U	1	U	1	U
Chloroform	80			NA	1	U	1	U	1	U
Chloromethane		3		NA	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70		NA	1	U	1	U	1	U
cis-1,3-Dichloropropene				NA	1	U	1	U	1	U
Dibromochloromethane	80			NA	1	U	1	U	1	U
Dibromomethane				NA	1	U	1	U	1	U
Dichlorodifluoromethane		1050		NA	1	U	1	U	1	U
Ethylbenzene	700	700		NA	1	U	1	U	1	U
Hexachlorobutadiene		1		NA	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene				NA	1	U	1	U	1	U
Methyl tert-Butyl Ether		50		NA	1	U	1	U	1	U
Methylene Chloride	5	48		NA	1	U	1	U	1	U
n-Butylbenzene				NA	1	U	1	U	1	U
n-Propylbenzene				NA	1	U	1	U	1	U
Naphthalene		25		NA	1	U	1	U	1	U
p-Isopropyltoluene				NA	1	U	1	U	1	U

Sample Number			ESRD-GW-RW7S		ESRD-GW-RW8		ESRD-GW-DUP03		ESRD-GW-RW9	
Sample Location			RW7S		RW8		RW8		RW9	
Date Sampled			6/15/2001		6/12/2001		6/12/2001		6/12/2001	
QC Identifier			None		Field Dup. ESRD-GW-RW8		Field Dup ESRD-GW-RW8		None	
sec-Butylbenzene				NA	1	U	1	U	1	U
Styrene	100	5		NA	1	U	1	U	1	U
tert-Butylbenzene				NA	1	U	1	U	1	U
Tetrachloroethene	5	3		NA	*83*		*81*		*230*	
Toluene	1000	1400		NA	1	U	1	U	1	U
Total Xylenes	10000	600		NA	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70		NA	1	U	1	U	1	U
trans-1,3-Dichloropropene				NA	1	U	1	U	1	U
Trichloroethene	5	5		NA	1	U	1	U	0.8	J
Trichlorofluoromethane		2300		NA	1	U	1	U	1	U
Vinyl Chloride	2	0.15		NA	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)			D03311							
Decachlorobiphenyl (209)			0.2000	U		NA		NA		NA
Total Dichlorobiphenyls			0.008000	U		NA		NA		NA
Total Heptachlorobiphenyls			0.05000	U		NA		NA		NA
Total Hexachlorobiphenyls			0.07000			NA		NA		NA
Total Monochlorobiphenyls			0.05000	EMPC		NA		NA		NA
Total Nonachlorobiphenyls			0.1000	U		NA		NA		NA
Total Octachlorobiphenyls			0.07000	U		NA		NA		NA
Total Pentachlorobiphenyls			0.4300			NA		NA		NA
Total Tetrachlorobiphenyls			0.06000	EMPC		NA		NA		NA
Total Trichlorobiphenyls			0.01000	U		NA		NA		NA
Sum of PCB Homologs	0.5	0.05	*0.610000*			NA		NA		NA
TAL Metal Analysis (UG/L)					MA0BB3		MA0BB4		MA0BB2	
Aluminum		1430		NA	946		974		851	
Antimony	6			NA	3.0	U	3.0	U	3.0	U
Arsenic	10			NA	4.0	U	4.0	U	6.9	B
Barium	2000	1500		NA	5.5	B	5.6	B	8.0	B
Beryllium	4			NA	0.20	U	0.20	U	0.20	U
Cadmium	5	5		NA	0.30	U	0.30	U	0.30	U
Calcium				NA	37200		38400		33800	
Chromium	100	100		NA	4.0	B	4.0	B	4.6	B
Cobalt				NA	1.9	B	1.7	B	1.1	U
Copper	1300			NA	43.7		29.0		13.3	B
Iron				NA	1340		1400		808	
Lead	15	20		NA	3.1		3.9		1.6	B
Magnesium				NA	5710		5890		7500	
Manganese		200		NA	*398*		*413*		85.9	
Mercury	2	2		NA	0.10	U	0.10	U	0.10	U
Nickel		150		NA	5.2	B	4.2	B	3.1	B
Potassium				NA	1540	B	1580	B	1610	B
Selenium	50	10		NA	3.4	U	3.4	U	3.4	U
Silver		50		NA	0.80	U	0.80	U	0.80	U
Sodium				NA	8650		8900		9920	
Thallium	2	0.4		NA	3.9	U	3.9	U	3.9	U
Vanadium				NA	1.2	B	1.2	B	1.0	B
Zinc				NA	25.4		19.5	B	12.3	B

Sample Number			ESRD-GW-RW10		ESRD-GW-RW11		ESRD-GW-RWS1		ESRD-GW-RWS3		ESRD-GW-RWS5	
Sample Location			RW10		RW11		RWS1		RWS3		RWS5	
Date Sampled			6/12/2001		6/12/2001		6/11/2001		6/11/2001		6/11/2001	
QC Identifier			None		None		None		None		None	
Sample ID			D03244		D03243		D03218		D03217		D03216	
	MCL	MEG 1992										
Volatile Organic Analysis (UG/L)												
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
2-Hexanone			1	U	1	U	5	U	5	U	5	U
4-Chlorotoluene			1	U	1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U	5	U	5	U
Acetone			5	U	5	U	5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U	1	U

Sample Number			ESRD-GW-RW10		ESRD-GW-RW11		ESRD-GW-RWS1		ESRD-GW-RWS3		ESRD-GW-RWS5	
Sample Location			RW10		RW11		RWS1		RWS3		RWS5	
Date Sampled			6/12/2001		6/12/2001		6/11/2001		6/11/2001		6/11/2001	
QC Identifier			None		None		None		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	*25*		*24*		1	U	*13*		*26*	
Toluene	1000	1400	1	U	1	U	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)												
Decachlorobiphenyl (209)				NA		NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BB0		MA0BA9		MA0B91		MA0B90		MA0B89	
Aluminum		1430	*19600*		*6100*		*1570*		814		1190	
Antimony	6		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	10		**18.8**		4.4	B	8.1	B	4.0	U	6.1	B
Barium	2000	1500	151	B	33.7	B	6.7	B	6.7	B	10.7	B
Beryllium	4		1.0	B	0.25	B	0.20	U	0.20	U	0.20	U
Cadmium	5	5	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
Calcium			25800		25200		1300	B	15500		22200	
Chromium	100	100	33.1		14.8		5.3	B	3.0	B	4.0	B
Cobalt			19.4	B	5.0	B	1.4	B	2.1	B	1.4	B
Copper	1300		285		66.7		8.7	B	4.6	B	5.3	B
Iron			32200		9040		12900		1420		1960	
Lead	15	20	*37.4*		5.5		11.1		2.4	B	4.1	
Magnesium			13700		8550		658	B	7820		8300	
Manganese		200	*1110*		*257*		*10700*		82.8		60.2	
Mercury	2	2	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Nickel		150	45.7		13.8	B	7.2	B	9.5	B	5.8	B
Potassium			4330	B	2640	B	5620		2440	B	2320	B
Selenium	50	10	3.4	U	3.4	U	3.4	U	3.4	U	3.4	U
Silver		50	0.80	U	0.80	U	0.81	B	0.80	U	0.80	U
Sodium			7980		7070		200000		11900		14600	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U
Vanadium			33.7	B	11.0	B	2.0	B	1.7	B	2.7	B
Zinc			210		69.5		14800		11.1	B	11.6	B

Sample Number			ESRD-GW-RWS6		ESRD-GW-DUP01		ESRD-GW-RWS7	
Sample Location			RWS6		RWS6		RWS7	
Date Sampled			6/11/2001		6/11/2001		6/11/2001	
QC Identifier			Field Dup. ESRD-GW-RWS6		Field Dup. ESRD-GW-RWS6		None	
Sample ID			D03214		D03215		D03219	
	MCL	MEG 1992						
Volatile Organic Analysis (UG/L)								
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U
2-Hexanone			5	U	5	U	5	U
4-Chlorotoluene			1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	5	U
Acetone			5	U	5	U	5	U
Benzene	5	5	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U

Sample Number			ESRD-GW-RWS6		ESRD-GW-DUP01		ESRD-GW-RWS7	
Sample Location			RWS6		RWS6		RWS7	
Date Sampled			6/11/2001		6/11/2001		6/11/2001	
QC Identifier			Field Dup. ESRD-GW-RWS6		Field Dup. ESRD-GW-RWS6		None	
sec-Butylbenzene			1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U
Tetrachloroethene	5	3	***6***		***12***		***6***	
Toluene	1000	1400	1	U	1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)								
Decachlorobiphenyl (209)				NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0468		MA0B88		MA0B92	
Aluminum		1430	*16500*		*26800*		*25000*	
Antimony	6		3.0	U	3.0	U	3.0	U
Arsenic	10		***28.2***		***47.0***		***44.4***	
Barium	2000	1500	69.2	B	102	B	1000	
Beryllium	4		0.71	B	1.1	B	1.6	B
Cadmium	5	5	0.30	U	0.30	U	0.30	U
Calcium			22700		24500		41500	
Chromium	100	100	30.8		50.0		39.1	
Cobalt			13.6	B	21.8	B	26.9	B
Copper	1300		40.2		65.7		75.8	
Iron			29000		47300		49000	
Lead	15	20	***28.2***		***40.9***		***70.7***	
Magnesium			11500		16300		23400	
Manganese		200	*916*		*1490*		*1190*	
Mercury	2	2	0.10	U		NA	0.10	U
Nickel		150	40.7		65.4		61.9	
Potassium			4620	B	5550		17800	
Selenium	50	10	3.4	U	3.4	U	3.4	U
Silver		50	0.85	B	1.4	B	1.6	B
Sodium			72200		67200		16300	
Thallium	2	0.4	3.9	U	3.9	U	3.9	U
Vanadium			29.1	B	47.0	B	41.4	B
Zinc			92.3		142		182	

Sample Number			ESRD-RW-SMIT		ESRD-RW-DUP09		ESRD-RW-VANW		ESRD-RW-WRIG	
Sample Location			SMIT		SMIT		VANW		WRIG	
Date Sampled			6/14/2001		6/14/2001		6/13/2001		6/13/2001	
QC Identifier			Field Dup. ESRD-RW-SMIT		Field Dup. ESRD-RW-SMIT		None		None	
Sample ID			D03292		D03293		D03291		D03290	
	MCL	MEG 1992								
Volatile Organic Analysis (UG/L)										
1,1,1,2-Tetrachloroethane		70	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	200	200	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane			1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	5	3	1	U	1	U	1	U	1	U
1,1-Dichloroethane		70	1	U	1	U	1	U	1	U
1,1-Dichloroethene	7	7	1	U	1	U	1	U	1	U
1,1-Dichloropropene			1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene			1	U	1	U	1	U	1	U
1,2,3-Trichloropropane		40	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	70	70	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene			1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	0.2	0.2	1	U	1	U	1	U	1	U
1,2-Dibromoethane			1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	600		1	U	1	U	1	U	1	U
1,2-Dichloroethane	5	5	1	U	1	U	1	U	1	U
1,2-Dichloropropane	5	5	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene			1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		85	1	U	1	U	1	U	1	U
1,3-Dichloropropane			1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	75		1	U	1	U	1	U	1	U
2,2-Dichloropropane			1	U	1	U	1	U	1	U
2-Butanone		170	5	U	5	U	5	U	5	U
2-Chlorotoluene			1	U	1	U	1	U	1	U
2-Hexanone			5	U	5	U	5	U	5	U
4-Chlorotoluene			1	U	1	U	1	U	1	U
4-Methyl-2-Pentanone			5	U	5	U	1	U	5	U
Acetone			110		110		5	U	5	U
Benzene	5	5	1	U	1	U	1	U	1	U
Bromobenzene			1	U	1	U	1	U	1	U
Bromochloromethane		92	1	U	1	U	1	U	1	U
Bromodichloromethane	80		1	U	1	U	1	U	1	U
Bromoform	80		1	U	1	U	1	U	1	U
Bromomethane		10	1	U	1	U	1	U	1	U
Carbon Disulfide			1	U	1	U	1	U	1	U
Carbon Tetrachloride	5	2.7	1	U	1	U	1	U	1	U
Chlorobenzene	100		1	U	1	U	1	U	1	U
Chloroethane			1	U	1	U	1	U	1	U
Chloroform	80		1	U	1	U	1	U	1	U
Chloromethane		3	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	70	70	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Dibromochloromethane	80		1	U	1	U	1	U	1	U
Dibromomethane			1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1050	1	U	1	U	1	U	1	U
Ethylbenzene	700	700	1	U	1	U	1	U	1	U
Hexachlorobutadiene		1	1	U	1	U	1	U	1	U
Hexachloroethane		1		NA		NA		NA		NA
Isopropylbenzene			1	U	1	U	1	U	1	U
Methyl tert-Butyl Ether		50	1	U	1	U	1	U	1	U
Methylene Chloride	5	48	1	U	1	U	1	U	1	U
n-Butylbenzene			1	U	1	U	1	U	1	U
n-Propylbenzene			1	U	1	U	1	U	1	U
Naphthalene		25	1	U	1	U	1	U	1	U
p-Isopropyltoluene			1	U	1	U	1	U	1	U

TABLE 1 - 4 (cont.)
JUNE 2001 GROUNDWATER DATA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample Number			ESRD-RW-SMIT		ESRD-RW-DUP09		ESRD-RW-VANW		ESRD-RW-WRIG	
Sample Location			SMIT		SMIT		VANW		WRIG	
Date Sampled			6/14/2001		6/14/2001		6/13/2001		6/13/2001	
QC Identifier			Field Dup ESRD-RW-SMIT		Field Dup ESRD-RW-SMIT		None		None	
sec-Butylbenzene			1	U	1	U	1	U	1	U
Styrene	100	5	1	U	1	U	1	U	1	U
tert-Butylbenzene			1	U	1	U	1	U	1	U
Tetrachloroethene	5	3	1	U	1	U	1	U	1	U
Toluene	1000	1400	11		10		1	U	1	U
Total Xylenes	10000	600	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	100	70	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene			1	U	1	U	1	U	1	U
Trichloroethene	5	5	1	U	1	U	1	U	1	U
Trichlorofluoromethane		2300	1	U	1	U	1	U	1	U
Vinyl Chloride	2	0.15	1	U	1	U	1	U	1	U
PCB Homologue Analysis (UG/L)										
Decachlorobiphenyl (209)				NA		NA		NA		NA
Total Dichlorobiphenyls				NA		NA		NA		NA
Total Heptachlorobiphenyls				NA		NA		NA		NA
Total Hexachlorobiphenyls				NA		NA		NA		NA
Total Monochlorobiphenyls				NA		NA		NA		NA
Total Nonachlorobiphenyls				NA		NA		NA		NA
Total Octachlorobiphenyls				NA		NA		NA		NA
Total Pentachlorobiphenyls				NA		NA		NA		NA
Total Tetrachlorobiphenyls				NA		NA		NA		NA
Total Trichlorobiphenyls				NA		NA		NA		NA
Sum of PCB Homologs	0.5	0.05		NA		NA		NA		NA
TAL Metal Analysis (UG/L)			MA0BF1				MA0BF0		MA0BE9	
Aluminum		1430	168	U		NA	168	U	168	U
Antimony	6		3.0	U		NA	3.0	U	3.0	U
Arsenic	10		4.0	U		NA	4.9	B	4.0	U
Barium	2000	1500	1.9	B		NA	1.7	U	1.7	U
Beryllium	4		0.20	U		NA	0.20	U	0.20	U
Cadmium	5	5	0.30	U		NA	0.30	U	0.30	U
Calcium			6260			NA	10700		5330	
Chromium	100	100	0.70	U		NA	0.70	U	0.70	U
Cobalt			1.1	U		NA	1.1	U	1.1	U
Copper	1300		4.5	B		NA	3.3	B	45.7	
Iron			3010			NA	54.6	U	54.6	U
Lead	15	20	1.5	U		NA	1.5	U	2.5	B
Magnesium			600	B		NA	3690	B	929	B
Manganese		200	125			NA	3.8	B	0.41	B
Mercury	2	2	0.10	U		NA	0.10	U	0.10	U
Nickel		150	1.5	U		NA	1.5	U	1.5	U
Potassium			1150	B		NA	2980		465	
Selenium	50	10	3.4	U		NA	3.4	U	3.4	U
Silver		50	0.80	U		NA	0.80	U	0.80	U
Sodium			31600			NA	27600		3690	B
Thallium	2	0.4	3.9	U		NA	3.9	U	3.9	U
Vanadium			0.90	U		NA	0.90	U	0.90	U
Zinc			26.3			NA	1.2	B	13.4	B

NOTES:

MCL - Maximum Contaminant Level criteria taken from "Drinking Water Regulations and Health Advisories", US EPA Report #822-B-96-002, October 1996.

MEG - Maine Maximum Exposure Guideline criteria taken from "Summary of State and Federal Drinking Water Guidelines", Maine State Department of Human Services, revised Oct. 1996.

U - Not detected
J - Quantitation approximate
B - Detected in Blank
E - Exceeded Calibration Range
UJ - Detection limit approximate
NA - Not analyzed
* - From dilution analysis

TABLE 1 - 5
TETRACHLOROETHENE TRENDS IN SELECTED WELLS
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

PCE in Northern Plume (ug/L)										
	Jun-99	Jan-00	Feb-00	Apr/May 00	Jun-00	Sep-00	Nov-00	Dec-00	Mar/Apr 01	Jun-01
Overburden Monitoring Wells										
MW-3S	98	ns	ns	3000	ns	dry	ns	dry	ns	dry
MW-20S	dry	ns	ns	dry	ns	dry	ns	dry	ns	dry
MW-23S	dry	ns	ns	130	ns	380	ns	16	ns	dry
MW-42S	na	na	na	na	na	na	na	na	300	100
MW-42SB	na	na	na	na	na	na	na	10	ns	ns
MW-43S	na	na	na	na	na	na	na	na	820	ns
MW-44S	na	na	na	na	ns	31	ns		360	dry
MW-44SB	na	na	na	na	na	na	na	18	ns	ns
MW-45S	na	na	na	na	na	na	na	na	27	dry
MW-46S	na	na	na	na	na	na	na	na	90	dry
Bedrock Monitoring Wells										
MW-3B	50	ns	ns	12000	ns	13	9 B	7		1600
MW-4B	ns	1U	ns	1U	ns	ns	ns	1U	13	8
MW-20B	2700	ns	ns	5 J	ns	12000	16000 B	5100	8000 B	2500
MW-23B	790	ns	ns	ns	ns	450	ns	830		300
MW-34B1	na	560	2800	660	450	1500	22000 B	2900	7400 B	1300
MW-34B2	na	120	85	78	77	ns	49 B	5	1 J	6
MW-35B1	na	5900	7200	270	460	16000	12000 B	6800	9700	2100
MW-35B2	na	7100	2600	710	ns	14000	8800 B	6300	360	ns
MW-36B1	na	1100	730	950	810	1300	ns	1700	810	840
MW-36B2	na	440	360	620	490	470	ns	360	15	46
MW-39B1	na	na	na	na	300	ns	ns	2000	500	160
MW-39B2	na	na	na	na	260	ns	ns	1600	NS	ns
MW-40B1	na	na	na	na	1 J	ns	ns	6	2	11
MW-40B2	na	na	na	na	1 J	ns	ns	17	NS	ns
MW-41B1	na	na	na	na	na	na	na	na	300	ns
MW-41B2	na	na	na	na	na	na	na	na	220	ns
MW-42B1	na	na	na	na	na	na	na	na	150	ns
MW-42B1	na	na	na	na	na	na	na	na	160	ns
MW-43B1	na	na	na	na	na	na	na	na	840	ns
MW-43B2	na	na	na	na	na	na	na	na	1200	ns
IN-1B (open hole)	na	na	na	na	na	1800	1800 B	5400	22	na
IN-2B (open hole)	na	na	na	na	na	2200	2100 B	3100	2	na
IN-1B1	na	na	na	na	na	na	na	na	na	3900
IN-1B2	na	na	na	na	na	na	na	na	na	25
IN-2B1	na	na	na	na	na	na	na	na	na	1300
IN-2B2	na	na	na	na	na	na	na	na	na	7
Extraction Wells [Bedrock/Overburden]										
RW-1	46	120	18	6 J	9	ns	ns	7		
RW-2	36	ns	ns	43	3100	3	ns	4		64
RW-3	1300	ns	ns	3200	410	34	ns	120	2400	1600
RW-4	1300	ns	ns	490	740	ns	ns	880	1900	1700
RW-5	420	ns	330	210	ns	370	ns	2800	18	ns
RW7-B1	5	45	12	27	17	57	ns	170	500	220
RW7-B2	5	74	27	130	240	130	ns	150		tubing stuck
RW-8	na	na	na	na	na	na	na	na	270	83
RW-9	na	na	na	na	na	na	na	na	690	230
RW-10	na	na	na	na	na	na	na	na	610	25
RW-11	na	na	na	na	na	na	na	na	150	24

TABLE 1 - 5 (cont.)
TETRACHLOROETHENE TRENDS IN SELECTED WELLS
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

PCE in Southern Plume (ug/L)

	Jun-99	Jan-00	Feb-00	Apr/May 00	Jun-00	Sep-00	Nov-00	Dec-00	Mar/Apr 01	Jun-01
Overburden Monitoring Wells										
MW-8S	570	ns	ns	350	ns	52	ns	78	44	34
MW-10S	1U	ns	ns	1 U	ns	ns	ns	1 U	ns	1 U
MW-11S	1 U	ns	ns	1 U	ns	ns	ns	1 U	ns	1 U
MW-13S	140	ns	ns	6	ns	ns	ns	ns	ns	dry
MW-18S	ns	ns	ns	42	ns	58	ns	67	ns	24
MW-19S	dry	ns	ns	ns	ns	dry	ns	ns	ns	dry
MW-25S	ns	ns	ns	9	ns	dry	ns	4	ns	2
MW-30S	na	na	na	93	ns	22 B	ns	14	ns	17
MW-31S	na	na	na	170	ns	160	ns	91	56	43
MW-32S	na	na	na	na	ns	ns	ns	6	ns	38
MW-33S	na	na	na	na	ns	55	ns	41	ns	55
IS-1S	na	na	na	na	na	94 B	ns	72	54	44
IS-2S	na	na	na	na	na	71 B	ns	72	ns	48
Bedrock Monitoring Wells										
MW-8B1	52	ns	ns	150	ns	1 U	ns	2	2	4
MW-8B2	200	ns	ns	140	ns	ns	ns	ns	ns	ns
MW-10B	0.6 JB	ns	ns	1 U	ns	ns	ns	1 U	ns	1 U
MW-11B	1 U	ns	ns	2	ns	ns	ns	3	ns	1 U
MW-19B	3	ns	ns	3	ns	ns	ns	2	ns	1 U
MW-22B	4 JB	ns	ns	6	ns	3	ns	2	ns	1 U
MW-25B	0.8 JB	ns	ns	2	ns	ns	ns	2	ns	1 U
IS-1B	na	na	na	na	na	1 B	ns	4	37	3
IS-2B	na	na	na	na	na	1 B	ns	2	ns	21
Extraction Wells [Bedrock/Overburden]										
RWS-1	na	na	ns	6	ns	ns	ns	2	ns	1 U
RWS-2	na	na	ns	ns	ns	ns	ns	9	ns	ns
RWS-3	na	na	ns	ns	ns	56 B	ns	6	ns	13
RWS-4	na	na	ns	190	ns	77 B	ns	93	45	ns
RWS-5	na	na	ns	180	ns	14 B	ns	7	13	26
RWS-6	na	na	ns	120	ns	45 B	ns	38	3	6
RWS-7	na	na	ns	24	ns	19 B	ns	1U	ns	6
RWS-8	na	na	na	na	na	ns	ns	14	ns	ns

PCE in Non-Plume Wells (ug/L)

										Jun-01
MW-15S	1u	ns	ns	ns	ns	ns	ns	1U	ns	1 U
MW-15B1	10	ns	ns	1U	ns	ns	ns	5U	ns	1 U
MW-15B2	ns	ns	ns	1U	ns	ns	ns	1U	ns	1 U
MW-16S	1u	ns	ns	ns	ns	ns	ns	1U	ns	1 U
MW-16B1	1u	ns	ns	ns	ns	ns	ns	1U	ns	1 U
MW-16B2	ns	ns	ns	ns	ns	ns	ns	1U	ns	1 U
MW-26B	0.8JB	17	ns	2	ns	ns	ns	1U	ns	1 U
MW-37S	ns	ns	ns	ns	ns	ns	ns	ns	ns	1 U
MW-37SB	ns	ns	ns	ns	ns	ns	ns	1U	ns	1 U
MW-37B1	ns	ns	0.64J	1U	2J	ns	ns	12	ns	2
MW-37B2	ns	ns	1.9U	1.1	10U	ns	ns	1U	ns	1 U
MW-38B	ns	ns	ns	1U	ns	ns	ns	1U	ns	1 U

Notes:

Phase 1
First $NaMnO_4$ dose applied during July 2000 into MW-34B1, MW-35B1, IN-1B, and IN-2B
Groundwater with NaMnO4 was recirculated in aquifer during August 2000.
Second $NaMnO_4$ dose applied Sept 22, 2000 into MW-20B, MW-34B1, MW-35B2, IN-1B, and IN-2B after analytical results were received.
Third $NaMnO_4$ dose applied during Jan 2001

Phase 2
$NaMnO_4$ dose applied during late April-May 2001 into select monitoring wells and DP wells

Abbr:
na - not applicable, well not constructed
ns - not sampled
B - laboratory blank contamination was present, but only low conc.
J - quantitation approximate
U - detection limit

UNVALIDATED DATA

TABLE 1 - 6
SOIL BORINGS VOCs DATA - MARCH 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

EPA Sample Number	D02800		D02895		D02897		D02898	
Station Location	ES-SO-MW46S-0204		ES-SO-TB02-032601		ES-SO-MW42S-0204		ES-SO-MW45S-0204	
Well ID								
Date Sampled	3/28/01		3/26/01		3/26/01		3/27/01	
Date Extracted	4/4/2001		4/4/2001		4/4/2001		4/4/2001	
Date Analyzed	4/4/2001		4/4/2001		4/4/2001		4/4/2001	
Dilution Factor	0.7		1		1.3		1	
Percent Solids	81				65		81	
QC Identifier	None		Trip Blank		None		None	
Dichlorodifluoromethane	5	U	5	U	6	U	5	U
Chloromethane	5	U	5	U	6	U	5	U
Vinyl Chloride	5	U	5	U	6	U	5	U
Bromomethane	5	U	5	U	6	U	5	U
Chloroethane	5	U	5	U	6	U	5	U
Trichlorofluoromethane	5	U	5	U	6	U	5	U
1,1-Dichloroethene	5	U	5	U	6	U	5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U	5	U	6	U	5	U
Acetone	16		5	U	25		32	
Carbon Disulfide	5	U	5	U	6	U	5	U
Methyl Acetate	5	U	5	U	82		10	
Methylene Chloride	8	B	20	B	15	B	8	B
trans-1,2-Dichloroethene	5	U	5	U	6	U	5	U
Methyl tert-Butyl Ether	5	U	5	U	6	U	5	U
1,1-Dichloroethane	5	U	5	U	6	U	5	U
cis-1,2-Dichloroethene	5	U	5	U	6	U	5	U
2-Butanone	5	U	5	U	6	U	5	U
Chloroform	5	U	5	U	6	U	5	U
1,1,1-Trichloroethane	5	U	5	U	6	U	5	U
Cyclohexane	5	U	5	U	6	U	5	U
Carbon Tetrachloride	5	U	5	U	6	U	5	U
Benzene	5	U	5	U	6	U	5	U
1,2-Dichloroethane	5	U	5	U	6	U	5	U
Trichloroethene	5	U	5	U	6	U	5	U
Methylcyclohexane	5	U	5	U	6	U	5	U
1,2-Dichloropropane	5	U	5	U	6	U	5	U
Bromodichloromethane	5	U	5	U	6	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	6	U	5	U
4-Methyl-2-Pentanone	5	U	5	U	6	U	5	U
Toluene	5	U	5	U	6	U	5	U
trans-1,3-Dichloropropene	5	U	5	U	6	U	5	U
1,1,2-Trichloroethane	5	U	5	U	6	U	5	U
Tetrachloroethene	5	U	5	U	6	U	5	U
2-Hexanone	5	U	5	U	6	U	5	U
Dibromochloromethane	5	U	5	U	6	U	5	U
1,2-Dibromoethane	5	U	5	U	6	U	5	U
Chlorobenzene	5	U	5	U	6	U	5	U
Ethylbenzene	5	U	5	U	6	U	5	U
Total Xylenes	5	U	5	U	6	U	5	U
Styrene	5	U	5	U	6	U	5	U
Bromoform	5	U	5	U	6	U	5	U
Isopropylbenzene	5	U	5	U	6	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	6	U	5	U
1,3-Dichlorobenzene	5	U	5	U	6	U	5	U
1,4-Dichlorobenzene	5	U	5	U	6	U	5	U
1,2-Dichlorobenzene	5	U	5	U	6	U	5	U
1,2-Dibromo-3-chloropropane	5	U	5	U	6	U	5	U
1,2,4-Trichlorobenzene	5	U	5	U	6	U	5	U

