VOLUNTARY RESPONSE ACTION PROGRAM

SUMMARY REPORT

GENERAL ALUM AND CHEMICAL CORPORATION

SEARSPORT, MAINE

VOLUME I - REPORT

JULY 1995

Prepared by

Sevee & Maher Engineers, Inc.
Cumberland, Maine

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1.0 INTRODUCTION

1.1 Purpose and Scope

At the request of General Alum and Chemical Corporation, Sevee & Maher Engineers has compiled this summary report for submittal to the Voluntary Response Action Program (VRAP) in the Bureau of Hazardous Materials and Solid Waste Control at the Maine Department of Environmental Protection. The purpose of this report is to summarize data gathered during a series of four investigations conducted from 1992 through 1994 by Sevee & Maher Engineers to evaluate the nature and extent of volatile organic compounds, primarily trichloroethene, found in the vicinity of the Polymers Building and the Old Ammonia Plant at the General Alum and Chemical Corporation site in Searsport, Maine.

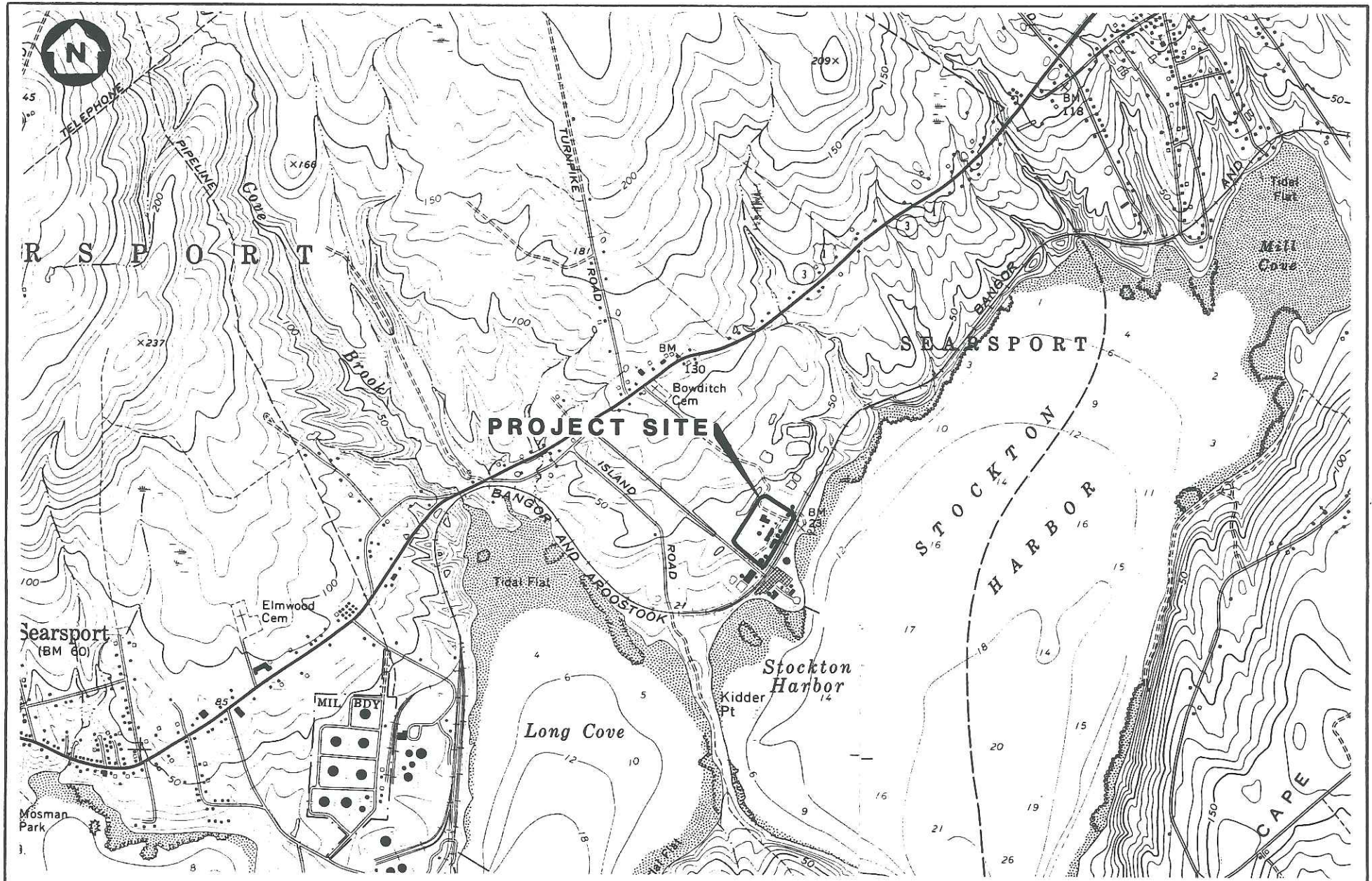
1.2 Site Description

The General Alum and Chemical Corporation site consists of a 157-acre parcel situated on the east shore of Stockton Harbor in Searsport, Maine. The topography of the site ranges in elevation from mean sea level to approximately 80 feet (NVGD datum) and slopes gently from west to east toward Stockton Harbor. Man-made features at the site consist of the plant and administration buildings; chemical storage tanks; and a closed landfill. The

area of interest in this investigation is located in the central portion of the site in the vicinity of the Polymers Building and Old Ammonia Plant as shown on Figure 1-1. A detailed map of the site in the vicinity of the investigations is presented in Figure 1-2.

1.3 Operational History

Site development began in 1927 and consisted of an agricultural fertilizer manufacturing plant which was owned and operated by the Summers Fertilizer Company. In 1943, Northern Chemical, Inc. a division of Summers Fertilizer, assumed operation of the site and expanded the manufacturing operation to include production of super-phosphates, sulfuric acid, and ammonium sulfate. In 1953, an aluminum sulfate process was added to the site. In 1956, an ammonia plant, an ammonia nitrate plant and a nitric acid plant were constructed at the site. In 1966, W.R. Grace & Company leased the manufacturing facility. The ammonia production was then discontinued. By early 1970, W.R. Grace discontinued the production of super phosphates, ammonium nitrate and nitric acid. In 1970 Delta Chemicals purchased the facility from W.R. Grace & Company. In 1994 (?) General Alum and Chemical Corporation purchased the manufacturing facility. General Alum and Chemical Corporation manufactures and sells aluminum sulfate, ammonium



BASE MAP ADAPTED FROM 7.5 MIN.
USGS TOPOGRAPHIC QUADRANGLES
SEARSPORT, MAINE - 1973
CASTINE, MAINE - 1973

0 2000 4000 FEET

FIGURE 1-1
SITE LOCATION MAP
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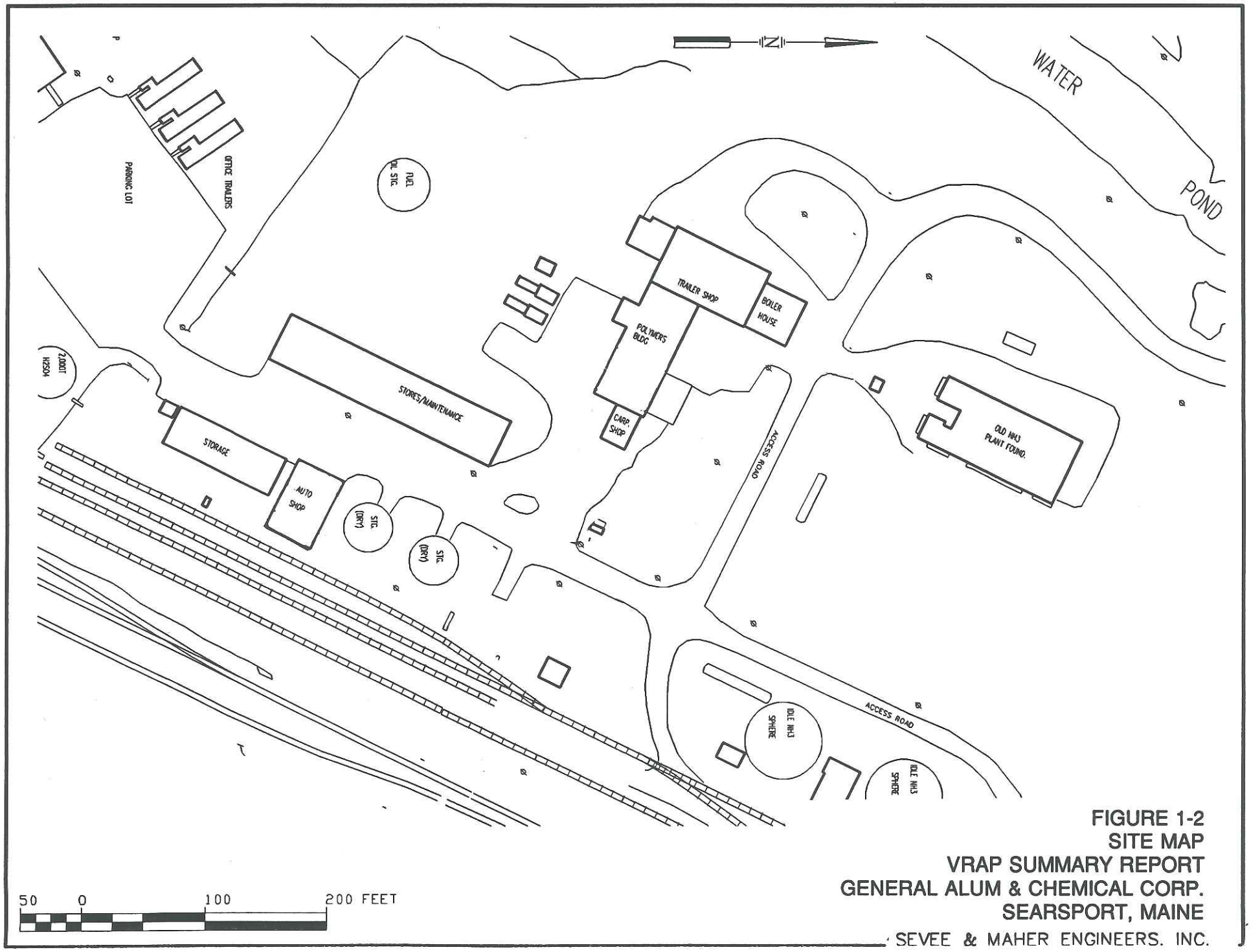

FIGURE 1-2
SITE MAP
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sulfate, sodium aluminate and polyacrylamide based water soluble polymers.

1.4 History of the Solvent Problem

Information gathered during an environmental site evaluation of the former Delta Chemicals, Inc. facility conducted in 1992 by a prospective buyer suggested that volatile organic compounds (VOCs) may be present in soils and groundwater in the vicinity of the Polymers Building at the site. In subsequent discussions with former Delta employees, it was revealed that there were some areas on-site where potential solvent use and handling may have occurred during the 1950s and 1960s. Solvents were used for parts cleaning; no solvents were used in the manufacturing process at the plant. The potential areas of solvent use identified by plant personnel encompassed approximately 10 acres on-site and included:

- the present Auto Shop where parts were cleaned;

- an area adjacent to the former Nitric Acid Production Polymers Building[1] where preheaters for the nitric acid operation were cleaned;

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1. The Nitric Acid Production Building was converted to polymer production in 1986. For the remainder of the report, the building will be referred to as the Polymers Building.

- an old maintenance building;
- an abandoned leachfield;
- the area south of the Old Ammonia Plant where heat exchangers were cleaned; and
- an area east of the Old Ammonia Plant where burners were cleaned.

The location of these areas are shown in Figure 1-3.

Sevee and Maher Engineers, Inc. (SME) was retained in 1992 to conduct a preliminary subsurface investigation in the areas of suspected solvent use. This investigation was completed in September 1992. Following completion of the preliminary investigation, during the period from September 1992 to 1994, three additional subsurface field investigations were conducted at the General Alum site to further evaluate the nature and extent of VOCs in the vicinity of the Polymers Building and the Old Ammonia Plant. A summary of the field sampling and analysis programs associated with these investigations is shown in Table 1-1. Information obtained during each of the field

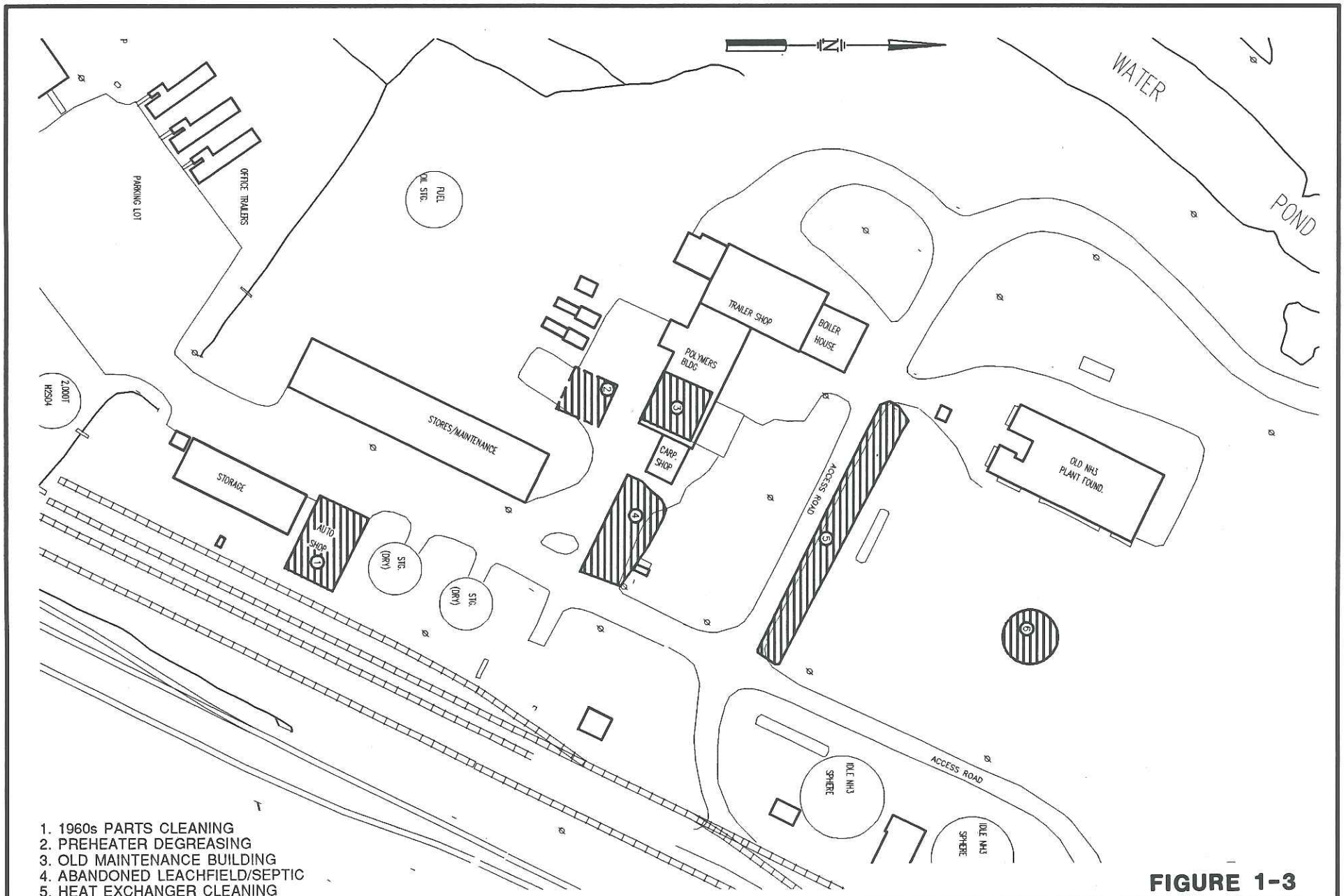

FIGURE 1-3
SUSPECTED DISPOSAL OR SPILL AREAS
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TABLE 1-1

SUMMARY OF FIELD INVESTIGATION PROGRAMS
AT GENERAL ALUM AND CHEMICAL CORPORATION FACILITY
SEARSPORT, MAINE

Investigation	Date	Boring I.D.s	No. of Field Screened Soil Samples	No. of Laboratory Analyzed Samples	
				Soil	Water
			PID[1]	U.S.EPA Method	U.S.EPA Method
Phase 1	Sep-Oct 92	B1 - B20	121	47/8010	17/8010 2/8240
Phase 1 Supplement	Jan 93	B21 - B26	62	5/8240	6/8240
Phase 2	Sep 93	B101 - B155	301	11/8010	-
Phase 3	Jun 94	B201 - B206	34	21/8240	3/8240

Notes:

1. ThermoEnvironmental photoionization detector; Phase 2 includes 90 samples with Hewlett Packard 5890 gas chromatograph; modification of U.S.EPA Methods 3810/8020.

Analytical Laboratories

Phase 1 - PACE, Inc. Hampton, New Hampshire
Phase 1 Supplement - PACE, Inc. Hampton, New Hampshire
Phase 2 - Analytics Environmental Laboratory, Inc., Portsmouth, New Hampshire
Phase 3 - Analytics Environmental Laboratory, Inc., Portsmouth, New Hampshire

investigation programs was described in the following reports prepared by SME:

1. *Preliminary Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant*; October 1992. (Phase I, Part 1)

2. *Preliminary Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant, Supplement I*; January 1993. (Phase I, Part 2)

3. *Phase 2 Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant*; December 1993.

4. *Phase 3 Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant*; July 1994.

The primary intent of these field investigations was to provide an assessment of site-related VOCs in near-surface soils and shallow groundwater. Chemical analysis of soil and groundwater samples collected during these four field investigations confirmed the presence of VOCs, predominantly trichloroethene (TCE), at some locations on-site. The following report provides an overall summary of the field and sampling programs associated with the four investigations conducted by SME.

Data from previous studies conducted at the facility was also used to aid in the interpretation of the geologic and hydrogeologic conditions at the site. The following reports were reviewed during the preparation of this summary report:

1. *Environmental Audit and Preliminary Hydrogeological Survey*, Normadeau Associates, September 1983.

2. *Hydrogeologic Study and Groundwater Quality Assessment for Delta Chemicals, Inc., Searsport, Maine*, Normandeau Associates, July 1984.

3. *Soil and Groundwater Quality Assessment, Delta Chemicals Inc., Searsport, Maine*, E.C. Jordan Company, November 1984.

4. *Hydrogeologic Evaluation and Landfill Closure Plan for Delta Chemicals, Inc. Searsport, Maine*, Sevee and Maher Engineers, Inc. November 1991.

2.0 FIELD INVESTIGATIONS

2.1 Subsurface Field Exploration Programs

Since 1992, as part of SME's investigations at the site, a total of 87 shallow soil borings have been drilled in the six areas where facility personnel had indicated solvents potentially were used during earlier plant operations. The locations of the borings are shown on Figure 2-1. A total of 518 soil samples were collected for field VOC screening and analysis, and geologic logging. A portion of the soil samples were submitted to a laboratory for chemical analysis. In addition, groundwater samples from temporary wells installed in twenty-five borings and from an existing monitoring well cluster (M-2A, M-2B, and M-2C), were collected for laboratory chemical analysis.

2.1.1 Drilling and Split Spoon Sampling. All borings were drilled using hollow-stem auger drilling methods (ASTM 1452). Phase 1 borings were completed to a maximum depth of 27 feet; Phase 2 and 3 borings generally ranged from depths of 10 to 20 feet. Soil samples were collected from each boring with a 2-inch O.D. split-barrel sampler driven two feet for standard penetration testing (ASTM 1586). Samples were obtained at either a continuous 2-foot sampling interval, a 5-foot sampling interval, or a combination of both. Soils were visually

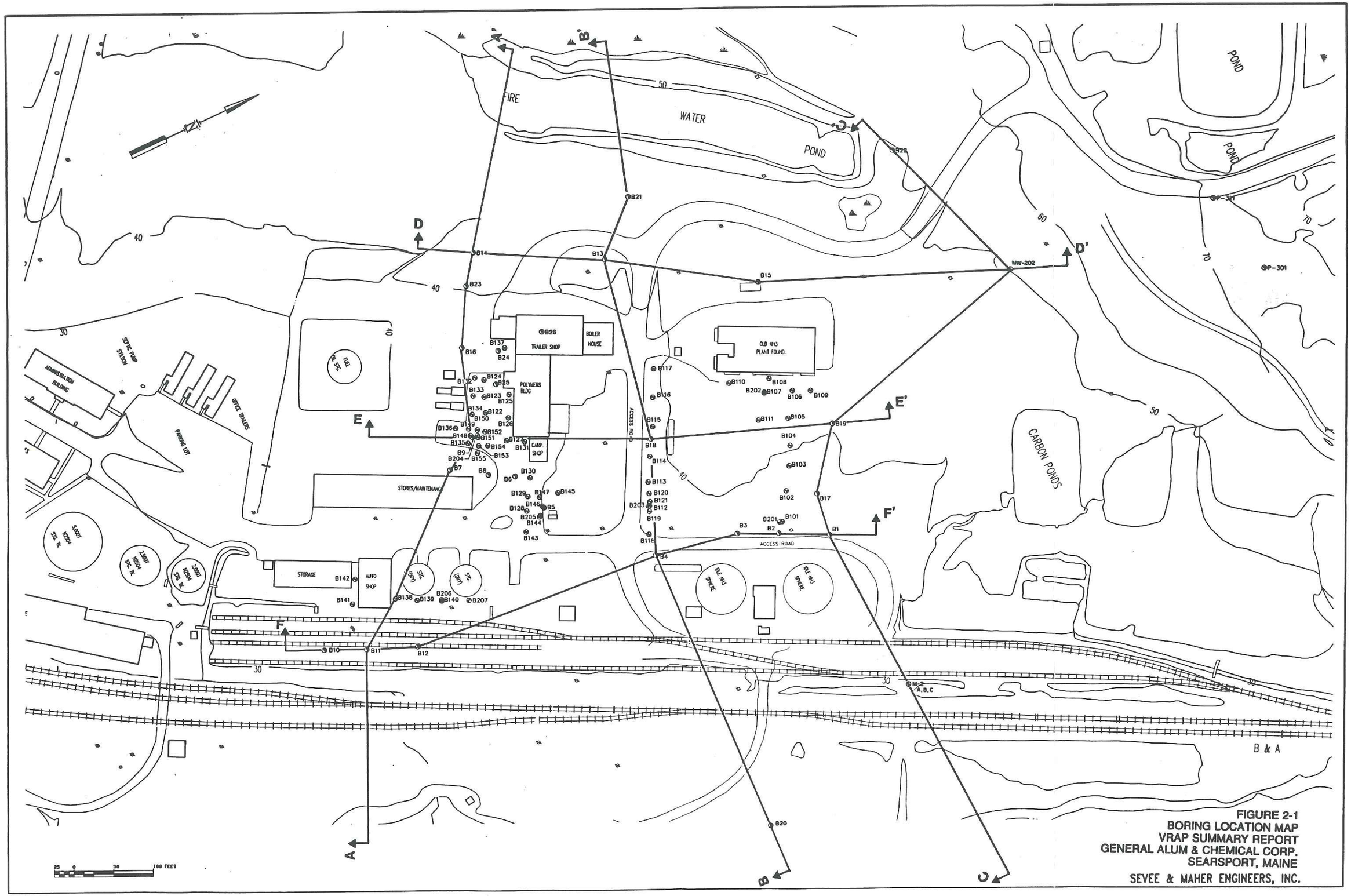

FIGURE 2-1
BORING LOCATION MAP
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classified for soil description and the standard penetration resistance (expressed as the N-value) recorded on the respective boring log. Soil material was collected for soil-jar headspace field screening for total VOCs with a portable photoionization detector (PID) and additional soil was obtained for laboratory chemical analysis. Soil boring logs from all four investigations are provided in Appendix A.