Table 1 - 6
SOIL BORINGS VOCs DATA - MARCH 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE
Page 2 of 4

EPA Sample Number	D02899		D02901		D02902		D02903	
Station Location	ES-SO-MW45S-1012		ES-SO-MW46S-1012		ES-SO-MW44S-0204		ES-SO-MW44S-0911	
Well ID								
Date Sampled	3/27/01		3/28/01		3/28/01		3/29/01	
Date Extracted	4/4/2001		4/4/2001		4/4/2001		4/4/2001	
Date Analyzed	4/4/2001		4/4/2001		4/4/2001		4/4/2001	
Dilution Factor	0.6		0.6		0.7		0.6	
Percent Solids	90		89		86		86	
QC Identifier	None		None		None		None	
Dichlorodifluoromethane	5	U	5	U	5	U	5	U
Chloromethane	5	U	5	U	5	U	5	U
Vinyl Chloride	5	U	5	U	5	U	5	U
Bromomethane	5	U	5	U	5	U	5	U
Chloroethane	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U	5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U	5	U	5	U	5	U
Acetone	22		5	U	7		3	J
Carbon Disulfide	5	U	5	U	5	U	5	U
Methyl Acetate	5	U	5	U	5	U	5	
Methylene Chloride	6	B	8	B	9	B	7	B
trans-1,2-Dichloroethene	5	U	5	U	5	U	5	U
Methyl tert-Butyl Ether	5	U	5	U	5	U	5	U
1,1-Dichloroethane	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	U	5	U	5	U	5	U
2-Butanone	5	U	5	U	5	U	2	J
Chloroform	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U
Cyclohexane	5	U	5	U	5	U	5	U
Carbon Tetrachloride	5	U	5	U	5	U	5	U
Benzene	5	U	5	U	5	U	5	U
1,2-Dichloroethane	5	U	5	U	5	U	5	U
Trichloroethene	5	U	5	U	5	U	5	U
Methylcyclohexane	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5	U	5	U	5	U	5	U
Bromodichloromethane	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	5	U	5	U	5	U	5	U
Toluene	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U
Tetrachloroethene	8		5	U	5	U	5	U
2-Hexanone	5	U	5	U	5	U	5	U
Dibromochloromethane	5	U	5	U	5	U	5	U
1,2-Dibromoethane	5	U	5	U	5	U	5	U
Chlorobenzene	5	U	5	U	5	U	5	U
Ethylbenzene	5	U	5	U	5	U	5	U
Total Xylenes	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U
Bromoform	5	U	5	U	5	U	5	U
Isopropylbenzene	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	U	5	U	5	U	5	U
1,2-Dibromo-3-chloropropane	5	U	5	U	5	U	5	U
1,2,4-Trichlorobenzene	5	U	5	U	5	U	5	U

Table 1 - 6
SOIL BORINGS VOCs DATA - MARCH 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

EPA Sample Number	D02896	
Station Location	ES-SO-RB01-032601	
Well ID		
Date Sampled	3/26/01	
Date Extracted	4/4/2001	
Date Analyzed	4/4/2001	
Dilution Factor	1	
Percent Solids		
QC Identifier	Rinsate Blank	
Dichlorodifluoromethane	5	U
Chloromethane	5	U
Vinyl Chloride	5	U
Bromomethane	5	U
Chloroethane	5	U
Trichlorofluoromethane	5	U
1,1-Dichloroethene	5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U
Acetone	28	B
Carbon Disulfide	5	U
Methyl Acetate	5	U
Methylene Chloride	5	U
trans-1,2-Dichloroethene	5	U
Methyl tert-Butyl Ether	5	U
1,1-Dichloroethane	5	U
cis-1,2-Dichloroethene	5	U
2-Butanone	6	
Chloroform	5	U
1,1,1-Trichloroethane	5	U
Cyclohexane	5	U
Carbon Tetrachloride	5	U
Benzene	5	U
1,2-Dichloroethane	5	U
Trichloroethene	5	U
Methylcyclohexane	5	U
1,2-Dichloropropane	5	U
Bromodichloromethane	5	U
cis-1,3-Dichloropropene	5	U
4-Methyl-2-Pentanone	5	U
Toluene	5	U
trans-1,3-Dichloropropene	5	U
1,1,2-Trichloroethane	5	U
Tetrachloroethene	5	U
2-Hexanone	5	U
Dibromochloromethane	5	U
1,2-Dibromoethane	5	U
Chlorobenzene	5	U
Ethylbenzene	5	U
Total Xylenes	5	U
Styrene	5	U
Bromoform	5	U
Isopropylbenzene	5	U
1,1,2,2-Tetrachloroethane	5	U
1,3-Dichlorobenzene	5	U
1,4-Dichlorobenzene	5	U
1,2-Dichlorobenzene	5	U
1,2-Dibromo-3-chloropropane	5	U
1,2,4-Trichlorobenzene	5	U

Table 1 - 6
Soil Borings VOCs Data - March 2001
Eastern Surplus Company Site
Meddybemps, Maine

Notes:

U - noted detected
J - Estimated value below CRQL
E - Conc. > calibration range
B - Detected in laboratory blank
* - Result from dilution sample
P - > 25%D between columns

TABLE 1 - 7
GROUNDWATER QUALITY CRITERIA
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Chemical Name	CAS No.	Units	MCL	2000 MEG	1992 MEG
1,1,1,2-Tetrachloroethane	630206	UG/L		13	70
1,1,1-Trichloroethane	71556	UG/L	200	200	200
1,1,2,2-Tetrachloroethane	79345	UG/L		1.8	
1,1,2-Trichloroethane	79005	UG/L	5	6	3
1,1-Dichloroethane	75343	UG/L		70	70
1,1-Dichloroethene	75354	UG/L	7	0.6	7
1,2,3-Trichloropropane	96184	UG/L		0.05	40
1,2,4-Trichlorobenzene	120821	UG/L	70	70	70
1,2-Dibromo-3-chloropropane	96128	UG/L	0.2	0.25	0.2
1,2-Dibromoethane	106934	UG/L		0.004	
1,2-Dichlorobenzene	95501	UG/L	600	63	
1,2-Dichloroethane	107062	UG/L	5	4	5
1,2-Dichloroethene (total)	540590	UG/L	70	70	70
1,2-Dichloropropane	78875	UG/L	5	5	5
1,3-Dichlorobenzene	541731	UG/L		60	85
1,4-Dichlorobenzene	106467	UG/L	75	21	
2,2'-oxybis(1-Chloropropane)	108601	UG/L		300	
2,4,6-Trichlorophenol	88062	UG/L		32	700
2,4-Dichlorophenol	120832	UG/L		21	20
2,4-Dinitrophenol	51285	UG/L		14	
2,4-Dinitrotoluene	121142	UG/L		0.5	
2,6-Dinitrotoluene	606202	UG/L		0.5	
2-Butanone	78933	UG/L		1440	170
2-Chlorophenol	95578	UG/L		35	
2-Chlorotoluene	95498	UG/L		140	
4,4'-DDT	50293	UG/L		1	0.83
4-Chlorotoluene	106434	UG/L		140	
4-Methylphenol	106445	UG/L		3.5	
4-Nitrophenol	100027	UG/L		60	83
Acetone	67641	UG/L		700	
Aldrin	309002	UG/L		0.02	
alpha-Chlordane	5103719	UG/L	2		
Aluminum	7429905	UG/L		1430	1430
Antimony	7440360	UG/L	6	3	
Aroclor, Total	--	UG/L	0.5	0.5	0.05
Arsenic	7440382	UG/L	10	10	
Barium	7440393	UG/L	2000	2000	1500
Benzene	71432	UG/L	5	12	5
Benzo(a)pyrene	50328	UG/L	0.2	0.05	
Beryllium	7440417	UG/L	4		
Bis(2-Chloroethyl)ether	111444	UG/L		0.3	8.3
bis(2-Ethylhexyl)phthalate	117817	UG/L	6	25	25
Bromide	--	MG/L		0.66	0.66
Bromochloromethane	74975	UG/L		10	92
Bromodichloromethane	75274	UG/L	80	6	
Bromoform	75252	UG/L	80	44	
Bromomethane	74839	UG/L		10	10
Cadmium	7440439	UG/L	5	3.5	5
Carbon Tetrachloride	56235	UG/L	5	3	2.7
Chlordane, Total	--	UG/L		0.3	0.27
Chloride	16887006	UG/L	250000		
Chlorobenzene	108907	UG/L	100	140	
Chloroform	67663	UG/L	80	57	
Chloromethane	74873	UG/L		3	3
Chromium	7440473	UG/L	100	40	100
cis-1,2-Dichloroethene	156592	UG/L	70	70	70
Copper	7440508	UG/L	1300	1300	
Cyanide	57125	UG/L		140	154

TABLE 1 - 7
GROUNDWATER QUALITY CRITERIA
FINAL DESIGN REPORT
EASTERN SURPLUS COMPANY SITE

Chemical Name	CAS No.	Units	MCL	2000 MEG	1992 MEG
Cyanide	--	UG/L	200	140	
Di-n-Butylphthalate	84742	UG/L		700	220
Dibromochloromethane	124481	UG/L	80	4	
Dichlorodifluoromethane	75718	UG/L		1400	1050
Dieldrin	60571	UG/L		0.02	0.02
Diethylphthalate	84662	UG/L		5000	
Endrin	72208	UG/L	2	2	2
Ethylbenzene	100414	UG/L	700	70	700
Fluoride	16984488	MG/L		2.4	2.4
gamma-BHC	58899	UG/L	0.2	0.2	0.2
gamma-Chlordane	5103742	UG/L	2		
Heptachlor	76448	UG/L	0.4	0.08	0.08
Heptachlor Epoxide	1024573	UG/L	0.2	0.04	0.04
Hexachlorobenzene	118741	UG/L	1	0.2	0.2
Hexachlorobutadiene	87683	UG/L		4	1
Hexachlorocyclopentadiene	77474	UG/L	50	50	50
Hexachloroethane	67721	UG/L		7	1
Isophorone	78591	UG/L		370	
Lead	7439921	UG/L	15	10	20
Manganese	7439965	UG/L		500	200
Mercury	7439976	UG/L	2	2	2
Methoxychlor	72435	UG/L	40	35	100
Methyl tert-Butyl Ether	1634044	UG/L		35	50
Methylene Chloride	75092	UG/L	5	47	48
Naphthalene	91203	UG/L		14	25
Nickel	7440020	UG/L		140	150
Nitrate	--	UG/L		10000	10000
Nitrite-N	14797650	UG/L		1000	
Nitrobenzene	98953	UG/L		3.5	1.4
p-Isopropyltoluene	99876	UG/L		70	
Pentachlorophenol	87865	UG/L	1	3	1
Phenol	108952	UG/L		4000	
Selenium	7782492	UG/L	50	35	10
Silver	7440224	UG/L		35	50
Sodium	7440235	UG/L		20000	
Styrene	100425	UG/L	100	140	5
Sulfate	14808798	UG/L	250000		
Sum of PCB Homologs	--	NG/L	500	500	50
Tetrachloroethene	127184	UG/L	5	7	3
Tetrahydrofuran	109999	UG/L		70	
Thallium	7440280	UG/L	2	0.5	0.4
Toluene	108883	UG/L	1000	1400	1400
Total PAH	--	UG/L		0.03	0.03
Total Xylenes	1330207	UG/L	10000	14000	600
Toxaphene	8001352	UG/L	3	0.3	0.3
trans-1,2-Dichloroethene	156605	UG/L	100	140	70
Trichlorobenzene, 1,3,5-	108703	UG/L		40	
Trichloroethene	79016	UG/L	5	32	5
Trichlorofluoromethane	75694	UG/L		2000	2300
Vinyl Chloride	75014	UG/L	2	0.2	0.15
Zinc	7440666	UG/L		2000	

Notes: MEGs are State guidelines, but are applicable or relevant and appropriate because they are referenced in the Maine Standards *for Hazardous Waste Facilities (06-096 CMR Chap. 854, Sec 15)*

Abbr: MCL - Maximum Contaminant Level
MEG - Maximum Exposure Guidelines

TABLE 2 - 1
GROUNDWATER ELEVATION SUMMARY- JUNE 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Well Identification	Measuring Point	Elevation of Measuring Point (feet-NGVD)	June 6, 2001 Depth to Groundwater (feet-bMP)	June 6, 2001 Groundwater Elevation (feet-NGVD)	June 11, 2001 Depth to Groundwater (feet-bMP)	June 11, 2001 Groundwater Elevation (feet-NGVD)	June 14, 2001 Depth to Groundwater (feet-bMP)	June 14, 2001 Groundwater Elevation (feet-NGVD)	June 22, 2001 Depth to Groundwater (feet-bMP)	June 22, 2001 Groundwater Elevation (feet-NGVD)
MW-1B	TS (4-in)	204.18	transducer stuck	-	-	-	-	-	-	-
MW-3S	TS (4-in)	?	7.65	-	-	-	dry	-	dry	-
MW-3B	TPVC (2-in)	179.89	7.16	172.73	-	-	9.50	170.39	-	-
MW-4S	TPVC (2-in)	177.60	11.86	165.74	-	-	12.83	164.77	13.15	164.45
MW-4B	TPVC (2-in)	176.51	13.85	162.66	-	-	16.93	159.58	16.76	159.75
MW-5S	TPVC (2-in)	182.06	12.19	169.87	-	-	dry	-	-	-
MW-6S	TPVC (2-in)	184.71	dry	-	-	-	dry	-	-	-
MW-7S	TPVC (2-in)	180.09	16.09	164.00	-	-	-	-	-	-
MW-7B	TPVC (2-in)	178.75	18.05	160.70	-	-	-	-	-	-
MW-8S	TPVC (2-in)	169.14	-	-	-	-	-	-	-	-
MW-8B	TS (6-in)	169.35	-	-	19.20	150.15	-	-	-	-
MW-9S	TPVC (2-in)	175.52	17.31	158.21	17.78	157.74	-	-	-	-
MW-10S	TPVC (2-in)	176.13	17.31	158.82	17.94	158.19	-	-	-	-
MW-10B	TS (6-in)	175.64	17.39	158.25	18.15	157.49	-	-	-	-
MW-11S	TPVC (2-in)	170.70	16.09	154.61	16.96	153.74	-	-	-	-
MW-11B	TS (6-in)	170.63	15.15	155.48	16.35	154.28	-	-	-	-
MW-12S	TPVC (2-in)	200.21	22.58	177.63	-	-	-	-	-	-
MW-12B	TS (6-in)	201.34	25.80	175.54	-	-	-	-	-	-
MW-13S	TS (4-in)	174.15	15.16	158.99	dry	-	-	-	-	-
MW-14B	TS (6-in)	187.33	12.69	174.64	-	-	-	-	-	-
MW-15S	TPVC (2-in)	179.32	15.18	164.14	-	-	-	-	-	-
MW-15B1	TPVC(1.25in)	180.03	20.10	159.93	-	-	-	-	-	-
MW-15B2	TPVC(1.25in)	180.02	20.14	159.88	-	-	-	-	-	-
MW-16S	TPVC (2-in)	183.48	7.96	175.52	-	-	-	-	-	-
MW-16B1	TPVC(1.25in)	183.89	13.45	170.44	-	-	-	-	-	-
MW-16B2	TPVC(1.25in)	183.88	11.12	172.76	-	-	-	-	-	-
MW-17S	TPVC (2-in)	174.34	-	-	-	-	-	-	-	-
MW-18S	TPVC (2-in)	174.82	16.25	158.57	17.20	157.62	-	-	-	-
MW-19S	TPVC (2-in)	178.46	dry	-	dry	-	-	-	-	-
MW-19B	TPVC (2-in)	178.17	16.65	161.52	16.90	161.27	-	-	-	-
MW-20S	TPVC (2-in)	180.26	-	-	-	-	dry	-	dry	-
MW-20B	TPVC (2-in)	180.66	8.65	172.01	-	-	7.79	172.87	10.32	170.34
MW-22B	TS (6-in)	174.23	16.51	157.72	17.86	156.37	-	-	-	-
MW-23S	TPVC (2-in)	177.96	7.75	170.21	-	-	9.65	168.31	dry	-
MW-23M	TPVC (2-in)	177.94	8.03	169.91	-	-	9.97	167.97	11.32	166.62
MW-23B	TPVC (2-in)	177.32	8.01	169.31	-	-	9.65	167.67	10.88	166.44
MW-24B	TPVC (2-in)	181.11	8.31	172.80	-	-	6.88	174.23	8.84	172.27
MW-25S	TPVC (2-in)	177.32	15.88	161.44	-	-	-	-	-	-
MW-25B	TPVC (2-in)	177.49	17.55	159.94	17.75	159.74	-	-	-	-
MW-26B	TPVC (4-in)	172.81	-	-	-	-	-	-	-	-
MW-27B	TPVC (6-in)	179.83	7.01	172.82	-	-	6.15	173.68	7.48	172.35
MW-28B1	TPVC (1.25-in)	182.35	9.40	172.95	-	-	7.19	175.16	10.72	171.63
MW28B2	TPVC (1.25-in)	182.42	9.60	172.82	-	-	6.07	176.35	10.72	171.70
MW-29B1	TPVC (1.25-in)	182.46	10.14	172.32	-	-	9.83	172.63	12.80	169.66
MW-29B2	TPVC (1.25-in)	182.46	12.10	170.36	-	-	10.73	171.73	11.68	170.78
MW-30S	TPVC (2-in)	170.94	14.78	156.16	17.18	153.76	-	-	-	-
MW-31S	TPVC (2-in)	168.15	14.90	153.25	-	-	-	-	-	-
MW-32S	TPVC (2-in)	171.11	13.96	157.15	16.92	154.19	-	-	-	-
MW-33S	TPVC (2-in)	171.66	14.44	157.22	17.20	154.46	-	-	-	-
MW-34B1	TPVC (1.25-in)	181.06	8.50	172.56	-	-	7.35	173.71	9.76	171.30
MW34B2	TPVC (1.25-in)	181.06	8.51	172.55	-	-	5.55	175.51	9.32	171.74
MW-35B	TPVC (4-in)	181.16	9.00	172.16	-	-	8.15	173.01	10.73	170.43
MW-36B1	TPVC (1.25-in)	169.99	7.05	162.94	-	-	20.92	149.07	12.88	157.11
MW36B2	TPVC (1.25-in)	170.07	7.30	162.77	-	-	19.57	150.50	13.74	156.33
MW-37B1	TPVC (1.25-in)	178.26	14.15	164.11	-	-	-	-	-	-
MW-37B2	TPVC (1.25-in)	178.26	12.21	166.05	-	-	-	-	-	-
MW-37SB	TPVC (2-in)	178.83	14.15	164.68	-	-	-	-	-	-
MW-38B	TS (6-in)	190.61	12.70	177.91	-	-	-	-	-	-
MW-39B	TPVC (4-in)	175.49	9.68	165.81	-	-	29.53	145.96	28.29	147.20
MW-40B	TPVC (4-in)	176.68	14.85	161.83	-	-	27.39	149.29	27.47	149.21
MW-41B1	TPVC (1.25-in)	176.63	19.47	157.16	-	-	16.38	160.25	20.46	156.17
MW-41B2	TPVC (1.25-in)	176.67	5.94	170.73	-	-	5.82	170.85	6.04	170.63
MW-42S	TPVC (2-in)	179.58	11.89	167.69	-	-	15.20	164.38	16.62	162.96
MW-42B1	TPVC (1.25-in)	178.13	10.98	167.15	-	-	16.65	161.48	17.35	160.78
MW-42B2	TPVC (1.25-in)	178.17	13.39	164.78	-	-	32.42	145.75	31.31	146.86
MW-42SB	TPVC (2-in)	179.27	7.08	172.19	-	-	8.16	171.11	9.48	169.79
MW-43S	TPVC (2-in)	180.13	11.04	169.09	-	-	13.72	166.41	15.00	165.13
MW-43B1	TPVC (1.25-in)	178.22	12.30	165.92	-	-	29.82	148.40	29.47	148.75
MW-43B2	TPVC (1.25-in)	178.26	12.99	165.27	-	-	27.86	150.40	29.35	148.91
MW-44S	TPVC (2-in)	177.63	10.50	167.13	-	-	13.89	163.74	14.55	163.08
MW-44SB	TPVC (2-in)	178.26	5.94	172.32	-	-	7.28	170.98	dry	-
MW-45S	TPVC (2-in)	178.95	12.90	166.05	-	-	15.10	163.85	16.64	162.31
MW-46S	TPVC (2-in)	178.69	12.65	166.04	-	-	dry	-	dry	-
RW-1	TPVC (6-in)	179.06	6.33	172.73	-	-	6.10	172.96	7.30	171.76
RW-2	TPVC (4-in)	173.21	0.63	172.58	-	-	3.13	170.08	3.88	169.33
RW-3	TPVC (4-in)	171.55	0.00	171.55	-	-	3.80	167.75	5.29	166.26
RW-4	TPVC (4-in)	171.64	1.75	169.89	-	-	22.63	149.01	21.33	150.31
RW-5	TPVC (6-in)	177.00	7.20	169.80	-	-	10.81	166.19	24.91	152.09
RW-7B1	TPVC (1.25-in)	176.76	10.91	165.85	-	-	22.52	154.24	23.24	153.52
RW-7B2	TPVC (1.25-in)	176.76	15.15	161.61	-	-	25.36	151.40	24.91	151.85
RW-8	TPVC (4-in)	178.11	8.31	169.80	-	-	27.47	150.64	26.43	151.68
RW-9	TPVC (4-in)	177.49	10.26	167.23	-	-	23.67	153.82	22.50	154.99
RW-10	TPVC (4-in)	177.59	11.71	165.88	-	-	28.05	149.54	33.92	143.67
RW-11	TPVC (4-in)	179.05	12.96	166.09	-	-	30.66	148.39	31.67	147.38
RWS-1	TPVC (4-in)	162.11	6.10	156.01	8.82	153.29	-	-	-	-
RWS-2	TPVC (4-in)	171.85	16.59	155.26	17.64	154.21	-	-	-	-
RWS-3	TPVC (4-in)	162.69	6.21	156.48	10.10	152.59	-	-	-	-
RWS-4	TPVC (4-in)	171.28	14.45	156.83	17.02	154.26	-	-	-	-
RWS-5	TPVC (4-in)	161.50	4.26	157.24	7.75	153.75	-	-	-	-
RWS-6	TPVC (4-in)	161.11	3.51	157.60	9.95	151.16	-	-	-	-
RWS-7	TPVC (4-in)	165.42	9.42	156.00	10.81	154.61	-	-	-	-
RWS-8	TPVC (4-in)	174.29	15.21	159.08	15.77	158.52	-	-	-	-
IN-1B1	TPVC (1.25-in)	180.34	8.19	172.15	-	-	8.42	171.92	10.12	170.22
IN-1B2	TPVC (1.25-in)	180.36	9.91	170.45	-	-	10.80	169.56	tubing stuck	-
IN-2B1	TPVC (1.25-in)	180.54	9.02	171.52	-	-	8.96	171.58	10.98	169.56
IN-2B2	TPVC (1.25-in)	180.57	tubing stuck	-	-	-	11.62	168.95	12.67	167.90
IS-1S	TPVC (2-in)	166.32	9.12	157.20	12.11	154.21	-	-	-	-
IS-1B	TS (6-in)	165.07	8.00	157.07	8.96	156.11	-	-	-	-
IS-2S	TPVC (2-in)	171.92	14.14	157.78	16.71	155.21	-	-	-	-
IS-2B	TS (6-in)	170.40	13.25	157.15	15.35	155.05	-	-	-	-
IW-1	TS (6-in)	183.39	10.71	172.68	-	-	6.35	177.04	11.93	171.46
IW-2	TS (6-in)	184.22	11.34	172.88	-	-	6.95	177.27	12.47	171.75
IW-3	TS (6-in)	181.95	9.01	172.94	-	-	5.40	176.55	9.99	171.96
IW-4	TS (6-in)	181.09	8.32	172.77	-	-	5.91	175.18	9.00	172.09
SMITH	TS (6-in)	174.55	-	-	-	-	-	-	-	-

Notes:

1. Monitoring wells destroyed during NTCRA site work 1999: MW-7, and G-1 through G-6.
2. The June 6th water level round was performed while northern and southern extraction system were not operating.
3. The June 11th water level round was performed while the southern extraction system was operating.
4. The June 14th water level round was performed while the northern extraction and injection system was operating.
5. The June 22nd water level round was performed while the northern extraction system was operating.

Abbreviations:

TPVC means top of PVC well casing (casing diameter in parentheses).
TS means top of steel casing (casing diameter in parentheses).
- means no data.
bMP means below measuring point.
NGVD - means National Geodetic Vertical Datum

TABLE 2 - 2
EXTRACTION WELLS DETAILS
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Well Identification	Measuring Point	Elevation of Measuring Point (feet-NGVD)	Elevation of Ground Surface (feet-NGVD)	Depth to Top of Bedrock (feet-BGS)	Elevation of Bedrock (feet-NGVD)	Screened (s) or Open Hole (o) interval (feet-BGS)	Depth to Water 4/9/01 (feet-BMP)	Groundwater Elev. 4/9/01 (feet-NGVD)	Target Groundwater Elev. (feet-NGVD)	Pump Intake Depth (feet-bMP)	Measured Well Yield (gpm)
NORTHERN EXTRACTION SYSTEM											
RW-2	TPVC (4-in)	173.21	176.91	5.00	171.91	4.5 - 29.5 (s)	3.20	170.01	168	5.21	0.5
RW-3	TPVC (4-in)	171.55	176.87	4.50	172.37	6 - 43.5 (s)	1.22	170.33	166	5.55	1
RW-4	TPVC (4-in)	171.64	176.94	11.00	165.94	7 - 34.5 (s)	15.23	156.41	150	21.64	1.4
RW-8	TS (6-in)	178.11	177.01	16.50	160.51	16.5 - 217 (o)	17.82	160.29	140	38.11	1.4
RW-9	TPVC (4-in)	177.49	175.93	17.50	158.43	12.5 - 27.5 (s)	20.85	156.64	150	27.49	1
RW-10	TPVC (4-in)	177.59	175.94	23.00	152.94	18 - 33 (s)	27.62	149.97	144	33.59	1
RW-11	TPVC (4-in)	179.05	176.35	28.00	148.35	23 - 38 (s)	32.45	146.60	146	33.05	1
MW-35B	TPVC (4-in)	181.16	179.04	7.25	171.79	7 - 67 (s)	–	–	150	31.16	0.25
MW-39B	TPVC (4-in)	175.49	174.08	15.00	159.08	15.3 - 215 (o)	61.32	114.17	148	27.49	0.25
MW-40B	TPVC (4-in)	176.68	174.58	21.30	153.28	21.8 - 220 (o)	65.47	111.21	150	26.68	0.25
								Northern Extraction System - Total Flow:			8.05
SOUTHERN EXTRACTION SYSTEM											
RWS-1	TPVC (4-in)	162.11	168.16	19.00	149.16	15 - 55 (s)	5.12	156.99	154	8.11	2
RWS-3	TPVC (4-in)	162.69	169.48	19.50	149.98	15 - 55 (s)	–	–	152	10.69	2.5
RWS-5	TPVC (4-in)	161.50	167.37	18.50	148.87	16 - 66 (s)	4.81	156.69	148	13.50	2.5
RWS-6	TPVC (4-in)	161.11	167.44	15.50	151.94	14 - 111 (s)	4.95	156.16	152	9.11	2.5
RWS-7	TPVC (4-in)	165.42	170.00	23.00	147.00	26.5 - 51.5 (s)	6.28	159.14	155	10.42	2.5
								Southern Extraction System - Total Flow:			12

Abbreviations:

TPVC means top of PVC well casing (casing diameter in parentheses).

TS means top of steel casing (casing diameter in parentheses).

\- means no data.

BMP means below measuring point.

BGS means below ground surface

NGVD - means National Geodetic Vertical Datum

TABLE 2 - 3
WELL CONSTRUCTION SUMMARY
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Well Identification	Measuring Point	Elevation of Measuring Point (feet-NGVD)	Elevation of Ground Surface (feet-NGVD)	Depth to Top of Bedrock (feet-BGS)	Elevation of Bedrock (feet-NGVD)	Screened (s) or Open Hole (o) Interval (feet-BGS)
MW-1B	TS (4-in)	204.18	201.60	34.60	167.00	38 - 53 (s)
MW-3S	TPVC (2-in)	178.14	178.25	-	-	3.5 - 7.8 (s)
MW-3B	TPVC (2-in)	179.89	177.34	9.00	168.34	13.3 - 23.3 (s)
MW-4S	TPVC (2-in)	177.60	174.84	-	-	13 - 18 (s)
MW-4B	TPVC (2-in)	176.51	174.75	19.50	155.25	24.7 - 39.7 (s)
MW-5S	TPVC (2-in)	182.06	179.86	-	-	10 - 13 (s)
MW-6S	TPVC (2-in)	184.71	182.34	-	-	4.5 - 7 (s)
MW-7S	TPVC (2-in)	180.09	177.79	17.00	160.79	12 -17 (s)
MW-7B	TPVC (2-in)	178.75	177.81	18.00	159.81	21 - 117.8 (o)
MW-8S	TPVC (2-in)	169.14	167.30	16.50	150.80	14-16.5 (s)
MW-8B	TS (6-in)	169.35	169.04	20.50	148.54	25.7-124 (o)
MW-9S	TPVC (2-in)	175.52	174.03	16.50	157.53	14-16.5 (s)
MW-10S	TPVC (2-in)	176.13	174.42	22.00	152.42	18-23 (s)
MW-10B	TS (6-in)	175.64	174.24	20.00	154.24	26.4-120 (o)
MW-11S	TPVC (2-in)	170.70	169.34	26.00	143.34	21-26 (s)
MW-11B	TS (6-in)	170.63	169.69	29.00	140.69	34-132 (o)
MW-12S	TPVC (2-in)	200.21	199.11	22.00	177.11	19-21.5 (s)
MW-12B	TS (6-in)	201.34	200.13	22.50	177.63	27.7-138 (o)
MW-13S	TPVC (2-in)	174.14	171.36	14.00	157.36	11-13.5 (s)
MW-14B	TS (6-in)	187.33	185.70	3.50	182.20	9.4-120 (o)
MW-15S	TPVC (2-in)	179.32	178.46	36.00	142.46	26-36 (s)
MW-15B1	TPVC(1.25in)	180.03	178.97	39.00	139.97	70.5-80.5 (s)
MW-15B2	TPVC(1.25in)	180.02	178.97	39.00	139.97	89.5-99.5 (s)
MW-16S	TPVC (2-in)	183.48	182.88	36.00	146.88	28-38 (s)
MW-16B1	TPVC(1.25in)	183.89	182.18	38.00	144.18	60-75 (s)
MW-16B2	TPVC(1.25in)	183.88	182.18	38.00	144.18	105-120 (s)
MW-17S	TPVC (2-in)	174.34	172.83	18.00	154.83	15-17.5 (s)
MW-18S	TPVC (2-in)	174.82	172.81	18.00	154.81	16-18.5 (s)
MW-19S	TPVC (2-in)	178.46	177.02	11.80	165.22	9.3-11.8 (s)
MW-19B	TPVC (2-in)	178.17	176.46	18.50	157.96	20-35 (s)
MW-20S	TPVC (2-in)	180.26	178.56	6.00	172.56	3.5 - 6 (s)
MW-20B	TPVC (2-in)	180.66	178.63	5.50	173.13	11 - 21 (s)
MW-22B	TS (6-in)	174.23	172.35	18.00	154.35	25-49 (o)
MW-23S	TPVC (2-in)	177.96	175.95	8.00	167.95	3.5 - 7.5 (s)
MW-23M	TPVC (2-in)	177.94	176.19	7.50	168.69	7.5 - 14.5 (s)
MW-23B	TPVC (2-in)	177.32	175.68	8.00	167.68	16.5 - 32.25 (s)
MW-24B	TPVC (2-in)	181.11	179.06	8.60	170.46	14 - 24 (s)
MW-25S	TPVC (2-in)	177.32	175.74	-	-	7.5 - 17.5 (s)
MW-25B	TPVC (2-in)	177.49	175.57	18.50	157.07	20 - 35.5 (s)
MW-26B	TPVC (4-in)	172.81	172.72	12.00	160.72	45-190 (o)
MW-27B	TPVC (6-in)	179.83	177.43	5.50	171.93	8 - 27 (o)
MW-28B1	TPVC (1.25-in)	182.35	184.57	5.00	179.57	23 - 43 (s)
MW28B2	TPVC (1.25-in)	182.42	184.57	5.00	179.57	63 - 78 (s)
MW-29B1	TPVC (1.25-in)	182.46	181.03	4.00	177.03	29 - 39 (s)
MW-29B2	TPVC (1.25-in)	182.46	181.03	4.00	177.03	57 - 77 (s)
MW-30S	TPVC (2-in)	170.94	168.88	20.50	148.38	8.5 - 20.5 (s)
MW-31S	TPVC (2-in)	168.15	166.05	15.50	150.55	7.0 - 15 (s)
MW-32S	TPVC (2-in)	171.11	169.00	-	-	11.5 - 17.5 (s)
MW-33S	TPVC (2-in)	171.66	169.51	-	-	11.5 - 17.5 (s)
MW-34B1	TPVC (1.25-in)	181.06	179.38	7.00	172.38	6 - 21 (s)
MW34B2	TPVC (1.25-in)	181.06	179.38	7.00	172.38	51 - 66 (s)
MW-35B	TPVC (4-in)	181.16	179.04	7.25	171.79	7 - 67 (s)
MW-36B1	TPVC (1.25-in)	169.99	167.78	7.60	160.18	28 - 43 (s)
MW36B2	TPVC (1.25-in)	170.07	167.78	7.60	160.18	128 - 143 (s)
MW-37B1	TPVC (1.25-in)	178.26	176.60	23.50	153.10	45 - 65 (s)
MW-37B2	TPVC (1.25-in)	178.26	176.60	23.50	153.10	74 - 92.2 (s)
MW-37SB	TPVC (2-in)	178.83	176.73	24.00	152.73	22-35.3 (s)
MW-38B	TS (6-in)	190.61	188.89	29.70	159.19	12 - 30 (o)
MW-39B	TPVC (4-in)	175.49	174.29	15.00	159.29	10 - 215 (s)
MW-40B	TPVC (4-in)	176.68	175.78	21.30	154.48	14 - 219 (s)
MW-41B1	TPVC (1.25-in)	176.63	176.25	9.00	167.25	100 - 115 (s)
MW-41B2	TPVC (1.25-in)	176.67	176.25	9.00	167.25	160 - 175 (s)

Table 2-3
WELL CONSTRUCTION SUMMARY
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Well Identification	Measuring Point	Elevation of Measuring Point (feet-NGVD)	Elevation of Ground Surface (feet-NGVD)	Depth to Top of Bedrock (feet-BGS)	Elevation of Bedrock (feet-NGVD)	Screened (s) or Open Hole (o) Interval (feet-BGS)
MW-42S	TPVC (2-in)	179.58	176.51	--	--	11 - 16 (s)
MW-42B1	TPVC (1.25-in)	178.13	176.63	24.50	152.13	20 - 35 (s)
MW-42B2	TPVC (1.25-in)	178.17	176.63	24.50	152.13	105 - 120 (s)
MW-42SB	TPVC (2-in)	179.27	177.06	--	--	4.0 - 7.5 (s)
MW-43S	TPVC (2-in)	180.26	177.21	--	--	12.5 - 17.5 (s)
MW-43B1	TPVC (1.25-in)	178.22	177.22	22.00	155.22	100 - 115 (s)
MW-43B2	TPVC (1.25-in)	178.26	177.22	22.00	155.22	150 - 165 (s)
MW-44S	TPVC (2-in)	177.63	175.68	--	--	9 - 14 (s)
MW-44SB	TPVC (2-in)	178.26	175.91	--	--	3.0 - 6.0 (s)
MW-45S	TPVC (2-in)	178.95	175.99	--	--	13.5 - 18.5 (s)
MW-46S	TPVC (2-in)	178.69	175.64	--	--	16.5 - 21.5 (s)
RW-1	TPVC (6-in)	179.06	178.02	4.00	174.02	12 - 30 (o)
RW-2	TPVC (4-in)	173.21	177.01	5.00	172.01	4.5 - 29.5 (s)
RW-3	TPVC (4-in)	171.55	176.92	4.50	172.42	6 - 43.5 (s)
RW-4	TPVC (4-in)	171.64	177.04	11.00	166.04	7 - 34.5 (s)
RW-5	TPVC (6-in)	177.00	176.30	9.50	166.80	12 - 45 (o)
RW-7B1	TPVC (1.25-in)	176.76	175.97	23.00	152.97	25 - 55 (s)
RW-7B2	TPVC (1.25-in)	176.76	175.97	23.00	152.97	71 - 101 (s)
RW-8	TS (6-in)	178.11	176.45	16.50	159.95	11.5 - 217 (s)
RW-9	TPVC (4-in)	177.49	175.81	17.50	158.31	12.5 - 27.5 (s)
RW-10	TPVC (4-in)	177.59	175.78	23.00	152.78	18 - 33 (s)
RW-11	TPVC (4-in)	179.05	176.11	28.00	148.11	23 - 38 (s)
RWS-1	TPVC (4-in)	162.11	167.32	19.00	148.32	15 - 55 (s)
RWS-2	TPVC (4-in)	171.85	170.01	19.50	150.51	15 - 79 (s)
RWS-3	TPVC (4-in)	162.69	168.19	19.50	148.69	15 - 55 (s)
RWS-4	TPVC (4-in)	171.28	168.57	19.00	149.57	15 - 55 (s)
RWS-5	TPVC (4-in)	161.50	167.35	18.50	148.85	16 - 66 (s)
RWS-6	TPVC (4-in)	161.11	167.23	15.50	151.73	14 - 111 (s)
RWS-7	TPVC (4-in)	165.42	171.42	23.00	148.42	26.5 - 51.5 (s)
RWS-8	TPVC (4-in)	174.29	172.12	18.92	153.20	9.92 - 24.92 (s)
IN-1B1	TPVC (1.25-in)	180.34	178.64	11.00	167.64	15 - 30 (s)
IN-1B2	TPVC (1.25-in)	180.36	178.66	11.00	167.66	81 - 96 (s)
IN-2B1	TPVC (1.25-in)	180.54	178.94	10.50	168.44	12 - 22 (s)
IN-2B2	TPVC (1.25-in)	180.57	178.97	10.50	168.47	100 - 110 (s)
IS-1S	TPVC (2-in)	166.32	163.97	--	--	7.0 - 13.0 (s)
IS-1B	TS (6-in)	165.07	163.97	16.00	147.97	17.1 - 115 (s)
IS-2S	TPVC (2-in)	171.92	169.13	--	--	10.0 - 20.0 (s)
IS-2B	TS (6-in)	170.40	169.40	23.00	146.40	25 - 130 (o)
IW-1	TS (6-in)	183.39	182.89	9.00	173.89	10 - 113 (o)
IW-2	TS (6-in)	184.22	183.12	13.00	170.12	15 - 118 (o)
IW-3	TS (6-in)	181.95	181.45	8.00	173.45	9.5 - 108 (o)
IW-4	TS (6-in)	181.09	179.99	5.00	174.99	7.5 - 108 (o)
SMITH	TS (6-in)	174.55	173.35	--	--	--

Notes:

1. Monitoring wells destroyed during NTCRA site work 1999: MW-7, and G-1 through G-6.

Abbreviations:

TPVC means top of PVC well casing (casing diameter in parentheses).
TS means top of steel casing (casing diameter in parentheses).
- means no data.
BGS means below ground surface.

TABLE 4 - 1
SUMMARY STATISTICS FOR TREATMENT PLANT INFLUENT AND EFFLUENT
JAN 2000 THROUGH FEB 28, 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Combined Influent to Particle Filter (INP) [Nov 9, 2000 - Jan 16, 2001]											
Aluminum	7429905	UG/L	34.3	8040	1020	16/16	ESTS-INP-11601			1430	3
Antimony	7440360	UG/L	3.4	4	3.7	2/16	110900	6	0		
Arsenic	7440382	UG/L	3.6	14	8.1	5/16	ESTSINP121200	10	1		
Barium	7440393	UG/L	2	44.6	9.5	16/16	ESTS-INP-11601	2000	0	1500	0
Beryllium	7440417	UG/L	0.29	0.82	0.47	5/16	110900	4	0		
Cadmium	7440439	UG/L	0.36	0.37	0.36	2/16	ESTS-INP-122000	5	0	5	0
Calcium	7440702	UG/L	11400	21000	16000	16/16	ESTSINP121200				
Chromium	7440473	UG/L	0.95	16.2	3.8	14/16	ESTS-INP-11601	100	0	100	0
Cobalt	7440484	UG/L	0.63	10.3	3.4	7/16	ESTS-INP-11601				
Copper	7440508	UG/L	1.1	269	41.7	16/16	ESTSDUP01112000	1300	0		
Iron	7439896	UG/L	31.9	14700	1940	15/16	ESTS-INP-11601				
Lead	7439921	UG/L	1.8	201	33.6	13/16	ESTSDUP01112000	15	6	20	6
Magnesium	7439954	UG/L	4940	9870	6620	16/16	ESTS-INP-11601				
Manganese	7439965	UG/L	1.4	580	162	16/16	ESTS-INP-11601			200	4
Mercury	7439976	UG/L	0.4	0.4	0.4	1/16	ESTSINP121200	2	0	2	0
Nickel	7440020	UG/L	4	44	13.8	16/16	ESTS-INP-11601			150	0
Potassium	7440097	UG/L	1390	3030	1990	16/16	ESTSINP121200				
Selenium	7782492	UG/L	4.8	5.4	5.1	2/16	ESTSINP120600	50	0	10	0
Silver	7440224	UG/L	1.4	3.6	2.5	2/16	110900			50	0
Sodium	7440235	UG/L	9970	29000	15100	16/16	122000				
Thallium	7440280	UG/L	9.2	9.2	9.2	1/16	ESTS-INP-110900	2	1	0.4	1
Vanadium	7440622	UG/L	0.87	18.4	4.4	8/16	ESTS-INP-11601				
Zinc	7440666	UG/L	7.9	389	99.8	16/16	ESTSINP121200				
Combined Influent to Particle Filter (INP) [Nov 9, 2000 - Jan 16, 2001]											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/15	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/15	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/15	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/15	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/15	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/15	None	70	0	70	0
chloropropane	96128	UG/L	0	0	0	0/15	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/15	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/15	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/15	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/15	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/15	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/15	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/15	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/15	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/15	None				
Acetone	67641	UG/L	28	28	28	1/15	122700				
Benzene	71432	UG/L	0	0	0	0/15	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/15	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/15	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/15	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/15	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/15	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/15	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/15	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/15	None				
Chloroform	67663	UG/L	0	0	0	0/15	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/15	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0.5	0.5	0.5	1/15	ESTS-INP-122700	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/15	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/15	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/15	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/15	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/15	None	100	0	5	0

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Tetrachloroethene	127184	UG/L	6	340	96	10/15	ESTS-DUP01-1301	5	10	3	10
Toluene	108883	UG/L	2	2	2	1/15	122000	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/15	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/15	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/15	None				
Trichloroethene	79016	UG/L	0.6	0.8	0.7	2/15	ESTS-INP-122700	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/15	None	2	0	0.15	0
Combined influent to Particle Filter (INP) [Nov 9, 2000 - Jan 16, 2001]											
Decachlorobiphenyl (209)	2051243	UG/L	0	0	0	0/4	None				
Total Dichlorobiphenyls	25512429	UG/L	0	0	0	0/4	None				
Total Heptachlorobiphenyls	28655712	UG/L	0	0	0	0/4	None				
Total Hexachlorobiphenyls	26601649	UG/L	0	0	0	0/4	None				
Total Monochlorobiphenyls	27323188	UG/L	0	0	0	0/4	None				
Total Nonachlorobiphenyls	53742077	UG/L	0	0	0	0/4	None				
Total Octachlorobiphenyls	31472830	UG/L	0	0	0	0/4	None				
Total Pentachlorobiphenyls	25429292	UG/L	0	0	0	0/4	None				
Total Tetrachlorobiphenyls	26914330	UG/L	0	0	0	0/4	None				
Total Trichlorobiphenyls	25323686	UG/L	0	0	0	0/4	None				
Influent from N. Plume (INN) since Jan 31, 2001											
Aluminum	7429905	UG/L	127	1130	528	4/4	ESTS-INN-022801			1430	0
Antimony	7440360	UG/L	3.5	4.3	3.9	2/4	ESTS-INN-031200	6	0		
Arsenic	7440382	UG/L	8.1	39.4	19.5	3/4	ESTS-INN-022801	10	2		
Barium	7440393	UG/L	3.8	20.4	8.9	4/4	ESTS-INN-022801	2000	0	1500	0
Beryllium	7440417	UG/L	0.1	0.16	0.13	3/4	ESTS-INN-031200	4	0		
Cadmium	7440439	UG/L	0	0	0	0/4	None	5	0	5	0
Calcium	7440702	UG/L	10500	17800	14100	4/4	ESTS-INN-21501				
Chromium	7440473	UG/L	2.7	8.4	4.6	4/4	ESTS-INN-022801	100	0	100	0
Cobalt	7440484	UG/L	0.8	12.5	5.2	3/4	ESTS-INN-022801				
Copper	7440508	UG/L	5.5	49.4	28.7	4/4	ESTS-INN-21501	1300	0		
Iron	7439896	UG/L	195	12500	3710	4/4	ESTS-INN-022801				
Lead	7439921	UG/L	4.1	13.3	8.3	4/4	ESTS-INN-21501	15	0	20	0
Magnesium	7439954	UG/L	2560	6440	4530	4/4	ESTS-INN-21501				
Manganese	7439965	UG/L	152	1680	656	4/4	ESTS-INN-022801			200	3
Mercury	7439976	UG/L	0.13	0.13	0.13	1/4	ESTS-INN-022801	2	0	2	0
Nickel	7440020	UG/L	4.8	43.3	17.6	4/4	ESTS-INN-21501			150	0
Potassium	7440097	UG/L	980	1600	1240	4/4	ESTS-INN-21501				
Selenium	7782492	UG/L	0	0	0	0/4	None	50	0	10	0
Silver	7440224	UG/L	2	2	2	1/4	ESTS-INN-21501			50	0
Sodium	7440235	UG/L	5560	15300	11400	4/4	ESTS-INN-21501				
Thallium	7440280	UG/L	18.1	18.1	18.1	1/4	ESTS-INN-21501	2	1	0.4	1
Vanadium	7440622	UG/L	1.2	4.3	2.4	3/4	ESTS-INN-022801				
Zinc	7440666	UG/L	5.2	361	148	4/4	ESTS-INN-022801				
Influent from N. Plume (INN) since Jan 31, 2001											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/3	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/3	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/3	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/3	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/3	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/3	None	70	0	70	0
chloropropane	96128	UG/L	0	0	0	0/3	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/3	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/3	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/3	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/3	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/3	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/3	None	75	0		

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
2-Butanone	78933	UG/L	0	0	0	0/3	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/3	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/3	None				
Acetone	67641	UG/L	0	0	0	0/3	None				
Benzene	71432	UG/L	0	0	0	0/3	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/3	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/3	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/3	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/3	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/3	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/3	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/3	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/3	None				
Chloroform	67663	UG/L	0	0	0	0/3	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/3	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/3	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/3	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/3	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/3	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/3	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/3	None	100	0	5	0
Tetrachloroethene	127184	UG/L	82	360	200	3/3	ESTS-INN-022801	5	3	3	3
Toluene	108883	UG/L	0	0	0	0/3	None	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/3	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/3	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/3	None				
Trichloroethene	79016	UG/L	0	0	0	0/3	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/3	None	2	0	0.15	0
Influent from S. Plume (INS) since Jan 31, 2001											
Aluminum	7429905	UG/L	37.2	1620	623	7/7	022801			1430	1
Antimony	7440360	UG/L	3.8	3.8	3.8	1/7	ESTS-INS-21501	6	0		
Arsenic	7440382	UG/L	7.8	10.2	9	2/7	ESTS-INS-21501	10	1		
Barium	7440393	UG/L	3	21.1	10	7/7	ESTS-INS-031200	2000	0	1500	0
Beryllium	7440417	UG/L	0.11	0.2	0.16	2/7	ESTS-DUP01-21501	4	0		
Cadmium	7440439	UG/L	0.73	0.85	0.79	2/7	013101	5	0	5	0
Calcium	7440702	UG/L	15600	21600	18700	7/7	013101				
Chromium	7440473	UG/L	1.9	5.5	3.5	6/7	ESTS-INS-031200	100	0	100	0
Cobalt	7440484	UG/L	1.6	2.5	1.9	3/7	022801				
Copper	7440508	UG/L	4.4	41.1	18.6	7/7	ESTS-DUP01-21501	1300	0		
Iron	7439896	UG/L	69.7	2780	1070	7/7	022801				
Lead	7439921	UG/L	2.2	12.1	5.7	5/7	022801	15	0	20	0
Magnesium	7439954	UG/L	5720	7940	7180	7/7	013101				
Manganese	7439965	UG/L	11.4	93.9	54.4	7/7	022801			200	0
Mercury	7439976	UG/L	0.14	0.14	0.14	1/7	ESTS-INS-031200	2	0	2	0
Nickel	7440020	UG/L	3.8	97.7	22.3	7/7	ESTS-INS-013101			150	0
Potassium	7440097	UG/L	1430	2980	1860	7/7	ESTS-INS-031200				
Selenium	7782492	UG/L	8.2	8.2	8.2	1/7	ESTS-INS-21501	50	0	10	0
Silver	7440224	UG/L	1.4	1.5	1.5	2/7	ESTS-INS-21501			50	0
Sodium	7440235	UG/L	8950	58800	21300	7/7	ESTS-INS-031200				
Thallium	7440280	UG/L	10.2	13.7	11.9	2/7	ESTS-INS-21501	2	2	0.4	2
Vanadium	7440622	UG/L	1.5	3.9	2.6	4/7	022801				
Zinc	7440666	UG/L	2.6	87.9	36.9	7/7	ESTS-INS-013101				
Influent from S. Plume (INS) since Jan 31, 2001											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/6	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/6	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/6	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/6	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/6	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/6	None	70	0	70	0

TABLE 4 - 1
SUMMARY STATISTICS FOR TREATMENT PLANT INFLUENT AND EFFLUENT
JAN 2000 THROUGH FEB 28, 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
chloropropane	96128	UG/L	0	0	0	0/6	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/6	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/6	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/6	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/6	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/6	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/6	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/6	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/6	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/6	None				
Acetone	67641	UG/L	0	0	0	0/6	None				
Benzene	71432	UG/L	0	0	0	0/6	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/6	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/6	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/6	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/6	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/6	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/6	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/6	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/6	None				
Chloroform	67663	UG/L	0	0	0	0/6	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/6	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/6	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/6	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/6	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/6	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/6	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/6	None	100	0	5	0
Tetrachloroethene	127184	UG/L	11	33	22	5/6	ESTS-INS-013101	5	5	3	5
Toluene	108883	UG/L	1	3	2	2/6	022801	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/6	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/6	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/6	None				
Trichloroethene	79016	UG/L	0	0	0	0/6	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/6	None	2	0	0.15	0
Influent from S. Plume (INS) since Jan 31, 2001											
Decachlorobiphenyl (209)	2051243	UG/L	0	0	0	0/2	None				
Total Dichlorobiphenyls	25512429	UG/L	0	0	0	0/2	None				
Total Heptachlorobiphenyls	28655712	UG/L	0	0	0	0/2	None				
Total Hexachlorobiphenyls	26601649	UG/L	0	0	0	0/2	None				
Total Monochlorobiphenyls	27323188	UG/L	0	0	0	0/2	None				
Total Nonachlorobiphenyls	53742077	UG/L	0	0	0	0/2	None				
Total Octachlorobiphenyls	31472830	UG/L	0	0	0	0/2	None				
Total Pentachlorobiphenyls	25429292	UG/L	0	0	0	0/2	None				
Total Tetrachlorobiphenyls	26914330	UG/L	0	0	0	0/2	None				
Total Trichlorobiphenyls	25323686	UG/L	0	0	0	0/2	None				
Between 1st Carbon Pair (EF1) since Jul 18, 2000											
Aluminum	7429905	UG/L	57.4	11700	1860	14/14	ESTS-EF1-11601			1430	5
Antimony	7440360	UG/L	2.3	3.6	2.8	3/14	ESTSEF1112900	6	0		
Arsenic	7440382	UG/L	4.1	15.9	11.5	5/14	ESTS-EF1-21501	10	3		
Barium	7440393	UG/L	0.26	88.6	16.7	14/14	ESTS-EF1-11601	2000	0	1500	0
Beryllium	7440417	UG/L	0.17	1.1	0.53	5/14	ESTSEF1112900	4	0		
Cadmium	7440439	UG/L	0.31	2.2	0.86	5/14	ESTSEF1121200	5	0	5	0
Calcium	7440702	UG/L	11100	24900	17000	14/14	ESTSEF1112900				
Chromium	7440473	UG/L	0.56	20.3	4.7	12/14	ESTS-EF1-11601	100	0	100	0
Cobalt	7440484	UG/L	0.82	12.7	3.1	9/14	ESTS-EF1-11601				
Copper	7440508	UG/L	8.3	205	66.1	14/14	ESTS-EF1-11601	1300	0		
Iron	7439896	UG/L	37.3	16800	2460	14/14	ESTS-EF1-11601				
Lead	7439921	UG/L	2	120	25.6	13/14	ESTS-EF1-110900	15	6	20	4
Magnesium	7439954	UG/L	3020	10800	6640	14/14	ESTS-EF1-11601				