At the completion of each drilling phase, boring locations were determined by SME using taping techniques and referencing boreholes to existing local features and previous site topographic mapping conducted at the facility.

2.1.2 Decontamination. Two decontamination regimes were used during the field investigations to minimize cross-contamination between borings. During Phase 1, drilling supplies and split-spoon samplers were decontaminated with a high-pressure steam wash. Water for the steam washer was obtained from the public water supply system. During the Phase 2 and Phase 3 investigations, decontamination of drilling tools and split-spoon samplers was achieved by a soap and water rinse on the split-spoons and heating the equipment with a propane torch.

2.1.3 Installation of Temporary Wells. During the Phase 1 investigation, temporary wells were installed in 25 of the 26

borings (B1 through B18, and B20 through B26) drilled to collect a groundwater sample for laboratory analysis. Temporary wells were not installed during the Phase 2 or Phase 3 field investigations. When drilling of the boring had been completed, the hollow-stem augers were retracted and a 2-inch I.D. Schedule 40 PVC flush-jointed casing and well screen was positioned near the bottom of the open borehole. Well screens consisted of a 10-foot section of 0.01-inch slotted PVC. The annular space between the well material and the formation was not backfilled or sealed, nor were the temporary wells developed prior to sampling. After the groundwater sample had been collected, the PVC well material was removed from the borehole and boring backfilled to the ground surface with concrete cement.

2.2 Volatile Organic Screening and Chemical Analyses of Soil Samples

To evaluate the distribution of VOCs in the shallow soils in vicinity of the Polymers Building and the Old Ammonia Plant, samples of soil were screened on-site with a PID meter. A total of 518 jar headspace readings were collected from the 87 borings drilled during the three phases of the field investigations. A selected number of samples were submitted to off-site analytical laboratories for confirmatory chemical analysis.

2.2.1 Field Screening with a Photoionization Detector. Field screening consisted of soil jar headspace analysis using a portable photoionization detector (PID) calibrated to a TCE equivalent standard. Either a Photovac/MicroTIP Model HL-2000 or a Thermo Environmental Instruments Model 580B, equipped with a 10.6 or 10.0 electron volt lamp, respectively, were used to measure total volatile concentrations in the soil jar headspace. Approximately 250 grams of soil was placed into a quart size glass jar (Mason-style jar) and immediately sealed with aluminum foil and a threaded jar lid. Samples were kept in a warm location (ambient air or a vehicle during colder weather) for 20 to 30 minutes prior to inserting the PID probe through the foil cover to obtain the headspace readings. Jar headspace values (expressed in parts per million [ppm]) and calibration logs are recorded on field data sheets in Appendix B. A vertical profile of headspace readings are also included on each soil boring log in Appendix A.

2.2.2 Field Gas Chromatograph Screening. During the Phase 2 program (September - October 1993), approximately 95 soil samples also were submitted to SME's field laboratory in South Plainfield, New Jersey, for analysis on a Hewlett Packard 5890 gas chromatograph (GC) using a modification of U.S.EPA Methods 3810/8020. Generally, samples with jar headspace values of greater than 5 ppm were selected for subsequent field GC analysis

during the Phase 2 program. The SME field GC was equipped with a PID and calibrated to the following organic compounds:

trans-1,2-dichloroethene	cis-1,2-dichloroethene
1,1-dichloroethene	tetrachloroethene
1,1-dichloroethane	1,1,1-trichloroethane
methylene chloride	toluene
	trichloroethene

Soil samples were received at the field laboratory in 125 ml VOA jars with little or no headspace. Samples were stored at 4° C until they were analyzed. To prepare a sample for analysis, 5 grams of soil was removed from the sample jar and placed in 30 ml of organic-free water in a 40 ml VOA vial. After heating the vial in a water bath (50 degree centigrade) for at least 1 hour, an aliquot of headspace was injected into the field gas chromatograph (GC). Typically an undiluted aliquot (i.e. 200 μl injection) was run first.

A response for a target compound must fall within the calibrated range of the instrument to be considered valid. A response of

less than 50 percent of the reporting limit was considered non-detect. A response of 50-100 percent of the reporting limit or above the calibration range was reported as an estimated value. Estimated values are reported with a "J" modifier. In some cases were the response exceeded the calibrated range, a diluted sample was run. If a dilution was required, a reduced injection volume was used (i.e. a 20 μl injection to achieve a ten-fold dilution) or the headspace was diluted in a gastight bulb. The detection limits for the compounds increase by the same factor as the dilution. Diluted values are reported with a "D" modifier.

Appendix C contains a summary report of the samples analyzed for the nine volatile organic compounds by the field GC. The boring number and sample depth, along with the detection limits for each compound are summarized on this report.

2.2.3 Laboratory Chemical Analysis of Soil Samples. Since 1992, 84 soil and 28 groundwater samples have been submitted for off-site laboratory analysis of VOCs as part of the field investigations. Soil samples were selected based on the PID jar headspace readings and the concentration of target VOCs detected in the field GC analysis. Generally PID values greater than 2 to 5 ppm were submitted to the laboratory for analysis. Phase 1 and Phase 3 soil samples where analyzed within the method

required holding times. During the Phase 2 investigation, 11 soil samples (B-100 series) were selected for confirmatory analysis pending results of SME's GC screening in a field laboratory in Plainfield, New Jersey. The time delay between field GC analysis and sample selection resulted in Phase 2 soil samples being analyzed outside of the specified holding times for the referenced methods. These samples are reported with a qualifier (J) that indicates that concentration is estimated because the holding time was exceeded.

Soil samples were analyzed for volatile organic compounds in accordance with U.S.EPA Methods 8010 and 8240. During the Phase 1 program, samples were submitted to Pace Incorporated, in Hampton, NH. Laboratory samples collected during Phase 2 and Phase 3 were analyzed by Analytics Environmental Laboratory, Inc. in Portsmouth, NH. Laboratory reports of the soils analyses are presented in Appendix D.

2.3 Collection and Chemical Analysis of Groundwater Samples

During the Phase 1 field investigation, groundwater samples were collected from 25 of the temporary wells for VOC analysis. These samples consisted of the water that had recharged the temporary well for one to two days following installation. The procedure used in sampling the temporary wells was as follows: (1) water

levels were measured in each well immediately before the well was sampled; (2) a disposable bailer was used to remove two bailer volumes of water from the well (a new bailer was used for each well); and (3) a water sample was collected with the bailer and placed in a 40-milliliter glass vial with Teflon-lined septa, preserved with hydrochloric acid and maintained at 4 degrees centigrade. Existing monitoring wells M-2A, M-2B, and M-2C, located approximately 450 east of the Old Ammonia Plant, where sampled during the Phase 3 field investigation. Monitoring well sample purging forms for the latter three wells are contained in Appendix E.

Groundwater samples were analyzed for VOCs in accordance with U.S.EPA Methods 8010 and 8240. During the Phase 1 program, groundwater samples were submitted to PACE, Inc. in Hampton, New Hampshire. Groundwater samples collected during Phase 3 were analyzed by Analytics Environmental Laboratory, Inc. in Portsmouth, New Hampshire. Laboratory reports of the groundwater sample analyses are presented in Appendix E.

3.0 SITE CHARACTERIZATION

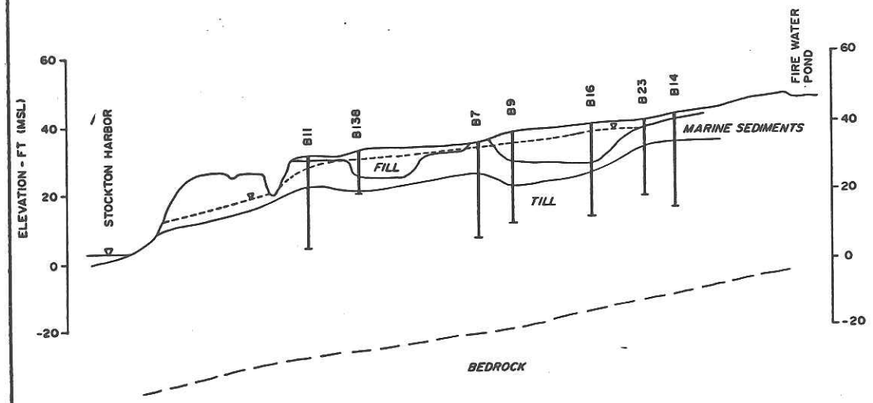
3.1 Site Geology

3.1.1 Surficial Geology. The Maine Geological Survey (MGS) has mapped the regional surficial geology near the General Alum facility to consist predominantly of fined-grained glacial marine deposits and an undifferentiated glacial till (Thompson et al., 1977). Geologic logging of soil borings drilled during the field investigations near the Polymers Building are consistent with the mapped geology, and with information obtained from other previous investigations at the General Alum site (NAI, 1994; SME, 1991). Interpretive geologic profiles compiled from data obtained from the soil boring programs during the three phases of the field investigation program are presented in Figure 3-1.

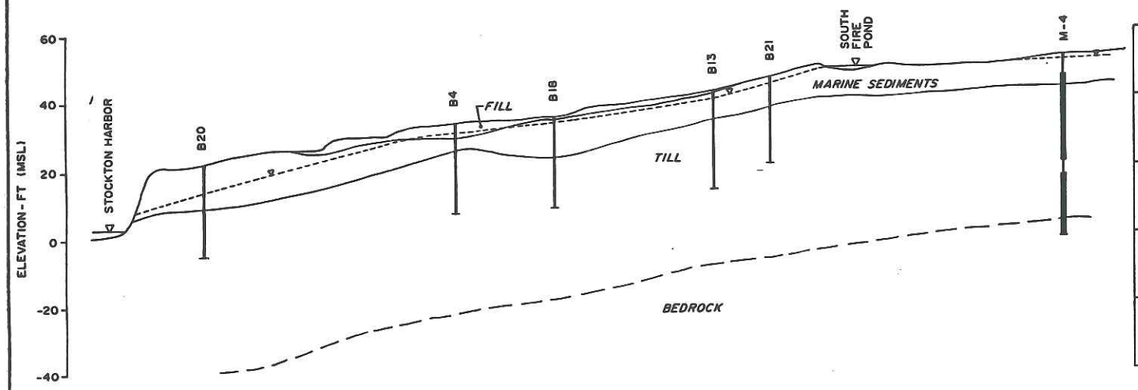
The stratigraphy encountered within the study area generally consists of (in order of descending position) fill, glaciomarine silts and clays, and glacial till overlying bedrock. A brief description of each unit follows:

3.1.1.1 Fill Material

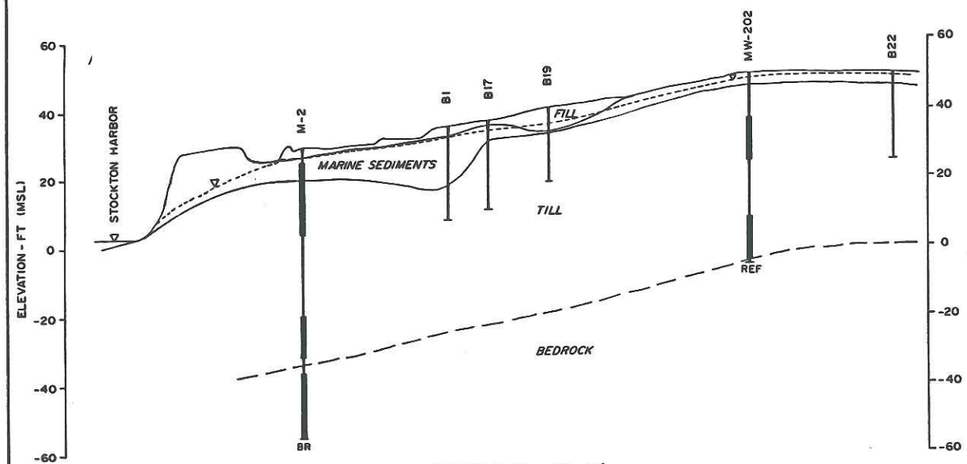
Generally, the uppermost portion of overburden in the site area investigated during the program has been reworked or



PROFILE A-A'

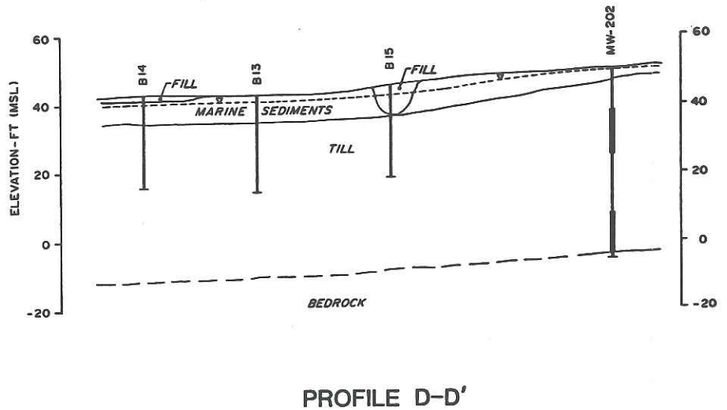


PROFILE B-B'

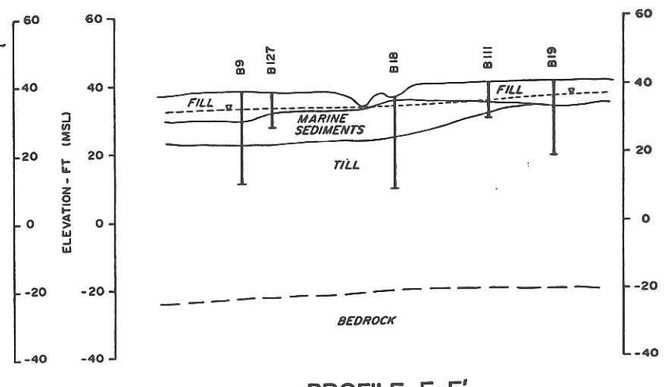


PROFILE C-C'

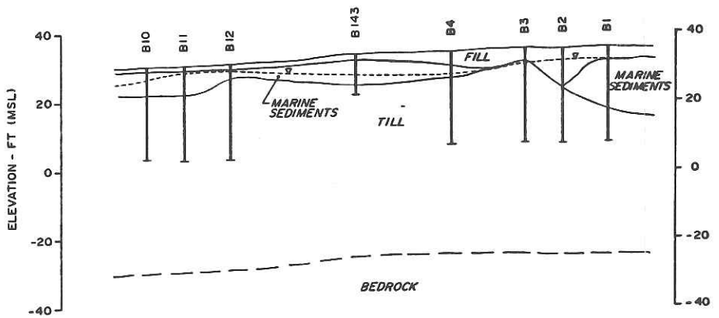
HORIZONTAL SCALE
0 50 100 200 FEET



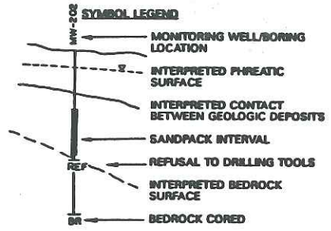
PROFILE D-D'



PROFILE E-E'



PROFILE F-F'



GEOLOGIC DESCRIPTIONS

FILL -	MIXTURE OF GRAVELLY SANDS/SANDY GRAVELS TO SILTY SANDS, OCCASIONALLY CONTAINING PIECES OF METAL, ASPHALT, WOOD, BLACK CARBON DEPOSITS, AND ALUM MUD; NATIVE SILTY CLAY DEPOSITS ALSO WERE USED AS SITE FILLS.
GLACIO-MARINE SEDIMENTS	OLIVE BROWN TO GRAY, MOTTLED SILTY CLAY WITH PARTINGS OF FINE SAND, SOFT TO VERY STIFF, SLIGHTLY TO MODERATELY PLASTIC, GENERALLY WEATHERED; PRESUMPSCOT FORMATION.
GLACIAL TILL	BROWN TO GRAY SILTY SANDS TO SANDY SILTS WITH GRAVEL AND CLAY, AND THIN LAYERS/INTERBEDS OF SAND, LOOSE TO VERY DENSE, GLACIAL TILLS
BEDROCK	BLACK, GRAY, AND GREEN SULFIDIC AND CARBONACEOUS PELLITES WITH OCCASIONAL NEAR-VERTICAL FRACTURES; PENOBSCOT FORMATION.

NOTES

1. GEOLOGIC UNITS ARE SHOWN SCHEMATICALLY. FIGURE SHOULD NOT BE USED FOR ENGINEERING DESIGN, QUANTITY TAKE-OFFS, GRADES, ETC.
2. THE GEOLOGIC UNITS REPRESENT AN INTERPRETATION OF TEST BORING RESULTS. CONDITIONS MAY VARY FROM THAT SHOWN BETWEEN THE EXPLORATIONS. BOUNDARIES BETWEEN VARIOUS GEOLOGIC UNITS MAY VARY FROM THAT SHOWN AND MAY BE GRADATIONAL.
3. INTERPRETATION OF PHREATIC SURFACE CONTOURS BASED ON WATER LEVEL READINGS TAKEN IN DECEMBER 1994 AND FROM HISTORIC WATER LEVEL OBSERVATIONS. ACTUAL CONFIGURATION OF PHREATIC SURFACE MAY VARY FROM THAT SHOWN. THE PHREATIC SURFACE SHOULD BE USED ONLY FOR INDICATING GENERAL TRENDS IN THE PHREATIC SURFACE AND NOT USED FOR DESIGN OR QUANTITY ESTIMATES.
4. SURFACE TOPOGRAPHY TAKEN FROM PHOTOGRAMMETRIC MAPPING AND GROUND CONTROL PROVIDED BY JAMES W. SEWALL COMPANY; DATE OF PHOTOGRAPH NOVEMBER 20, 1980.
5. VERTICAL EXAGGERATION OF PROFILES IS 5 TO 1.
6. SEE FIGURE 2-1 FOR LOCATIONS OF PROFILES.
7. REFUSAL INTERPRETED AS BEDROCK

FIGURE 3-1
GEOLOGIC PROFILES
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excavated, and replaced with fill material. The thickness of fill materials ranged from 0 feet to 10 feet or more in borings drilled near the Polymers Building, and adjacent to the access road across from the former ammonia spheres. The fill material consists of a mixture of gravelly sand/sandy gravel to silty sand, crushed gravel, with occasional pieces of metal, asphalt, and wood or wood fibers. Black carbon deposits were found mixed in with the site fills in some locations (e.g., B2, B24, B102, B103, B130, and B131). Fine-grained glaciomarine sediments were observed mixed in with the fill material in many of the samples collected from Phase 1, 2, and 3 borings. Fill material was not encountered in the majority of the borings drilled in the undeveloped area west of the Trailer Shop (see Figure 1-2 and Figure 3-1).

3.1.1.2 Glaciomarine Deposits

Glaciomarine deposits encountered in the site area consist of a firm to very stiff, mottled, olive brown and gray silty clay with thin partings of fine sand. This unit has been mapped by the MGS as glaciomarine sediments of the Presumpscot Formation. Glaciomarine sediment samples analyzed for grain size as part of the evaluation for the landfill closure plan contained approximately 84 percent (by

weight) of soil particles finer than the No. 200 sieve (SME, 1991). Moisture content determinations made for the same study ranged from 19 to 22 percent.

The thickness of the glaciomarine deposits varied across the site, ranging from 0 to more than 15 feet. The thickness of this unit appears to be a function of the amount of cutting and filling associated with previous construction activity at the facility. The clay unit is generally continuous across the site, except in the vicinity of the Old Ammonia Plant, and near the Auto Shop adjacent to the railroad tracks. At these locations, it appears that the glaciomarine sediments were excavated and replaced with fill materials. Glaciomarine sediments are not present in upland areas of the facility (i.e., west of the Polymers Building at elevations greater than 65 to 70 feet MSL, based on observations made during a previous site investigation (SME, 1991).

3.1.1.3 Glacial Till

Underlying the glaciomarine sediments, a glacial till unit was encountered in the vicinity of the Polymers Building. This unit is generally continuous across the General Alum facility, based on the geology observed in deeper borings

installed during previous site investigations (NAI, 1984; SME, 1991). Geologic logs prepared during the Phase 1 through Phase 3 field investigations describe the shallow till as consisting of sandy silt to silty sand-sized particles, with varying amounts of gravel and clay. Occasional thin layers of sand was observed interbedded within the upper portion of the till. Physical property testing of till samples collected during a 1991 hydrogeologic evaluation of the facility landfill yielded fines content ranging from 36 to 58 percent, and soil moistures ranging from 9 to 17 percent (SME, 1991).

The glacial till unit at the site appears to correlate to the "upper till" unit described in a 1984 hydrogeologic study of the facility (NAI, 1984). Borings drilled in proximity to the Polymers Building and the Old Ammonia Plant only penetrated the top of the till; however, stratigraphic information from nearby borings drilled to bedrock (i.e., M-2 and MW-202) indicate that the till in this area of the facility is approximately 50 to 55 feet thick (NAI, 1984; SME, 1991).

3.1.2 Bedrock Geology. Regional mapping by the MGS indicates the bedrock in the vicinity of General Alum generally consists of sulfidic/carbonaceous pellites (e.g. slates) of the Penobscot

Formation (Osberg et al., 1985). No major faults or other structural features in the bedrock have been mapped within the limits of property. High altitude aerial photographs were examined by SME for the existence of photolineaments during preparation of a landfill closure plan for the facility (SME, 1991). Photolineaments, often indicative of faults or fractures in bedrock, were not observed on any portion of the facility.

As part of a 1984 hydrogeologic assessment of the General Alum facility conducted by Normandeau Associates, Inc., bedrock core samples were obtained from four borings drilled on the property (NAI, 1984). Bedrock was logged by NAI as a sulfidic slate, generally weathered at the contact with the overlying unconsolidated deposits. Near vertical fractures parallel to the foliation of the slate were reported in the NAI core samples.