TABLE 4 - 1
SUMMARY STATISTICS FOR TREATMENT PLANT INFLUENT AND EFFLUENT
JAN 2000 THROUGH FEB 28, 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Manganese	7439965	UG/L	15.8	1900	363	14/14	ESTS-EF1-122000			200	6
Mercury	7439976	UG/L	0.11	0.12	0.12	2/14	ESTS-EF1-122000	2	0	2	0
Nickel	7440020	UG/L	6.7	127	49.2	14/14	ESTS-EF1-110900			150	0
Potassium	7440097	UG/L	1160	3930	2120	14/14	ESTS-EF1-11601				
Selenium	7782492	UG/L	5.6	7	6.3	3/14	ESTSEF1120600	50	0	10	0
Silver	7440224	UG/L	1	1.8	1.4	2/14	ESTS-EF1-21501			50	0
Sodium	7440235	UG/L	9460	45200	16700	14/14	ESTS-EF1-031200				
Thallium	7440280	UG/L	6.8	6.8	6.8	1/14	ESTS-EF1-21501	2	1	0.4	1
Vanadium	7440622	UG/L	0.82	20.3	4.6	10/14	ESTS-EF1-11601				
Zinc	7440666	UG/L	9	968	184	14/14	ESTS-EF1-110900				
Between 1st Carbon Pair (EF1) since Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/13	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/13	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/13	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/13	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/13	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/13	None	70	0	70	0
chloropropane	96128	UG/L	0	0	0	0/13	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/13	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/13	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/13	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/13	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/13	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/13	None	75	0		
2-Butanone	78933	UG/L	8	8	8	1/13	ESTS-EF1-122000			170	0
2-Hexanone	591786	UG/L	0	0	0	0/13	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/13	None				
Acetone	67641	UG/L	0	0	0	0/13	None				
Benzene	71432	UG/L	0	0	0	0/13	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/13	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/13	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/13	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/13	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/13	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/13	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/13	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/13	None				
Chloroform	67663	UG/L	0	0	0	0/13	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/13	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/13	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/13	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/13	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/13	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/13	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/13	None	100	0	5	0
Tetrachloroethene	127184	UG/L	4	22	9	11/13	ESTS-EF1-013101, ESTS-EF1-1301	5	6	3	11
Toluene	108883	UG/L	0.7	2	1	3/13	ESTS-EF1-122000	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/13	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/13	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/13	None				
Trichloroethene	79016	UG/L	0	0	0	0/13	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/13	None	2	0	0.15	0
Between 1st Carbon Pair (EF1) before Jul 18, 2000											
Aluminum	7429905	UG/L	29.7	1230	435	3/3	ESTS-EF1			1430	0
Antimony	7440360	UG/L	0	0	0	0/3	None	6	0		
Arsenic	7440382	UG/L	2.4	5.6	4.4	3/3	ES-TS-EF-1	10	0		

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Barium	7440393	UG/L	1.3	2.2	1.7	3/3	ES-TS-EF-1	2000	0	1500	0
Beryllium	7440417	UG/L	0.34	0.45	0.4	2/3	ES-TS-EF-1	4	0		
Cadmium	7440439	UG/L	0	0	0	0/3	None	5	0	5	0
Calcium	7440702	UG/L	6550	11800	8520	3/3	ES-TS-EF-1				
Chromium	7440473	UG/L	0.74	0.74	0.74	1/3	ESTS-EF1	100	0	100	0
Cobalt	7440484	UG/L	1.4	1.4	1.4	1/3	ESTS-EF1				
Copper	7440508	UG/L	7.1	14.1	11.4	3/3	ES-TS-EF-1	1300	0		
Iron	7439896	UG/L	27.2	130	67.4	7/16	ES-TS-EF1-004				
Lead	7439921	UG/L	2.8	3.2	3	2/3	ESTS-EF1	15	0	20	0
Magnesium	7439954	UG/L	1590	2860	2110	3/3	ES-TS-EF-1				
Manganese	7439965	UG/L	163	1560	885	16/16	ESTSEF102			200	15
Mercury	7439976	UG/L	0.1	0.1	0.1	1/3	ESTS-EF1	2	0	2	0
Nickel	7440020	UG/L	9	44.1	23.9	3/3	ESTS-EF1			150	0
Potassium	7440097	UG/L	342	669	479	3/3	ES-TS-EF-1				
Selenium	7782492	UG/L	0	0	0	0/3	None	50	0	10	0
Silver	7440224	UG/L	1.5	1.5	1.5	1/3	ES-TS-EF-1			50	0
Sodium	7440235	UG/L	3740	5210	4510	3/3	ES-TS-EF-1				
Thallium	7440280	UG/L	18.2	18.2	18.2	1/3	ES-TS-EF-1	2	1	0.4	1
Vanadium	7440622	UG/L	1.4	1.4	1.4	1/3	ES-TS-EF-1				
Zinc	7440666	UG/L	29.8	34.1	32.1	3/3	ES-TS-EF-1				
Bet 1st Carbon Pair (EF1) before Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/16	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/16	None				
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	UG/L	0	0	0	0/3	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/16	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/16	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/16	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/3	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/3	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/3	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/3	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/16	None	5	0	5	0
1,2-Dichloroethene (total)	540590	UG/L	0	0	0	0/13	None	70	0	70	0

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
1,2-Dichloropropane	78875	UG/L	0	0	0	0/16	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/3	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/3	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/16	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/16	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/16	None				
Acetone	67641	UG/L	4	190	58	4/16	ESTS-EF1-052500				
Benzene	71432	UG/L	0	0	0	0/16	None	5	0	5	0
Bromodichloromethane	75274	UG/L	0	0	0	0/16	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/16	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/16	None			10	0
Carbon Disulfide	75150	UG/L	0.11	0.11	0.1	1/16	ES-TS-EF1-01				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/16	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/16	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/16	None				
Chloroform	67663	UG/L	0	0	0	0/16	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/16	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/3	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/16	None				
Cyclohexane	110827	UG/L	0	0	0	0/3	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/16	None	80	0		
Dichlorodifluoromethane	75718	UG/L	0	0	0	0/3	None			1050	0
Ethylbenzene	100414	UG/L	0	0	0	0/16	None	700	0	700	0
Isopropylbenzene	98828	UG/L	0	0	0	0/3	None				
Methyl Acetate	79209	UG/L	0	0	0	0/3	None				
Methyl tert-Butyl Ether	1634044	UG/L	0	0	0	0/3	None			50	0
Methylcyclohexane	108872	UG/L	0	0	0	0/3	None				
Methylene Chloride	75092	UG/L	0.12	15	2	9/16	ESTS-EF1-052500	5	1	48	0
Styrene	100425	UG/L	0	0	0	0/16	None	100	0	5	0
Tetrachloroethene	127184	UG/L	0.12	3	0.7	11/16	ES-TS-EF-1	5	0	3	0
Toluene	108883	UG/L	0.055	0.3	0.1	7/16	ES-TS-EF1-001	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/16	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/3	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/16	None				

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Trichloroethene	79016	UG/L	0	0	0	0/16	None	5	0	5	0
Trichlorofluoromethane	75694	UG/L	0	0	0	0/3	None			2300	0
Vinyl Chloride	75014	UG/L	0	0	0	0/16	None	2	0	0.15	0
Bet 2nd Carbon Pair (EF2) since Jul 18, 2000											
Aluminum	7429905	UG/L	15.4	12300	1650	14/14	ESTS-EF2-031200			1430	3
Antimony	7440360	UG/L	3.1	4	3.6	2/14	ESTSEF2112900	6	0		
Arsenic	7440382	UG/L	9.6	29.9	14.7	5/14	ESTS-EF2-031200	10	3		
Barium	7440393	UG/L	4.3	64.8	16	13/14	ESTS-EF2-031200	2000	0	1500	0
Beryllium	7440417	UG/L	0.17	1.5	0.56	5/14	ESTS-EF2-031200	4	0		
Cadmium	7440439	UG/L	0.39	2.8	1.6	2/14	ESTS-EF2-031200	5	0	5	0
Calcium	7440702	UG/L	11400	21200	16700	14/14	ESTS-EF2-031200				
Chromium	7440473	UG/L	0.81	14.4	4.6	10/14	ESTS-EF2-031200	100	0	100	0
Cobalt	7440484	UG/L	0.71	8.9	3.5	7/14	ESTS-EF2-11601				
Copper	7440508	UG/L	2.5	1570	138	14/14	ESTS-EF2-031200	1300	1		
Iron	7439896	UG/L	44.1	11200	2470	13/14	ESTS-EF2-11601				
Lead	7439921	UG/L	2.6	991	82	13/14	ESTS-EF2-031200	15	2	20	1
Magnesium	7439954	UG/L	2920	8190	6310	14/14	ESTS-EF2-11601				
Manganese	7439965	UG/L	21.5	845	268	14/14	ESTS-EF2-1301			200	6
Mercury	7439976	UG/L	0.11	0.22	0.16	2/14	ESTS-EF2-11601	2	0	2	0
Nickel	7440020	UG/L	5.2	235	53.2	14/14	ESTSEF2120600			150	1
Potassium	7440097	UG/L	1100	3190	1980	14/14	ESTS-EF2-122000				
Selenium	7782492	UG/L	5.9	5.9	5.9	1/14	ESTSEF2120600	50	0	10	0
Silver	7440224	UG/L	1.2	1.5	1.4	2/14	ESTS-EF2-21501			50	0
Sodium	7440235	UG/L	6400	44600	16100	14/14	ESTS-EF2-031200				
Thallium	7440280	UG/L	8.2	8.2	8.2	1/14	ESTS-EF2-21501	2	1	0.4	1
Vanadium	7440622	UG/L	0.9	10.8	4.4	8/14	ESTS-EF2-11601				
Zinc	7440666	UG/L	26.6	10900	1030	14/14	ESTS-EF2-031200				
Bet 2nd Carbon Pair (EF2) since Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/13	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/13	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/13	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/13	None			70	0
1,1-Dichloroethene	75354	UG/L	1	1	1	1/13	ESTS-EF2-122000	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/13	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/13	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/13	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/13	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/13	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/13	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/13	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/13	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/13	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/13	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/13	None				
Acetone	67641	UG/L	0	0	0	0/13	None				
Benzene	71432	UG/L	0	0	0	0/13	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/13	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/13	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/13	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/13	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/13	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/13	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/13	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/13	None				
Chloroform	67663	UG/L	0	0	0	0/13	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/13	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/13	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/13	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/13	None	80	0		

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Ethylbenzene	100414	UG/L	0	0	0	0/13	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/13	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/13	None	100	0	5	0
Tetrachloroethene	127184	UG/L	2	14	4	10/13	ESTS-EF2-21501	5	2	3	4
Toluene	108883	UG/L	1	2	2	2/13	ESTS-EF2-022801	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/13	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/13	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/13	None				
Trichloroethene	79016	UG/L	0	0	0	0/13	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/13	None	2	0	0.15	0
Bet 2nd Carbon Pair (EF2) before Jul 18, 2000											
Aluminum	7429905	UG/L	53.6	775	343	3/3	ESTS-EF2-052500			1430	0
Antimony	7440360	UG/L	5.9	5.9	5.9	1/3	ES-TS-EF-2	6	0		
Arsenic	7440382	UG/L	3.8	9.3	5.8	3/3	ES-TS-EF-2	10	0		
Barium	7440393	UG/L	1.5	1.8	1.7	3/3	ES-TS-EF-2	2000	0	1500	0
Beryllium	7440417	UG/L	0.22	0.56	0.39	2/3	ES-TS-EF-2	4	0		
Cadmium	7440439	UG/L	0	0	0	0/3	None	5	0	5	0
Calcium	7440702	UG/L	7050	10600	8260	3/3	ES-TS-EF-2				
Chromium	7440473	UG/L	0.91	0.91	0.91	1/3	ESTS-EF2-052500	100	0	100	0
Cobalt	7440484	UG/L	1.1	1.1	1.1	1/3	ESTS-EF2				
Copper	7440508	UG/L	0.69	17.3	9.3	3/3	ESTS-EF2-052500	1300	0		
Iron	7439896	UG/L	48.8	172	86.9	8/16	ES-TS-EF2-03				
Lead	7439921	UG/L	0	0	0	0/3	None	15	0	20	0
Magnesium	7439954	UG/L	1730	2560	2040	3/3	ES-TS-EF-2				
Manganese	7439965	UG/L	190	1590	869	16/16	ES-TS-EF2-07			200	15
Mercury	7439976	UG/L	0.1	0.1	0.1	1/3	ESTS-EF2	2	0	2	0
Nickel	7440020	UG/L	3.3	26.2	17.5	3/3	ES-TS-EF-2			150	0
Potassium	7440097	UG/L	392	591	467	3/3	ES-TS-EF-2				
Selenium	7782492	UG/L	0	0	0	0/3	None	50	0	10	0
Silver	7440224	UG/L	0	0	0	0/3	None			50	0
Sodium	7440235	UG/L	4150	4590	4420	3/3	ES-TS-EF-2				
Thallium	7440280	UG/L	6.5	11.7	9.1	2/3	ES-TS-EF-2	2	2	0.4	2
Vanadium	7440622	UG/L	0	0	0	0/3	None				
Zinc	7440666	UG/L	1.7	37.6	21.5	3/3	ESTS-EF2-052500				
Bet 2nd Carbon Pair (EF2) before Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/16	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/16	None				

TABLE 4 - 1
SUMMARY STATISTICS FOR TREATMENT PLANT INFLUENT AND EFFLUENT
JAN 2000 THROUGH FEB 28, 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	UG/L	0	0	0	0/3	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/16	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/16	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/16	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/3	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/3	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/3	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/3	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/16	None	5	0	5	0
1,2-Dichloroethene (total)	540590	UG/L	0	0	0	0/13	None	70	0	70	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/16	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/3	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/3	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/16	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/16	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/16	None				
Acetone	67641	UG/L	3.2	280	77	4/16	ESTS-EF2-052500				
Benzene	71432	UG/L	0.2	0.2	0.2	1/16	ES-TS-EF2-004	5	0	5	0
Bromodichloromethane	75274	UG/L	0	0	0	0/16	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/16	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/16	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/16	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/16	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/16	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/16	None				
Chloroform	67663	UG/L	0	0	0	0/16	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/16	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/3	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/16	None				
Cyclohexane	110827	UG/L	0	0	0	0/3	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/16	None	80	0		
Dichlorodifluoromethane	75718	UG/L	0	0	0	0/3	None			1050	0
Ethylbenzene	100414	UG/L	0	0	0	0/16	None	700	0	700	0
Isopropylbenzene	98828	UG/L	0	0	0	0/3	None				

TABLE 4 - 1
SUMMARY STATISTICS FOR TREATMENT PLANT INFLUENT AND EFFLUENT
JAN 2000 THROUGH FEB 28, 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Methyl Acetate	79209	UG/L	0	0	0	0/3	None				
Methyl tert-Butyl Ether	1634044	UG/L	0	0	0	0/3	None			50	0
Methylcyclohexane	108872	UG/L	0	0	0	0/3	None				
Methylene Chloride	75092	UG/L	0.12	22	3	8/16	ESTS-EF2-052500	5	1	48	0
Styrene	100425	UG/L	0	0	0	0/16	None	100	0	5	0
Tetrachloroethene	127184	UG/L	0.14	2	0.5	8/16	ES-TS-EF-2	5	0	3	0
Toluene	108883	UG/L	0 047	0.47	0.1	10/16	ES-TS-EF2-001	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/16	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/3	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/16	None				
Trichloroethene	79016	UG/L	0	0	0	0/16	None	5	0	5	0
Trichlorofluoromethane	75694	UG/L	0	0	0	0/3	None			2300	0
Vinyl Chloride	75014	UG/L	0	0	0	0/16	None	2	0	0.15	0
After 1st Carbon Pair (EF3) since Jul 18, 2000											
Aluminum	7429905	UG/L	27.2	4110	591	14/14	ESTS-EF3-11601			1430	2
Antimony	7440360	UG/L	2.4	3.1	2.8	3/14	ESTSEF3112900	6	0		
Arsenic	7440382	UG/L	6	9.2	7.3	3/14	ESTS-EF3-21501	10	0		
Barium	7440393	UG/L	1.3	34.1	10.7	14/14	ESTS-EF3-11601	2000	0	1500	0
Beryllium	7440417	UG/L	0.18	0.52	0.26	5/14	ESTS-EF3-110900	4	0		
Cadmium	7440439	UG/L	0.37	0.37	0.37	1/14	ESTS-EF3-122000	5	0	5	0
Calcium	7440702	UG/L	11400	24500	16600	14/14	ESTSEF3112900				
Chromium	7440473	UG/L	0.6	9	2.8	7/14	ESTS-EF3-11601	100	0	100	0
Cobalt	7440484	UG/L	0.72	6.6	3.1	5/14	ESTSEF3121200				
Copper	7440508	UG/L	3.4	324	70	14/14	ESTS-EF3-122700	1300	0		
Iron	7439896	UG/L	26.6	8530	1110	13/14	ESTS-EF3-11601				
Lead	7439921	UG/L	4.4	40.4	17.4	8/14	ESTSEF3121200	15	3	20	3
Magnesium	7439954	UG/L	2950	9410	6200	14/14	ESTSEF3112900				
Manganese	7439965	UG/L	16.9	749	169	14/14	ESTS-EF3-1301			200	3
Mercury	7439976	UG/L	0.12	0.13	0.12	2/14	ESTS-EF3-031200	2	0	2	0
Nickel	7440020	UG/L	4.3	90	23.9	14/14	ESTSEF3120600			150	0
Potassium	7440097	UG/L	1080	3100	1910	14/14	ESTS-EF3-122000				
Selenium	7782492	UG/L	4.8	6.7	5.4	3/14	ESTSEF3112900	50	0	10	0
Silver	7440224	UG/L	1.2	1.6	1.4	2/14	ESTS-EF3-21501			50	0
Sodium	7440235	UG/L	6360	44700	15900	14/14	ESTS-EF3-031200				
Thallium	7440280	UG/L	9.3	9.3	9.3	1/14	ESTS-EF3-21501	2	1	0.4	1
Vanadium	7440622	UG/L	5.8	9.2	7.5	2/14	ESTS-EF3-11601				
Zinc	7440666	UG/L	17.2	396	101	14/14	ESTS-EF3-022801				
After 1st Carbon Pair (EF3) since Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/13	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/13	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/13	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/13	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/13	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/13	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/13	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/13	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/13	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/13	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/13	None	5	0	5	0

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/13	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/13	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/13	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/13	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/13	None				
Acetone	67641	UG/L	38	38	38	1/13	ESTS-EF3-122700				
Benzene	71432	UG/L	0	0	0	0/13	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/13	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/13	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/13	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/13	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/13	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/13	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/13	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/13	None				
Chloroform	67663	UG/L	0	0	0	0/13	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/13	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/13	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/13	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/13	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/13	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/13	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/13	None	100	0	5	0
Tetrachloroethene	127184	UG/L	0.6	0.6	0.6	1/13	ESTS-EF3-11601	5	0	3	0
Toluene	108883	UG/L	0.5	2	1	3/13	ESTS-EF3-022801	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/13	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/13	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/13	None				
Trichloroethene	79016	UG/L	0	0	0	0/13	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/13	None	2	0	0.15	0
After 1st Carbon Pair (EF3) since Jul 18, 2000											
Decachlorobiphenyl (209)	2051243	UG/L	0	0	0	0/1	None				
Total Dichlorobiphenyls	25512429	UG/L	0	0	0	0/1	None				
Total Heptachlorobiphenyls	28655712	UG/L	0	0	0	0/1	None				
Total Hexachlorobiphenyls	26601649	UG/L	0	0	0	0/1	None				
Total Monochlorobiphenyls	27323188	UG/L	0	0	0	0/1	None				
Total Nonachlorobiphenyls	53742077	UG/L	0	0	0	0/1	None				
Total Octachlorobiphenyls	31472830	UG/L	0	0	0	0/1	None				
Total Pentachlorobiphenyls	25429292	UG/L	0	0	0	0/1	None				
Total Tetrachlorobiphenyls	26914330	UG/L	0	0	0	0/1	None				
Total Trichlorobiphenyls	25323686	UG/L	0	0	0	0/1	None				
After 1st Carbon Pair (EF3) since Jul 18, 2000											
Aluminum	7429905	UG/L	35.1	152	60.6	6/6	ESTS-DUP02			1430	0
Antimony	7440360	UG/L	0	0	0	0/6	None	6	0		
Arsenic	7440382	UG/L	3.4	7.6	5.8	4/6	ES-TS-EF-3	10	0		
Barium	7440393	UG/L	1.5	2.4	1.9	6/6	ES-TS-EF-3	2000	0	1500	0
Beryllium	7440417	UG/L	0.26	0.44	0.37	4/6	ES-TS-DUP-02, ES-TS-EF-3	4	0		
Cadmium	7440439	UG/L	0	0	0	0/6	None	5	0	5	0
Calcium	7440702	UG/L	6770	11800	8590	6/6	ES-TS-EF-3				
Chromium	7440473	UG/L	0	0	0	0/6	None	100	0	100	0
Cobalt	7440484	UG/L	1.3	1.3	1.3	2/6	ESTS-DUP02, ESTS-EF3				
Copper	7440508	UG/L	0.97	13.8	9.3	5/6	ESTS-EF3-052500	1300	0		
Iron	7439896	UG/L	18.6	199	77.9	9/24	ES-TS-EF3-02				
Lead	7439921	UG/L	1.6	1.6	1.6	1/6	ESTS-DUP02	15	0	20	0
Magnesium	7439954	UG/L	1620	2900	2130	6/6	ES-TS-EF-3				
Manganese	7439965	UG/L	177	1550	925	24/24	ES-TS-EF3-07			200	23
Mercury	7439976	UG/L	0.1	0.1	0.1	2/6	ESTS-DUP02, ESTS-EF3	2	0	2	0
Nickel	7440020	UG/L	2	13.1	6.9	6/6	ESTS-DUP02			150	0
Potassium	7440097	UG/L	361	693	493	6/6	ES-TS-EF-3				

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Selenium	7782492	UG/L	0	0	0	0/6	None	50	0	10	0
Silver	7440224	UG/L	1.2	1.8	1.5	2/6	ES-TS-DUP-02			50	0
Sodium	7440235	UG/L	3910	5220	4570	6/6	ES-TS-EF-3				
Thallium	7440280	UG/L	6.4	16.6	9.8	4/6	ES-TS-DUP-02	2	4	0.4	4
Vanadium	7440622	UG/L	1.6	1.6	1.6	2/6	ES-TS-DUP-02, ES-TS-EF-3				
Zinc	7440666	UG/L	2	24.4	16.1	6/6	ES-TS-DUP-02				
After 1st Carbon Pair (EF3) before Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/25	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/25	None				
trifluoroethane	76131	UG/L	0	0	0	0/6	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/25	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/25	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/25	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/6	None	70	0	70	0
chloropropane	96128	UG/L	0	0	0	0/6	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/6	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/6	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/25	None	5	0	5	0
1,2-Dichloroethene (total)	540590	UG/L	0	0	0	0/19	None	70	0	70	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/25	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/6	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/6	None	75	0		
2-Butanone	78933	UG/L	3.3	3.3	3	1/25	ES-TS-EF3-01			170	0
2-Hexanone	591786	UG/L	0	0	0	0/25	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/25	None				
Acetone	67641	UG/L	3.1	600	140	8/25	ESTS-EF3-052500				
Benzene	71432	UG/L	0.12	0.16	0.1	2/25	ES-TS-EF3-004	5	0	5	0
Bromodichloromethane	75274	UG/L	0	0	0	0/25	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/25	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/25	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/25	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/25	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/25	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/25	None				
Chloroform	67663	UG/L	0	0	0	0/25	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/25	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/6	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/25	None				
Cyclohexane	110827	UG/L	0	0	0	0/6	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/25	None	80	0		
Dichlorodifluoromethane	75718	UG/L	0	0	0	0/6	None			1050	0
Ethylbenzene	100414	UG/L	0	0	0	0/25	None	700	0	700	0
Isopropylbenzene	98828	UG/L	0	0	0	0/6	None				
Methyl Acetate	79209	UG/L	0	0	0	0/6	None				
Methyl tert-Butyl Ether	1634044	UG/L	0	0	0	0/6	None			50	0
Methylcyclohexane	108872	UG/L	0	0	0	0/6	None				
Methylene Chloride	75092	UG/L	0.11	36	5	15/25	ESTS-EF3-052500	5	2	48	0
Styrene	100425	UG/L	0	0	0	0/25	None	100	0	5	0
Tetrachloroethene	127184	UG/L	0.15	0.73	0.3	7/25	ES-TS-EF3-DUP-07	5	0	3	0
Toluene	108883	UG/L	0.056	0.41	0.2	14/25	ES-TS-EF3-DUP-05	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/25	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/6	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/25	None				
Trichloroethene	79016	UG/L	0.23	0.23	0.2	1/25	ES-TS-EF3-003	5	0	5	0
Trichlorofluoromethane	75694	UG/L	0	0	0	0/6	None			2300	0
Vinyl Chloride	75014	UG/L	0	0	0	0/25	None	2	0	0.15	0
After 2nd Carbon Pair (EF3) after Jul 18, 2000											
Aluminum	7429905	UG/L	35.5	1780	284	14/14	ESTS-EF4-11601			1430	1
Antimony	7440360	UG/L	3	3	3	1/14	ESTSEF4112900	6	0		
Arsenic	7440382	UG/L	6.6	9.8	8.6	3/14	ESTS-EF4-21501	10	0		

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Barium	7440393	UG/L	0.57	12.4	3.9	13/14	ESTS-EF4-11601	2000	0	1500	0
Beryllium	7440417	UG/L	0.11	0.8	0.34	4/14	ESTS-EF4-110900	4	0		
Cadmium	7440439	UG/L	0.38	0.38	0.38	1/14	ESTS-EF4-122000	5	0	5	0
Calcium	7440702	UG/L	9610	23800	16600	14/14	ESTSEF4112900				
Chromium	7440473	UG/L	0.87	3.4	1.5	8/14	ESTS-EF4-11601	100	0	100	0
Cobalt	7440484	UG/L	0.72	2.9	2.1	3/14	ESTSEF4121200				
Copper	7440508	UG/L	4.8	495	82.1	14/14	ESTS-EF4-122700	1300	0		
Iron	7439896	UG/L	19.4	3450	487	14/14	ESTS-EF4-11601				
Lead	7439921	UG/L	2.6	193	39.6	11/14	ESTS-EF4-122700	15	4	20	4
Magnesium	7439954	UG/L	4010	9650	6530	14/14	ESTSEF4112900				
Manganese	7439965	UG/L	14.2	441	104	14/14	ESTS-EF4-11601			200	2
Mercury	7439976	UG/L	0	0	0	0/14	None	2	0	2	0
Nickel	7440020	UG/L	5.9	42.4	16.2	14/14	ESTS-EF4-122000			150	0
Potassium	7440097	UG/L	1340	2390	1710	14/14	ESTS-EF4-122000				
Selenium	7782492	UG/L	6.6	6.7	6.6	2/14	ESTSEF4112900	50	0	10	0
Silver	7440224	UG/L	1.4	1.8	1.6	2/14	ESTS-EF4-21501			50	0
Sodium	7440235	UG/L	8670	36300	15600	14/14	ESTS-EF4-031200				
Thallium	7440280	UG/L	7.2	8.3	7.8	2/14	ESTS-EF4-110900	2	2	0.4	2
Vanadium	7440622	UG/L	0.7	3.5	2.1	2/14	ESTS-EF4-11601				
Zinc	7440666	UG/L	32.5	569	180	14/14	ESTS-EF4-122700				
After 2nd Carbon Pair (EF4) after Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/13	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/13	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/13	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/13	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/13	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	1	1	1	1/13	ESTS-EF4-11601	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/13	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/13	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/13	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/13	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/13	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/13	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/13	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/13	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/13	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/13	None				
Acetone	67641	UG/L	0	0	0	0/13	None				
Benzene	71432	UG/L	0	0	0	0/13	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/13	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/13	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/13	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/13	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/13	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/13	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/13	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/13	None				
Chloroform	67663	UG/L	0	0	0	0/13	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/13	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/13	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/13	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/13	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/13	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/13	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/13	None	100	0	5	0
Tetrachloroethene	127184	UG/L	3	3	3	1/13	ESTSEF4112000	5	0	3	0
Toluene	108883	UG/L	0.6	3	2	3/13	ESTS-EF4-022801	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/13	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/13	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/13	None				
Trichloroethene	79016	UG/L	0	0	0	0/13	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/13	None	2	0	0.15	0
Treated Effluent (EF5) After Jul 18, 2000											

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Aluminum	7429905	UG/L	28.5	901	171	18/19	ESTSDUP01121200			1430	0
Antimony	7440360	UG/L	4.8	4.8	4.8	1/19	ESTSEF5112900	6	0		
Arsenic	7440382	UG/L	5.4	8.4	6.8	5/19	ESTS-EF5-110900	10	0		
Barium	7440393	UG/L	1.3	15	5.3	18/19	ESTSDUP01121200	2000	0	1500	0
Beryllium	7440417	UG/L	0.21	1.2	0.73	5/19	ESTSDUP01121200	4	0		
Cadmium	7440439	UG/L	0.38	0.56	0.47	2/19	ESTSDUP01112900	5	0	5	0
Calcium	7440702	UG/L	10800	23700	17100	19/19	ESTS-DUP01-031200				
Chromium	7440473	UG/L	0.5	6	2.1	10/19	ESTSEF5112900	100	0	100	0
Cobalt	7440484	UG/L	0.65	0.98	0.78	6/19	ESTSEF5112000				
Copper	7440508	UG/L	1.5	155	39.9	19/19	ESTS-EF5-122700	1300	0		
Iron	7439896	UG/L	18.3	1630	282	17/19	ESTSDUP01121200				
Lead	7439921	UG/L	1.6	40.2	10.9	9/19	ESTS-EF5-110900	15	2	20	1
Magnesium	7439954	UG/L	3520	9570	6530	19/19	ESTSEF5112900				
Manganese	7439965	UG/L	20.1	325	111	19/19	ESTS-EF5-1301			200	4
Mercury	7439976	UG/L	0.11	0.11	0.11	2/19	ESTS-DUP01-031200, ESTS-EF5-122000	2	0	2	0
Nickel	7440020	UG/L	3	105	16.7	19/19	ESTS-EF5-110900			150	0
Potassium	7440097	UG/L	1220	2720	1790	19/19	ESTS-EF5-122000				
Selenium	7782492	UG/L	4.5	8	6.4	4/19	ESTS-EF5-122000	50	0	10	0
Silver	7440224	UG/L	1.5	1.8	1.6	2/19	ESTS-EF5-110900			50	0
Sodium	7440235	UG/L	9520	40700	17000	19/19	ESTS-DUP01-031200				
Thallium	7440280	UG/L	8.6	8.9	8.8	2/19	ESTS-EF5-21501	2	2	0.4	2
Vanadium	7440622	UG/L	0.79	1.1	0.96	4/19	ESTSEF5112000				
Zinc	7440666	UG/L	6.9	461	111	19/19	ESTSDUP01121200				
Treated Effluent (EF5) After Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/17	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/17	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/17	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/17	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/17	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/17	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/17	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/17	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/17	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/17	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/17	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/17	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/17	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/17	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/17	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/17	None				
Acetone	67641	UG/L	4	28	11	4/17	ESTS-EF5-122700				
Benzene	71432	UG/L	0	0	0	0/17	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/17	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/17	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/17	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/17	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/17	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/17	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/17	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/17	None				
Chloroform	67663	UG/L	0	0	0	0/17	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/17	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/17	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/17	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/17	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/17	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/17	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/17	None	100	0	5	0
Tetrachloroethene	127184	UG/L	30	30	30	1/17	ESTSEF5112000	5	1	3	1

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Toluene	108883	UG/L	0.6	0.6	0.6	2/17	ESTS-EF5-022801, ESTSEF5112900	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/17	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/17	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/17	None				
Trichloroethene	79016	UG/L	0	0	0	0/17	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/17	None	2	0	0.15	0
Treated Effluent (EF5) After Jul 18, 2000											
Decachlorobiphenyl (209)	2051243	UG/L	0	0	0	0/3	None				
Total Dichlorobiphenyls	25512429	UG/L	0.006	0.006	0.006	1/3	ESTSDUP01120600				
Total Heptachlorobiphenyls	28655712	UG/L	0	0	0	0/3	None				
Total Hexachlorobiphenyls	26601649	UG/L	0	0	0	0/3	None				
Total Monochlorobiphenyls	27323188	UG/L	0	0	0	0/3	None				
Total Nonachlorobiphenyls	53742077	UG/L	0	0	0	0/3	None				
Total Octachlorobiphenyls	31472830	UG/L	0	0	0	0/3	None				
Total Pentachlorobiphenyls	25429292	UG/L	0	0	0	0/3	None				
Total Tetrachlorobiphenyls	26914330	UG/L	0.008	0.008	0.008	1/3	ESTSDUP01120600				
Total Trichlorobiphenyls	25323686	UG/L	0.003	0.003	0.003	1/3	ESTSDUP01120600				
Decachlorobiphenyl (209)	2051243	UG/L	0	0	0	0/1	None				
Total Dichlorobiphenyls	25512429	UG/L	0	0	0	0/1	None				
Total Heptachlorobiphenyls	28655712	UG/L	0	0	0	0/1	None				
Total Hexachlorobiphenyls	26601649	UG/L	0	0	0	0/1	None				
Total Monochlorobiphenyls	27323188	UG/L	0	0	0	0/1	None				
Total Nonachlorobiphenyls	53742077	UG/L	0	0	0	0/1	None				
Total Octachlorobiphenyls	31472830	UG/L	0	0	0	0/1	None				
Total Pentachlorobiphenyls	25429292	UG/L	0	0	0	0/1	None				
Total Tetrachlorobiphenyls	26914330	UG/L	0	0	0	0/1	None				
Total Trichlorobiphenyls	25323686	UG/L	0	0	0	0/1	None				
After 1st IE (IE1) After Jul 18, 2000											
Aluminum	7429905	UG/L	26	1230	390	12/14	ESTS-IE1-013101			1430	0
Antimony	7440360	UG/L	2.6	3.1	2.9	2/14	ESTSIE1112900	6	0		
Arsenic	7440382	UG/L	4.9	9.1	7	2/14	ESTS-IE1-21501	10	0		
Barium	7440393	UG/L	0.39	13.7	4.2	14/14	ESTS-IE1-11601	2000	0	1500	0
Beryllium	7440417	UG/L	0.18	0.76	0.35	4/14	ESTS-IE1-110900	4	0		
Cadmium	7440439	UG/L	0.31	0.31	0.31	1/14	ESTS-IE1-122000	5	0	5	0
Calcium	7440702	UG/L	9800	23100	16300	14/14	ESTS-IE1-031200				
Chromium	7440473	UG/L	0.6	2.6	1.4	9/14	ESTS-IE1-013101	100	0	100	0
Cobalt	7440484	UG/L	0.62	2.9	2.1	5/14	ESTSIE1121200				
Copper	7440508	UG/L	3	147	35.4	14/14	ESTS-IE1-013101	1300	0		
Iron	7439896	UG/L	54.1	2450	781	11/14	ESTS-IE1-013101				
Lead	7439921	UG/L	3.6	75.6	24.3	11/14	ESTS-IE1-022801	15	4	20	4
Magnesium	7439954	UG/L	4100	9280	6530	14/14	ESTS-IE1-122000				
Manganese	7439965	UG/L	10.4	441	111	14/14	ESTS-IE1-11601			200	4
Mercury	7439976	UG/L	0.11	0.15	0.13	3/14	ESTS-IE1-031200	2	0	2	0
Nickel	7440020	UG/L	6.5	139	40.2	14/14	ESTS-IE1-122000			150	0
Potassium	7440097	UG/L	1370	2390	1740	14/14	ESTS-IE1-122000				
Selenium	7782492	UG/L	4.9	7	5.7	4/14	ESTS-IE1-122000	50	0	10	0
Silver	7440224	UG/L	1.5	1.8	1.6	2/14	ESTS-IE1-21501			50	0
Sodium	7440235	UG/L	8020	35200	15600	14/14	ESTS-IE1-031200				
Thallium	7440280	UG/L	4.8	4.8	4.8	1/14	ESTSIE1121200	2	1	0.4	1
Vanadium	7440622	UG/L	1.3	3	2.2	4/14	ESTS-IE1-013101				
Zinc	7440666	UG/L	6.4	256	60.8	14/14	ESTS-IE1-013101				
After 1st IE pair (IE1) After Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/13	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/13	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/13	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/13	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/13	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/13	None	70	0	70	0

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/13	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/13	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/13	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/13	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/13	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/13	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/13	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/13	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/13	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/13	None				
Acetone	67641	UG/L	7	18	12	2/13	ESTS-IE1-122700				
Benzene	71432	UG/L	0	0	0	0/13	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/13	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/13	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/13	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/13	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/13	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/13	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/13	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/13	None				
Chloroform	67663	UG/L	0	0	0	0/13	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/13	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/13	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/13	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/13	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/13	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/13	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/13	None	100	0	5	0
Tetrachloroethene	127184	UG/L	0.6	10	6	3/13	ESTSIE1111600	5	2	3	2
Toluene	108883	UG/L	0.5	2	1	5/13	ESTS-IE1-022801	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/13	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/13	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/13	None				
Trichloroethene	79016	UG/L	0	0	0	0/13	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/13	None	2	0	0.15	0
After 2nd IE pair (IE2) After Jul 18, 2000											
Aluminum	7429905	UG/L	21.9	3970	524	14/14	ESTS-IE2-11601			1430	1
Antimony	7440360	UG/L	2.8	2.8	2.8	1/14	ESTSIE2112900	6	0		
Arsenic	7440382	UG/L	5.1	10.4	8	3/14	ESTS-IE2-21501	10	1		
Barium	7440393	UG/L	0.74	31.1	5.6	13/14	ESTS-IE2-11601	2000	0	1500	0
Beryllium	7440417	UG/L	0.16	1.1	0.51	5/14	ESTSIE2121200	4	0		
Cadmium	7440439	UG/L	0	0	0	0/14	None	5	0	5	0
Calcium	7440702	UG/L	9680	25000	17100	14/14	ESTS-IE2-031200				
Chromium	7440473	UG/L	0.63	6.6	2.1	8/14	ESTS-IE2-11601	100	0	100	0
Cobalt	7440484	UG/L	0.9	6.4	3	5/14	ESTS-IE2-11601				
Copper	7440508	UG/L	3.2	131	42.5	14/14	ESTS-IE2-013101	1300	0		
Iron	7439896	UG/L	23.9	7200	1040	13/14	ESTS-IE2-11601				
Lead	7439921	UG/L	1.9	285	102	14/14	ESTS-IE2-110900	15	12	20	12
Magnesium	7439954	UG/L	4060	10200	6940	14/14	ESTSIE2112900				
Manganese	7439965	UG/L	28.8	647	142	14/14	ESTS-IE2-11601			200	3
Mercury	7439976	UG/L	0	0	0	0/14	None	2	0	2	0
Nickel	7440020	UG/L	7.8	159	52.4	14/14	ESTS-IE2-122000			150	1
Potassium	7440097	UG/L	1360	2690	1850	14/14	ESTS-IE2-11601				
Selenium	7782492	UG/L	4.1	5.3	4.8	3/14	ESTSIE2112900	50	0	10	0
Silver	7440224	UG/L	0.64	1.4	1.1	3/14	ESTS-IE2-21501			50	0
Sodium	7440235	UG/L	9160	43300	16800	14/14	ESTS-IE2-031200				
Thallium	7440280	UG/L	9.1	9.1	9.1	1/14	ESTS-IE2-21501	2	1	0.4	1
Vanadium	7440622	UG/L	0.84	8	3	5/14	ESTS-IE2-11601				
Zinc	7440666	UG/L	9.6	392	98	14/14	ESTS-IE2-013101				
After 2nd IE (IE2) After Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/13	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/13	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/13	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/13	None			70	0

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
1,1-Dichloroethene	75354	UG/L	0	0	0	0/13	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/13	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/13	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/13	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/13	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/13	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/13	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/13	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/13	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/13	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/13	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/13	None				
Acetone	67641	UG/L	14	14	14	1/13	ESTS-IE2-122700				
Benzene	71432	UG/L	0	0	0	0/13	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/13	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/13	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/13	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/13	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/13	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/13	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/13	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/13	None				
Chloroform	67663	UG/L	0	0	0	0/13	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/13	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/13	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/13	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/13	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/13	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/13	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/13	None	100	0	5	0
Tetrachloroethene	127184	UG/L	0.5	3	2	3/13	ESTSIE2112900	5	0	3	0
Toluene	108883	UG/L	0.7	4	2	3/13	ESTS-IE2-013101	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/13	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/13	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/13	None				
Trichloroethene	79016	UG/L	0	0	0	0/13	None	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/13	None	2	0	0.15	0
Influent to system (IN1) After Jul 18, 2000											
Aluminum	7429905	UG/L	14.7	14700	2160	10/10	ESTS-IN1-11601			1430	2
Antimony	7440360	UG/L	3.6	3.6	3.6	1/10	ESTSIN1112900	6	0		
Arsenic	7440382	UG/L	6.7	18.5	10.8	4/10	ESTS-IN1-11601	10	1		
Barium	7440393	UG/L	2.6	103	21.8	10/10	ESTS-IN1-11601	2000	0	1500	0
Beryllium	7440417	UG/L	0.41	0.62	0.51	3/10	ESTS-IN1-110900	4	0		
Cadmium	7440439	UG/L	0	0	0	0/10	None	5	0	5	0
Calcium	7440702	UG/L	11500	21400	16900	10/10	ESTSIN1121200				
Chromium	7440473	UG/L	1.6	33.2	7.8	9/10	ESTS-IN1-11601	100	0	100	0
Cobalt	7440484	UG/L	3.4	21	8.2	4/10	ESTS-IN1-11601				
Copper	7440508	UG/L	4.3	152	44	10/10	ESTS-IN1-11601	1300	0		
Iron	7439896	UG/L	67	27600	6520	9/10	ESTS-IN1-11601				
Lead	7439921	UG/L	1.9	36.1	15.3	8/10	ESTS-IN1-11601	15	2	20	2
Magnesium	7439954	UG/L	4770	14000	7370	10/10	ESTS-IN1-11601				
Manganese	7439965	UG/L	2.3	6060	832	10/10	ESTS-IN1-122000			200	3
Mercury	7439976	UG/L	0.18	0.18	0.18	1/10	ESTS-IN1-122000	2	0	2	0
Nickel	7440020	UG/L	7	154	57.2	10/10	ESTS-IN1-11601			150	1
Potassium	7440097	UG/L	1460	4940	2470	10/10	ESTS-IN1-122000				
Selenium	7782492	UG/L	5.5	6	5.7	3/10	ESTSIN1111600	50	0	10	0
Silver	7440224	UG/L	1.7	1.7	1.7	1/10	ESTS-IN1-110900			50	0
Sodium	7440235	UG/L	9620	35200	15900	10/10	ESTS-IN1-122000				
Thallium	7440280	UG/L	9.5	11.8	10.6	2/10	ESTS-IN1-122000	2	2	0.4	2
Vanadium	7440622	UG/L	1.2	35.6	13.4	6/10	ESTS-IN1-11601				
Zinc	7440666	UG/L	32.7	868	229	10/10	ESTS-IN1-11601				
Influent to system (IN1) After Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/10	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	0	0	0	0/10	None				

TABLE 4 - 1
SUMMARY STATISTICS FOR TREATMENT PLANT INFLUENT AND EFFLUENT
JAN 2000 THROUGH FEB 28, 2001
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/10	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/10	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/10	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/10	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/10	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/10	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/10	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/10	None	5	0	5	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/10	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/10	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/10	None	75	0		
2-Butanone	78933	UG/L	880	880	880	1/10	ESTS-IN1-122000			170	1
2-Hexanone	591786	UG/L	0	0	0	0/10	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/10	None				
Acetone	67641	UG/L	190	190	190	1/10	ESTS-IN1-122000				
Benzene	71432	UG/L	0	0	0	0/10	None	5	0	5	0
Bromochloromethane	74975	UG/L	0	0	0	0/10	None			92	0
Bromodichloromethane	75274	UG/L	0	0	0	0/10	None	80	0		
Bromoform	75252	UG/L	0	0	0	0/10	None	80	0		
Bromomethane	74839	UG/L	0	0	0	0/10	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/10	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/10	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/10	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/10	None				
Chloroform	67663	UG/L	0	0	0	0/10	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/10	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0	0	0	0/10	None	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/10	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/10	None	80	0		
Ethylbenzene	100414	UG/L	0	0	0	0/10	None	700	0	700	0
Methylene Chloride	75092	UG/L	0	0	0	0/10	None	5	0	48	0
Styrene	100425	UG/L	0	0	0	0/10	None	100	0	5	0
Tetrachloroethene	127184	UG/L	11	300	68	7/10	ESTS-IN1-1301	5	7	3	7
Toluene	108883	UG/L	0.7	0.7	0.7	1/10	ESTSIN1112900	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/10	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/10	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/10	None				
Trichloroethene	79016	UG/L	0.6	0.6	0.6	1/10	ESTS-IN1-122700	5	0	5	0
Vinyl Chloride	75014	UG/L	0	0	0	0/10	None	2	0	0.15	0
Influent to system (IN1) before Jul 18, 2000											
Aluminum	7429905	UG/L	60.1	88.6	70.6	3/3	ES-TS-IN-1			1430	0
Antimony	7440360	UG/L	0	0	0	0/3	None	6	0		
Arsenic	7440382	UG/L	3.5	5.8	4.7	3/3	ES-TS-IN-1	10	0		
Barium	7440393	UG/L	0.78	2.7	1.5	3/3	ES-TS-IN-1	2000	0	1500	0
Beryllium	7440417	UG/L	0.25	0.46	0.36	2/3	ES-TS-IN-1	4	0		
Cadmium	7440439	UG/L	0	0	0	0/3	None	5	0	5	0
Calcium	7440702	UG/L	6500	12900	8660	3/3	ES-TS-IN-1				
Chromium	7440473	UG/L	0	0	0	0/3	None	100	0	100	0
Cobalt	7440484	UG/L	0.73	0.73	0.73	1/3	ESTS-IN1				
Copper	7440508	UG/L	4.8	39.4	20.2	3/3	ES-TS-IN-1	1300	0		
Iron	7439896	UG/L	24.1	1470	567	19/20	ES-TS-DUP01-004				
Lead	7439921	UG/L	2.2	34.8	13.3	3/3	ES-TS-IN-1	15	1	20	1
Magnesium	7439954	UG/L	1660	2500	1970	3/3	ES-TS-IN-1				
Manganese	7439965	UG/L	221	1690	876	20/20	ESTSIN102			200	20
Mercury	7439976	UG/L	0.11	0.11	0.11	1/3	ESTS-IN1	2	0	2	0
Nickel	7440020	UG/L	1.5	24.1	9.9	3/3	ES-TS-IN-1			150	0
Potassium	7440097	UG/L	363	636	459	3/3	ES-TS-IN-1				
Selenium	7782492	UG/L	0	0	0	0/3	None	50	0	10	0
Silver	7440224	UG/L	0	0	0	0/3	None			50	0
Sodium	7440235	UG/L	3820	4870	4310	3/3	ES-TS-IN-1				
Thallium	7440280	UG/L	14.3	14.3	14.3	1/3	ES-TS-IN-1	2	1	0.4	1
Vanadium	7440622	UG/L	0.54	1.3	0.92	2/3	ES-TS-IN-1				
Zinc	7440666	UG/L	3.8	84.3	37.9	3/3	ES-TS-IN-1				

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992
Influent to system (IN1) before Jul 18, 2000											
1,1,1-Trichloroethane	71556	UG/L	0	0	0	0/21	None	200	0	200	0
1,1,2,2-Tetrachloroethane	79345	UG/L	2.6	10	7	3/21	ESTSIN1042000				
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	UG/L	0	0	0	0/3	None				
1,1,2-Trichloroethane	79005	UG/L	0	0	0	0/21	None	5	0	3	0
1,1-Dichloroethane	75343	UG/L	0	0	0	0/21	None			70	0
1,1-Dichloroethene	75354	UG/L	0	0	0	0/21	None	7	0	7	0
1,2,4-Trichlorobenzene	120821	UG/L	0	0	0	0/3	None	70	0	70	0
1,2-Dibromo-3-chloropropane	96128	UG/L	0	0	0	0/3	None	0.2	0	0.2	0
1,2-Dibromoethane	106934	UG/L	0	0	0	0/3	None				
1,2-Dichlorobenzene	95501	UG/L	0	0	0	0/3	None	600	0		
1,2-Dichloroethane	107062	UG/L	0	0	0	0/21	None	5	0	5	0
1,2-Dichloroethene (total)	540590	UG/L	0	0	0	0/18	None	70	0	70	0
1,2-Dichloropropane	78875	UG/L	0	0	0	0/21	None	5	0	5	0
1,3-Dichlorobenzene	541731	UG/L	0	0	0	0/3	None			85	0
1,4-Dichlorobenzene	106467	UG/L	0	0	0	0/3	None	75	0		
2-Butanone	78933	UG/L	0	0	0	0/21	None			170	0
2-Hexanone	591786	UG/L	0	0	0	0/21	None				
4-Methyl-2-Pentanone	108101	UG/L	0	0	0	0/21	None				
Acetone	67641	UG/L	7	360	100	7/21	ES-TS-DUP-IN1-01				
Benzene	71432	UG/L	0	0	0	0/21	None	5	0	5	0
Bromodichloromethane	75274	UG/L	0	0	0	0/21	None	80	0		
Bromoform	75252	UG/L	2	2	2	1/21	ES-TS-IN1-003	80	0		
Bromomethane	74839	UG/L	0	0	0	0/21	None			10	0
Carbon Disulfide	75150	UG/L	0	0	0	0/21	None				
Carbon Tetrachloride	56235	UG/L	0	0	0	0/21	None	5	0	2.7	0
Chlorobenzene	108907	UG/L	0	0	0	0/21	None	100	0		
Chloroethane	75003	UG/L	0	0	0	0/21	None				
Chloroform	67663	UG/L	0	0	0	0/21	None	80	0		
Chloromethane	74873	UG/L	0	0	0	0/21	None			3	0
cis-1,2-Dichloroethene	156592	UG/L	0.7	3	2	2/3	ES-TS-IN-1	70	0	70	0
cis-1,3-Dichloropropene	10061015	UG/L	0	0	0	0/21	None				
Cyclohexane	110827	UG/L	0	0	0	0/3	None				
Dibromochloromethane	124481	UG/L	0	0	0	0/21	None	80	0		
Dichlorodifluoromethane	75718	UG/L	0	0	0	0/3	None			1050	0
Ethylbenzene	100414	UG/L	2.9	2.9	3	1/21	ESTSIN1042000	700	0	700	0
Isopropylbenzene	98828	UG/L	0	0	0	0/3	None				
Methyl Acetate	79209	UG/L	0	0	0	0/3	None				
Methyl tert-Butyl Ether	1634044	UG/L	0	0	0	0/3	None			50	0
Methylcyclohexane	108872	UG/L	0	0	0	0/3	None				
Methylene Chloride	75092	UG/L	6.4	24	15	7/21	ESTSIN1042000	5	7	48	0
Styrene	100425	UG/L	9.1	47	28	2/21	ES-TS-IN1-01	100	0	5	2
Tetrachloroethene	127184	UG/L	130	2300	770	21/21	ES-TS-DUP-IN1-01, ES-TS-IN1-01	5	21	3	21
Toluene	108883	UG/L	0.92	0.92	0.9	1/21	ES-TS-DUP-003	1000	0	1400	0
Total Xylenes	1330207	UG/L	0	0	0	0/21	None	10000	0	600	0
trans-1,2-Dichloroethene	156605	UG/L	0	0	0	0/3	None	100	0	70	0
trans-1,3-Dichloropropene	10061026	UG/L	0	0	0	0/21	None				
Trichloroethene	79016	UG/L	0.8	29	8	20/21	ES-TS-IN1-01	5	10	5	10
Trichlorofluoromethane	75694	UG/L	0	0	0	0/3	None			2300	0
Vinyl Chloride	75014	UG/L	0	0	0	0/21	None	2	0	0.15	0

Parameter (1)	CAS No.	Units	Min of Detects	Max of Detects	Avg of Detects	Freq (2)	Loc. of Max. Detect	MCL (3)	> MCL	MEG (4) 1992	> MEG 1992

Notes:

1) Sample ID
   IN1 = Combined influent to treatment system from Jan. 2000 to before Nov. 9, 2000
   INP = Combined influent (to particle filter), from Nov. 9, 2000 to Jan. 16, 2001
   INN = Influent from N. plume since Jan. 31, 2001 to current [Feb. 28, 2001]
   INS = Influent from S. plume since Jan. 31, 2001 to current [Feb. 28, 2001]
   EF1 = Effluent between 1st carbon pair
   EF2 = Effluent between 2nd carbon pair
   EF3 = Effluent after 1st carbon pair
   EF4 = Effluent after 2nd carbon pair
   IE1 = Effluent after 1st pair of ion exchange units
   IE = Effluent after 2nd pair of ion exchange units
   EF5 = Final effluent prior to discharge to infiltration gallery

2) Frequency of detects = no. of positive detects in total number of samples.
3) MCL = Safe Drinking Water Act Maximum Contaminant Level, Drinking Water Standards and Health Advisories, USEPA, EPA 822-B-00-001, Summer 2000
4) MEG = Maximum Exposure Guidelines, State of Maine, Dept. of Human Services, Sept. 1992

TABLE 4 - 2
SAMPLING SCHEDULE FOR TREATMENT SYSTEM AND GROUNDWATER EXTRACTION WELLS DURING STARTUP/SHAKEDOWN
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Sample ID	Sample Station	Week(s)	Analytical Parameter					
			VOCs	Metals	TOC	TSS	alkalinity	hardness
Treatment System								
INN	Influent from northern plume wells	1 - 9	x	x	(1)	(1)	(1)	(1)
INS	Influent from southern plume wells	1 - 9	x	x	(1)	(1)	(1)	(1)
INC	Combined influent from both plumes post 2nd equal. tank	1 - 9	x	x	(1)	(1)	(1)	(1)
BF1	Effluent from 1st stage bag filter	1 - 9	x	x	(1)	(1)	(1)	(1)
BF2	Effluent from 2nd stage bag filter	1 - 9	x	x	(1)	(1)	(1)	(1)
GAC1	Effluent from 1st lead GAC unit	1 - 9	x	x	(1)	(1)	(1)	(1)
GAC3	Effluent from 2nd lead GAC unit	1 - 9	x	x	(1)	(1)	(1)	(1)
GAC5	Effluent from 3rd lead GAC unit	1 - 9	x	x	(1)	(1)	(1)	(1)
EF3	Combined effluent from lead GAC units	1 - 9	x	x	(1)	(1)	(1)	(1)
EF4	Combined effluent from all GAC units	1 - 9	x	x	(1)	(1)	(1)	(1)
IX1	Effluent from 1st IX unit	1 - 9	x	x	(1)	(1)	(1)	(1)
IX2	Effluent from 1st IX unit	1 - 9	x	x	(1)	(1)	(1)	(1)
IX3	Effluent from 1st IX unit	1 - 9	x	x	(1)	(1)	(1)	(1)
IX4	Effluent from 1st IX unit	1 - 9	x	x	(1)	(1)	(1)	(1)
EF5	Final treated effluent	1 - 9	x	x	(1)	(1)	(1)	(1)
Northern Extraction Wells								
RW-2	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RW-3	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RW-4	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RW-8	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RW-9	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RW-10	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RW-11	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
MW-35B	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
MW-39B	Extraction well (deep bedrock)	1, 5, 9	x	x	(2)	(2)	(2)	(2)
MW-40B	Extraction well (deep bedrock)	1, 5, 9	x	x	(2)	(2)	(2)	(2)
Southern Extraction Wells								
RWS-1	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RWS-3	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RWS-5	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RWS-6	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)
RWS-7	Extraction well	1, 5, 9	x	x	(2)	(2)	(2)	(2)

Notess: (1) Initially, collect parameters on weekly basis, but can be altered based on analytical results and evaluation of trends.
(2) Frequency of sampling may be modified based on treatment sampling analytical results.