The focus of the Phase 1 through Phase 3 field investigations in the vicinity of the Polymers Building and the Old Ammonia Plant was on the shallow geology; therefore, borings were not drilled to bedrock. However, information obtained from deeper borings drilled during the 1984 and 1991 hydrogeologic investigations of General Alum site and the facility landfill, and data from the 1984 seismic survey indicate bedrock depths on the property ranging from 35 to 80 feet below ground surface (NAI, 1984; SME, 1991). The highest bedrock elevation was encountered in the

northwest portion of the site (i.e., MW-205); the lowest bedrock elevation was found near the Alum Plant Process Lagoons (i.e., M-1). A contour map showing our interpretation the elevation of the bedrock surface was constructed of the available information (Figure 3-2). These data suggest that the elevation of bedrock beneath the area investigated ranges from 10 to 30 feet above MSL, to approximately 60 feet below MSL moving west to east towards Stockton Harbor. This is equivalent to 55 to 65 feet of overburden overlying bedrock within the study area.

3.2 Site Hydrogeology

The areas examined during the Phase 1 through 3 investigations near the Polymers Building and the Old Ammonia Plant focused on an evaluation of the shallow overburden geology. Only limited hydraulic information was collected during these field programs. However, for the purpose of this report, relevant data from two previous hydrogeologic evaluations (i.e., NAI, 1984 and SME, 1991) at the General Alum facility were integrated with the limited site-specific information collected during the Phases 1 through 3 field investigation to interpret the hydrogeologic conditions near the study area.

3.2.1 Surface Water Features. The study area in the vicinity of the Polymers Building and the Old Ammonia Plant is situated in a

locality of gentle to moderate topography lying roughly between elevation 25 to 45 feet MSL. The terrain gently slopes (approximately 3 percent) down from west to east toward Stockton Harbor. The nearest surface water body is the South Fire Pond, a man-made pond located approximately 250 feet west of the Polymers Building (Figure 1-2). This pond is bordered by a swampy area to the west. Seepage and drainage from the fire pond generally flows in a southerly direction towards the Alum Plant Mud Storage area south of Kidder Road. Part of this drainageway branches to the east near the fuel oil storage tank south of the Polymers Building, potentially collecting runoff from southern portions of the study area, then flows into topographic depressions adjacent to the Bangor and Aroostook railroad tracks.

Surface runoff from the area between the Polymers Building and the Old Ammonia Plant collects in an easterly running ditch along the access road that separates these two structures. Drainage in this ditch then flows to the south, passes through a culvert and joins with a catch basin adjacent to the service road east of the Polymers Building. From the catch basin, flow is directed to the east beneath the railroad tracks through culverts, eventually discharging into Stockton Harbor. Site reconnaissance suggests that most of the ditch flow occurs during precipitation runoff events.

Surface drainageways have also been identified in the vicinity of the two former carbon ponds (i.e., Cells 1 and 2), located northeast of the Old Ammonia Plant, during a previous evaluation of the facility landfill (SME, 1991). The carbon ponds and nearby runoff control cells have since been regraded during the summer of 1994 as part of the ongoing landfill closure. Surface runoff in this area presently flows through culverts beneath the railroad tracks and exits into Stockton Harbor.

3.2.2 Significant Aquifers. The nearest mapped sand and gravel aquifer is approximately five miles west of the General Alum facility and extends into the town of Belfast (Caswell, 1979). This sand and gravel aquifer is associated with esker and deltaic deposits, with reported yields of 50 or more gallons per minute (gpm). Bedrock wells (typically 100 to 300 feet deep) have been mapped upgradient of the facility having yields in the 10 to 20 gpm range (Caswell, 1975). Seven bedrock water supply wells were identified on the General Alum facility in a 1984 environmental audit of the plant (NAI, 1984). These wells were abandoned prior to 1984 due to salt water intrusion.

3.2.3 Groundwater Flow Directions. The interpretation of the direction of groundwater flow is based on a composite of groundwater elevations obtained from the following sources: 1) estimated groundwater elevations from measurements collected in

shallow temporary wells installed during Phase 1 (B1 through B26); 2) December 1994 groundwater elevation survey of permanent monitoring wells and piezometers installed near the facility landfill (M-2, M-3, 200 and 300-series wells); and 3) some historical groundwater elevations obtained for other on-site wells no longer monitored (M-1 and M-4). The approximate configuration of the phreatic surface is illustrated in Figure 3-3, and appears to generally correspond to the local ground surface topography. Based on this interpretation, groundwater beneath the study area flows southeasterly to east southeasterly towards Stockton Harbor under a horizontal hydraulic gradient of between 0.03 to 0.04.

Water level measurements from paired monitoring wells installed during the 1984 and 1991 hydrogeologic investigations (i.e., NAI, 1984 and SME, 1991) were used to estimate vertical seepage gradients in the till. These data, summarized in Table 3-1, suggest downward gradients through the till ranging from 0.23 to 0.48 when comparing monitoring well pairs screened in the upper and lower portions of the unit. Figure 3-4 is an interpretive equipotential profile along cross-section C-C'.

3.2.4 Hydraulic Conductivity. To estimate hydraulic conductivities of the overburden soils in the vicinity of the

TABLE 3-1

VERTICAL GRADIENT DATA
AT GENERAL ALUM AND CHEMICAL CORPORATION FACILITY
SEARSPORT, MAINE

Well I.D.	Midpoint of Sand Packed Interval (ft-MSL)	Elev. (ft/MSL)	Maximum Calculated Gradient (H/d) (ft/ft)
M-1D(A) Rock	91.6	8.0H (12/29/94)	
1I(B) DT	53	9.2H	0.25
1S(C) CL/UT	18.5	17.9H	
M-2A Rock	75.4	16.4 (12/94)	
B CL	55.4	18.2	0.23
C CL/UT/DT	15.3	27.3	
M-3A Rock	79.6	38.2	
B DT	49.2	29	0.29
C UT	19.1	37.7	
M-4I(A) DT/Rock	44	42.4H (3/84)	0.35
S(B) UT/DT	18.8	51.1H	
202A DT	48	35.2 (12/94)	0.48
B UT	18.7	49.3	
204A DT	52.4	23.9	0.28
B UT	11.8	35.4	
206A DT	73	22.1	0.47
B UT	16.3	48.9	

Notes

Measured fluctuations in 3A have varied by as much as 22 feet depending on time of survey.

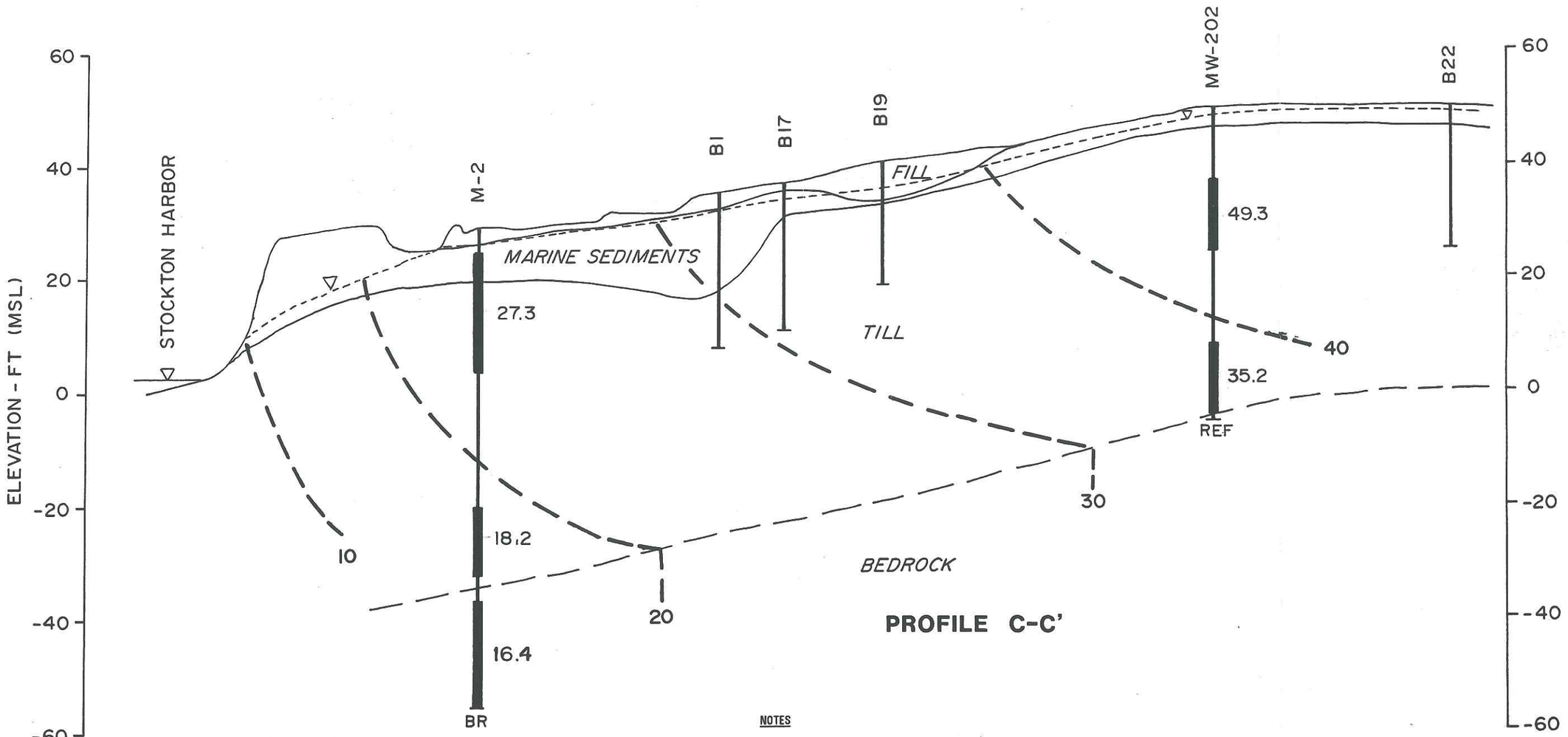
Abbreviations

CL - clay

UT - upper till

DT - dense deeper till

H - historic groundwater elevation



PROFILE C-C'

SYMBOL LEGEND

- MONITORING WELL/BORING LOCATION
- INTERPRETED PHREATIC SURFACE
- INTERPRETED CONTACT BETWEEN GEOLOGIC DEPOSITS
- SANDPACK INTERVAL
- 49.3 — MEASURED WATER ELEVATION DECEMBER 6, 1994
- REF — REFUSAL TO DRILLING TOOLS
- INTERPRETED BEDROCK SURFACE
- BR — BEDROCK CORED
- EQUIPOTENTIAL CONTOUR IN FEET ABOVE MEAN SEA LEVEL

HORIZONTAL SCALE
0 50 100 200 FEET

NOTES

1. GEOLOGIC UNITS ARE SHOWN SCHEMATICALLY. FIGURE SHOULD NOT BE USED FOR ENGINEERING DESIGN, QUANTITY TAKE-OFFS, GRADES, ETC.
2. THE GEOLOGIC UNITS REPRESENT AN INTERPRETATION OF TEST BORING RESULTS. CONDITIONS MAY VARY FROM THAT SHOWN BETWEEN THE EXPLORATIONS. BOUNDARIES BETWEEN VARIOUS GEOLOGIC UNITS MAY VARY FROM THAT SHOWN AND MAY BE GRADATIONAL.
3. INTERPRETATION OF PHREATIC SURFACE CONTOURS BASED ON WATER LEVEL READINGS TAKEN IN DECEMBER 1994 AND FROM HISTORIC WATER LEVEL OBSERVATIONS. ACTUAL CONFIGURATION OF PHREATIC SURFACE MAY VARY FROM THAT SHOWN. THE PHREATIC SURFACE SHOULD BE USED ONLY FOR INDICATING GENERAL TRENDS IN THE PHREATIC SURFACE AND NOT USED FOR DESIGN OR QUANTITY ESTIMATES.
4. SURFACE TOPOGRAPHY TAKEN FROM PHOTOGRAMMETRIC MAPPING AND GROUND CONTROL PROVIDED BY JAMES W. SEWALL COMPANY; DATE OF PHOTOGRAPH NOVEMBER 20, 1990.
5. VERTICAL EXAGGERATION OF PROFILES IS 5 TO 1.
6. SEE FIGURE 2-2 FOR LOCATIONS OF PROFILES.
7. REFUSAL INTERPRETED AS BEDROCK

FIGURE 3-4
INTERPRETIVE VERTICAL EQUIPOTENTIAL PROFILE
VRAP SUMMARY REPORT
GENERAL ALUM & CHEMICAL CORP.
SEARSPORT, MAINE
SEVEE & MAHER ENGINEERS

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Polymers Building, data collected from aquifer and laboratory testing during previous hydrogeologic investigations (i.e.; NAI, 1984; SME, 1991; and SME, 1995) at the General Alum facility were reviewed. During these three investigations, hydraulic conductivity data were collected from 13 on-site monitoring wells using a variety of in situ testing methods (i.e., constant-head, falling-head, and rising-head tests). Twelve of the monitoring wells tested were screened predominantly in till, and one (M-3D) in bedrock. In addition, the hydraulic conductivity of till samples retrieved from split-spoon sampling was determined in laboratory testing (ASTM Method D 5084) during the 1991 landfill hydrogeologic evaluation (SME, 1991). Results of hydraulic conductivity testing are summarized in Table 3-2.

In situ hydraulic conductivities of glacial till ranged from $2.2x10^{-8}$ to $1.8x10^{-4}$ centimeters per second (cm/sec), with a corresponding geometric mean of $1.5x10^{-6}$ cm/sec. Laboratory determinations of the hydraulic conductivity of remolded till samples averaged $3.1x10^{-8}$ cm/sec. The in situ hydraulic conductivity of bedrock determined in the one monitoring well analyzed was $6.1x10^{-5}$ cm/sec, at least an order of magnitude greater than the average in situ value calculated in till. No hydraulic conductivity tests are available on the glaciomarine clay from the site, but values typically range from $1x10^{-6}$ to $1x10^{-8}$ for soils of this type in Maine.

TABLE 3-2

SUMMARY OF HYDRAULIC CONDUCTIVITY TESTING
AT GENERAL ALUM AND CHEMICAL CORPORATION FACILITY
SEARSPORT, MAINE

SME Data	Unit Screened	1991 In Situ Testing (cm/s)	1994 Recovery Testing (cm/s) 3rd Qtr	4th Qtr
201	UT,DT	4.2×10^{-5}	3.5×10^{-5}	1.4×10^{-5}
202A	DT	8.1×10^{-7}	2.0×10^{-6}	1.3×10^{-6}
B	UT,DT	9.9×10^{-7}	1.5×10^{-7}	2.1×10^{-7}
203	UT	5.6×10^{-6}	6.3×10^{-6}	4.3×10^{-6}
204A	DT	1.8×10^{-4}	1.5×10^{-5}	1.1×10^{-5}
B	UT	2.1×10^{-5}	1.4×10^{-5}	1.5×10^{-5}
205	DT(TOR)	-	2.2×10^{-8}	2.9×10^{-8}
206A	DT(TOR)	-	9.3×10^{-7}	9.2×10^{-7}
B	UT	-	1.5×10^{-6}	3.4×10^{-6}

NAI Data	Unit Screened	July 1984 Testing (cm/s)
M-4S	CL/UT/DT	5.2×10^{-7}
TB-2	CL/UT/DT	2.6×10^{-7}
M-31	DT/ Stratified SI/CL	4.5×10^{-7}
M-37	Bedrock	6.1×10^{-5}

Calculated Geometric Means of
Hydraulic Conductivity Data

Till (in situ tests) = 1.5×10^{-6} cm/sec
Till (lab tests) = 3×10^{-8} cm/sec
Rock (1 in situ test) = 6.1×10^{-5} cm/sec

Abbreviations

CL - clay
UT - upper till
DT - dense deeper till
TOR - top of rock

4.0 SOIL AND WATER ASSESSMENT

Since the initial Phase 1 field investigation in 1992, 174 soil and 28 groundwater samples have been collected from the vicinity of the Polymers Building and the Old Ammonia Plant for laboratory chemical analysis for VOCs. The subsections that follow present the analytical data compiled from the Phase 1, Phase 2, and Phase 3 field investigations.

4.1 Soil

Soil samples were obtained from split-spoon sampling of shallow borings during the field investigations. During each phase, a selected number of samples (84 total) were submitted to an off-site laboratory for chemical analysis of VOCs following field jar headspace screening with a PID meter. PID headspace screening data are included on each respective boring log in Appendix B. Chemical data from confirmatory laboratory analysis are contained in Appendix D. In addition, 90 samples were collected during the Phase 2 Field Investigation and were shipped to SME's field laboratory for GC analysis of nine target VOCs. Data tables containing the results of the GC analysis are in Appendix C. A summary of the laboratory and field GC analysis of soil samples is presented in Table 4-1A and 4-1B.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC
SEARSPORT, ME

TABLE 4-1A
DELTA VRAP SUMMARY REPORT
VOC's - DETECTS ONLY
SOIL SAMPLES

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B1 Methylene Chloride)						
B1						
	Methylene Chloride					
		09/28/92	1100.	SBXB1A0B7	XX	EPA 8010
		09/28/92	1000.	SBXB1B0B8	XX	EPA 8010
		09/28/92	800.	SBXB1D0BA	XX	EPA 8010
		09/28/92	500.	SBXB1E0BB	XX	EPA 8010
B2						
	Methylene Chloride					
		09/28/92	700.	SBXB2A0BC	XX	EPA 8010
		09/28/92	600.	SBXB2B0BD	XX	EPA 8010
		09/28/92	1000.	SBXB2C0BE	XX	EPA 8010
		09/28/92	500.	SBXB2D0BF	XX	EPA 8010
		09/28/92	1100.	SBXB2E0BG	XX	EPA 8010
	Trichloroethene					
		09/28/92	2100.	SBXB2C0BE	XX	EPA 8010
		09/28/92	900.	SBXB2D0BF	XX	EPA 8010
B3						
	Methylene Chloride					
		09/28/92	600.	SBXB3A0BH	XX	EPA 8010
		09/29/92	1000.	SBXB3C0BJ	XX	EPA 8010
		09/29/92	500.	SBXB3E0C0	XX	EPA 8010
B4						
	Methylene Chloride					
		09/29/92	1300.	SBXB4A0C1	XX	EPA 8010
		09/29/92	1200.	SBXB4B0C2	XX	EPA 8010
		09/29/92	1200.	SBXB4C0C3	XX	EPA 8010
		09/29/92	3400.	SBXB4E0C4	XX	EPA 8010
B5						
	Methylene Chloride					
		09/29/92	1100.	SBXB5A0C5	XX	EPA 8010
		09/29/92	800.	SBXB5B0C6	XX	EPA 8010
		09/29/92	800.	SBXB5C0C7	XX	EPA 8010
		09/29/92	800.	SBXB5D0C8	XX	EPA 8010
		09/29/92	600.	SBXB5E0C9	XX	EPA 8010
B6						
	Methylene Chloride					
		09/29/92	900.	SBXB6A0CA	XX	EPA 8010
B7						
	Methylene Chloride					
		09/29/92	1300.	SBXB7A0CD	XX	EPA 8010
B8						
	Methylene Chloride					
		09/30/92	800.	SBXB8A0CE	XX	EPA 8010
		09/30/92	800.	SBXB8E0CG	XX	EPA 8010

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC
SEARSPORT, ME

TABLE 4-1A
DELTA VRAP SUMMARY REPORT
VOC's - DETECTS ONLY
SOIL SAMPLES

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B9 Methylene Chloride)						
B9						
	Methylene Chloride	09/30/92	1100.	SBXB9A0CH	XX	EPA 8010
B10						
	Methylene Chloride	09/30/92	600.	SBB10B0D0	XX	EPA 8010
B16						
	Methylene Chloride	10/05/92	900.	SBB1600D3	XX	EPA 8010
		10/05/92	800.	SBB16A0D4	XX	EPA 8010
		10/05/92	800.	SBB16C0D6	XX	EPA 8010
		10/05/92	600.	SBB16D0D7	XX	EPA 8010
B17						
	Methylene Chloride	10/05/92	500.	SBB17A0D9	XX	EPA 8010
		10/05/92	700.	SBB17C0DA	XX	EPA 8010
B19						
	Methylene Chloride	10/06/92	800.	SBB19C0DC	XX	EPA 8010
B101						
	1,2-Dichloroethene (total)	09/22/93	13. J	S3	LD	EPA 8010
	trans-1,2-Dichloroethene	09/22/93	5. J	S3	XX	HP5890
	1,1,1-Trichloroethane	09/22/93	180. J	S3	XX	HP5890
	Trichloroethene	09/22/93	480. J	S3	LD	EPA 8010
		09/22/93	1000. D	S3	XX	HP5890
	Toluene	09/22/93	59.	S3	XX	HP5890
B106						
	trans-1,2-Dichloroethene.	09/22/93	7.	S2	XX	HP5890
	1,1,1-Trichloroethane	09/22/93	530.	S5	XX	HP5890
	Trichloroethene	09/22/93	9. J	S5	XX	HP5890
	Tetrachloroethene	09/22/93	140.	S5	XX	HP5890
	Toluene	09/22/93	24.	S2	XX	HP5890
		09/22/93	32.	S5	XX	HP5890

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B106 cis-1,2-Dichloroethene)	cis-1,2-Dichloroethene	09/22/93	30. J	S2	XX	HP5890
B107	trans-1,2-Dichloroethene	09/22/93	73. D	S2	XX	HP5890
		09/22/93	620. D	S3	XX	HP5890
		09/22/93	30.	S4	XX	HP5890
		09/22/93	10.	S5	XX	HP5890
		09/22/93	24.	S6	XX	HP5890
	Trichloroethene	09/22/93	257. J	S2	LD	EPA 8010
		09/22/93	830. D	S2	XX	HP5890
		09/22/93	31.	S4	XX	HP5890
		09/22/93	160.	S5	XX	HP5890
		09/22/93	440. D	S6	XX	HP5890
	Toluene	09/22/93	61. J	S3	XX	HP5890
		09/22/93	34.	S4	XX	HP5890
		09/22/93	16. J	S5	XX	HP5890
	cis-1,2-Dichloroethene	09/22/93	66.	S5	XX	HP5890
		09/22/93	110. J	S6	XX	HP5890
B109	Trichloroethene	09/23/93	8. J	S2	XX	HP5890
	Toluene	09/23/93	110.	S2	XX	HP5890
B112	Trichloroethene	09/23/93	110.	S1	XX	HP5890
		09/23/93	24. J	S2	XX	HP5890
		09/23/93	80.	S3	XX	HP5890
		09/23/93	150.	S4	XX	HP5890
		09/23/93	62. J	S5	LD	EPA 8010
		09/23/93	820. D	S5	XX	HP5890
	Toluene	09/23/93	17. J	S1	XX	HP5890
		09/23/93	26.	S3	XX	HP5890
		09/23/93	28.	S4	XX	HP5890
B116	Trichloroethene	09/23/93	10. J	S1	XX	HP5890
B119	Trichloroethene	09/24/93	130.	S4	XX	HP5890
		09/24/93	19.	S5	XX	HP5890
		09/24/93	140.	S6	XX	HP5890
		09/24/93	17.	S8	XX	HP5890
	cis-1,2-Dichloroethene	09/24/93	62.	S4	XX	HP5890
		09/24/93	29. J	S6	XX	HP5890

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC
SEARSPORT, ME

TABLE 4-1A
DELTA VRAP SUMMARY REPORT
VOC's - DETECTS ONLY
SOIL SAMPLES

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B119	cis-1,2-Dichloroethene)	09/24/93	53.	S8	XX	HP5890
B121						
	Trichloroethene	09/24/93	12. J	S2	XX	HP5890
B122						
	1,2-Dichloroethene (total)	09/27/93	13. J	S5	LD	EPA 8010
	Trichloroethene	09/27/93	130. J	S5	LD	EPA 8010
		09/27/93	410. D	S5	XX	HP5890
B123						
	Trichloroethene	09/27/93	170.	S4	XX	HP5890
		09/27/93	15. J	S5	XX	HP5890
	cis-1,2-Dichloroethene	09/27/93	52. J	S4	XX	HP5890
B127						
	Trichloroethene	09/27/93	13. J	S3	XX	HP5890
		09/27/93	45.	S5	XX	HP5890
B128						
	Trichloroethene	09/27/93	31.	S1	XX	HP5890
		09/27/93	22.	S2	XX	HP5890
		09/27/93	73.	S4	XX	HP5890
B129						
	Trichloroethene	09/27/93	46.	S3	XX	HP5890
		09/27/93	91.	S5	XX	HP5890
	cis-1,2-Dichloroethene	09/27/93	31. J	S5	XX	HP5890
B131						
	Trichloroethene	09/27/93	38.	S5	XX	HP5890
	cis-1,2-Dichloroethene	09/27/93	37. J	S5	XX	HP5890
B134						
	Trichloroethene	09/28/93	170. D	S5	XX	HP5890
B135						
	Trichloroethene					

Report: HITS SME Number: 0003.3.2 October 1991

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B135	Trichloroethene	09/28/93	120.	S5	XX	HP5890
B136						
	Trichloroethene	09/28/93	94.	S4	XX	HP5890
		09/28/93	280. D	S5	XX	HP5890
B140						
	1,2-Dichloroethene (total)	09/28/93	13. J	S5	LD	EPA 8010
	Trichloroethene	09/28/93	266. J	S5	LD	EPA 8010
		09/29/93	210. D	S4	XX	HP5890
		09/29/93	690.	S5	XX	HP5890
B143						
	Trichloroethene	09/29/93	100.	S1	XX	HP5890
		09/29/93	92.	S2	XX	HP5890
		09/29/93	51.	S3	XX	HP5890
		09/29/93	160.	S4	XX	HP5890
	Toluene	09/29/93	9. J	S1	XX	HP5890
B144						
	Trichloroethene	09/29/93	13. J	S5	XX	HP5890
B145						
	Trichloroethene	09/29/93	10. J	S4	XX	HP5890
B148						
	Trichloroethene	09/29/93	69. J	S4	XX	HP5890
		09/29/93	92.	S5	XX	HP5890
		09/29/93	340. D	S6	XX	HP5890
		09/29/93	190.	S7	XX	HP5890
	cis-1,2-Dichloroethene	09/29/93	28. J	S5	XX	HP5890
B149						
	Trichloroethene	09/29/93	73.	S4	XX	HP5890
		09/29/93	85.	S5	XX	HP5890
		09/29/93	31.	S6	XX	HP5890
		09/29/93	8. J	S7	XX	HP5890
B150						
	1,2-Dichloroethene (total)	09/30/93	13. J	S4	LD	EPA 8010
		09/30/93	13. J	S6	LD	EPA 8010

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC
SEARSPORT, ME

TABLE 4-1A
DELTA VRAP SUMMARY REPORT
VOC's - DETECTS ONLY
SOIL SAMPLES

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B150 Trichloroethene)	Trichloroethene	09/30/93	11. J	S3	XX	HP5890
		09/30/93	335. J	S4	LD	EPA 8010
		09/30/93	770. D	S4	XX	HP5890
		09/30/93	190. D	S5	XX	HP5890
		09/30/93	397. J	S6	LD	EPA 8010
		09/30/93	2300. J	S6	XX	HP5890
		09/30/93	1000. J	S7	XX	HP5890
B151	1,2-Dichloroethene (total)	09/30/93	13. J	S4	LD	EPA 8010
	Trichloroethene	09/30/93	400. D	S3	XX	HP5890
		09/30/93	475. J	S4	LD	EPA 8010
		09/30/93	1900. J	S4	XX	HP5890
		09/30/93	150.	S5	XX	HP5890
		09/30/93	194. J	S6	LD	EPA 8010
		09/30/93	1300. J	S6	XX	HP5890
		09/30/93	23.	S7	XX	HP5890
B152	Trichloroethene	09/30/93	53.	S3	XX	HP5890
		09/30/93	94.	S4	XX	HP5890
		09/30/93	260. D	S5	XX	HP5890
		09/30/93	20.	S6	XX	HP5890
		09/30/93	11. J	S7	XX	HP5890
B153	Trichloroethene	09/30/93	310. D	S3	XX	HP5890
		09/30/93	56.	S4	XX	HP5890
		09/30/93	887. J	S5	LD	EPA 8010
		09/30/93	1900. J	S5	XX	HP5890
		09/30/93	880. J	S6	XX	HP5890
		09/30/93	53.	S7	XX	HP5890
B154	Trichloroethene	09/30/93	98.	S3	XX	HP5890
		09/30/93	120.	S4	XX	HP5890
		09/30/93	230. D	S5	XX	HP5890
		09/30/93	10. J	S7	XX	HP5890
B155	1,2-Dichloroethene (total)	09/30/93	13. J	S4	LD	EPA 8010
	Trichloroethene	09/30/93	140. D	S3	XX	HP5890
		09/30/93	143. J	S4	LD	EPA 8010
		09/30/93	350. D	S4	XX	HP5890
		09/30/93	230. D	S5	XX	HP5890
		09/30/93	150. D	S6	XX	HP5890
		09/30/93	140.	S7	XX	HP5890
B201	Trichloroethene					

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC
SEARSPORT, ME

TABLE 4-1A
DELTA VRAP SUMMARY REPORT
VOC's - DETECTS ONLY
SOIL SAMPLES

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B201 Trichloroethene)		06/20/94	89.	S09	XX	EPA 8240
		06/20/94	134.	S10	XX	EPA 8240
	Toluene	06/20/94	63.	S10	XX	EPA 8240
B202						
	Trichloroethene	06/20/94	120.	S06	XX	EPA 8240
	Toluene	06/20/94	116.	S06	XX	EPA 8240
B203						
	Trichloroethene	06/20/94	548.	S05	XX	EPA 8240
		06/20/94	166.	S07	XX	EPA 8240
	Toluene	06/20/94	56.	S09	XX	EPA 8240
B204						
	Trichloroethene	06/21/94	3354.	S06	XX	EPA 8240
		06/21/94	1805.	S07	XX	EPA 8240
B205						
	Toluene	06/21/94	145.	S03	XX	EPA 8240
	Ethylbenzene	06/21/94	246.	S03	XX	EPA 8240
	m-Xylene	06/21/94	436.	S03	XX	EPA 8240
	o,p-Xylene	06/21/94	610.	S03	XX	EPA 8240
B206						
	Trichloroethene	06/21/94	862.	S05	XX	EPA 8240
		06/21/94	790.	S06	XX	EPA 8240
		06/21/94	148.	S07	XX	EPA 8240
	Toluene	06/21/94	65.	S06	XX	EPA 8240
B207						
	Trichloroethene	06/21/94	1000.	S05	XX	EPA 8240
		06/21/94	1414.	S06	XX	EPA 8240
		06/21/94	605.	S07	XX	EPA 8240
	Toluene	06/21/94	84.	S05	XX	EPA 8240
		06/21/94	95.	S06	XX	EPA 8240
		06/21/94	166.	S07	XX	EPA 8240

Report: HITS SME Number: 0003.3.2 October 1991

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES
END REPORT.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B1)																
B1																
09/28/92	SBXB1A0B7	XX SOIL	SME	EPA 8010	5.- 7.		1300. U	1300. U	1300. U	1300. U	1100.			600. U	600. U	
09/28/92	SBXB1B0B8	XX SOIL	SME	EPA 8010	10.- 12.		1100. U	1100. U	1100. U	1100. U	1000.			600. U	600. U	
09/28/92	SBXB1C0B9	XX SOIL	SME	EPA 8010	15.- 17.		1000. U	1000. U	1000. U	1000. U	500. UT			500. U	500. U	
09/28/92	SBXB1D0BA	XX SOIL	SME	EPA 8010	20.- 22.		1100. U	1100. U	1100. U	1100. U	800.			600. U	600. U	
09/28/92	SBXB1E0BB	XX SOIL	SME	EPA 8010	25.- 27.		900. U	900. U	900. U	900. U	500.			500. U	500. U	
B10																
09/30/92	SBB10B0D0	XX SOIL	SME	EPA 8010	10.- 12.		1000. U	1000. U	1000. U	1000. U	600.			500. U	500. U	
B101																
09/22/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/22/93	S3	LD SOIL	SME	EPA 8010	4.- 6.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. J
B106																
09/22/93	S2	XX SOIL	SME	HP5890	2.- 4.	1.					226. U			15. U	454. U	
09/22/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B107																
09/22/93	S2	XX SOIL	SME	HP5890	2.- 4.	8.					1800. U			120. U	3600. U	
09/22/93	S2	LD SOIL	SME	EPA 8010	2.- 4.	12.	12. U	12. U	12. U	12. U	12. U			12. U	12. U	12. U
09/22/93	S3	XX SOIL	SME	HP5890	4.- 6.	4.					900. U			60. U	1800. U	
09/22/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/22/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
09/22/93	S6	XX SOIL	SME	HP5890	10.- 12.	2.					450. U			30. U	910. U	
B109																
09/23/93	S2	XX SOIL	SME	HP5890	2.- 4.	1.					226. U			15. U	454. U	
B112																
09/23/93	S1	XX SOIL	SME	HP5890	0.- 2.	1.					226. U			15. U	454. U	
09/23/93	S2	XX SOIL	SME	HP5890	2.- 4.	2.					450. U			30. U	910. U	
09/23/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/23/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/23/93	S5	LD SOIL	SME	EPA 8010	8.- 10.	11.	11. U	11. U	11. U	11. U	11. U			11. U	11. U	11. U
09/23/93	S5	XX SOIL	SME	HP5890	8.- 10.	8.					450. U			30. U	910. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B116)																
B116																
09/23/93	S1	XX SOIL	SME	HP5890	0.- 2.	1.					226. U			15. U	454. U	
B119																
09/24/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/24/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
09/24/93	S6	XX SOIL	SME	HP5890	10.- 12.	1.					226. U			15. U	454. U	
09/24/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
09/24/93	S8	XX SOIL	SME	HP5890	14.- 16.	1.					226. U			15. U	454. U	
B120																
09/24/93	S1	XX SOIL	SME	HP5890	0.- 2.	1.					226. U			15. U	454. U	
B121																
09/24/93	S2	XX SOIL	SME	HP5890	2.- 4.	1.					226. U			15. U	454. U	
B122																
09/27/93	S5	LD SOIL	SME	EPA 8010	8.- 10.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. J
09/27/93	S5	XX SOIL	SME	HP5890	8.- 10.	4.					226. U			15. U	454. U	
B123																
09/27/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/27/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B126																
09/27/93	S3	XX SOIL	SME	HP5890	4.- 6.	4.					900. U			60. U	1800. U	
09/27/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/27/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B127																
09/27/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/27/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B128																
09/27/93	S1	XX SOIL	SME	HP5890	0.- 2.	1.					226. U			15. U	454. U	
09/27/93	S2	XX SOIL	SME	HP5890	2.- 4.	1.					226. U			15. U	454. U	
09/27/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B129)																
B129																
09/27/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/27/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B131																
09/27/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B134																
09/28/93	S5	XX SOIL	SME	HP5890	8.- 10.	2.					226. U			15. U	454. U	
B135																
09/28/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/28/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B136																
09/28/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/28/93	S5	XX SOIL	SME	HP5890	8.- 10.	4.					226. U			15. U	454. U	
B140																
09/28/93	S5	LD SOIL	SME	EPA 8010	8.- 10.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. J
09/29/93	S4	XX SOIL	SME	HP5890	6.- 8.	4.					226. U			15. U	454. U	
09/29/93	S5	XX SOIL	SME	HP5890	8.- 10.	4.					900. U			60. U	1800. U	
B143																
09/29/93	S1	XX SOIL	SME	HP5890	0.- 2.	1.					226. U			15. U	454. U	
09/29/93	S2	XX SOIL	SME	HP5890	2.- 4.	1.					226. U			15. U	454. U	
09/29/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/29/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
B144																
09/29/93	S3	XX SOIL	SME	HP5890	4.- 6.	4.					900. U			60. U	1800. U	
09/29/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/29/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
B145																
09/29/93	S3	XX SOIL	SME	HP5890	4.- 6.	2.					450. U			30. U	900. U	
09/29/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B146)																
B146																
09/29/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
B148																
09/29/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/29/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
09/29/93	S6	XX SOIL	SME	HP5890	10.- 12.	8.					226. U			15. U	454. U	
09/29/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
B149																
09/29/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/29/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
09/29/93	S6	XX SOIL	SME	HP5890	10.- 12.	1.					226. U			15. U	454. U	
09/29/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
B150																
09/30/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/30/93	S4	LD SOIL	SME	EPA 8010	6.- 8.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. J
09/30/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/30/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
09/30/93	S6	XX SOIL	SME	HP5890	10.- 12.	1.					226. U			15. U	454. U	
09/30/93	S6	LD SOIL	SME	EPA 8010	10.- 12.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. J
09/30/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
B151																
09/30/93	S3	XX SOIL	SME	HP5890	4.- 6.	4.					226. U			15. U	454. U	
09/30/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/30/93	S4	LD SOIL	SME	EPA 8010	6.- 8.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. J
09/30/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
09/30/93	S6	XX SOIL	SME	HP5890	10.- 12.	1.					226. U			15. U	454. U	
09/30/93	S6	LD SOIL	SME	EPA 8010	10.- 12.	12.	12. U	12. U	12. U	12. U	12. U			12. U	12. U	12. U
09/30/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
B152																
09/30/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/30/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B152)																
09/30/93	S5	XX SOIL	SME	HP5890	8.- 10.	4.					226. U			15. U	454. U	
09/30/93	S6	XX SOIL	SME	HP5890	10.- 12.	1.					226. U			15. U	454. U	
09/30/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
B153																
09/30/93	S3	XX SOIL	SME	HP5890	4.- 6.	4.					226. U			15. U	454. U	
09/30/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/30/93	S5	XX SOIL	SME	HP5890	8.- 10.	1.					226. U			15. U	454. U	
09/30/93	S5	LD SOIL	SME	EPA 8010	8.- 10.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. U
09/30/93	S6	XX SOIL	SME	HP5890	10.- 12.	1.					226. U			15. U	454. U	
09/30/93	S7	XX SOIL	SME	HP5890	12.- 10.	1.					226. U			15. U	454. U	
B154																
09/30/93	S3	XX SOIL	SME	HP5890	4.- 6.	1.					226. U			15. U	454. U	
09/30/93	S4	XX SOIL	SME	HP5890	6.- 8.	1.					226. U			15. U	454. U	
09/30/93	S5	XX SOIL	SME	HP5890	8.- 10.	2.					226. U			15. U	454. U	
09/30/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
B155																
09/30/93	S3	XX SOIL	SME	HP5890	4.- 6.	2.					226. U			15. U	454. U	
09/30/93	S4	LD SOIL	SME	EPA 8010	6.- 8.	13.	13. U	13. U	13. U	13. U	13. U			13. U	13. U	13. J
09/30/93	S4	XX SOIL	SME	HP5890	6.- 8.	4.					226. U			15. U	454. U	
09/30/93	S5	XX SOIL	SME	HP5890	8.- 10.	4.					226. U			15. U	454. U	
09/30/93	S6	XX SOIL	SME	HP5890	10.- 12.	2.					226. U			15. U	454. U	
09/30/93	S7	XX SOIL	SME	HP5890	12.- 14.	1.					226. U			15. U	454. U	
B16																
10/05/92	SBB16O0D3	XX SOIL	SME	EPA 8010	0.- 2.		1100. U	1100. U	1100. U	1100. U	900.			600. U	600. U	
10/05/92	SBB16A0D4	XX SOIL	SME	EPA 8010	5.- 7.		1000. U	1000. U	1000. U	1000. U	800.			500. U	500. U	
10/05/92	SBB16B0D5	XX SOIL	SME	EPA 8010	10.- 12.		1200. U	1200. U	1200. U	1200. U	600. UT			600. U	600. U	
10/05/92	SBB16C0D6	XX SOIL	SME	EPA 8010	15.- 17.		1100. U	1100. U	1100. U	1100. U	800.			500. U	500. U	
10/05/92	SBB16D0D7	XX SOIL	SME	EPA 8010	20.- 22.		1100. U	1100. U	1100. U	1100. U	600.			600. U	600. U	
10/05/92	SBB16E0D8	XX SOIL	SME	EPA 8010	25.- 27.		1100. U	1100. U	1100. U	1100. U	600. UT			600. U	600. U	
B17																
10/05/92	SBB17A0D9	XX SOIL	SME	EPA 8010	5.- 7.		900. U	900. U	900. U	900. U	500.			500. U	500. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B17)														500. U	500. U	
10/05/92	SBB17C0DA	XX SOIL	SME	EPA 8010	15.- 17.		1000. U	1000. U	1000. U	1000. U	700.					
10/05/92	SBB17D0DB	XX SOIL	SME	EPA 8010	20.- 22.		1000. U	1000. U	1000. U	1000. U	500. UT			500. U	500. U	
B19														500. U	500. U	
10/06/92	SBB19C0DC	XX SOIL	SME	EPA 8010	15.- 17.		1000. U	1000. U	1000. U	1000. U	800.					
B2														600. U	600. U	
09/28/92	SBXB2A0BC	XX SOIL	SME	EPA 8010	5.- 7.		1100. U	1100. U	1100. U	1100. U	700.			500. U	500. U	
09/28/92	SBXB2B0BD	XX SOIL	SME	EPA 8010	10.- 12.		1100. U	1100. U	1100. U	1100. U	600.			500. U	500. U	
09/28/92	SBXB2C0BE	XX SOIL	SME	EPA 8010	15.- 17.		1100. U	1100. U	1100. U	1100. U	1000.			500. U	500. U	
09/28/92	SBXB2D0BF	XX SOIL	SME	EPA 8010	20.- 22.		1000. U	1000. U	1000. U	1000. U	500.			500. U	500. U	
09/28/92	SBXB2E0BG	XX SOIL	SME	EPA 8010	25.- 27.		1000. U	1000. U	1000. U	1000. U	1100.					
B20														500. U	500. U	
10/06/92	SBB20D0DD	XX SOIL	SME	EPA 8010	20.- 22.		1000. U	1000. U	1000. U	1000. U	500. UT					
B201																
06/20/94	S04	XX SOIL	SME	EPA 8240	6.- 8.	12.	60. U	60. U	60. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U
06/20/94	S09	XX SOIL	SME	EPA 8240	16.- 18.	11.	55. U	55. U	55. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U
06/20/94	S10	XX SOIL	SME	EPA 8240	18.- 20.	11.	55. U	55. U	55. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U
B202																
06/20/94	S02	XX SOIL	SME	EPA 8240	2.- 4.	13.	65. U	65. U	65. U	65. U	65. U	195. U	65. U	65. U	65. U	65. U
06/20/94	S06	XX SOIL	SME	EPA 8240	10.- 12.	12.	60. U	60. U	60. U	60. U	60. U	180. U	60. U	60. U	60. U	50. UT
06/20/94	S10	XX SOIL	SME	EPA 8240	18.- 20.	11.	55. U	55. U	55. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U
B203																
06/20/94	S05	XX SOIL	SME	EPA 8240	8.- 10.	11.	55. U	55. U	55. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U
06/20/94	S07	XX SOIL	SME	EPA 8240	12.- 14.	11.	55. U	55. U	55. U	55. U	55. U	165. U	55. U	55. U	55. U	55. UT
06/20/94	S09	XX SOIL	SME	EPA 8240	16.- 18.	11.	55. U	55. U	55. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U
B204																
06/21/94	S06	XX SOIL	SME	EPA 8240	10.- 12.	25.	125. U	125. U	125. U	125. U	125. U	375. U	125. U	125. U	125. U	125. U
06/21/94	S07	XX SOIL	SME	EPA 8240	12.- 14.	12.	60. U	60. U	60. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U
06/21/94	S10	XX SOIL	SME	EPA 8240	18.- 20.	11.	55. U	55. U	55. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U
B205																
06/21/94	S03	XX SOIL	SME	EPA 8240	4.- 6.	12.	60. U	60. U	60. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B205)																
06/21/94	S04	XX SOIL	SME	EPA 8240	6.- 8.	13.	65. U	65. U	65. U	65. U	65. U	195. U	65. U	65. U	65. U	65. U
06/21/94	S05	XX SOIL	SME	EPA 8240	8.- 10.	13.	65. U	65. U	65. U	65. U	65. U	195. U	65. U	65. U	65. U	65. U
B206																
06/21/94	S05	XX SOIL	SME	EPA 8240	8.- 10.	13.	65. U	65. U	65. U	65. U	65. U	195. U	65. U	65. U	65. U	65. U
06/21/94	S06	XX SOIL	SME	EPA 8240	10.- 12.	12.	60. U	60. U	60. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U
06/21/94	S07	XX SOIL	SME	EPA 8240	12.- 14.	12.	60. U	60. U	60. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U
B207																
06/21/94	S05	XX SOIL	SME	EPA 8240	8.- 10.	13.	65. U	65. U	65. U	65. U	65. U	195. U	65. U	65. U	65. U	65. U
06/21/94	S06	XX SOIL	SME	EPA 8240	10.- 12.	13.	65. U	65. U	65. U	65. U	65. U	195. U	65. U	65. U	65. U	65. UT
06/21/94	S07	XX SOIL	SME	EPA 8240	12.- 14.	12.	60. U	60. U	60. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U
B21																
12/23/92	2D	XX SOIL	SME	EPA 8240	2.- 4.		1300. U	1300. U	1300. U	600. U	1300. U	3200. U	600. U	600. U	600. U	600. U
12/23/92	5D	XX SOIL	SME	EPA 8240	8.- 10.		1300. U	1300. U	1300. U	600. U	1300. U	3200. U	600. U	600. U	600. U	600. U
B24																
01/04/93	SBB2440DE	XX SOIL	SME	EPA 8240	7.- 9.		1300. U	1300. U	1300. U	600. U	1300. U	3200. U	600. U	600. U	600. U	600. U
01/04/93	SBB2460DF	XX SOIL	SME	EPA 8240	12.- 14.		1200. U	1200. U	1200. U	600. U	1200. U	2900. U	600. U	600. U	600. U	600. U
B26																
01/06/93	SBB2660DG	XX SOIL	SME	EPA 8240	12.5-14.5		1100. U	1100. U	1100. U	500. U	1100. U	2700. U	500. U	500. U	500. U	500. U
B3																
09/28/92	SBXB3A0BH	XX SOIL	SME	EPA 8010	5.- 7.		1200. U	1200. U	1200. U	1200. U	600.			600. U	600. U	
09/29/92	SBXB3B0BI	XX SOIL	SME	EPA 8010	10.- 12.		1000. U	1000. U	1000. U	1000. U	500. UT			500. U	500. U	
09/29/92	SBXB3C0BJ	XX SOIL	SME	EPA 8010	15.- 17.		1000. U	1000. U	1000. U	1000. U	1000.			500. U	500. U	
09/29/92	SBXB3E0C0	XX SOIL	SME	EPA 8010	25.- 27.		900. U	900. U	900. U	900. U	500.			500. U	500. U	
B4																
09/29/92	SBXB4A0C1	XX SOIL	SME	EPA 8010	5.- 7.		1300. U	1300. U	1300. U	1300. U	1300.			600. U	600. U	
09/29/92	SBXB4B0C2	XX SOIL	SME	EPA 8010	10.- 12.		1200. U	1200. U	1200. U	1200. U	1200.			600. U	600. U	
09/29/92	SBXB4C0C3	XX SOIL	SME	EPA 8010	15.- 17.		1000. U	1000. U	1000. U	1000. U	1200.			500. U	500. U	
09/29/92	SBXB4E0C4	XX SOIL	SME	EPA 8010	25.- 27.		4000. U	4000. U	4000. U	4000. U	3400.			2000. U	2000. U	
B5																
09/29/92	SBXB5A0C5	XX SOIL	SME	EPA 8010	5.- 7.		1300. U	1300. U	1300. U	1300. U	1100.			600. U	600. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	DEPTH INTERVAL (feet)	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE
(B5)																
09/29/92	SBXB5B0C6	XX SOIL	SME	EPA 8010	10.- 12.		1200. U	1200. U	1200. U	1200. U	800.			600. U	600. U	
09/29/92	SBXB5C0C7	XX SOIL	SME	EPA 8010	15.- 17.		1100. U	1100. U	1100. U	1100. U	800.			500. U	500. U	
09/29/92	SBXB5D0C8	XX SOIL	SME	EPA 8010	20.- 22.		1100. U	1100. U	1100. U	1100. U	800.			600. U	600. U	
09/29/92	SBXB5E0C9	XX SOIL	SME	EPA 8010	25.- 27.		1100. U	1100. U	1100. U	1100. U	600.			600. U	600. U	
B6																
09/29/92	SBXB6A0CA	XX SOIL	SME	EPA 8010	5.- 7.		1300. U	1300. U	1300. U	1300. U	900.			6000. U	600. U	
09/29/92	SBXB6B0CB	XX SOIL	SME	EPA 8010	10.- 12.		1000. U	1000. U	1000. U	1000. U	500. U			5000. U	500. U	
09/29/92	SBXB6D0CC	XX SOIL	SME	EPA 8010	20.- 22.		1100. U	1100. U	1100. U	1100. U	600. UT			6000. U	600. U	
10/02/92	SBXB6E0D2	XX SOIL	SME	EPA 8010	25.- 27.		1100. U	1100. U	1100. U	1100. U	600. U			6000. U	600. U	
B7																
09/29/92	SBXB7A0CD	XX SOIL	SME	EPA 8010	5.- 7.		1300. U	1300. U	1300. U	1300. U	1300.			700. U	700. U	
B8																
09/30/92	SBXB8A0CE	XX SOIL	SME	EPA 8010	5.- 7.		1200. U	1200. U	1200. U	1200. U	800.			600. U	600. U	
09/30/92	SBXB8C0CF	XX SOIL	SME	EPA 8010	15.- 17.		1000. U	1000. U	1000. U	1000. U	500. UT			500. U	500. U	
09/30/92	SBXB8E0CG	XX SOIL	SME	EPA 8010	25.- 27.		1000. U	1000. U	1000. U	1000. U	800.			500. U	500. U	
B9																
09/30/92	SBXB9A0CH	XX SOIL	SME	EPA 8010	5.- 7.		1200. U	1200. U	1200. U	1200. U	1100.			600. U	600. U	
09/30/92	SBXB9B0CI	XX SOIL	SME	EPA 8010	10.- 12.		1200. U	1200. U	1200. U	1200. U	600. UT			600. U	600. U	
09/30/92	SBXB9C0CJ	XX SOIL	SME	EPA 8010	15.- 17.		1100. U	1100. U	1100. U	1100. U	600. UT			600. U	600. U	
09/30/92	SBXB9D0D1	XX SOIL	SME	EPA 8010	20.- 22.		900. U	900. U	900. U	900. U	500. UT			500. U	500. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