Abbr: TOC - total organic carbon
TSS - total suspended solids
VOCs - volatile organic compounds

TABLE 9 - 1
FREQUENCY OF GROUNDWATER MEASUREMENTS
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Period	Measurement Frequency	Wells to be Measured
Prior to system start-up	One synoptic round	Northern & Southern plumes wells, selected non-plume wells
Weeks 1-9 (Months 1-2)	Once per week	Northern & Southern plumes wells, selected non-plume wells
Weeks 10 – 18 (Months 3-4)	Once every other week	Northern & Southern plumes wells, selected non-plume wells
Months 5 – 12	Once per month	Northern & Southern plumes wells, selected non-plume wells
Months 13 –24	To be determined	TBD
Years 3 – 10	To be determined	TBD

Northern Plume Wells	Southern Plume Wells	Non-Plume Wells
Overburden Monitoring Wells	**Overburden Monitoring Wells**	**Overburden Monitoring Wells**
MW-3S	MW-8S	MW-5S
MW-4S	MW-10S	MW-6S
MW-20S	MW-11S	MW-7S
MW-23S	MW-13S	MW-9S
MW-42S	MW-18S	MW-12S
MW-42SB	MW-19S	MW-37SB
MW-43S	MW-25S	
MW-44S	MW-30S	
MW-44SB	MW-31S	
MW-45S	MW-32S	
MW-46S	MW-33S	
	IS-1S	
Bedrock Monitoring Wells	IS-2S	
MW-3B		
MW-4B	**Bedrock Monitoring Wells**	**Bedrock Monitoring Wells**
MW-20B	MW-8B1	MW-1B
MW-23B	MW-8B2	MW-7B
MW-24B	MW-10B	MW-12B
MW-27B	MW-11B	MW-14B
MW-34B1	MW-19B	MW-15B
MW-34B2	MW-22B	MW-26B
MW-35B1	MW-25B	MW-37B1
MW-35B2	IS-1B	MW-37B2
MW-36B1	IS-2B	Smith Well
MW-36B2		

TABLE 9 - 1
FREQUENCY OF GROUNDWATER MEASUREMENTS
EASTERN SURPLUS COMPANY SITE, MEDDYBEMPS, ME

Northern Plume Wells	Southern Plume Wells	Non-Plume Wells
Bedrock Monitoring Wells		
MW-41B1		
MW-41B2		
MW-42B1		
MW-42B1		
MW-43B1		
MW-43B2		
IN-1B1		
IN-1B2		
IN-2B1		
IN-2B2		
Monitoring Wells [Bedrock/Overburden]	**Monitoring Wells [Bedrock/Overburden]**	**Monitoring Wells [Bedrock/Overburden]**
RW-1	RWS-2	None
RW-5	RWS-4	
RW7-B1	RWS-8	
RW7-B2		
Extraction Wells [Bedrock/Overburden]	**Extraction Wells [Bedrock/Overburden]**	
RW-2	RWS-1	
RW-3	RWS-3	
RW-4	RWS-5	
RW-8	RWS-6	
RW-9	RWS-7	
RW-10		
RW-11		
Extraction Wells [Bedrock]		
MW-35B		
MW-39B		
MW-40B		

TABLE 9 - 2
SAMPLING SCHEDULE FOR TREATMENT SYSTEM AND GROUNDWATER EXTRACTION WELLS
DURING STARTUP/SHAKEDOWN
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

PERIOD	MEASUREMENT FREQUENCY	STATIONS	ANALYTICAL PARAMETERS
Startup/Shakedown	Weekly for 1st 2 months (~9 weeks)	Treatment Plant Stations	VOCs, metals, TOC, TSS, alkalinity, hardness
Startup/Shakedown	Weeks 1, 5, and 9	Extraction Wells	VOCs, metals; some for TOC, TSS, alkalinity, hardness
Months 3 and 4	Once every 2 weeks	Treatment Plant Stations	VOCs and metals
Months 3 and 4	Once per month	Extraction Wells	VOCs and metals
Months 5 - 12	Once per month	Treatment Plant Stations	VOCs and metals
Months 5 - 12	2 events (month 6 and 12)	Extraction wells included in se	Included in semi-annual groundwater sampling events
Months 13 - 24 (Year 2)	2 events (month 6 and 12)	Extraction wells included in se	Included in semi-annual groundwater sampling events
Months 13 - 24 (Year 2)			
Years 3 - 10	Tentatively, once per quarter		

Sample ID	Sample Station	Sample ID	Sample Station
Treatment System		Northern Extraction Wells	
INN	Influent from northern plume wells	RW-2	Extraction well (overburden/bedrock)
INS	Influent from southern plume wells	RW-3	Extraction well (overburden/bedrock)
INC	Combined influent from both plumes post 2nd equal. tank	RW-4	Extraction well (overburden/bedrock)
BF1	Effluent from 1st stage bag filter	RW-8	Extraction well (overburden/bedrock)
BF2	Effluent from 2nd stage bag filter	RW-9	Extraction well (overburden/bedrock)
GAC1	Effluent from 1st lead GAC unit	RW-10	Extraction well (overburden/bedrock)
GAC3	Effluent from 2nd lead GAC unit	RW-11	Extraction well (overburden/bedrock)
GAC5	Effluent from 3rd lead GAC unit	MW-35B	Extraction well (overburden/bedrock)
EF3	Combined effluent from lead GAC units	MW-39B	Extraction well (bedrock)
EF4	Combined effluent from all GAC units	MW-40B	Extraction well (bedrock)
IX1	Effluent from 1st IX unit		
IX2	Effluent from 1st IX unit	Southern Extraction Wells	
IX3	Effluent from 1st IX unit	RWS-1	Extraction well (overburden/bedrock)
IX4	Effluent from 1st IX unit	RWS-3	Extraction well (overburden/bedrock)
EF5	Final treated effluent	RWS-5	Extraction well (overburden/bedrock)
		RWS-6	Extraction well (overburden/bedrock)
		RWS-7	Extraction well (overburden/bedrock)

Abbr: TOC - total organic carbon
TSS - total suspended solids
VOCs - volatile organic compounds

TABLE 9 - 3
ANNUAL SURFACE WATER AND SEDIMENT SAMPLING STATIONS
EASTERN SURPLUS COMPANY SITE
MEDDYBEMPS, MAINE

Station No. and Location (1)		Annual	
		SW (2)	SED (3)
No.	Meddybemps Lake		
L01	Off shore from SD-105 (SW)	P, M	P, M
L02	SD-103 (SW)	P, M	P, M
L03	SD-155	na	P, M
L04	SD-106	na	S, P, M
L05	SD-153	na	S, P, M
L06	SD-402 (SW)	P, M	S, P, M
	Mill Pond		
L07	SW-406 (SW and Sed)	P, M	S, P, M
L08	SW-112 (SW and Sed)	P, M	S, P, M
L09	SW-114 (SW and Sed)	P, M	S, P, M
L10	SD-304	na	S, P, M
L11	SD-403	na	S, P, M
L12	SD-302	na	S, P, M
L13	SD-303	na	S, P, M
	Upper Dennys River		
L14	SD-409 (SW)	P, M	P, M
L15	SD-411	na	P, M
L16	SD-410	na	P, M
L17	SD-307 (SW)	P, M	P, M
L18	SD-412	na	P, M
L19	SD-150	na	P, M
L20	SD-152 (SW)	P, M	P, M
	Upper Dennys River (4) (Only during 2001 baseline event and during 2005 at the 5-year Review)		
L21	SD-157	na	P, M
L22	SD-146	na	P, M
L23	SD-138	na	P, M
L24	SD-140 (SW)	P, M	P, M
L25	TBD	na	P, M
	Lower Dennys River (4) (Only during 2001 baseline event and during 2005 at the 5-year Review)		
L26	Upstream of crossing of Route 86 (SW)	P, M	P, M
L27	Upstream of crossing of Route 86	na	P, M
L28	Upstream of crossing of Route 86	na	P, M
L29	Upstream of crossing of Route 86	na	P, M
L30	Upstream of crossing of Route 86	na	P, M
L31	At crossing of Route 86 (SW)	P, M	P, M
L32	At crossing of Route 86	na	P, M
L33	At crossing of Route 86	na	P, M
L34	At crossing of Route 86	na	P, M
L35	At crossing of Route 86	na	P, M
L36	Downstream of Route 1 (SW)	P, M	P, M
L37	Downstream of Route 1	na	P, M
L38	Downstream of Route 1	na	P, M
L39	Downstream of Route 1	na	P, M
L40	Downstream of Route 1	na	P, M

Notes:

1. The sampling stations and analytical parameter are proposed. After pending discussions between EPA, the Atlantic Salmon Commission, and the Passamaquoddy Tribe, the list of sampling stations and analytical parameters will be revised. As appropriate, biota sampling may be added into the sampling program.

2. Surface water samples will be collected only from select stations (Lake, Mill Pond, and Upper Dennys River) during the annual long-term sampling events. Samples will be collected for PCB homologs and metals analysis at all locations.

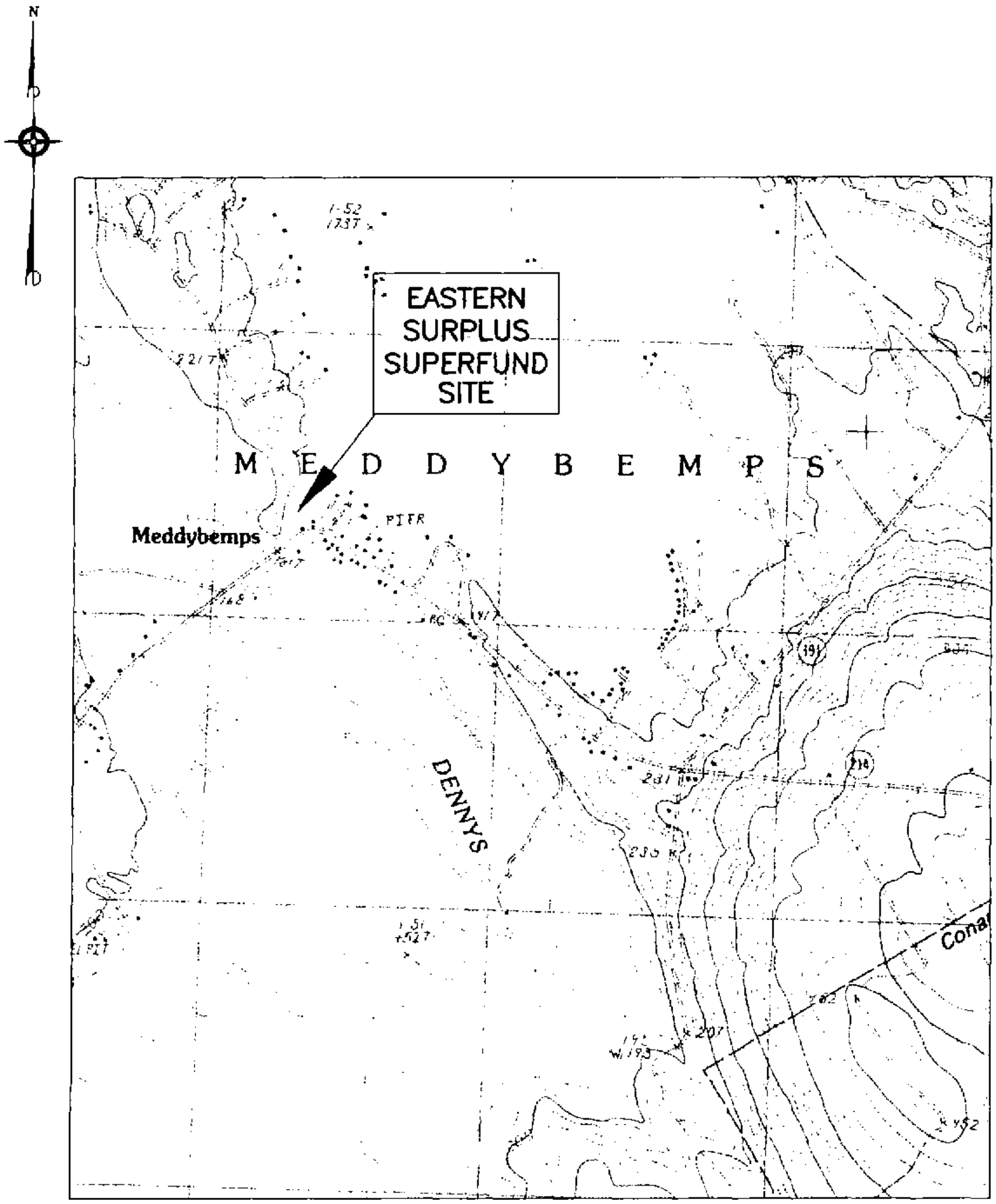
3. Sediment samples will be collected from the Lake (adjacent to site), Mill Pond, and the Upper Dennys River during the annual event for PCBs(as homologs) and metals.

4. Surface water and sediment samples at select Upper Dennys River and at all Lower Dennys River stations will only be collected during the baseline Summer 2001 event and during the 5-year review in 2005.

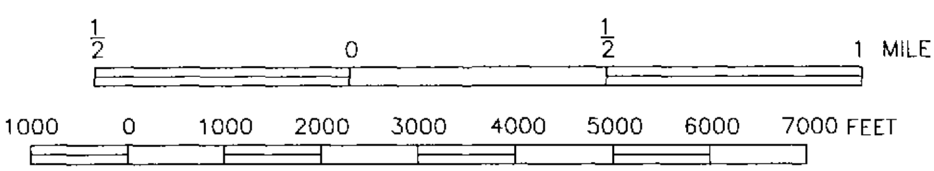
Abbr.:

na	-	not applicable
M	-	Target Analyte List metals
P	-	polychlorinated biphenyls (homologs)
V	-	volatile organic compounds
S	-	semi-volatile organic compounds
SED	-	sediment
SW	-	surface water

FIGURES

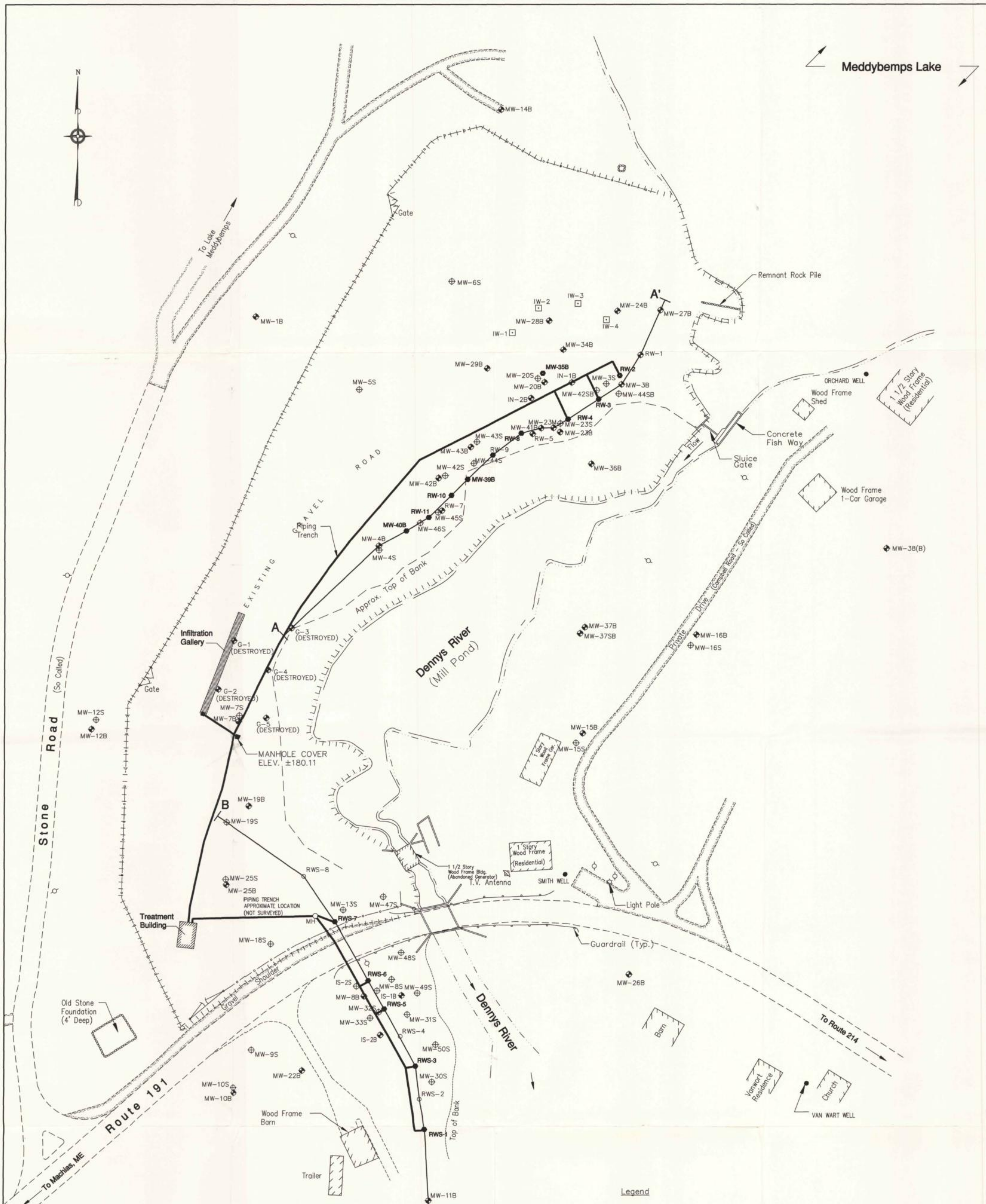


BASEMAP: U.S.G.S. QUADRANGLE MAP: MEDDYBEMPS LAKE EAST, MAINE, PROVISIONAL EDITION, 1987



QUADRANGLE LOCATION

SITE LOCATION MAP		FIGURE 1-1
EASTERN SURPLUS COMPANY SITE		TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE		55 Jonspin Road Wilmington, MA 01887 (978)658-7899
DRAWN BY: R.G. DEWSNAP	REV.: 0	
CHECKED BY: C. RACE	DATE: JULY 21, 2001	
SCALE: AS SHOWN	ACAD NAME: \3998\1102\USGS_MAP.DWG	



NOTES:

1. ELEVATIONS ARE BASED ON U.S.G.S. (NGVD 1929) MEAN SEA LEVEL.
2. BEARINGS ARE BASED ON MAINE STATE GRID COORDINATE SYSTEM (EAST ZONE) "NAD 83". DISTANCES SHOWN ARE GROUND DISTANCES AND ARE NOT REDUCED BY GRID AND ELEVATION FACTORS. CONTROL STATIONS USED: GREEN..........N = 499787.956 E = 1270274.069 ALEX..........N = 502946.205 E = 1254863.930
3. WELLS MW-47S TO MW-50S LOCATIONS APPROXIMATE, ALL OTHER WELL LOCATIONS SURVEYED.
4. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.
5. PLAN NOT TO BE USED FOR DESIGN.

GRAPHIC SCALE

40' 0' 40' 80'

1 INCH = 40 FEET

DRAWN BY: D.W. MACDOUGALL
PREPARED BY: C. RACE
CHECKED BY: C. RACE

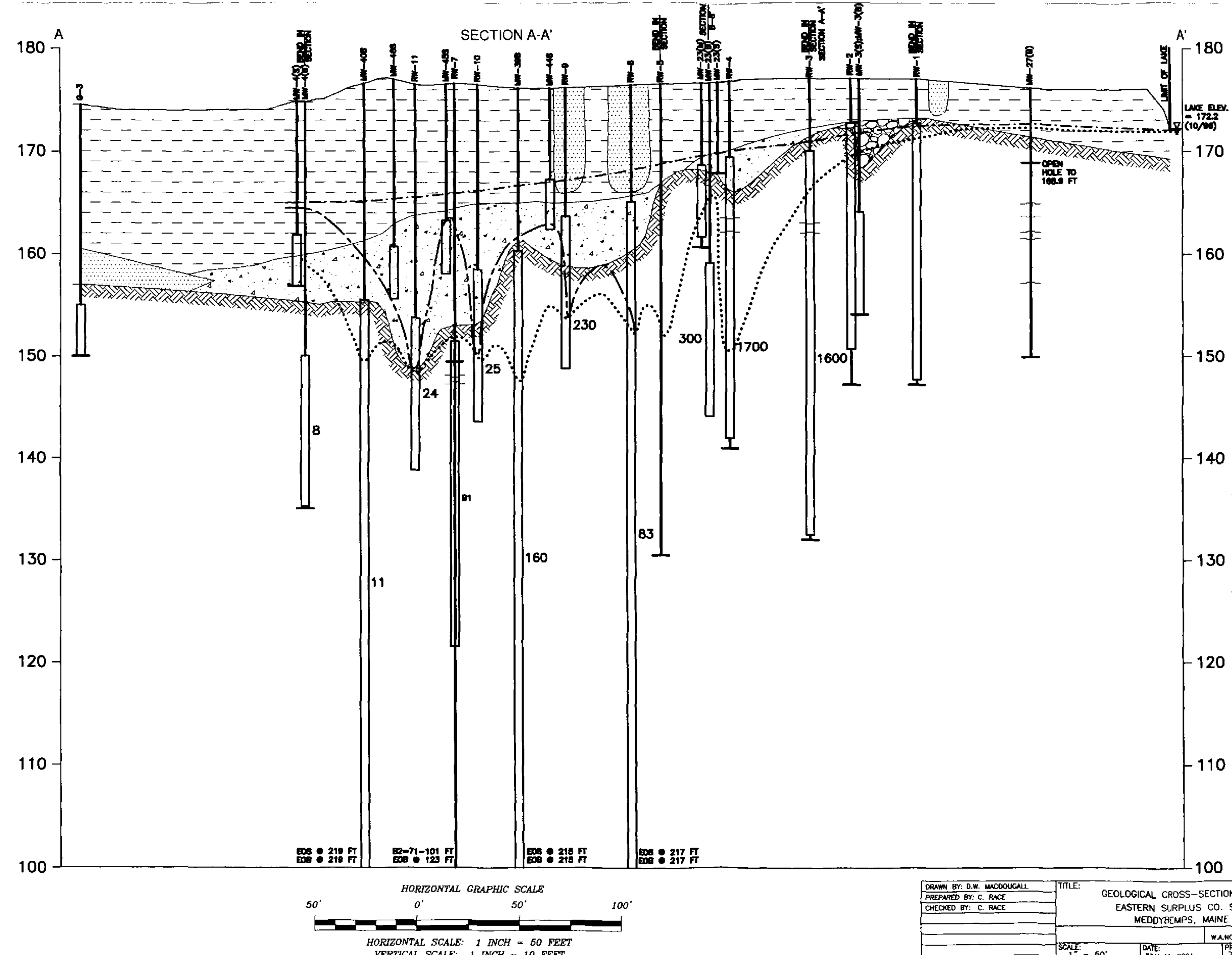
PROJECT MANAGER: L. CHU
PROGRAM MANAGER: G. GARDNER

TITLE: WELL LOCATIONS AND CROSS SECTION LINES
EASTERN SURPLUS CO. SITE – MEDDYBEMPS, MAINE

SOURCE: TOPOGRAPHIC/INSTRUMENT SURVEY PERFORMED BY OEST ASSOC. INC. DATED, OCTOBER 1996; UPDATED: JAN. 2000, APR. 2001

SCALE: 1" = 40'	DATE: JULY 21, 2001	PROJ. NO: N3998
DRAWING NO: FIGURE 1-2	ACFILE NAME: DWG\3998\1102\FIG_1-2.DWG	REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899



NOTES:

1. THE DEPTH, THICKNESS, AND CONTINUITY OF THE SUBSURFACE MATERIALS INDICATED ON THE PROFILES WERE GENERALIZED FROM, AND INTERPOLATED BETWEEN SUBSURFACE BORINGS FROM DATA REPORTED ON BORING LOGS. INFORMATION REGARDING SUBSURFACE CONDITIONS AND WATER LEVELS EXISTS ONLY AT THE SPECIFIC LOCATION OF EACH BORING AND AT THE TIME THE BORING WAS SAMPLED. THE LINES DEPICTING THE DISTRIBUTION OF THE SUBSURFACE MATERIALS REPRESENT AN ESTIMATED, APPROXIMATE BOUNDARY, AND THE ACTUAL BOUNDARIES MAY DIFFER FROM THOSE SHOWN. THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN SOIL CONDITIONS AND/OR WATER LEVELS FROM THOSE SHOWN.