Report: DCISIP1A SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

D = COMPOUND DETERMINED IN ANALYSIS AT SECONDARY DILUTION FACTOR.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B1)																
B1																
09/28/92	SBXB1A0B7 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/28/92	SBXB1B0B8 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/28/92	SBXB1C0B9 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
09/28/92	SBXB1D0BA XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/28/92	SBXB1E0BB XX	500. U	500. U		500. U		500. U	500. U		500. U	600. U	500. U	500. U	500. U	500. U	500. U
B10																
09/30/92	SBB10B0D0 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
B101																
09/22/93	S3 XX		5. J	53. U			180. J						1000. D			
09/22/93	S3 LD	13. U			13. U		13. U	13. U		13. U	13. U	13. U	480. J	13. U	13. U	195. U
B106																
09/22/93	S2 XX		7.	30. J			285. U						16. U			
09/22/93	S5 XX		6. U	53. U			530.						9. J			
B107																
09/22/93	S2 XX		73. D	420. U			2300. U						830. D			
09/22/93	S2 LD	12. U			12. U		12. U	12. U		12. U	12. U	12. U	257. J	12. U	12. U	180. U
09/22/93	S3 XX		620. D	210. U			1100. U						64. U			
09/22/93	S4 XX		30.	53. U			285. U						31.			
09/22/93	S5 XX		10.	66.			285. U						160.			
09/22/93	S6 XX		24.	110. J			570. U						440. D			
B109																
09/23/93	S2 XX		6. U	53. U			285. U						8. J			
B112																
09/23/93	S1 XX		6. U	53. U			285. U						110.			
09/23/93	S2 XX		12. U	110. U			570. U						24. J			
09/23/93	S3 XX		6. U	53. U			285. U						80.			
09/23/93	S4 XX		6. U	53. U			285. U						150.			
09/23/93	S5 LD	11. U			11. U		11. U	11. U		11. U	11. U	11. U	62. J	11. U	11. U	165. U
09/23/93	S5 XX		12. U	110. U			570. U						820. D			

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B116)																
B116																
09/23/93	S1	XX	6. U	53. U			285. U						10. J			
B119																
09/24/93	S4	XX	6. U	62.			285. U						130.			
09/24/93	S5	XX	6. U	53. U			285. U						19.			
09/24/93	S6	XX	6. U	29. J			285. U						140.			
09/24/93	S7	XX	6. U	53. U			285. U						16. U			
09/24/93	S8	XX	6. U	53.			285. U						17.			
B120																
09/24/93	S1	XX	6. U	53. U			285. U						16. U			
B121																
09/24/93	S2	XX	6. U	53. U			285. U						12. J			
B122																
09/27/93	S5	LD	13. U		13. U		13. U	13. U		13. U	13. U	13. U	130. J	13. U	13. U	195. U
09/27/93	S5	XX	6. U	53. U			285. U						410. D			
B123																
09/27/93	S4	XX	6. U	52. J			285. U						170.			
09/27/93	S5	XX	6. U	53. U			285. U						15. J			
B126																
09/27/93	S3	XX	24. U	210. U			1100. U						64. U			
09/27/93	S4	XX	6. U	53. U			285. U						16. U			
09/27/93	S5	XX	6. U	53. U			285. U						16. U			
B127																
09/27/93	S3	XX	6. U	53. U			285. U						13. J			
09/27/93	S5	XX	6. U	53. U			285. U						45.			
B128																
09/27/93	S1	XX	6. U	53. U			285. U						31.			
09/27/93	S2	XX	6. U	53. U			285. U						22.			
09/27/93	S4	XX	6. U	53. U			285. U						73.			

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B129)																
B129																
09/27/93	S3	XX	6. U	53. U			285. U						46.			
09/27/93	S5	XX	6. U	31. J			285. U						91.			
B131																
09/27/93	S5	XX	6. U	37. J			285. U						38.			
B134																
09/28/93	S5	XX	6. U	53. U			285. U						170. D			
B135																
09/28/93	S4	XX	6. U	53. U			285. U						16. U			
09/28/93	S5	XX	6. U	53. U			285. U						120.			
B136																
09/28/93	S4	XX	6. U	53. U			285. U						94.			
09/28/93	S5	XX	6. U	53. U			285. U						280. D			
B140																
09/28/93	S5	LD	13. U		13. U		13. U	13. U		13. U	13. U	13. U	266. J	13. U	13. U	195. U
09/29/93	S4	XX	6. U	53. U			285. U						210. D			
09/29/93	S5	XX	24. U	210. U			1100. U						690.			
B143																
09/29/93	S1	XX	6. U	53. U			285. U						100.			
09/29/93	S2	XX	6. U	53. U			285. U						92.			
09/29/93	S3	XX	6. U	53. U			285. U						51.			
09/29/93	S4	XX	6. U	53. U			285. U						160.			
B144																
09/29/93	S3	XX	24. U	210. U			1100. U						64. U			
09/29/93	S4	XX	6. U	53. U			285. U						16. U			
09/29/93	S5	XX	6. U	53. U			285. U						13. J			
B145																
09/29/93	S3	XX	12. U	110. U			570. U						32. U			
09/29/93	S4	XX	6. U	53. U			285. U						10. J			

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B146)																
B146																
09/29/93	S3 XX		6. U	53. U			285. U						16. U			
B148																
09/29/93	S4 XX		6. U	53. U			285. U						69. J			
09/29/93	S5 XX		6. U	28. J			285. U						92.			
09/29/93	S6 XX		6. U	53. U			285. U						340. D			
09/29/93	S7 XX		6. U	53. U			285. U						190.			
B149																
09/29/93	S4 XX		6. U	53. U			285. U						73.			
09/29/93	S5 XX		6. U	53. U			285. U						85.			
09/29/93	S6 XX		6. U	53. U			285. U						31.			
09/29/93	S7 XX		6. U	53. U			285. U						8. J			
B150																
09/30/93	S3 XX		6. U	53. U			285. U						11. J			
09/30/93	S4 LD	13. U			13. U		13. U	13. U		13. U	13. U	13. U	335. J	13. U	13. U	195. U
09/30/93	S4 XX		6. U	53. U			285. U						770. D			
09/30/93	S5 XX		6. U	53. U			285. U						190. D			
09/30/93	S6 XX		6. U	53. U			285. U						2300. J			
09/30/93	S6 LD	13. U			13. U		13. U	13. U		13. U	13. U	13. U	397. J	13. U	13. U	195. U
09/30/93	S7 XX		6. U	53. U			285. U						1000. J			
B151																
09/30/93	S3 XX		6. U	53. U			285. U						400. D			
09/30/93	S4 XX		6. U	53. U			285. U						1900. J			
09/30/93	S4 LD	13. U			13. U		13. U	13. U		13. U	13. U	13. U	475. J	13. U	13. U	195. U
09/30/93	S5 XX		6. U	53. U			285. U						150.			
09/30/93	S6 XX		6. U	53. U			285. U						1300. J			
09/30/93	S6 LD	12. U			12. U		12. U	12. U		12. U	12. U	12. U	194. J	12. U	12. U	180. U
09/30/93	S7 XX		6. U	53. U			285. U						23.			
B152																
09/30/93	S3 XX		6. U	53. U			285. U						53.			
09/30/93	S4 XX		6. U	53. U			285. U						94.			

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B152)																
09/30/93	S5 XX		6. U	53. U			285. U						260. D			
09/30/93	S6 XX		6. U	53. U			285. U						20.			
09/30/93	S7 XX		6. U	53. U			285. U						11. J			
B153																
09/30/93	S3 XX		6. U	53. U			285. U						310. D			
09/30/93	S4 XX		6. U	53. U			285. U						56.			
09/30/93	S5 XX		6. U	53. U			285. U						1900. J			
09/30/93	S5 LD	13. U			13. U		13. U	13. U		13. U	13. U	13. U	887. J	13. U	13. U	195. U
09/30/93	S6 XX		6. U	53. U			285. U						880. J			
09/30/93	S7 XX		6. U	53. U			285. U						53.			
B154																
09/30/93	S3 XX		6. U	53. U			285. U						98.			
09/30/93	S4 XX		6. U	53. U			285. U						120.			
09/30/93	S5 XX		6. U	53. U			285. U						230. D			
09/30/93	S7 XX		6. U	53. U			285. U						10. J			
B155																
09/30/93	S3 XX		6. U	53. U			285. U						140. D			
09/30/93	S4 LD	13. U			13. U		13. U	13. U		13. U	13. U	13. U	143. J	13. U	13. U	195. U
09/30/93	S4 XX		6. U	53. U			285. U						350. D			
09/30/93	S5 XX		6. U	53. U			285. U						230. D			
09/30/93	S6 XX		6. U	53. U			285. U						150. D			
09/30/93	S7 XX		6. U	53. U			285. U						140.			
B16																
10/05/92	SBB16O0D3 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
10/05/92	SBB16A0D4 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
10/05/92	SBB16B0D5 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
10/05/92	SBB16C0D6 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
10/05/92	SBB16D0D7 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
10/05/92	SBB16E0D8 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
B17																
10/05/92	SBB17A0D9 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B17)																
10/05/92	SBB17C0DA XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
10/05/92	SBB17D0DB XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
B19																
10/06/92	SBB19C0DC XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
B2																
09/28/92	SBXB2A0BC XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/28/92	SBXB2B0BD XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
09/28/92	SBXB2C0BE XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	2100.	500. U	500. U	500. U
09/28/92	SBXB2D0BF XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	900.	500. U	500. U	500. U
09/28/92	SBXB2E0BG XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
B20																
10/06/92	SBB20D0DD XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
B201																
06/20/94	S04 XX	60. U			60. U	120. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U	60. U	60. U	180. U
06/20/94	S09 XX	55. U			55. U	110. U	55. U	55. U	165. U	55. U	55. U	55. U	89.	55. U	55. U	165. U
06/20/94	S10 XX	55. U			55. U	110. U	55. U	55. U	165. U	55. U	55. U	55. U	134.	55. U	55. U	165. U
B202																
06/20/94	S02 XX	65. U			65. U	130. U	65. U	65. U	195. U	65. U	65. U	65. U	65. UT	65. U	65. U	195. U
06/20/94	S06 XX	60. U			60. U	120. U	60. U	60. U	180. U	60. U	60. U	60. U	120.	60. U	60. U	180. U
06/20/94	S10 XX	55. U			55. U	110. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U	55. U	55. U	165. U
B203																
06/20/94	S05 XX	55. U			55. U	110. U	55. U	55. U	165. U	55. U	55. U	55. U	548.	55. U	55. U	165. U
06/20/94	S07 XX	55. U			55. U	110. U	55. U	55. U	165. U	55. U	55. U	55. U	166.	55. U	55. U	165. U
06/20/94	S09 XX	55. U			55. U	110. U	55. U	55. U	165. U	55. U	55. U	55. U	55. U	55. U	55. U	165. U
B204																
06/21/94	S06 XX	125. U			125. U	250. U	125. U	125. U	375. U	125. U	125. U	125. U	3354.	125. U	125. U	375. U
06/21/94	S07 XX	60. U			60. U	120. U	60. U	60. U	180. U	60. U	60. U	60. U	1805.	60. U	60. U	180. U
06/21/94	S10 XX	55. U			55. U	110. U	55. U	55. U	165. U	55. U	55. U	55. U	55. UT	55. U	55. U	165. U
B205																
06/21/94	S03 XX	60. U			60. U	120. U	60. U	60. U	180. U	60. U	60. U	60. U	60. U	60. U	60. U	180. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B205)																
06/21/94	S04 XX	65. U			65. U	130. U	65. U	65. U	195. U	65. U	65. U	65. U	65. U	65. U	65. U	195. U
06/21/94	S05 XX	65. U			65. U	130. U	65. U	65. U	195. U	65. U	65. U	65. U	65. U	65. U	65. U	195. U
B206																
06/21/94	S05 XX	65. U			65. U	130. U	65. U	65. U	195. U	65. U	65. U	65. U	862.	65. U	65. U	195. U
06/21/94	S06 XX	60. U			60. U	120. U	60. U	60. U	180. U	60. U	60. U	60. U	790.	60. U	60. U	180. U
06/21/94	S07 XX	60. U			60. U	120. U	60. U	60. U	180. U	60. U	60. U	60. U	148.	60. U	60. U	180. U
B207																
06/21/94	S05 XX	65. U			65. U	130. U	65. U	65. U	195. U	65. U	65. U	65. U	1000.	65. U	65. U	195. U
06/21/94	S06 XX	65. U			65. U	130. U	65. U	65. U	195. U	65. U	65. U	65. U	1414.	65. U	65. U	195. U
06/21/94	S07 XX	60. U			60. U	120. U	60. U	60. U	180. U	60. U	60. U	60. U	605.	60. U	60. U	180. U
B21																
12/23/92	2D XX	600. U			600. U	3200. U	600. U	600. U	1300. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U
12/23/92	5D XX	600. U			600. U	3200. U	600. U	600. U	1300. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U
B24																
01/04/93	SBB2440DE XX	600. U			600. U	3200. U	600. U	600. U	1300. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U
01/04/93	SBB2460DF XX	600. U			600. U	2900. U	600. U	600. U	1200. U	600. U	600. U	600. U	600. UT	600. U	600. U	600. U
B26																
01/06/93	SBB2660DG XX	500. U			500. U	2700. U	500. U	500. U	1100. U	500. U	500. U	500. U	500. U	500. U	500. U	500. U
B3																
09/28/92	SBXB3A0BH XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/29/92	SBXB3B0BI XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
09/29/92	SBXB3C0BJ XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. UT	500. U	500. U	500. U
09/29/92	SBXB3E0C0 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
B4																
09/29/92	SBXB4A0C1 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/29/92	SBXB4B0C2 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/29/92	SBXB4C0C3 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
09/29/92	SBXB4E0C4 XX	2000. U	2000. U		2000. U		2000. U	2000. U		2000. U	2000. U	2000. U	2000. U	2000. U	2000. U	2000. U
B5																
09/29/92	SBXB5A0C5 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	CLFRM	t12DCE	c12DCE	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH
(B5)																
09/29/92	SBXB5B0C6 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/29/92	SBXB5C0C7 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. UT	500. U	500. U	500. U
09/29/92	SBXB5D0C8 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/29/92	SBXB5E0C9 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
B6																
09/29/92	SBXB6A0CA XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/29/92	SBXB6B0CB XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
09/29/92	SBXB6D0CC XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
10/02/92	SBXB6E0D2 XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
B7																
09/29/92	SBXB7A0CD XX	700. U	700. U		700. U		700. U	700. U		700. U	700. U	700. U	700. U	700. U	700. U	700. U
B8																
09/30/92	SBXB8A0CE XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/30/92	SBXB8C0CF XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
09/30/92	SBXB8E0CG XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U
B9																
09/30/92	SBXB9A0CH XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/30/92	SBXB9B0CI XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/30/92	SBXB9C0CJ XX	600. U	600. U		600. U		600. U	600. U		600. U	600. U	600. U	600. U	600. U	600. U	600. U
09/30/92	SBXB9D0D1 XX	500. U	500. U		500. U		500. U	500. U		500. U	500. U	500. U	500. U	500. U	500. U	500. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

Report: DCISIP1B SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

D = COMPOUND DETERMINED IN ANALYSIS AT SECONDARY DILUTION FACTOR.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B1)																
B1																
09/28/92	SBXB1A0B7 XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/28/92	SBXB1B0B8 XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/28/92	SBXB1C0B9 XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/28/92	SBXB1D0BA XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/28/92	SBXB1E0BB XX		500. U	500. U			500. U	500. U		500. U					500. U	
B10																
09/30/92	SBB10B0D0 XX		500. U	500. U			500. U	500. U		500. U					500. U	
B101																
09/22/93	S3 XX						20. U		59.							
09/22/93	S3 LD		13. U	130. U			13. U	13. U		13. U					13. U	
B106																
09/22/93	S2 XX						20. U		24.							
09/22/93	S5 XX						140.		32.							
B107																
09/22/93	S2 XX						160. U		144. U							
09/22/93	S2 LD		12. U	120. U			12. U	12. U		12. U					12. U	
09/22/93	S3 XX						80. U		61. J							
09/22/93	S4 XX						20. U		34.							
09/22/93	S5 XX						20. U		16. J							
09/22/93	S6 XX						40. U		36. U							
B109																
09/23/93	S2 XX						20. U		110.							
B112																
09/23/93	S1 XX						20. U		17. J							
09/23/93	S2 XX						40. U		36. U							
09/23/93	S3 XX						20. U		26.							
09/23/93	S4 XX						20. U		28.							
09/23/93	S5 LD		11. U	110. U			11. U	11. U		11. U					11. U	
09/23/93	S5 XX						40. U		36. U							

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B116)																
B116																
09/23/93	S1	XX					20. U		18. U							
B119																
09/24/93	S4	XX					20. U		18. U							
09/24/93	S5	XX					20. U		18. U							
09/24/93	S6	XX					20. U		18. U							
09/24/93	S7	XX					20. U		18. U							
09/24/93	S8	XX					20. U		18. U							
B120																
09/24/93	S1	XX					20. U		18. U							
B121																
09/24/93	S2	XX					20. U		18. U							
B122																
09/27/93	S5	LD	13. U	130. U			13. U	13. U		13. U					13. U	
09/27/93	S5	XX					20. U		18. U							
B123																
09/27/93	S4	XX					20. U		18. U							
09/27/93	S5	XX					20. U		18. U							
B126																
09/27/93	S3	XX					80. U		72. U							
09/27/93	S4	XX					20. U		18. U							
09/27/93	S5	XX					20. U		18. U							
B127																
09/27/93	S3	XX					20. U		18. U							
09/27/93	S5	XX					20. U		18. U							
B128																
09/27/93	S1	XX					20. U		18. U							
09/27/93	S2	XX					20. U		18. U							
09/27/93	S4	XX					20. U		18. U							

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B129)																
B129																
09/27/93	S3	XX					20. U		18. U							
09/27/93	S5	XX					20. U		18. U							
B131																
09/27/93	S5	XX					20. U		18. U							
B134																
09/28/93	S5	XX					20. U		18. U							
B135																
09/28/93	S4	XX					20. U		18. U							
09/28/93	S5	XX					20. U		18. U							
B136																
09/28/93	S4	XX					20. U		18. U							
09/28/93	S5	XX					20. U		18. U							
B140																
09/28/93	S5	LD	13. U	130. U			13. U	13. U		13. U					13. U	
09/29/93	S4	XX					20. U		18. U							
09/29/93	S5	XX					80. U		72. U							
B143																
09/29/93	S1	XX					20. U		9. J							
09/29/93	S2	XX					20. U		18. U							
09/29/93	S3	XX					20. U		18. U							
09/29/93	S4	XX					20. U		18. U							
B144																
09/29/93	S3	XX					80. U		72. U							
09/29/93	S4	XX					20. U		18. U							
09/29/93	S5	XX					20. U		18. U							
B145																
09/29/93	S3	XX					40. U		36. U							
09/29/93	S4	XX					20. U		18. U							

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B146)																
B146																
09/29/93	S3 XX						20. U		18. U							
B148																
09/29/93	S4 XX						20. U		18. U							
09/29/93	S5 XX						20. U		18. U							
09/29/93	S6 XX						20. U		18. U							
09/29/93	S7 XX						20. U		18. U							
B149																
09/29/93	S4 XX						20. U		18. U							
09/29/93	S5 XX						20. U		18. U							
09/29/93	S6 XX						20. U		18. U							
09/29/93	S7 XX						20. U		18. U							
B150																
09/30/93	S3 XX						20. U		18. U							
09/30/93	S4 LD		13. U	130. U			13. U	13. U		13. U					13. U	
09/30/93	S4 XX						20. U		18. U							
09/30/93	S5 XX						20. U		18. U							
09/30/93	S6 XX						20. U		18. U							
09/30/93	S6 LD		13. U	130. U			13. U	13. U		13. U					13. U	
09/30/93	S7 XX						20. U		18. U							
B151																
09/30/93	S3 XX						20. U		18. U							
09/30/93	S4 XX						20. U		18. U							
09/30/93	S4 LD		13. U	130. U			13. U	13. U		13. U					13. U	
09/30/93	S5 XX						20. U		18. U							
09/30/93	S6 XX						20. U		18. U							
09/30/93	S6 LD		12. U	120. U			12. U	12. U		12. U					12. U	
09/30/93	S7 XX						20. U		18. U							
B152																
09/30/93	S3 XX						20. U		18. U							
09/30/93	S4 XX						20. U		18. U							

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B152)																
09/30/93	S5 XX						20. U		18. U							
09/30/93	S6 XX						20. U		18. U							
09/30/93	S7 XX						20. U		18. U							
B153																
09/30/93	S3 XX						20. U		18. U							
09/30/93	S4 XX						20. U		18. U							
09/30/93	S5 XX						20. U		18. U							
09/30/93	S5 LD		13. U	130. U			13. U	13. U		13. U					13. U	
09/30/93	S6 XX						20. U		18. U							
09/30/93	S7 XX						20. U		18. U							
B154																
09/30/93	S3 XX						20. U		18. U							
09/30/93	S4 XX						20. U		18. U							
09/30/93	S5 XX						20. U		18. U							
09/30/93	S7 XX						20. U		18. U							
B155																
09/30/93	S3 XX						20. U		18. U							
09/30/93	S4 LD		13. U	130. U			13. U	13. U		13. U					13. U	
09/30/93	S4 XX						20. U		18. U							
09/30/93	S5 XX						80. U		72. U							
09/30/93	S6 XX						40. U		36. U							
09/30/93	S7 XX						20. U		18. U							
B16																
10/05/92	SBB1600D3 XX		600. U	600. U			600. U	600. U		600. U					600. U	
10/05/92	SBB16A0D4 XX		500. U	500. U			500. U	500. U		500. U					500. U	
10/05/92	SBB16B0D5 XX		600. U	600. U			600. U	600. U		600. U					600. U	
10/05/92	SBB16C0D6 XX		500. U	500. U			500. U	500. U		500. U					500. U	
10/05/92	SBB16D0D7 XX		600. U	600. U			600. U	600. U		600. U					600. U	
10/05/92	SBB16E0D8 XX		600. U	600. U			600. U	600. U		600. U					600. U	
B17																
10/05/92	SBB17A0D9 XX		500. U	500. U			500. U	500. U		500. U					500. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B17)																
10/05/92	SBB17C0DA XX		500. U	500. U			500. U	500. U		500. U					500. U	
10/05/92	SBB17D0DB XX		500. U	500. U			500. U	500. U		500. U					500. U	
B19																
10/06/92	SBB19C0DC XX		500. U	500. U			500. U	500. U		500. U					500. U	
B2																
09/28/92	SBXB2A0BC XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/28/92	SBXB2B0BD XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/28/92	SBXB2C0BE XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/28/92	SBXB2D0BF XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/28/92	SBXB2E0BG XX		500. U	500. U			500. U	500. U		500. U					500. U	
B20																
10/06/92	SBB20D0DD XX		500. U	500. U			500. U	500. U		500. U					500. U	
B201																
06/20/94	S04 XX	60. U	60. U	60. U	120. U	120. U	60. U	60. U	60. U	60. U	60. U	60. U	60. U	60. U	60. U	180. U
06/20/94	S09 XX	55. U	55. U	55. U	110. U	110. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	165. U
06/20/94	S10 XX	55. U	55. U	55. U	110. U	110. U	55. U	55. U	63.	55. U	55. U	55. U	55. U	55. U	55. U	165. U
B202																
06/20/94	S02 XX	65. U	65. U	65. U	130. U	130. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	195. U
06/20/94	S06 XX	60. U	60. U	60. U	120. U	120. U	60. U	60. U	116.	60. U	60. U	60. U	60. U	60. U	60. U	180. U
06/20/94	S10 XX	55. U	55. U	55. U	110. U	110. U	55. U	55. U	55. UT	55. U	55. U	55. U	55. U	55. U	55. U	165. U
B203																
06/20/94	S05 XX	55. U	55. U	55. U	110. U	110. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	165. U
06/20/94	S07 XX	55. U	55. U	55. U	110. U	110. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	55. U	165. U
06/20/94	S09 XX	55. U	55. U	55. U	110. U	110. U	55. U	55. U	56.	55. U	55. U	55. U	55. U	55. U	55. U	165. U
B204																
06/21/94	S06 XX	125. U	125. U	125. U	250. U	250. U	125. U	125. U	125. U	125. U	125. U	125. U	125. U	125. U	125. U	375. U
06/21/94	S07 XX	60. U	60. U	60. U	120. U	120. U	60. U	60. U	60. UT	60. U	60. U	60. U	60. U	60. U	60. U	180. U
06/21/94	S10 XX	55. U	55. U	55. U	110. U	110. U	55. U	55. U	55. UT	55. U	55. U	55. U	55. U	55. U	55. U	165. U
B205																
06/21/94	S03 XX	60. U	60. U	60. U	120. U	120. U	60. U	60. U	145.	60. U	246.	60. U	436.	610.	60. U	180. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B205)																
06/21/94	S04 XX	65. U	65. U	65. U	130. U	130. U	65. U	65. U	65. UT	65. U	65. U	65. U	65. U	65. U	65. U	195. U
06/21/94	S05 XX	65. U	65. U	65. U	130. U	130. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	195. U
B206																
06/21/94	S05 XX	65. U	65. U	65. U	130. U	130. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	65. U	195. U
06/21/94	S06 XX	60. U	60. U	60. U	120. U	120. U	60. U	60. U	65.	60. U	60. U	60. U	60. U	60. U	60. U	180. U
06/21/94	S07 XX	60. U	60. U	60. U	120. U	120. U	60. U	60. U	60. UT	60. U	60. U	60. U	60. U	60. U	60. U	180. U
B207																
06/21/94	S05 XX	65. U	65. U	65. U	130. U	130. U	65. U	65. U	84.	65. U	65. U	65. U	65. U	65. U	65. U	195. U
06/21/94	S06 XX	65. U	65. U	65. U	130. U	130. U	65. U	65. U	95.	65. U	65. U	65. U	65. U	65. U	65. U	195. U
06/21/94	S07 XX	60. U	60. U	60. U	120. U	120. U	60. U	60. U	166.	60. U	60. U	60. U	60. U	60. U	60. U	180. U
B21																
12/23/92	2D XX	600. U	600. U	600. U	3200. U	3200. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U		3200. U
12/23/92	5D XX	600. U	600. U	600. U	3200. U	3200. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U		3200. U
B24																
01/04/93	SBB2440DE XX	600. U	600. U	600. U	3200. U	3200. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U		3200. U
01/04/93	SBB2460DF XX	600. U	600. U	600. U	2900. U	2900. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U	600. U		2900. U
B26																
01/06/93	SBB2660DG XX	500. U	500. U	500. U	2700. U	1700. U	500. U	500. U	500. U	500. U	500. U	500. U	500. U	500. U		2700. U
B3																
09/28/92	SBXB3A0BH XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/29/92	SBXB3B0BI XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/29/92	SBXB3C0BJ XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/29/92	SBXB3E0C0 XX		500. U	500. U			500. U	500. U		500. U					500. U	
B4																
09/29/92	SBXB4A0C1 XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/29/92	SBXB4B0C2 XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/29/92	SBXB4C0C3 XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/29/92	SBXB4E0C4 XX		2000. U	2000. U			2000. U	2000. U		2000. U					2000. U	
B5																
09/29/92	SBXB5A0C5 XX		600. U	600. U			600. U	600. U		600. U					600. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	m-Xylene	o,p-Xylene	TCFMG	THF
(B5)																
09/29/92	SBXB5B0C6 XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/29/92	SBXB5C0C7 XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/29/92	SBXB5D0C8 XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/29/92	SBXB5E0C9 XX		600. U	600. U			600. U	600. U		600. U					600. U	
B6																
09/29/92	SBXB6A0CA XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/29/92	SBXB6B0CB XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/29/92	SBXB6D0CC XX		600. U	600. U			600. U	600. U		600. U					600. U	
10/02/92	SBXB6E0D2 XX		600. U	600. U			600. U	600. U		600. U					600. U	
B7																
09/29/92	SBXB7A0CD XX		700. U	700. U			700. U	700. U		700. U					700. U	
B8																
09/30/92	SBXB8A0CE XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/30/92	SBXB8C0CF XX		500. U	500. U			500. U	500. U		500. U					500. U	
09/30/92	SBXB8E0CG XX		500. U	500. U			500. U	500. U		500. U					500. U	
B9																
09/30/92	SBXB9A0CH XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/30/92	SBXB9B0CI XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/30/92	SBXB9C0CJ XX		600. U	600. U			600. U	600. U		600. U					600. U	
09/30/92	SBXB9D0D1 XX		500. U	500. U			500. U	500. U		500. U					500. U	

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

Report: DCISIP1C SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

D = COMPOUND DETERMINED IN ANALYSIS AT SECONDARY DILUTION FACTOR.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	DCDFME	MTBE	12DCB	13DCB	14DCB
(B1)						
B1						
09/28/92	SBXB1A0B7 XX			600. U	600. U	600. U
09/28/92	SBXB1B0B8 XX			600. U	600. U	600. U
09/28/92	SBXB1C0B9 XX			500. U	500. U	500. U
09/28/92	SBXB1D0BA XX			600. U	600. U	600. U
09/28/92	SBXB1E0BB XX			500. U	500. U	500. U
B10						
09/30/92	SBB10B0D0 XX			500. U	500. U	500. U
B101						
09/22/93	S3 XX					
09/22/93	S3 LD	13. U		13. U	13. U	13. U
B106						
09/22/93	S2 XX					
09/22/93	S5 XX					
B107						
09/22/93	S2 XX					
09/22/93	S2 LD	12. U		12. U	12. U	12. U
09/22/93	S3 XX					
09/22/93	S4 XX					
09/22/93	S5 XX					
09/22/93	S6 XX					
B109						
09/23/93	S2 XX					
B112						
09/23/93	S1 XX					
09/23/93	S2 XX					
09/23/93	S3 XX					
09/23/93	S4 XX					
09/23/93	S5 LD	11. U		11. U	11. U	11. U
09/23/93	S5 XX					

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	DCDFME	MTBE	12DCB	13DCB	14DCB
(B116)						
B116						
09/23/93	S1 XX					
B119						
09/24/93	S4 XX					
09/24/93	S5 XX					
09/24/93	S6 XX					
09/24/93	S7 XX					
09/24/93	S8 XX					
B120						
09/24/93	S1 XX					
B121						
09/24/93	S2 XX					
B122						
09/27/93	S5 LD	13. U		13. U	13. U	13. U
09/27/93	S5 XX					
B123						
09/27/93	S4 XX					
09/27/93	S5 XX					
B126						
09/27/93	S3 XX					
09/27/93	S4 XX					
09/27/93	S5 XX					
B127						
09/27/93	S3 XX					
09/27/93	S5 XX					
B128						
09/27/93	S1 XX					
09/27/93	S2 XX					
09/27/93	S4 XX					

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	DCDFME	MTBE	12DCB	13DCB	14DCB
(B129)						
B129						
09/27/93	S3 XX					
09/27/93	S5 XX					
B131						
09/27/93	S5 XX					
B134						
09/28/93	S5 XX					
B135						
09/28/93	S4 XX					
09/28/93	S5 XX					
B136						
09/28/93	S4 XX					
09/28/93	S5 XX					
B140						
09/28/93	S5 LD	13. U		13. U	13. U	13. U
09/29/93	S4 XX					
09/29/93	S5 XX					
B143						
09/29/93	S1 XX					
09/29/93	S2 XX					
09/29/93	S3 XX					
09/29/93	S4 XX					
B144						
09/29/93	S3 XX					
09/29/93	S4 XX					
09/29/93	S5 XX					
B145						
09/29/93	S3 XX					
09/29/93	S4 XX					

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	DCDFME	MTBE	12DCB	13DCB	14DCB
(B146)						
B146						
09/29/93	S3 XX					
B148						
09/29/93	S4 XX					
09/29/93	S5 XX					
09/29/93	S6 XX					
09/29/93	S7 XX					
B149						
09/29/93	S4 XX					
09/29/93	S5 XX					
09/29/93	S6 XX					
09/29/93	S7 XX					
B150						
09/30/93	S3 XX					
09/30/93	S4 LD	13. U		13. U	13. U	13. U
09/30/93	S4 XX					
09/30/93	S5 XX					
09/30/93	S6 XX					
09/30/93	S6 LD	13. U		13. U	13. U	13. U
09/30/93	S7 XX					
B151						
09/30/93	S3 XX					
09/30/93	S4 XX					
09/30/93	S4 LD	13. U		13. U	13. U	13. U
09/30/93	S5 XX					
09/30/93	S6 XX					
09/30/93	S6 LD	12. U		12. U	12. U	12. U
09/30/93	S7 XX					
B152						
09/30/93	S3 XX					
09/30/93	S4 XX					

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID		DCDFME	MTBE	12DCB	13DCB	14DCB
(B152)							
09/30/93	S5	XX					
09/30/93	S6	XX					
09/30/93	S7	XX					
B153							
09/30/93	S3	XX					
09/30/93	S4	XX					
09/30/93	S5	XX					
09/30/93	S5	LD	13. U		13. U	13. U	13. U
09/30/93	S6	XX					
09/30/93	S7	XX					
B154							
09/30/93	S3	XX					
09/30/93	S4	XX					
09/30/93	S5	XX					
09/30/93	S7	XX					
B155							
09/30/93	S3	XX					
09/30/93	S4	LD	13. U		13. U	13. U	13. U
09/30/93	S4	XX					
09/30/93	S5	XX					
09/30/93	S6	XX					
09/30/93	S7	XX					
B16							
10/05/92	SBB1600D3	XX			600. U	600. U	600. U
10/05/92	SBB16A0D4	XX			500. U	500. U	500. U
10/05/92	SBB16B0D5	XX			600. U	600. U	600. U
10/05/92	SBB16C0D6	XX			500. U	500. U	500. U
10/05/92	SBB16D0D7	XX			600. U	600. U	600. U
10/05/92	SBB16E0D8	XX			600. U	600. U	600. U
B17							
10/05/92	SBB17A0D9	XX			500. U	500. U	500. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	DCDFME	MTBE	12DCB	13DCB	14DCB
(B17)						
10/05/92	SBB17C0DA XX			500. U	500. U	500. U
10/05/92	SBB17D0DB XX			500. U	500. U	500. U
B19						
10/06/92	SBB19C0DC XX			500. U	500. U	500. U
B2						
09/28/92	SBXB2A0BC XX			600. U	600. U	600. U
09/28/92	SBXB2B0BD XX			500. U	500. U	500. U
09/28/92	SBXB2C0BE XX			500. U	500. U	500. U
09/28/92	SBXB2D0BF XX			500. U	500. U	500. U
09/28/92	SBXB2E0BG XX			500. U	500. U	500. U
B20						
10/06/92	SBB20D0DD XX			500. U	500. U	500. U
B201						
06/20/94	S04 XX	60. U	60. U	60. U	60. U	60. U
06/20/94	S09 XX	55. U	55. U	60. U	60. U	60. U
06/20/94	S10 XX	55. U	55. U	60. U	60. U	60. U
B202						
06/20/94	S02 XX	65. U	65. U	60. U	60. U	60. U
06/20/94	S06 XX	60. U	60. U	60. U	60. U	60. U
06/20/94	S10 XX	55. U	55. U	60. U	60. U	60. U
B203						
06/20/94	S05 XX	55. U	55. U	55. U	55. U	55. U
06/20/94	S07 XX	55. U	55. U	55. U	55. U	55. U
06/20/94	S09 XX	55. U	55. U	55. U	55. U	55. U
B204						
06/21/94	S06 XX	125. U	125. U	125. U	125. U	125. U
06/21/94	S07 XX	60. U	60. U	60. U	60. U	60. U
06/21/94	S10 XX	55. U	55. U	60. U	60. U	60. U
B205						
06/21/94	S03 XX	60. U	60. U	60. U	60. U	60. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 05/04/95
FOR: DELTA CHEMICALS INC

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	DCDFME	MTBE	12DCB	13DCB	14DCB
(B205)						
06/21/94	S04 XX	65. U	65. U	60. U	60. U	60. U
06/21/94	S05 XX	65. U	65. U	60. U	60. U	60. U
B206						
06/21/94	S05 XX	65. U	65. U	60. U	60. U	60. U
06/21/94	S06 XX	60. U	60. U	60. U	60. U	60. U
06/21/94	S07 XX	60. U	60. U	60. U	60. U	60. U
B207						
06/21/94	S05 XX	65. U	65. U	60. U	60. U	60. U
06/21/94	S06 XX	65. U	65. U	60. U	60. U	60. U
06/21/94	S07 XX	60. U	60. U	60. U	60. U	60. U
B21						
12/23/92	2D XX					
12/23/92	5D XX					
B24						
01/04/93	SBB2440DE XX					
01/04/93	SBB2460DF XX					
B26						
01/06/93	SBB2660DG XX					
B3						
09/28/92	SBXB3A0BH XX			600. U	600. U	600. U
09/29/92	SBXB3B0BI XX			500. U	500. U	500. U
09/29/92	SBXB3C0BJ XX			500. U	500. U	500. U
09/29/92	SBXB3E0C0 XX			500. U	500. U	500. U
B4						
09/29/92	SBXB4A0C1 XX			600. U	600. U	600. U
09/29/92	SBXB4B0C2 XX			600. U	600. U	600. U
09/29/92	SBXB4C0C3 XX			500. U	500. U	500. U
09/29/92	SBXB4E0C4 XX			2000. U	2000. U	2000. U
B5						
09/29/92	SBXB5A0C5 XX			600. U	600. U	600. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

TABLE 4-1B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
SOIL SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	DCDFME	MTBE	12DCB	13DCB	14DCB
(B5)						
09/29/92	SBXB5B0C6 XX			600. U	600. U	600. U
09/29/92	SBXB5C0C7 XX			500. U	500. U	500. U
09/29/92	SBXB5D0C8 XX			600. U	600. U	600. U
09/29/92	SBXB5E0C9 XX			600. U	600. U	600. U
B6						
09/29/92	SBXB6A0CA XX			600. U	600. U	600. U
09/29/92	SBXB6B0CB XX			500. U	500. U	500. U
09/29/92	SBXB6D0CC XX			600. U	600. U	600. U
10/02/92	SBXB6E0D2 XX			600. U	600. U	600. U
B7						
09/29/92	SBXB7A0CD XX			700. U	700. U	700. U
B8						
09/30/92	SBXB8A0CE XX			600. U	600. U	600. U
09/30/92	SBXB8C0CF XX			500. U	500. U	500. U
09/30/92	SBXB8E0CG XX			500. U	500. U	500. U
B9						
09/30/92	SBXB9A0CH XX			600. U	600. U	600. U
09/30/92	SBXB9B0CI XX			600. U	600. U	600. U
09/30/92	SBXB9C0CJ XX			600. U	600. U	600. U
09/30/92	SBXB9D0D1 XX			500. U	500. U	500. U

NOTES:
SOIL CONCENTRATIONS ARE IN µg/Kg.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

Report: DCISIP1D SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

D = COMPOUND DETERMINED IN ANALYSIS AT SECONDARY DILUTION FACTOR.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.

4.1.1 Field Headspace Screening of Soil Sampling. Headspace screening was conducted on the 518 soil samples collected as part of these investigations. Headspace readings ranged from 0 ppm in several samples to 499 ppm in a sample from 8 to 10 feet in boring B-112. Samples with headspace readings greater than 100 ppm were collected from borings B-2, B-5, B-112, B-126, B-150, and B-151. In general, elevated headspace readings were obtained for samples in which the laboratory analyses indicated halogenated volatile organic compounds were present. Although the jar-headspace and the laboratory analysis did not correlate directly, this technique was useful as a screening tool in identifying samples for further laboratory analysis.

4.1.2 Field GC Analysis of Selected Volatile Organic Compounds. Six of nine calibrated VOCs were detected at least once in samples analyzed on the field laboratory GC (Table 4-2). Compounds detected included: TCE; PCE; cis-1,2-DCE; trans-1,2-DCE; 1,1,1-TCEA; and toluene. TCE was found in 86 percent of samples analyzed, and was the only compound present at a concentration greater than 1 milligram per kilogram (mg/kg) in the soil. Toluene was the next most frequently detected VOC, and was found in 20 percent of the samples analyzed. The remaining four VOCs were detected sporadically and at low concentrations.