2. PLAN NOT TO BE USED FOR DESIGN.

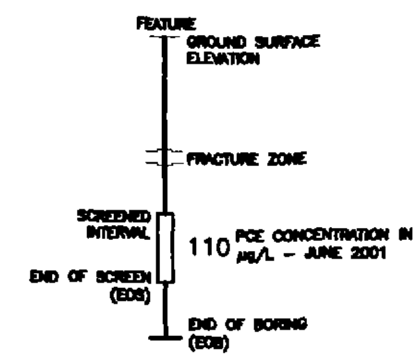
3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

LEGEND:

- SAND/SILT/GRAVEL
- SANDS/GRAVEL (FILL)
- SILT/CLAY/SAND/GRAVEL (TILL)
- BOULDERS/COBBLES
- BEDROCK

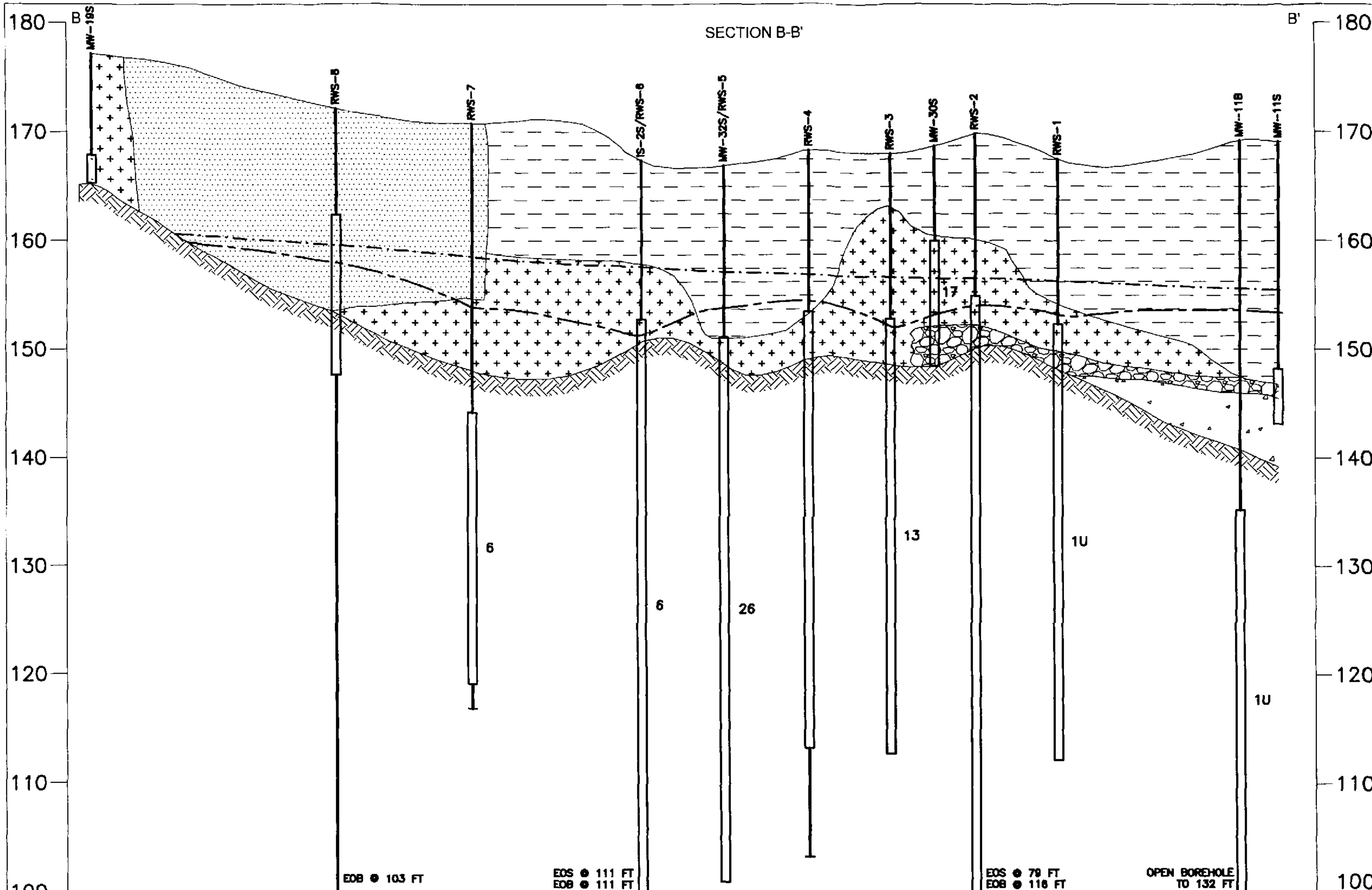
- OVERBURDEN POTENTIOMETRIC SURFACE – NON-PUMPING CONDITIONS – JUNE 6, 2001
- OVERBURDEN POTENTIOMETRIC SURFACE – NORTHERN EXTRACTION WELLS PUMPING – JUNE 22, 2001
- SHALLOW BEDROCK POTENTIOMETRIC SURFACE – NORTHERN EXTRACTION WELLS PUMPING – JUNE 22, 2001

FEATURE LEGEND:



DRAWN BY: D.W. MACDOUGALL	TITLE: GEOLOGICAL CROSS-SECTION A-A' EASTERN SURPLUS CO. SITE MEDDYBEMPS, MAINE
PREPARED BY: C. RACE	W.A.NO.: 015-RICO-0189
CHECKED BY: C. RACE	SCALE: 1" = 50'
	DATE: JULY 11, 2001
	PROJ. NO: 7631.0640
PROJECT MANAGER: L. CHU	DRAWING NO: FIGURE 1-3
PROGRAM MANAGER: G. GARDNER	ACFILE NAME: DWG\3000\1102\FIG_1-3.DWG — REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899



1. THE DEPTH, THICKNESS, AND CONTINUITY OF THE SUBSURFACE MATERIALS INDICATED ON THE PROFILES WERE GENERALIZED FROM, AND INTERPOLATED BETWEEN SUBSURFACE BORINGS FROM DATA REPORTED ON BORING LOGS. INFORMATION REGARDING SUBSURFACE CONDITIONS AND WATER LEVELS EXISTS ONLY AT THE SPECIFIC LOCATION OF EACH BORING AND AT THE TIME THE BORING WAS SAMPLED. THE LINES DEPICTING THE DISTRIBUTION OF THE SUBSURFACE MATERIALS REPRESENT AN ESTIMATED, APPROXIMATE BOUNDARY, AND THE ACTUAL BOUNDARIES MAY DIFFER FROM THOSE SHOWN. THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN SOIL CONDITIONS AND/OR WATER LEVELS FROM THOSE SHOWN.

2. PLAN NOT TO BE USED FOR DESIGN.

3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

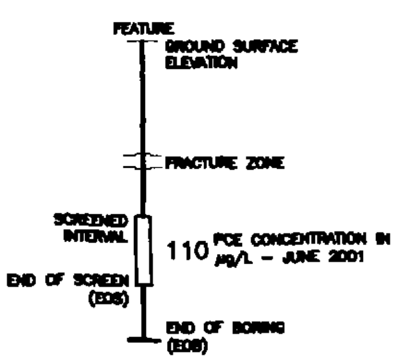
4. LOCATIONS OF MW-3(B), MW-3(S), RW-2 WERE PROJECTED TO SECTION LINE.

LEGEND:

- SAND/SILT/GRAVEL
- SANDS/GRAVEL
- SANDS/GRAVEL (FILL)
- SILT/CLAY/SAND/GRAVEL (TILL)
- BOULDERS/COBBLES
- BEDROCK

- OVERBURDEN POTENTIOMETRIC SURFACE – NON-PUMPING CONDITIONS – JUNE 6, 2001
- OVERBURDEN POTENTIOMETRIC SURFACE – SOUTHERN EXTRACTION WELLS PUMPING – JUNE 11, 2001

FEATURE LEGEND:

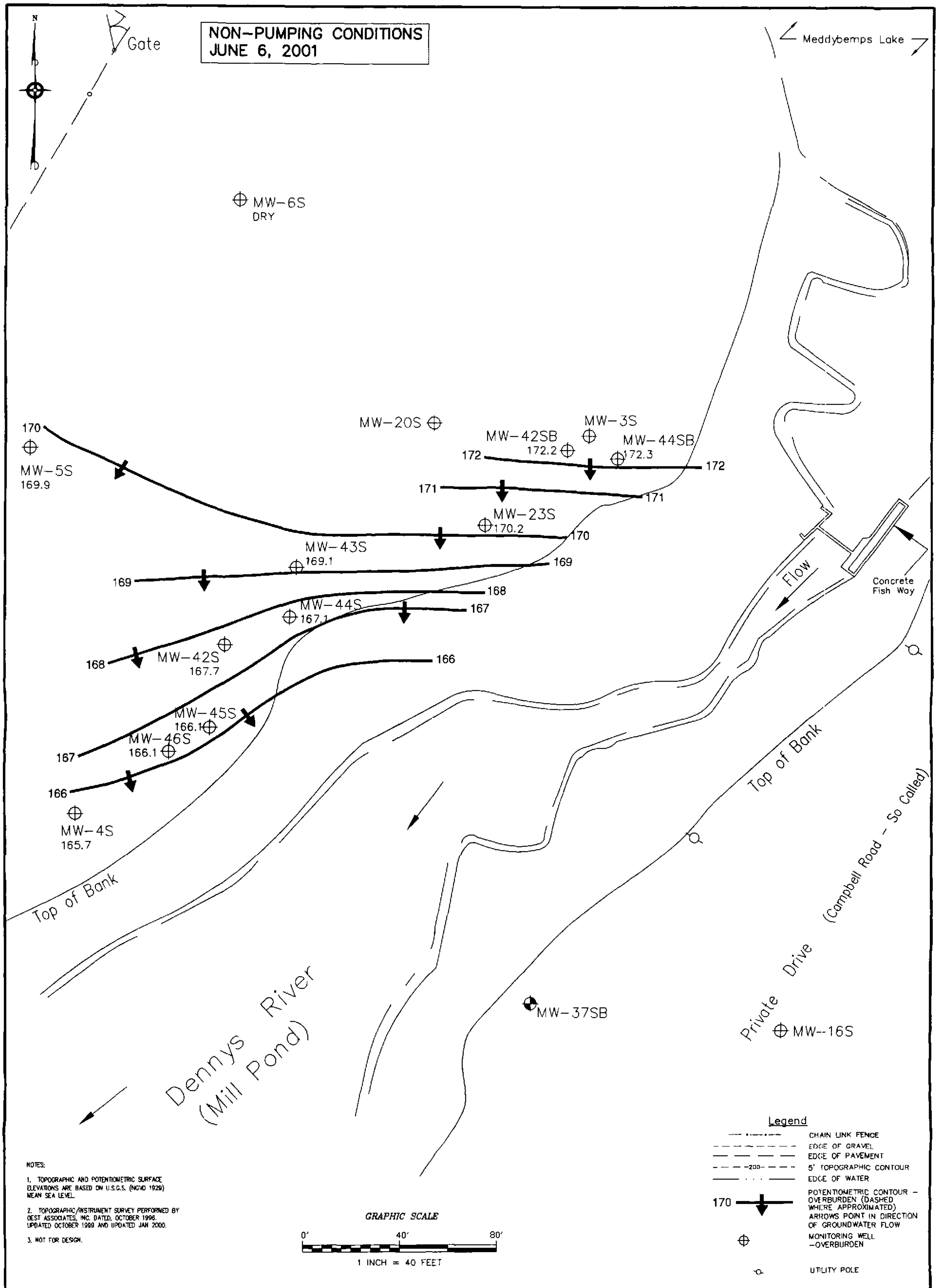


HORIZONTAL GRAPHIC SCALE

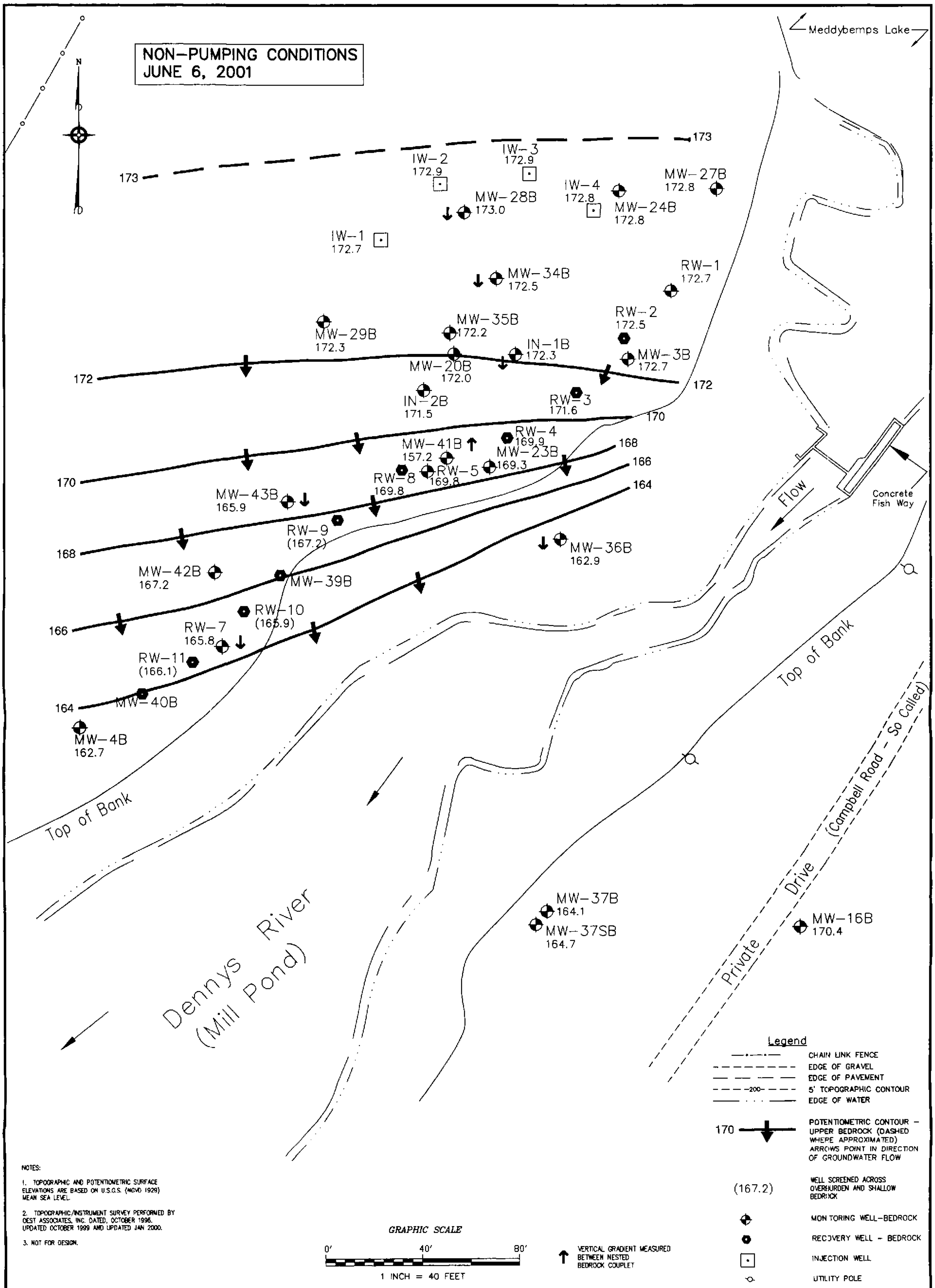
40' 0' 40' 80'

HORIZONTAL SCALE: 1 INCH = 40 FEET
VERTICAL SCALE: 1 INCH = 10 FEET

DRAWN BY: D.W. MACDOUGALL	TITLE: GEOLOGICAL CROSS-SECTION B-B' EASTERN SURPLUS CO. SITE MEDDYBEMPS, MAINE	TETRA TECH NUS, INC.
PREPARED BY: C. RACE	W.A.NO.: 015-RICO-0189	55 JONSPIN ROAD WILMINGTON, MASSACHUSETTS 01887 (978)658-7899
CHECKED BY: C. RACE	SCALE: 1" = 50' / DATE: JULY 11, 2001 / PROJ. NO: 7631.0640	
PROJECT MANAGER: L. CHU	DRAWING NO: FIGURE 1-4 / ACFILE NAME:	REV: 0
PROGRAM MANAGER: G. GARDNER		



OVERBURDEN POTENTIOMETRIC SURFACE - NORTH AREA				FIGURE 2-1
EASTERN SURPLUS COMPANY SITE				TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE				
DRAWN BY:	D.W. MACDOUGALL	REV.:	0	55 Jonspin Road Wilmington, MA 01887
CHECKED BY:	C. RACE	DATE:	JULY 5, 2001	(978)658-7899
SCALE:	1" = 40'	FILE NO.:	\DWG\3998\1102\FIG_2-1.DWG	



SHALLOW BEDROCK POTENTIOMETRIC SURFACE - NORTH AREA

FIGURE 2-2

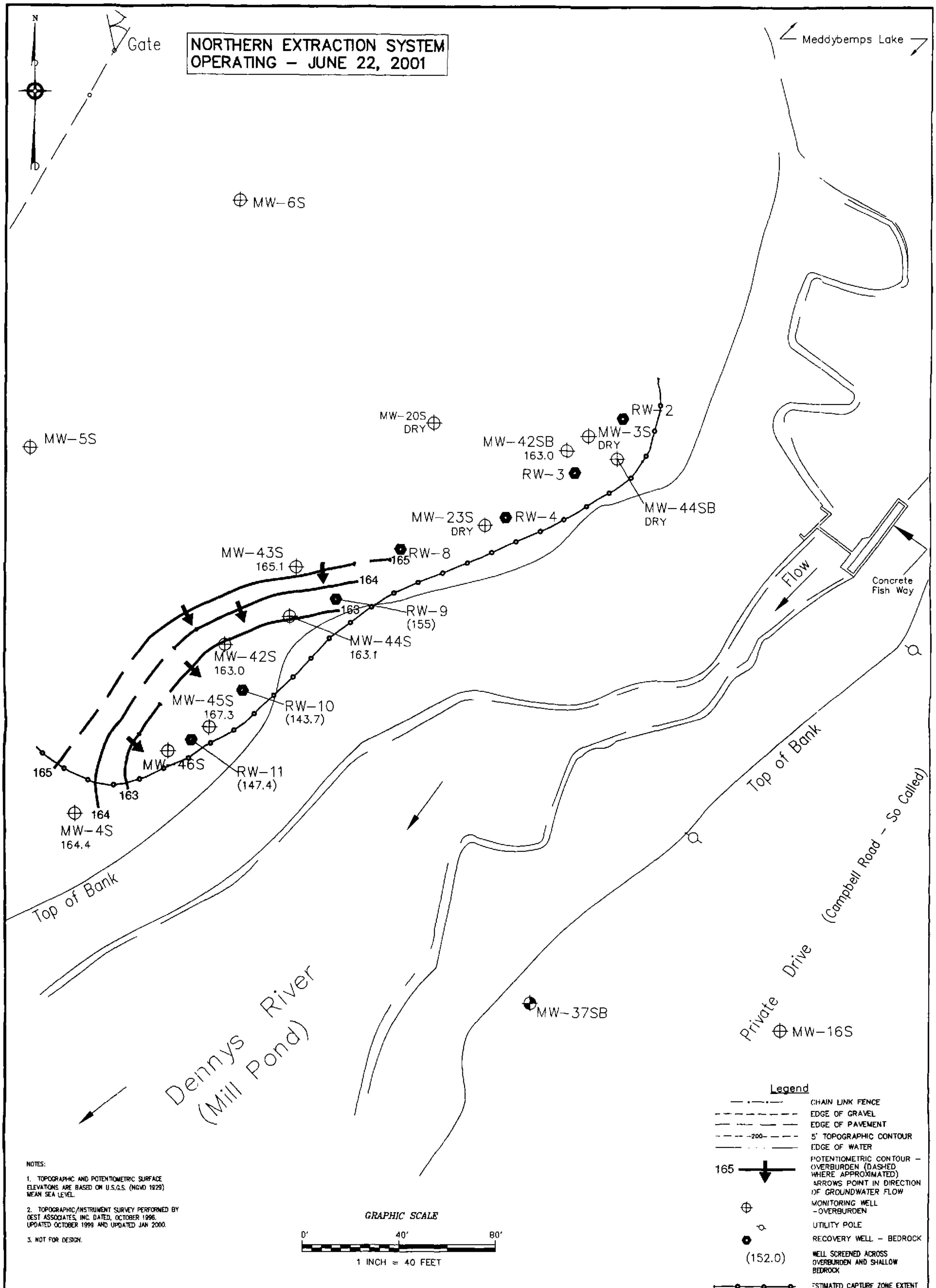
EASTERN SURPLUS COMPANY SITE

MEDDYBEMPS, MAINE

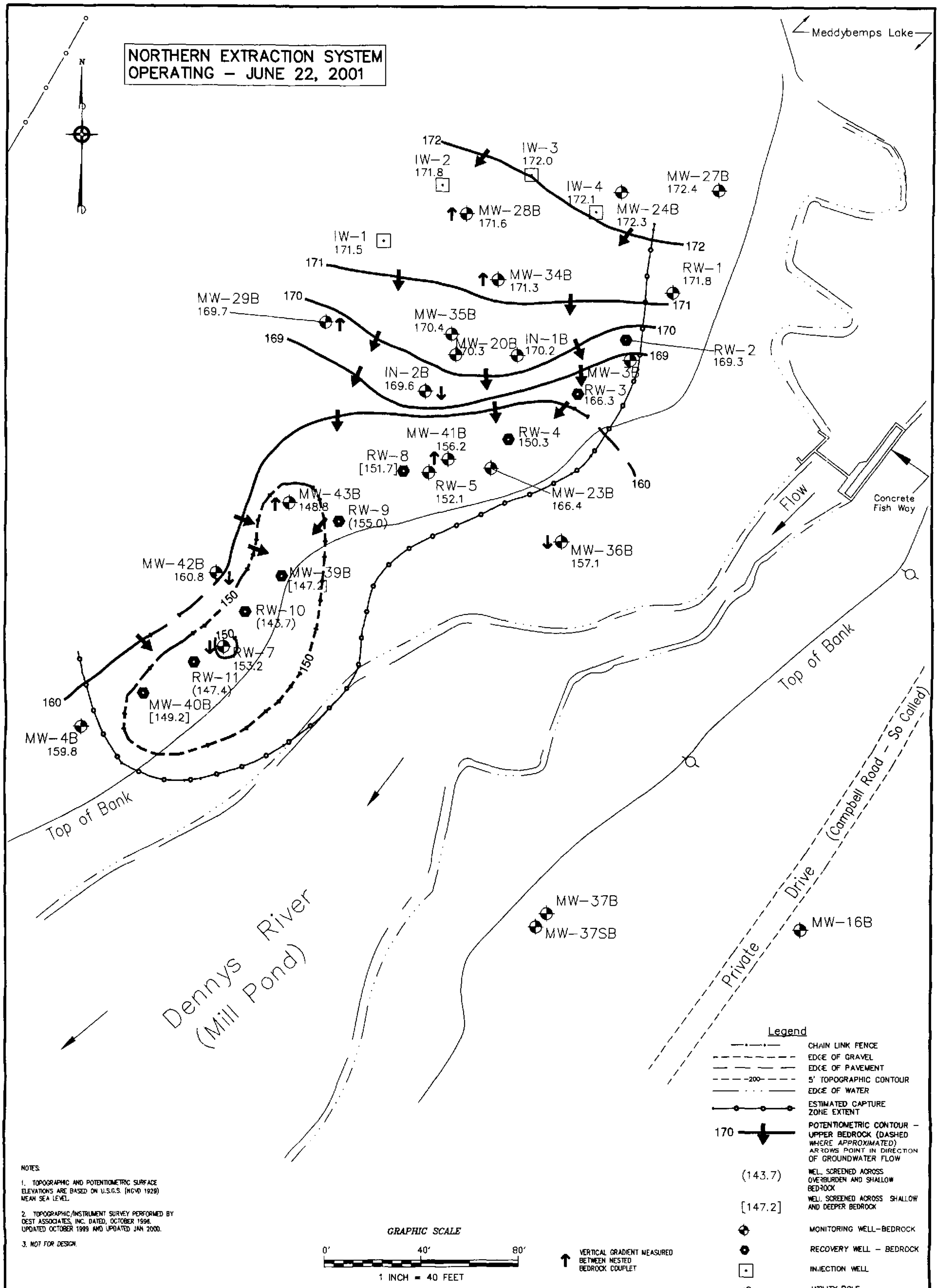
DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	C. RACE	DATE:	JULY 6, 2001
SCALE:	1" = 40'	FILE NO.: \DWG\3998\1102\FIG_2-2.DWG	

TETRA TECH NUS, INC.

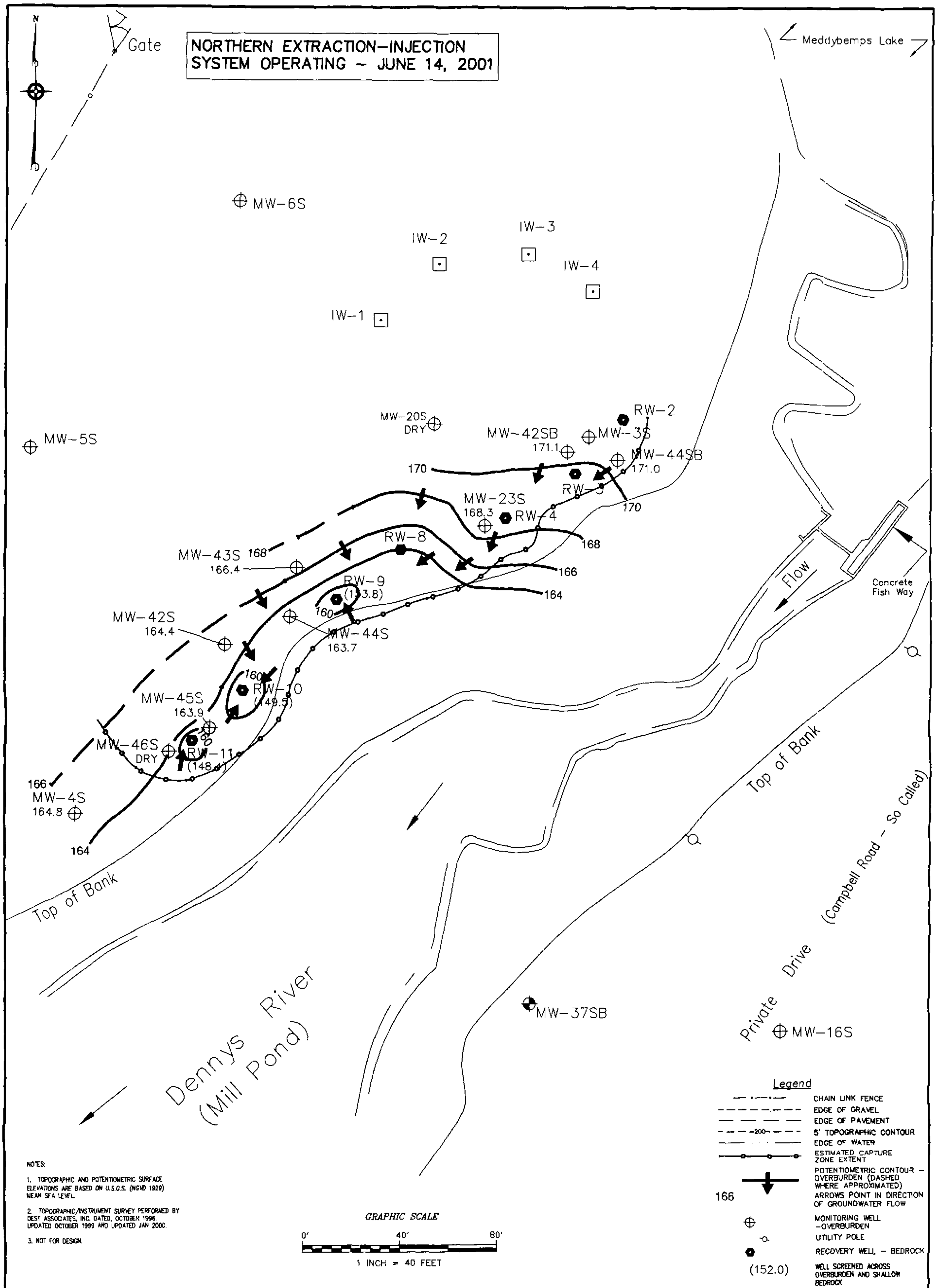
55 Jonspin Road Wilmington, MA 01887
(978)658-7899