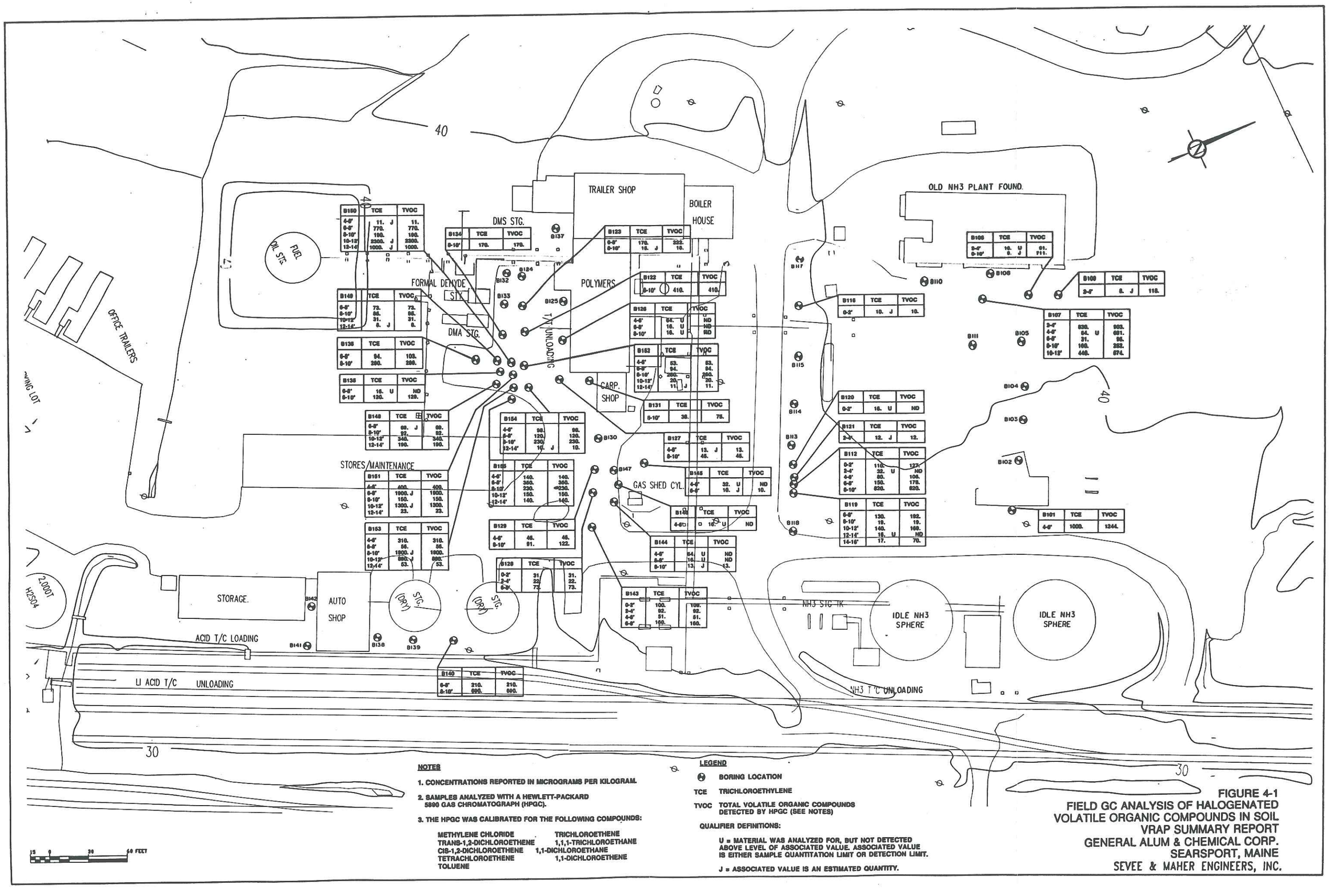
TABLE 4-2

SUMMARY OF FIELD GAS CHROMATOGRAPH ANALYSIS OF SOIL SAMPLES
AT GENERAL ALUM AND CHEMICAL CORPORATION FACILITY
SEARSPORT, MAINE

Compound	Range (µg/kg)	Frequency of Detection	Percent Occurence (%)	Borings Containing VOCs >1 mg/kg
TCE	8-1,100	77/90	86	B101,B150,B151,B153
PCE	140	1/90	1	--
t-1,2-DCE	5-620	7/90	8	--
c-1,2-DCE	28-110	10/90	11	--
1,1,1-TCEA	180-530	2/90	2	--
Toluene	9-110	18/90	20	--

Soil data maps showing the distribution of VOCs detected in the field GC analysis are in Figure 4-1. Concentrations of TCE exceeding 1 mg/kg in the soil were detected in borings B-150, B-151, and B-153 at depths ranging from 6 to 14 feet below ground surface. These borings are located in the former pre-heater degreasing area (Area 2). Low levels of TCE (0.5 to 1 mg/kg) were also detected in samples obtained from B-101, B-107, B-112, and B-140 at depths ranging from 2 to 14 feet, as shown on Figure 4-1. Generally, the higher concentrations of TCE are restricted to the shallow glaciomarine sediment layer overlying the till unit at these locations.

4.1.3 Laboratory Chemical Analysis. Low levels of five VOCs: trichloroethene, 1,2-dichloroethene, toluene, ethylbenzene, and xylene, were detected in soil samples submitted for laboratory chemical analysis during the three phases of the field investigation. Table 4-1A presents the analytical laboratory VOC sampling detections, Table 4-1B presents all the soils analyses, and Table 4-4 summarizes the results. Note that the 11 samples (B-100-series) submitted during the Phase 2 field investigation which exceeded the required method holding time are included in Table 4-1A and Table 4-1B, but we did not include this data in our calculations on Table 4-3. TCE and toluene were the most frequently detected VOCs found in the laboratory chemical data, occurring in 27 and 46 percent, respectively, of the samples



NOTES

1. CONCENTRATIONS REPORTED IN MICROGRAMS PER KILOGRAM.
2. SAMPLES ANALYZED WITH A HEWLETT-PACKARD 5890 GAS CHROMATOGRAPH (HPGC).
3. THE HPGC WAS CALIBRATED FOR THE FOLLOWING COMPOUNDS:

METHYLENE CHLORIDE	TRICHLOROETHENE
TRANS-1,2-DICHLOROETHENE	1,1,1-TRICHLOROETHANE
CIS-1,2-DICHLOROETHENE	1,1-DICHLOROETHANE
TETRACHLOROETHENE	1,1-DICHLOROETHENE
TOLUENE	

LEGEND

- BORING LOCATION
- TCE TRICHLOROETHYLENE
- TVOC TOTAL VOLATILE ORGANIC COMPOUNDS DETECTED BY HPGC (SEE NOTES)

QUALIFIER DEFINITIONS:

U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.

J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.

FIGURE 4-1
FIELD GC ANALYSIS OF HALOGENATED VOLATILE ORGANIC COMPOUNDS IN SOIL
VRAP SUMMARY REPORT
GENERAL ALUM & CHEMICAL CORP.
SEARSPORT, MAINE
SEVEE & MAHER ENGINEERS, INC.

TABLE 4-3

SUMMARY OF ANALYTICAL LABAORATORY ANALYSIS OF SOIL SAMPLES
AT GENERAL ALUM AND CHEMICAL CORPORATION FACILITY
SEARSPORT, MAINE

Compound	Range (µg/kg)	Frequency of Detection	Percent Occurence (%)	Borings Containing VOCs Exceeding 1 mg/kg
TCE	55-3,354	20/73	27	B204,B207
1,2-DCE (Total)	50-65	3/73	4	--
Toluene	55-166	12/26	46	--
Ethylbenzene	246	1/26	4	--
Xylenes	1,046	1/26	4	B205

analyzed. The frequency of detection of the remaining VOCs was less than 5 percent. This latter group included ethylbenzene and xylenes, compounds which were only detected in one boring (B-205) drilled near the abandoned leachfield east of the Carpenter Shop (Area 4).

Laboratory chemical data of site soils compiled from Phases 1 through 3 are shown on Figure 4-2. TCE concentrations in soils ranged from non-detect to 3.4 mg/kg in B-204. The results of the laboratory analysis was generally consistent with the field GC analysis. Laboratory analysis confirmed the presence of TCE in soils exceeding 1 mg/kg in the following areas: (1) the area between the storage tank units north of the Auto Shop, and the railroad tracks (B-207); (2) preheater degreasing area south of the Polymers Building (B-204); and (3) the area adjacent to the access road across from the former ammonia spheres (B-2). Except for TCE and the one detection of total xylenes (1 mg/kg) in B-205, no other VOCs reported in laboratory analysis exceeded 0.25 mg/kg.

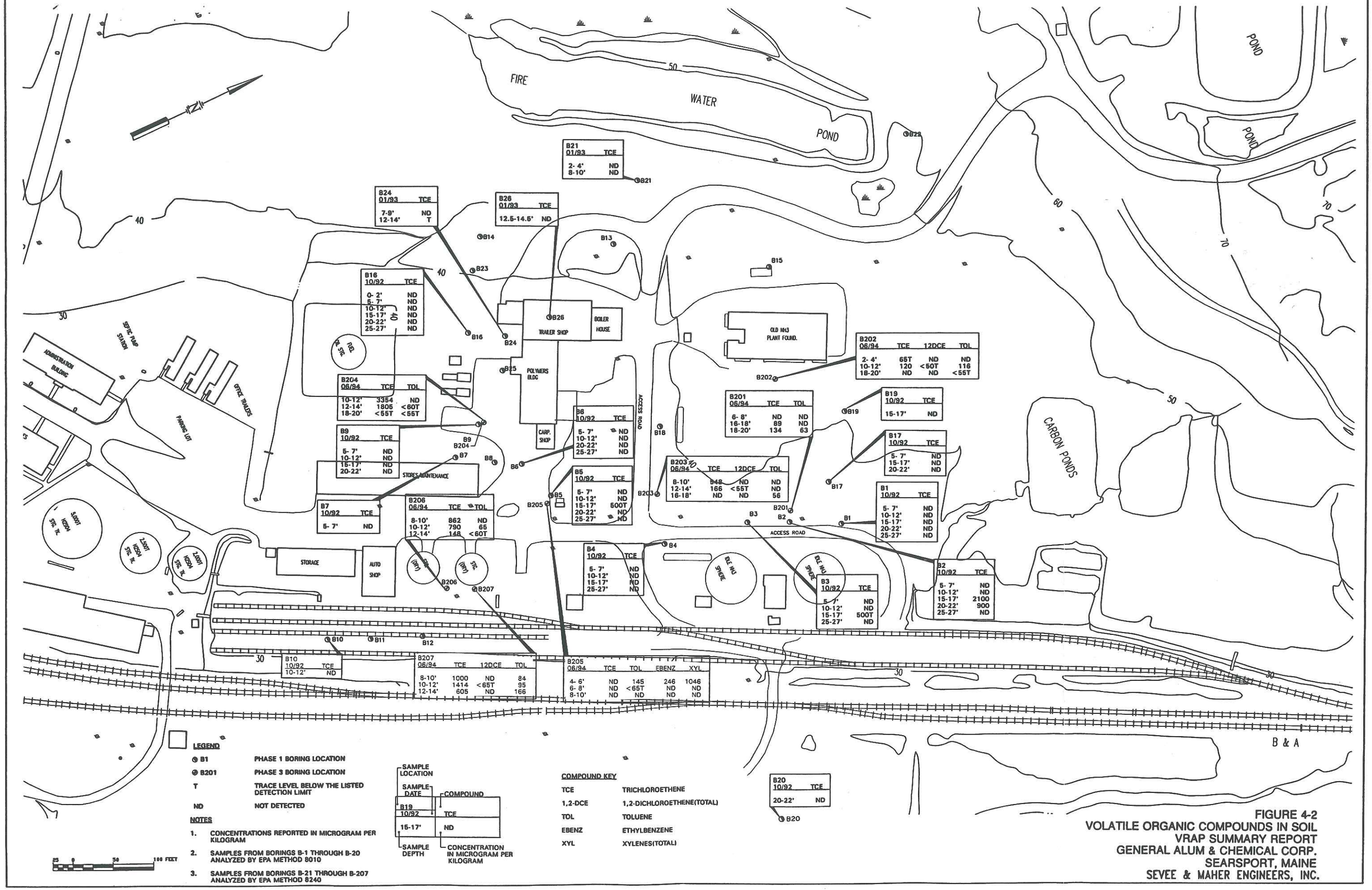


FIGURE 4-2
VOLATILE ORGANIC COMPOUNDS IN SOIL
VRAP SUMMARY REPORT
GENERAL ALUM & CHEMICAL CORP.
SEARSPORT, MAINE
SEVEE & MAHER ENGINEERS, INC.

D:\GC1\ACAD\GC1001 Fri Apr 7 13:20:46 1995

4.1.4 Comparison of Soil Analyses to Suspected Spill/Disposal Area.

Area 1 - Parts Cleaning Area

VOCs were detected in samples collected from borings B-140, B-206, and B-207 in the parts cleaning area. Laboratory analysis of samples collected from 10 to 12 feet in B-207 detected TCE concentrations of 1.4 mg/kg. In addition to TCE, low levels of toluene and 1,2-dichloroethene were detected in soil samples collected from these borings.

Area 2/3 - Preheater/Degreasing

VOCs were detected in samples collected from borings B-150, B-151, B-152, B-153, and B-204 located in the preheater degreasing area. TCE was detected at concentrations of 3.3 mg/kg in soil samples collected from 10 to 12 feet; and 1.8 mg/kg at 12 to 14 feet in B-204. Trace levels of toluene were also detected at 12 to 20 feet in this boring.

Area 4 - Abandoned Leachfield/Septic

Low levels of toluene, ethylbenzene and xylenes were detected in soil samples collected from 4 to 6 feet in

B-205. No significant levels of TCE were detected in any of the soil samples collected from B-144 or B-205 located in this area.

Area 5 - Heat Exchanger Cleaning Area

Low levels of TCE were detected in soil samples collected from borings B-112 and B-203 drilled in the vicinity of the heat exchanger cleaning area. TCE was detected at a concentration of 0.55 mg/kg in a sample from 8 to 10 feet in B-203; and 0.8 mg/kg in a sample from 8 to 10 feet in B-112.

Area 6 - Burner Cleaning Area

Borings B-107, B-201, and B-202 are located in the burner cleaning area. Low levels of TCE were detected in soil samples collected from each of the borings. TCE concentrations detected were 0.8 mg/kg (2 to 4 feet) in B-107, 0.12 mg/kg at 10 to 12 feet in B-202, and 0.13 mg/kg at 18 to 20 feet in B-201. Low levels of toluene and 1,2-DCE were also detected in B-201 and B-202.

4.2 Groundwater

The results of groundwater sampling conducted during Phase 1 and Phase 3 are summarized on Table 4-4A (detects only) and 4-4B. The distribution of VOCs in the groundwater at the site are presented in Figure 4-3. Ten volatile organic compounds were detected at least once in grab samples of groundwater collected from the 25 temporary wells installed during the Phase 1 investigation. As presented in Table 4-5, TCE was detected more frequently and at higher concentrations than any other VOCs reported. Detectable concentrations of TCE ranged from 0.005 to 6.8 milligrams per liter (mg/l), while being present in 75 percent of the temporary wells sampled. The higher dissolved groundwater concentrations of TCE (approaching 0.5 to 6.8 mg/l) coincided with the areas where the highest soil TCE concentrations values had been detected near B-204 and B-8 and B-9 in the vicinity of the preheater degreaser facility.

By-products of TCE dehalogenation (i.e., 1,1-DCE; 1,2-DCE; 1,1-DCA, and vinyl chloride), and PCE were also detected in the groundwater samples from the site (Figure 4-3). The remaining VOCs detected (i.e., 1,1,1-TCA; 1,1-DCA; methylene chloride; 2-butanone; and chloroform) were found in less than 15 percent of the samples tested, and at concentrations below current State and Federal drinking water standards.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC
SEARSPORT, ME

TABLE 4-4A
DELTA VRAP SUMMARY REPORT
VOC's - DETECTS ONLY
GROUNDWATER SAMPLES

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B1 Vinyl Chloride)						
B1						
	Vinyl Chloride	09/29/92	23.	GWXB1X0DH	XX	EPA 8010
	trans-1,2-Dichloroethene	09/29/92	60.	GWXB1X0DH	XX	EPA 8010
	Trichloroethene	09/29/92	260.	GWXB1X0DH	XX	EPA 8010
B2						
	Trichloroethene	09/29/92	2500.	GWXB2X0DI	XX	EPA 8010
B3						
	trans-1,2-Dichloroethene	09/29/92	35.	GWXB3X0DJ	XX	EPA 8010
	Trichloroethene	09/29/92	170.	GWXB3X0DJ	XX	EPA 8010
B4						
	Methylene Chloride	09/29/92	17.	GWXB4X0E0	XX	EPA 8010
	trans-1,2-Dichloroethene	09/29/92	160.	GWXB4X0E0	XX	EPA 8010
	Trichloroethene	09/29/92	570.	GWXB4X0E0	XX	EPA 8010
B5						
	trans-1,2-Dichloroethene	09/30/92	13.	GWXB5X0E1	XX	EPA 8010
	Trichloroethene	09/30/92	350.	GWXB5X0E1	XX	EPA 8010
B6						
	trans-1,2-Dichloroethene	10/02/92	41.	GWXB6X0E5	XX	EPA 8010
	Trichloroethene	10/02/92	320.	GWXB6X0E5	XX	EPA 8010
B8						
	Methylene Chloride	10/01/92	84.	GWXB8X0E3	XX	EPA 8010
	Trichloroethene	10/01/92	2600.	GWXB8X0E3	XX	EPA 8010
B9						
	Trichloroethene	10/01/92	6800.	GWXB9X0E4	XX	EPA 8010

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B9 Trichloroethene)						
B10						
	1,1-Dichloroethane	10/02/92	9.	GWB10X0E6	XX	EPA 8010
B11						
	1,1-Dichloroethane	10/02/92	12.	GWB11X0E7	XX	EPA 8010
	trans-1,2-Dichloroethene	10/02/92	7.	GWB11X0E7	XX	EPA 8010
	Trichloroethene	10/02/92	20.	GWB11X0E7	XX	EPA 8010
	Tetrachloroethene	10/02/92	6.	GWB11X0E7	XX	EPA 8010
B12						
	Vinyl Chloride	10/02/92	12.	GWB12X0E8	XX	EPA 8010
	1,1-Dichloroethene	10/02/92	10.	GWB12X0E8	XX	EPA 8010
	1,1-Dichloroethane	10/02/92	9.	GWB12X0E8	XX	EPA 8010
	trans-1,2-Dichloroethene	10/02/92	25.	GWB12X0E8	XX	EPA 8010
	1,1,1-Trichloroethane	10/02/92	53.	GWB12X0E8	XX	EPA 8010
	Trichloroethene	10/02/92	470.	GWB12X0E8	XX	EPA 8010
	Tetrachloroethene	10/02/92	9.	GWB12X0E8	XX	EPA 8010
B13						
	Trichloroethene	10/06/92	7.	GWB13X0E9	XX	EPA 8010
B16						
	1,2-Dichloroethene (total)	10/06/92	12.	GWB16X0EC	XX	EPA 8240
	Trichloroethene	10/06/92	9.	GWB16X0EC	XX	EPA 8240
B17						
	Trichloroethene	10/06/92	180.	GWB17X0ED	XX	EPA 8010
B18						
	Vinyl Chloride	10/09/92	11.	GWB18X0EE	XX	EPA 8010

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC
SEARSPORT, ME

TABLE 4-4A
DELTA VRAP SUMMARY REPORT
VOC's - DETECTS ONLY
GROUNDWATER SAMPLES

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

LOCATION	PARAMETER NAME	SAMPLE DATE	CONCENTRATION/QUALIFIER	SAMPLE ID	MODIFIER	ANALYTICAL METHOD
(B18 Vinyl Chloride)						
	Trichloroethene	10/09/92	12.	GWB18X0EE	XX	EPA 8010
B20						
	Trichloroethene	10/09/92	100.	GWB20X0EF	XX	EPA 8240
B24						
	1,2-Dichloroethene (total)	01/06/93	18.	GWB24X0EJ	XX	EPA 8240
	Trichloroethene	01/06/93	190.	GWB24X0EJ	XX	EPA 8240
B25						
	1,2-Dichloroethene (total)	01/06/93	11.	GWB25X0F0	XX	EPA 8240
	Trichloroethene	01/06/93	26.	GWB25X0F0	XX	EPA 8240
B26						
	Chloroform	01/06/93	22.	GWB26X0F1	XX	EPA 8240
	Trichloroethene	01/06/93	16.	GWB26X0F1	XX	EPA 8240

Report: HITS SME Number: 0003.3.2 October 1991

NOTE: CONCENTRATIONS ARE IN µg/L FOR WATER SAMPLES AND µg/Kg FOR SOIL SAMPLES
END REPORT.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE	CLFRM
(B1)																
B1																
09/29/92	GWXB1X0DH	XX	WATER	SME	EPA 8010	17. U	17. U	23.	17. U	8. U			8. U	8. U		8. U
B10																
10/02/92	GWB10X0E6	XX	WATER	SME	EPA 8010	10. U	10. U	10. U	10. U	5. U			5. U	9.		5. U
B11																
10/02/92	GWB11X0E7	XX	WATER	SME	EPA 8010	10. U	10. U	10. U	10. U	5. U			5. U	12.		5. U
B12																
10/02/92	GWB12X0E8	XX	WATER	SME	EPA 8010	10. U	10. U	12.	10. U	5. U			10.	9.		5. U
B13																
10/06/92	GWB13X0E9	XX	WATER	SME	EPA 8010	10. U	10. U	10. U	10. U	5. U			5. U	5. U		5. U
B14																
10/06/92	GWB14X0EA	XX	WATER	SME	EPA 8010	10. U	10. U	10. U	10. U	5. U			5. U	5. U		5. U
B15																
10/06/92	GWB15X0EB	XX	WATER	SME	EPA 8010	10. U	10. U	10. U	10. U	5. U			5. U	5. U		5. U
B16																
10/06/92	GWB16X0EC	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	12.	5. U
B17																
10/06/92	GWB17X0ED	XX	WATER	SME	EPA 8010	10. U	10. U	10. UT	10. U	5. U			5. U	5. U		5. U
B18																
10/09/92	GWB18X0EE	XX	WATER	SME	EPA 8010	10. U	10. U	11.	10. U	5. U			5. U	5. U		5. U
B2																
09/29/92	GWXB2X0DI	XX	WATER	SME	EPA 8010	170. U	170. U	170. U	170. U	83. UT			83. U	83. U		83. U
B20																
10/09/92	GWB20X0EF	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	5. U	5. U
B21																
01/06/93	GWB21X0EG	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	5. U	5. U