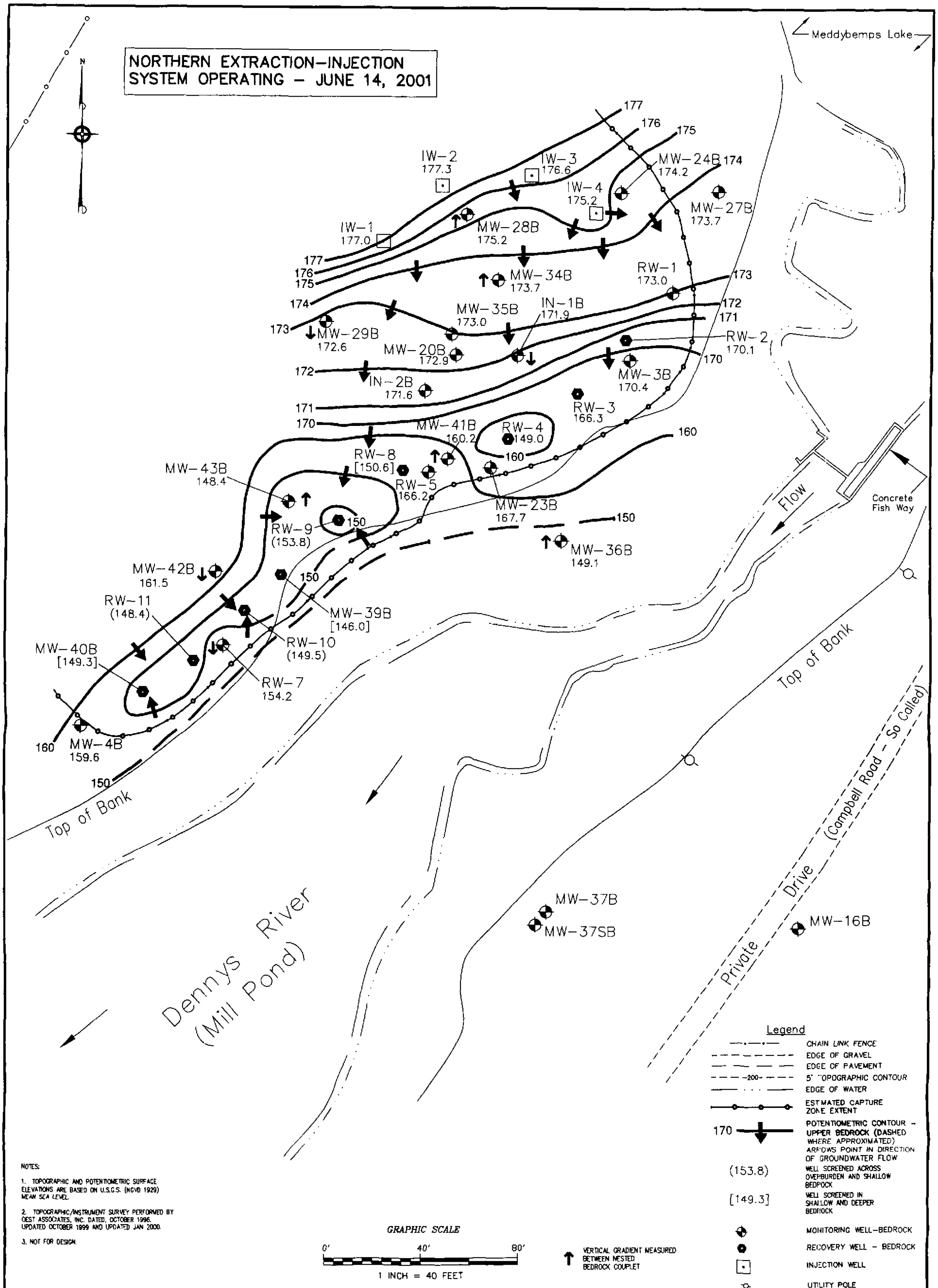
OVERBURDEN POTENTIOMETRIC SURFACE – NORTH AREA			FIGURE 2-3
EASTERN SURPLUS COMPANY SITE			TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE			
DRAWN BY: D.W. MACDOUGALL		REV.: 0	55 Jonspin Road Wilmington MA 01887
CHECKED BY: C. RACE		DATE: JULY 5, 2001	(978)658-7899
SCALE: 1" = 40'		FILE NO.: \DWG\3998\1102\FIG_2-3.DWG	



SHALLOW BEDROCK POTENTIOMETRIC SURFACE – NORTH AREA			FIGURE 2-4
EASTERN SURPLUS COMPANY SITE			TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE			
DRAWN BY: D.W. MACDOUGALL		REV.: 0	55 Jonspin Road Wilmington, MA 01887
CHECKED BY: C. RACE		DATE: JULY 6, 2001	(978)658-7899
SCALE: 1" = 40'		FILE NO.: \DWG\3998\1102\FIG_2-4.DWG	



OVERBURDEN POTENTIOMETRIC SURFACE - NORTH AREA				FIGURE 2-5
EASTERN SURPLUS COMPANY SITE				TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE				
DRAWN BY:	D.W. MACDOUGALL	REV.:	0	
CHECKED BY:	C. RACE	DATE:	JULY 5, 2001	55 Jonspin Road Wilmington, MA 01887
SCALE:	1" = 40'	FILE NO.:	\DWG\3998\1102\FIG_2-5.DWG	(978)658-7899



SHALLOW BEDROCK POTENTIOMETRIC SURFACE - NORTH AREA

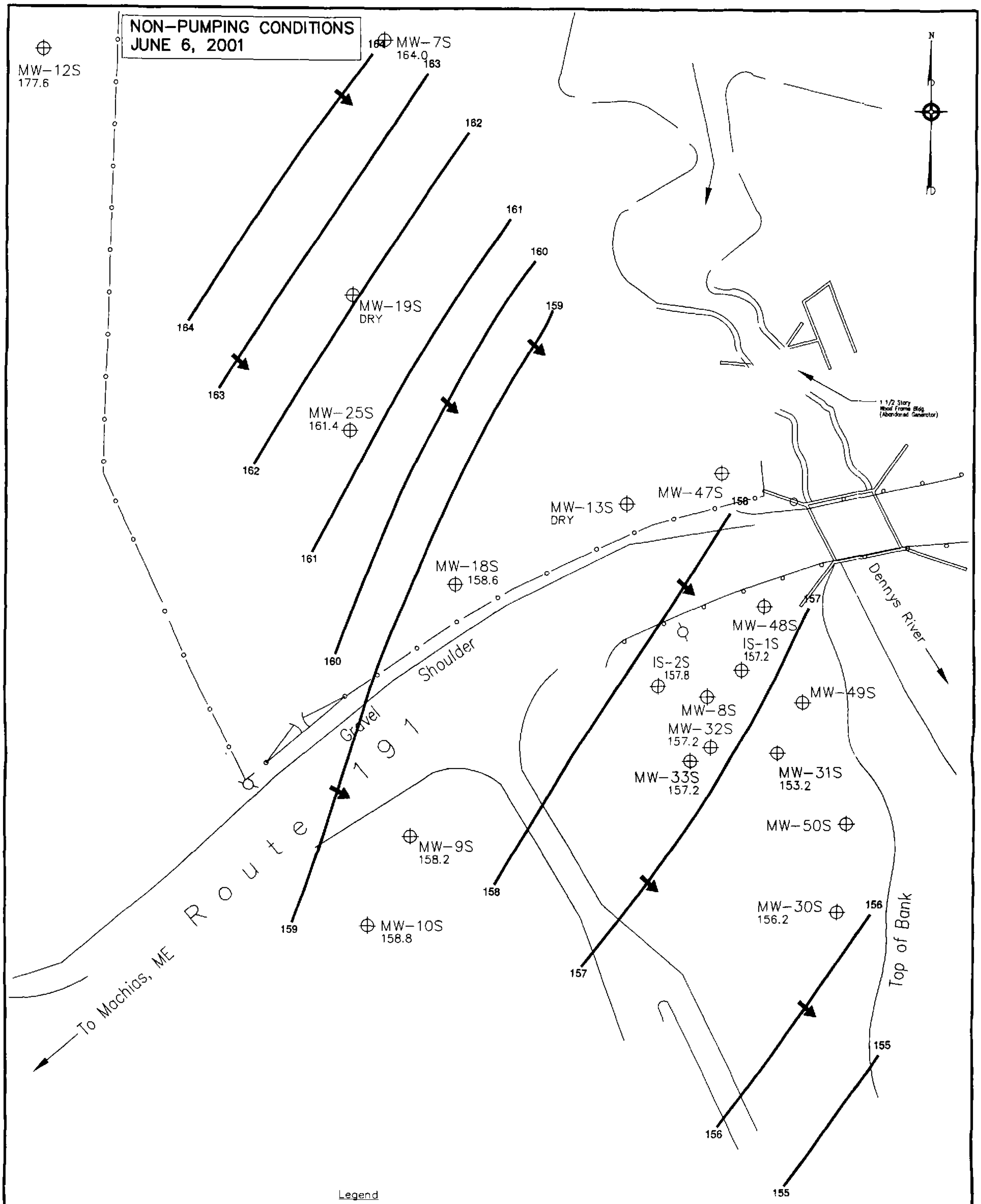
FIGURE 2-6

EASTERN SURPLUS COMPANY SITE

MEDDYBEMPS, MAINE

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	C. RACE	DATE:	JULY 6, 2001
SCALE:	1" = 40'	FILE NO.: \DWG\3998\1102\FIG_2-6.DWG	

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899



NOTES:

1. TOPOGRAPHIC AND POTENTIOMETRIC SURFACE ELEVATIONS ARE BASED ON U.S.G.S. (NGVD 1929) MEAN SEA LEVEL.

2. TOPOGRAPHIC/INSTRUMENT SURVEY PERFORMED BY OEST ASSOCIATES, INC. DATED, OCTOBER 1996. UPDATED OCTOBER 1999 AND UPDATED JAN 2000.

3. NOT FOR DESIGN.

4. MW-47S THROUGH MW-50S LOCATIONS ARE APPROXIMATE.

Legend

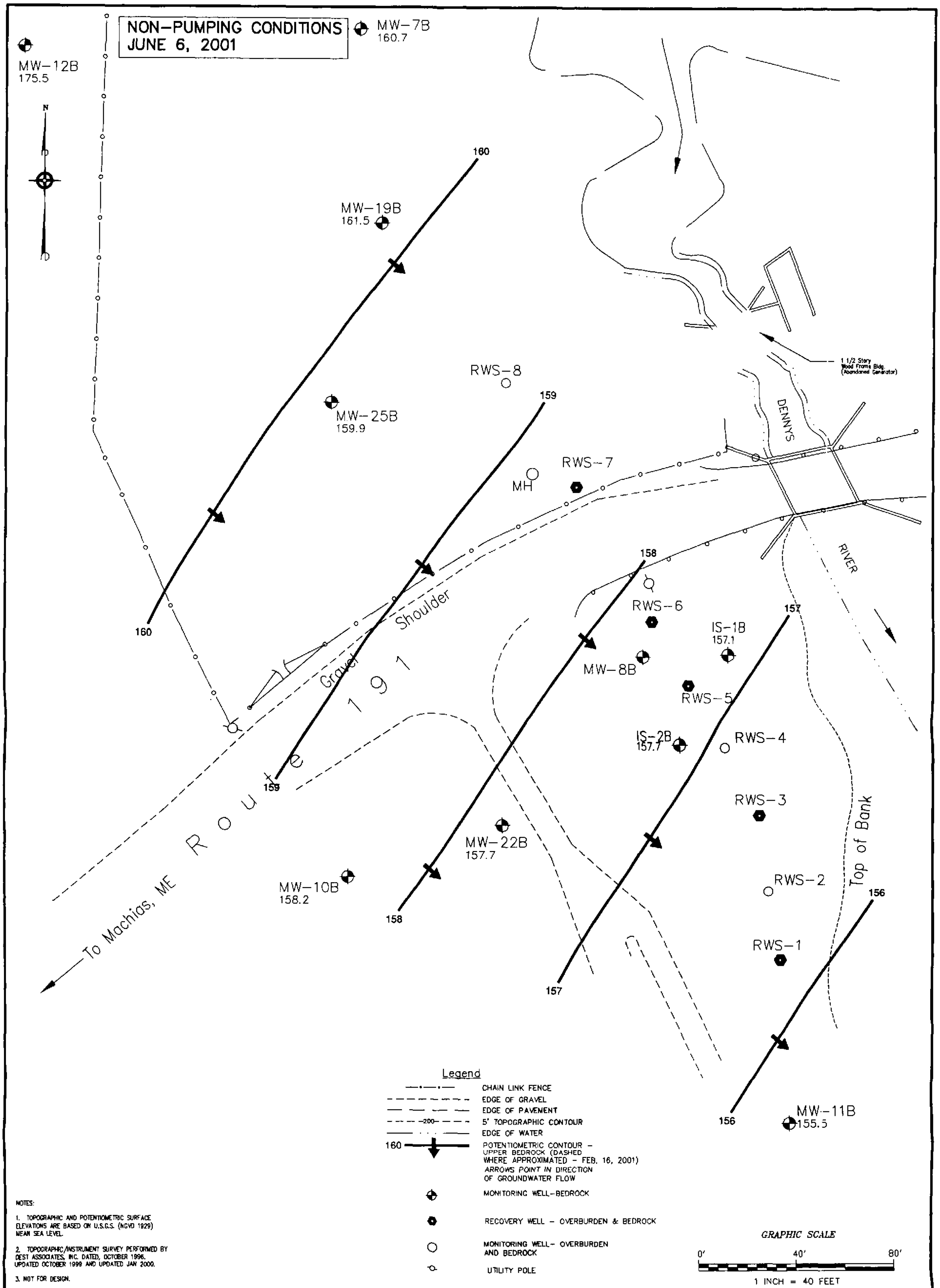
- CHAIN LINK FENCE
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- -200- 5' TOPOGRAPHIC CONTOUR
- EDGE OF WATER
- 160 POTENTIOMETRIC CONTOUR – OVERBURDEN ARROWS POINT IN DIRECTION OF GROUNDWATER FLOW
- MONITORING WELL –OVERBURDEN
- UTILITY POLE

GRAPHIC SCALE

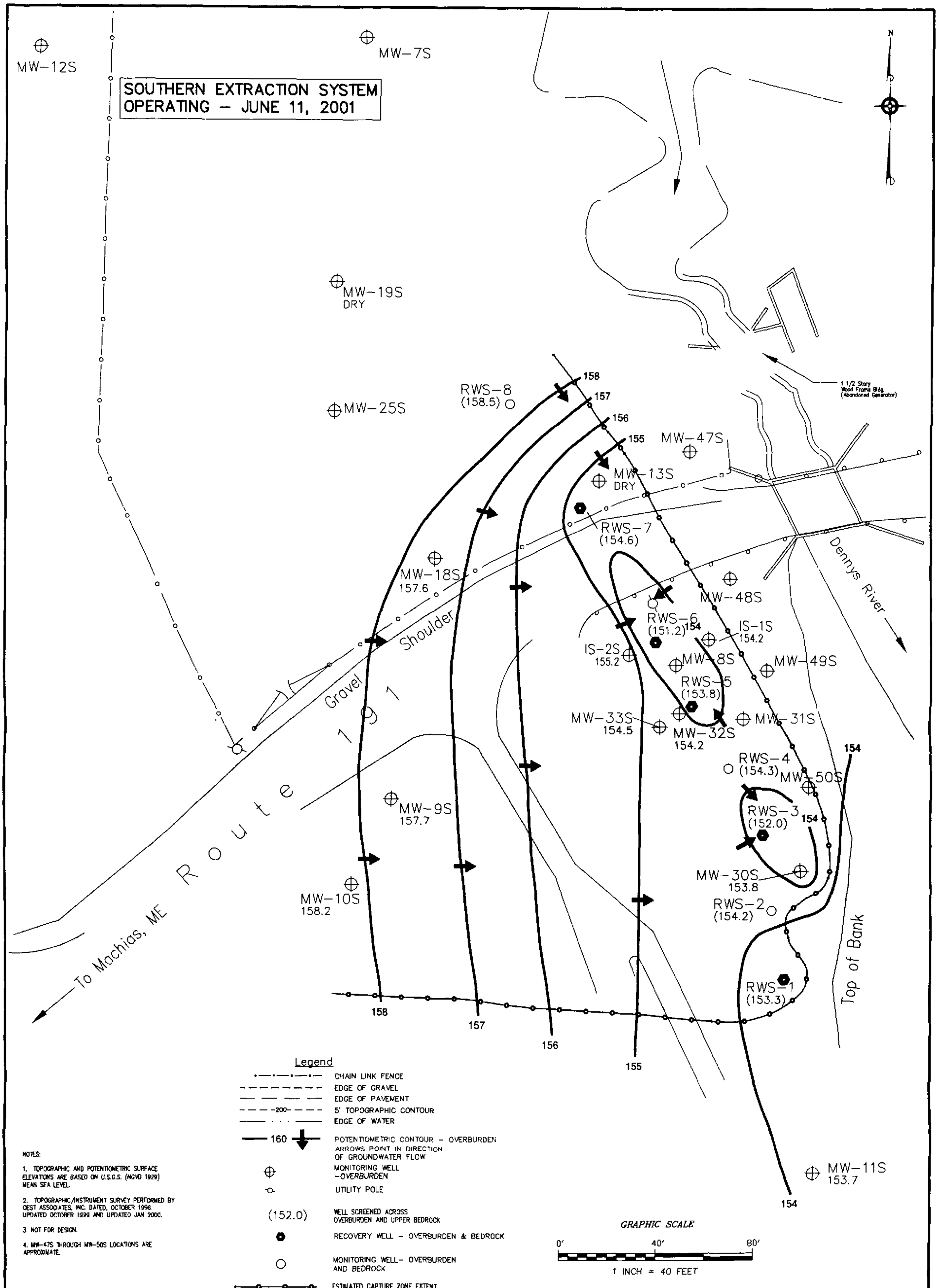
0' 40' 80'

1 INCH = 40 FEET

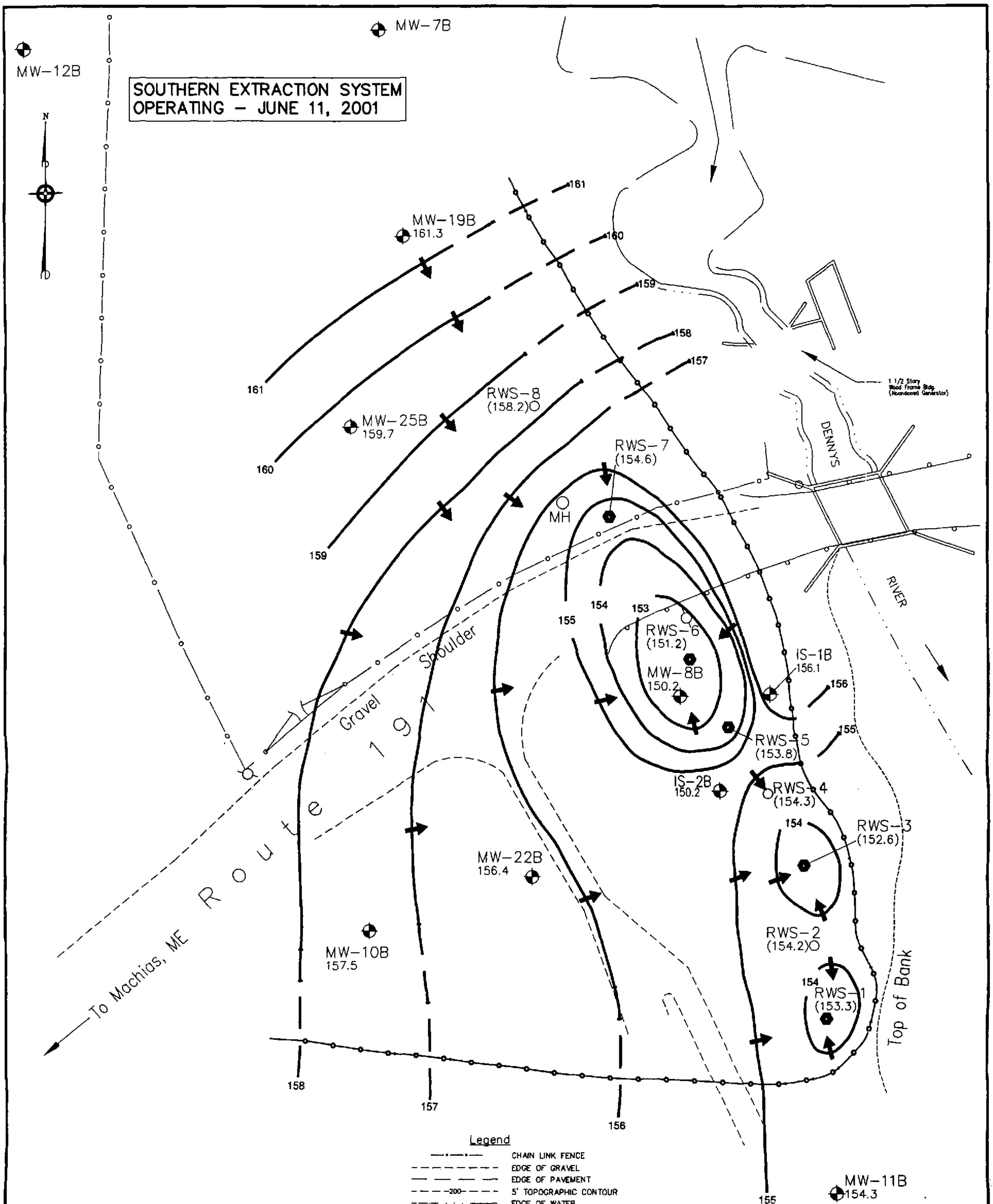
OVERBURDEN POTENTIOMETRIC SURFACE – SOUTH AREA				FIGURE 2-7
EASTERN SURPLUS COMPANY SITE				TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE				
DRAWN BY:	D.W. MACDOUGALL	REV.:	0	55 Jonspin Road Wilmington, MA 01887
CHECKED BY:	C. RACE	DATE:	JULY 5, 2001	(978)658-7899
SCALE:	1" = 40'	FILE NO.:	\DWG\3998\1102\FIG_2-7.DWG	



UPPER BEDROCK POTENTIOMETRIC SURFACE - SOUTH AREA			FIGURE 2-8
EASTERN SURPLUS COMPANY SITE			TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE			55 Jonspin Road Wilmington, MA 01887 (978)658-7899
DRAWN BY: D.W. MACDOUGALL	REV.: 0		
CHECKED BY: C. RACE	DATE: JULY 5, 2001		
SCALE: 1" = 40'	FILE NO.: \DWG\3998\1102\FIG_2-8.DWG		



OVERBURDEN POTENTIOMETRIC SURFACE – SOUTH AREA				FIGURE 2-9
EASTERN SURPLUS COMPANY SITE				TETRA TECH NUS, INC.
MEDDYBEMPS, MAINE				
DRAWN BY:	D.W. MACDOUGALL	REV.:	0	55 Jonspin Road Wilmington, MA 01887
CHECKED BY:	C. RACE	DATE:	JULY 5, 2001	(978)658-7899
SCALE:	1" = 40'	FILE NO.:	\DWG\3998\1102\FIG_2-9.DWG	



Legend

	CHAIN LINK FENCE
	EDGE OF GRAVEL
	EDGE OF PAVEMENT
200	5' TOPOGRAPHIC CONTOUR
	EDGE OF WATER
160	POTENTIOMETRIC CONTOUR – UPPER BEDROCK (DASHED WHERE APPROXIMATED – FEB. 16, 2001) ARROWS POINT IN DIRECTION OF GROUNDWATER FLOW
	MONITORING WELL-BEDROCK
	RECOVERY WELL – OVERBURDEN & BEDROCK
	MONITORING WELL– OVERBURDEN AND BEDROCK
	UTILITY POLE
(152.0)	WELL SCREENED ACROSS OVERBURDEN AND UPPER BEDROCK
	ESTIMATED CAPTURE ZONE EXTENT

NOTES:

1. TOPOGRAPHIC AND POTENTIOMETRIC SURFACE ELEVATIONS ARE BASED ON U.S.G.S. (NGVD 1929) MEAN SEA LEVEL.

2. TOPOGRAPHIC/INSTRUMENT SURVEY PERFORMED BY OEST ASSOCIATES, INC. DATED, OCTOBER 1996. UPDATED OCTOBER 1999 AND UPDATED JAN 2000.

3. NOT FOR DESIGN.

GRAPHIC SCALE

0' 40' 80'

1 INCH = 40 FEET

UPPER BEDROCK POTENTIOMETRIC SURFACE – SOUTH AREA

EASTERN SURPLUS COMPANY SITE

MEDDYBEMPS, MAINE

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	C. RACE	DATE:	JULY 5, 2001
SCALE:	1" = 40'	FILE NO.:	\DWG\3998\1102\FIG_2-10.DWG

FIGURE 2-10

TETRA TECH NUS, INC.
55 Jonspin Road Wilmington, MA 01887
(978)658-7899

NOTES:

1. ELEVATIONS ARE BASED ON U.S.G.S. (NGVD 1929) MEAN SEA LEVEL.
2. BEARINGS ARE BASED ON MAINE STATE GRID COORDINATE SYSTEM (EAST ZONE) "NAD 83". DISTANCES SHOWN ARE GROUND DISTANCES AND ARE NOT REDUCED BY GRID AND ELEVATION FACTORS. CONTROL STATIONS USED: GREEN.........N = 499787.956 E = 1270274.069 ALEX..........N = 502946.205 E = 1254863.930
3. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.

REV	DATE	DESCRIPTION	DR BY	APP BY

DRAWN BY: R.G. DEWSNAP
PREPARED BY: C. RACE
CHECKED BY: L. CHU
PROJECT MANAGER: L. CHU
PROGRAM MANAGER: G. GARDNER

TITLE: **SITE WELLS AND PLUME**
EASTERN SURPLUS CO. SITE - MEDDYBEMPS, MAINE

SOURCE: TOPOGRAPHIC/INSTRUMENT SURVEY PERFORMED BY OEST ASSOC. INC. DATED, OCTOBER 1996; UPDATED: JAN. 2000, APR. 2001

SCALE: 1" = 40'	DATE: JULY 24, 2001	PROJ. NO: N3998
DRAWING NO: FIGURE 2-11	ACFILE NAME: DWG\3998\1111\MEETING_1A.DWG	REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

NOTES:

1. ELEVATIONS ARE BASED ON U.S.G.S. (NGVD 1929) MEAN SEA LEVEL.
2. BEARINGS ARE BASED ON MAINE STATE GRID COORDINATE SYSTEM (EAST ZONE) "NAD 83". DISTANCES SHOWN ARE GROUND DISTANCES AND ARE NOT REDUCED BY GRID AND ELEVATION FACTORS. CONTROL STATIONS USED: GREEN..........N = 499787.956 E = 1270274.069 ALEX............N = 502946.205 E = 1254863.930
3. ALL LOCATIONS TO BE CONSIDERED APPROXIMATE.

REV	DATE	DESCRIPTION	DR BY	APP BY

DRAWN BY: R.G. DEWSNAP
PREPARED BY: C. RACE
CHECKED BY: L. CHU
PROJECT MANAGER: L. CHU
PROGRAM MANAGER: G. GARDNER

TITLE: WELL LOCATIONS
EASTERN SURPLUS CO. SITE – MEDDYBEMPS, MAINE

SOURCE: TOPOGRAPHIC/INSTRUMENT SURVEY PERFORMED BY OEST ASSOC. INC. DATED, OCTOBER 1996; UPDATED: JAN. 2000, APR. 2001

SCALE: 1" = 40'	DATE: JULY 21, 2001	PROJ. NO: N3998
DRAWING NO: FIGURE 7-1	ACFILE NAME: DWG\3998\1111\GRIDS_2.DWG	REV: 0

TETRA TECH NUS, INC.
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899