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE	CLFRM
(B22)																
B22																
01/06/93	GWB22X0EH	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	5. U	5. U
B23																
01/06/93	GWB23X0EI	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	5. U	5. U
B24																
01/06/93	GWB24X0EJ	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	18.	5. U
B25																
01/06/93	GWB25X0F0	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	11.	5. U
B26																
01/06/93	GWB26X0F1	XX	WATER	SME	EPA 8240	10. U	10. U	10. U	5. U	10. U	25. U	5. U	5. U	5. U	5. U	22.
B3																
09/29/92	GWXB3X0DJ	XX	WATER	SME	EPA 8010	13. U	13. U	13. U	13. U	6. U			6. U	6. U		6. U
B4																
09/29/92	GWXB4X0E0	XX	WATER	SME	EPA 8010	33. U	33. U	33. UT	33. U	17.			17. U	17. U		17. U
B5																
09/30/92	GWXB5X0E1	XX	WATER	SME	EPA 8010	25. U	25. U	25. U	25. U	13. U			13. U	13. U		13. U
B6																
10/02/92	GWXB6X0E5	XX	WATER	SME	EPA 8010	25. U	25. U	25. U	25. U	13. U			13. U	13. U		13. U
B7																
10/01/92	GWXB7X0E2	XX	WATER	SME	EPA 8010	10. U	10. U	10. U	10. U	5. U			5. U	5. U		5. U
B8																
10/01/92	GWXB8X0E3	XX	WATER	SME	EPA 8010	170. U	170. U	170. U	170. U	84.			83. U	83. U		83. U
B9																
10/01/92	GWXB9X0E4	XX	WATER	SME	EPA 8010	500. U	500. U	500. U	500. U	250. UT			250. U	250. U		250. U
M2-A																
06/20/94	M2-A	XX	WATER	SME	EPA 8240	1. 5. U	5. U	5. U	5. U	5. U	15. U	5. U	5. U	5. U	5. U	5. U
M2-B																

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 1 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	MTX	BY	METHOD	Dilution	MeCl	MeBr	VCl	EtCl	MeCl2	ACETONE	CS2	11DCE	11DCEA	12DCE	CLFRM
(M2-B)																
06/20/94	M2-B	XX WATER	SME	EPA 8240	1.	5. U	5. U	5. U	5. U	5. U	15. U	5. U	5. U	5. U	5. U	5. U
M2-C																
06/20/94	M2-C	XX WATER	SME	EPA 8240	1.	5. U	5. U	5. U	5. U	5. U	15. U	5. U	5. U	5. U	5. U	5. U

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

Report: DCIGIP1A SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

F = SAMPLING LOCATION FROZEN.
D = SAMPLING LOCATION DRY.
I = LOCATION YIELDED INSUFFICIENT SAMPLE FOR ANALYSIS.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
UJ = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED. ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
B = COMPOUND WAS FOUND IN BLANK AS WELL AS IN SAMPLE.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH	12DCB	13DCB	14DCB
(B1)																
B1																
09/29/92	GWXB1X0DH XX	8. U		8. U	8. U		8. U	8. U	8. U	260.	8. U	8. U	8. U	8. U	8. U	8. U
B10																
10/02/92	GWB10X0E6 XX	5. U		5. UT	5. U		5. U	5. U	5. U	5. UT	5. U	5. U	5. U	5. U	5. U	5. U
B11																
10/02/92	GWB11X0E7 XX	5. U		5. U	5. U		5. U	5. U	5. U	20.	5. U	5. U	5. U	5. U	5. U	5. U
B12																
10/02/92	GWB12X0E8 XX	5. U		53.	5. U		5. U	5. U	5. U	470.	5. U	5. U	5. U	5. U	5. U	5. U
B13																
10/06/92	GWB13X0E9 XX	5. U		5. U	5. U		5. U	5. U	5. U	7.	5. U	5. U	5. U	5. U	5. U	5. U
B14																
10/06/92	GWB14X0EA XX	5. U		5. U	5. U		5. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U
B15																
10/06/92	GWB15X0EB XX	5. U		5. U	5. U		5. U	5. U	5. U	5. UT	5. U	5. U	5. U	5. U	5. U	5. U
B16																
10/06/92	GWB16X0EC XX	5. U	25. UT	5. U	5. U	10. U	5. U	5. U	5. U	9.	5. U	5. U				
B17																
10/06/92	GWB17X0ED XX	5. U		5. U	5. U		5. U	5. U	5. U	180.	5. U	5. U	5. U	5. U	5. U	5. U
B18																
10/09/92	GWB18X0EE XX	5. U		5. U	5. U		5. U	5. U	5. U	12.	5. U	5. U	5. U	5. U	5. U	5. U
B2																
09/29/92	GWXB2X0DI XX	83. U		83. U	83. U		83. U	83. U	83. U	2500.	83. U	83. U	83. U	83. U	83. U	83. U
B20																
10/09/92	GWB20X0EF XX	5. U	25. U	5. U	5. U	10. U	5. U	5. U	5. U	100.	5. U	5. U				
B21																
01/06/93	GWB21X0EG XX	5. U	25. U	5. U	5. U	10. U	5. U	5. U	5. U	5. U	5. U	5. U				

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH	12DCB	13DCB	14DCB
(B22)																
B22																
01/06/93	GWB22X0EH XX	5. U	25. U	5. U	5. U	10. U	5. U	5. U	5. U	5. U	5. U	5. U				
B23																
01/06/93	GWB23X0EI XX	5. U	25. U	5. U	5. U	10. U	5. U	5. U	5. U	5. U	5. U	5. U				
B24																
01/06/93	GWB24X0EJ XX	5. U	25. U	5. U	5. U	10. U	5. U	5. U	5. U	190.	5. U	5. U				
B25																
01/06/93	GWB25X0F0 XX	5. U	25. U	5. U	5. U	10. U	5. U	5. U	5. U	26.	5. U	5. U				
B26																
01/06/93	GWB26X0F1 XX	5. U	25. U	5. U	5. U	10. U	5. U	5. U	5. U	16.	5. U	5. U				
B3																
09/29/92	GWXB3X0DJ XX	6. U		6. U	6. U		6. U	6. U	6. U	170.	6. U	6. U	6. U	6. U	6. U	6. U
B4																
09/29/92	GWXB4X0E0 XX	17. U		17. U	17. U		17. U	17. U	17. U	570.	17. U	17. U	17. U	17. U	17. U	17. U
B5																
09/30/92	GWXB5X0E1 XX	13. U		13. U	13. U		13. U	13. U	13. U	350.	13. U	13. U	13. U	13. U	13. U	13. U
B6																
10/02/92	GWXB6X0E5 XX	13. U		13. U	13. U		13. U	13. U	13. U	320.	13. U	13. U	13. U	13. U	13. U	13. U
B7																
10/01/92	GWXB7X0E2 XX	5. U		5. U	5. U		5. U	5. U	5. U	5. UT	5. U	5. U	5. U	5. U	5. U	5. U
B8																
10/01/92	GWXB8X0E3 XX	83. U		83. U	83. U		83. U	83. U	83. U	2600.	83. U	83. U	83. U	83. U	83. U	83. U
B9																
10/01/92	GWXB9X0E4 XX	250. U		250. U	250. U		250. U	250. U	250. U	6800.	250. U	250. U	250. U	250. U	250. U	250. U
M2-A																
06/20/94	M2-A XX	5. U	10. U	5. U	5. U	15. U	5. U	5. U	5. U	5. U	5. U	5. U	15. U	5. U	5. U	5. U
M2-B																

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 2 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	12DCEA	MEK	111TCEA	CCl4	VACT	MeBrCl2	12DCPA	c13DCP	TCE	MeBr2Cl	112TCEA	2ClEtVETH	12DCB	13DCB	14DCB
(M2-B)																
06/20/94	M2-B XX	5. U	10. U	5. U	5. U	15. U	5. U	5. U	5. U	5. U	5. U	5. U	15. U	5. U	5. U	5. U
M2-C																
06/20/94	M2-C XX	5. U	10. U	5. U	5. U	15. U	5. U	5. U	5. U	5. U	5. U	5. U	15. U	5. U	5. U	5. U

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF REPORT FOR QUALIFIER DEFINITIONS.

Report: DCIGIP1B SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

F = SAMPLING LOCATION FROZEN.
D = SAMPLING LOCATION DRY.
I = LOCATION YIELDED INSUFFICIENT SAMPLE FOR ANALYSIS.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
UJ = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED. ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
B = COMPOUND WAS FOUND IN BLANK AS WELL AS IN SAMPLE.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	Total Xylene	m-Xylene	o,p-Xylene
(B1)															
B1															
09/29/92	GWXB1X0DH XX		8. U	8. U			8. U	8. U		8. U					
B10															
10/02/92	GWB10X0E6 XX		5. U	5. U			5. U	5. U		5. U					
B11															
10/02/92	GWB11X0E7 XX		5. U	5. U			6.	5. U		5. U					
B12															
10/02/92	GWB12X0E8 XX		5. U	5. U			9.	5. U		5. U					
B13															
10/06/92	GWB13X0E9 XX		5. U	5. U			5. U	5. U		5. U					
B14															
10/06/92	GWB14X0EA XX		5. U	5. U			5. U	5. U		5. U					
B15															
10/06/92	GWB15X0EB XX		5. U	5. U			5. U	5. U		5. U					
B16															
10/06/92	GWB16X0EC XX	5. U	5. U	5. U	25. U	25. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U		
B17															
10/06/92	GWB17X0ED XX		5. U	5. U			5. U	5. U		5. U					
B18															
10/09/92	GWB18X0EE XX		5. U	5. U			5. U	5. U		5. U					
B2															
09/29/92	GWXB2X0DI XX		83. U	83. U			83. U	83. U		83. U					
B20															
10/09/92	GWB20X0EF XX	5. U	5. U	5. U	25. U	25. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U		
B21															
01/06/93	GWB21X0EG XX	5. U	5. U	5. U	25. U	25. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U		

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	Total Xylene	m-Xylene	o,p-Xylene
(B22)															
B22															
01/06/93	GWB22X0EH XX	5. U	5. U	5. U	25. U	25. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U		
B23															
01/06/93	GWB23X0EI XX	5. U	5. U	5. U	25. U	25. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U		
B24															
01/06/93	GWB24X0EJ XX	5. U	5. U	5. U	25. U	25. U	5. UT	5. U	5. U	5. U	5. U	5. U	5. U		
B25															
01/06/93	GWB25X0F0 XX	5. U	5. U	5. U	25. U	25. U	5. U	5. U	5. U	5. U	5. U	5. U	5. U		
B26															
01/06/93	GWB26X0F1 XX	5. U	5. U	5. U	25. U	25. U	5. UT	5. U	5. U	5. U	5. U	5. U	5. U		
B3															
09/29/92	GWXB3X0DJ XX		6. U	6. U			6. U	6. U		6. U					
B4															
09/29/92	GWXB4X0E0 XX		17. U	17. U			17. U	17. U		17. U					
B5															
09/30/92	GWXB5X0E1 XX		13. U	13. U			13. U	13. U		13. U					
B6															
10/02/92	GWXB6X0E5 XX		13. U	13. U			13. U	13. U		13. U					
B7															
10/01/92	GWXB7X0E2 XX		5. U	5. U			5. U	5. U		5. U					
B8															
10/01/92	GWXB8X0E3 XX		83. U	83. U			83. U	83. U		83. U					
B9															
10/01/92	GWXB9X0E4 XX		250. U	250. U			250. U	250. U		250. U					
M2-A															
06/20/94	M2-A XX	5. U	5. U	5. U	10. U	10. U	5. U	5. U	5. U	5. U	5. U	5. U		5. U	5. U
M2-B															

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 3 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID		BENZENE	t13DCP	BF	MIBK	MBK	PCE	1122TCEA	TOLUENE	ClBENZ	EtBENZ	STYRENE	Total Xylene	m-Xylene	o,p-Xylene
(M2-B)																
06/20/94	M2-B	XX	5. U	5. U	5. U	10. U	10. U	5. U	5. U	5. U	5. U	5. U	5. U		5. U	5. U
M2-C																
06/20/94	M2-C	XX	5. U	5. U	5. U	10. U	10. U	5. U	5. U	5. U	5. U	5. U	5. U		5. U	5. U

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

Report: DCIGIP1C SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

F = SAMPLING LOCATION FROZEN.
D = SAMPLING LOCATION DRY.
I = LOCATION YIELDED INSUFFICIENT SAMPLE FOR ANALYSIS.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
UJ = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED. ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
B = COMPOUND WAS FOUND IN BLANK AS WELL AS IN SAMPLE.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	TCFMG	THF	DCDFME	MTBE
(B1)					
B1					
09/29/92	GWXB1X0DH XX	8. U			
B10					
10/02/92	GWB10X0E6 XX	5. U			
B11					
10/02/92	GWB11X0E7 XX	5. U			
B12					
10/02/92	GWB12X0E8 XX	5. U			
B13					
10/06/92	GWB13X0E9 XX	5. U			
B14					
10/06/92	GWB14X0EA XX	5. U			
B15					
10/06/92	GWB15X0EB XX	5. U			
B16					
10/06/92	GWB16X0EC XX	5. U			
B17					
10/06/92	GWB17X0ED XX	5. U			
B18					
10/09/92	GWB18X0EE XX	5. U			
B2					
09/29/92	GWXB2X0DI XX	83. U			
B20					
10/09/92	GWB20X0EF XX	5. U			
B21					
01/06/93	GWB21X0EG XX	5. U			

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID	TCFMG	THF	DCDFME	MTBE
(B22)					
B22					
01/06/93	GWB22X0EH XX	5. U			
B23					
01/06/93	GWB23X0EI XX	5. U			
B24					
01/06/93	GWB24X0EJ XX	5. U			
B25					
01/06/93	GWB25X0F0 XX	5. U			
B26					
01/06/93	GWB26X0F1 XX	5. U			
B3					
09/29/92	GWXB3X0DJ XX	6. U			
B4					
09/29/92	GWXB4X0E0 XX	17. U			
B5					
09/30/92	GWXB5X0E1 XX	13. U			
B6					
10/02/92	GWXB6X0E5 XX	13. U			
B7					
10/01/92	GWXB7X0E2 XX	5. U			
B8					
10/01/92	GWXB8X0E3 XX	83. U			
B9					
10/01/92	GWXB9X0E4 XX	250. U			
M2-A					
06/20/94	M2-A XX	5. U	15. U	5. U	5. U
M2-B					

NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

REPORT PREPARED: 07/11/95
FOR: DELTA CHEMICALS INC

TABLE 4-4B
DELTA VRAP SUMMARY REPORT
VOLATILE ORGANIC COMPOUNDS
GROUNDWATER SAMPLES (PART 4 OF 4)

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND CENTER, ME 04021

SAMPLE LOCATION/ DATE	SAMPLE ID		TCFMG	THF	DCDFME	MTBE
(M2-B)						
06/20/94	M2-B	XX	5. U	15. U	5. U	5. U
M2-C						
06/20/94	M2-C	XX	5. U	15. U	5. U	5. U

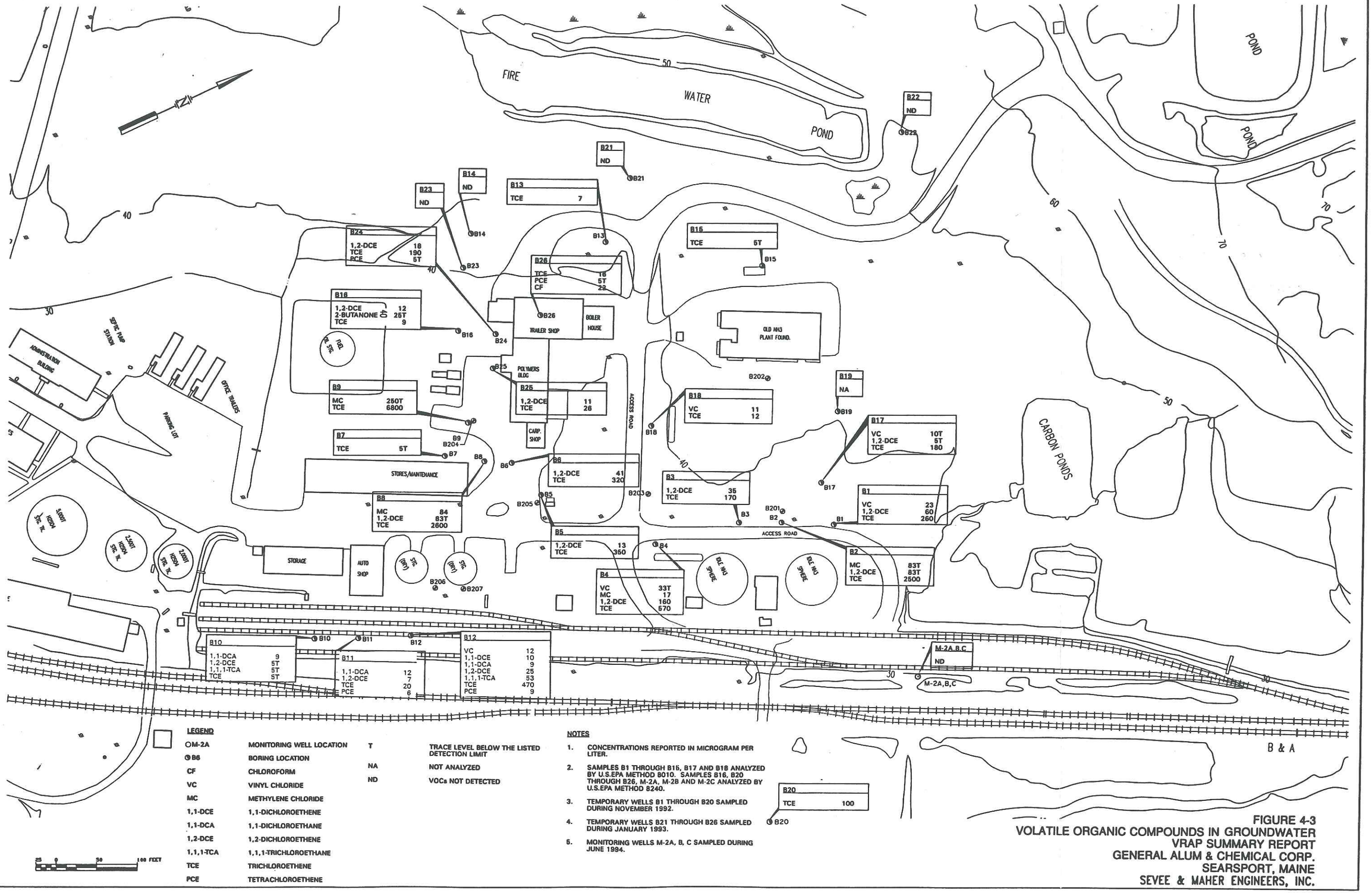
NOTES:
WATER CONCENTRATIONS ARE IN µg/L.
SEE END OF TABLE FOR QUALIFIER DEFINITIONS.

Report: DCIGIP1C SME Number: 0003.3.2 October 1991

QUALIFIER DEFINITIONS:

F = SAMPLING LOCATION FROZEN.
D = SAMPLING LOCATION DRY.
I = LOCATION YIELDED INSUFFICIENT SAMPLE FOR ANALYSIS.
U = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED ABOVE LEVEL OF ASSOCIATED VALUE. ASSOCIATED VALUE IS EITHER SAMPLE QUANTITATION LIMIT OR DETECTION LIMIT.
J = ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
UJ = MATERIAL WAS ANALYZED FOR, BUT NOT DETECTED. ASSOCIATED VALUE IS AN ESTIMATED QUANTITY.
B = COMPOUND WAS FOUND IN BLANK AS WELL AS IN SAMPLE.
T = COMPOUND REPORTED AS TRACE.
= BLANK FIELD INDICATES COMPOUND WAS NOT TESTED FOR.

END REPORT.



LEGEND

M-2A	MONITORING WELL LOCATION	T	TRACE LEVEL BELOW THE LISTED DETECTION LIMIT
B6	BORING LOCATION	NA	NOT ANALYZED
CF	CHLOROFORM	ND	VOCs NOT DETECTED
VC	VINYL CHLORIDE		
MC	METHYLENE CHLORIDE		
1,1-DCE	1,1-DICHLOROETHENE		
1,1-DCA	1,1-DICHLOROETHANE		
1,2-DCE	1,2-DICHLOROETHENE		
1,1,1-TCA	1,1,1-TRICHLOROETHANE		
TCE	TRICHLOROETHENE		
PCE	TETRACHLOROETHENE		

NOTES

1. CONCENTRATIONS REPORTED IN MICROGRAM PER LITER.
2. SAMPLES B1 THROUGH B16, B17 AND B18 ANALYZED BY U.S.EPA METHOD 8010. SAMPLES B16, B20 THROUGH B26, M-2A, M-2B AND M-2C ANALYZED BY U.S.EPA METHOD 8240.
3. TEMPORARY WELLS B1 THROUGH B20 SAMPLED DURING NOVEMBER 1992.
4. TEMPORARY WELLS B21 THROUGH B26 SAMPLED DURING JANUARY 1993.
5. MONITORING WELLS M-2A, B, C SAMPLED DURING JUNE 1994.

25 0 50 100 FEET

FIGURE 4-3
VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER
VRAP SUMMARY REPORT
GENERAL ALUM & CHEMICAL CORP.
SEARSPORT, MAINE
SEVEE & MAHER ENGINEERS, INC.

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During the Phase 3 investigation of June 1994, groundwater samples also were collected from existing monitoring wells M-2A, M-2B, and M-2C for analysis of VOCs by U.S.EPA Method 8240. This monitoring well cluster, installed as part of the 1984 hydrogeologic assessment of the facility, consists of three wells screened in the shallow and deep till, and into the top of bedrock. VOCs were not detected in any of these monitoring wells, which are located approximately 450 feet east of the Old Ammonia Plant toward Stockton Harbor.

TABLE 4-5

SUMMARY OF ANALYTICAL LABORATORY ANALYSES
OF GROUNDWATER SAMPLES
AT GENERAL ALUM AND CHEMICAL CORPORATION FACILITY
SEARSPORT, MAINE

Compound	Range of (μg/l)	Frequency of Detection	Percent Occurrence (%)	Federal MCL	State MEG	No. Wells Exceeding MCL
TCE	5-6,800	21/28	75	5	5	18
PCE	5-9	4/28	14	5	3	2
t-1,2-DCE	5-160	11/17	65	100	70	1
1,2-DCE(Total)	11-18	3/11	27	70	70	0
1,1-DCE	10	1/28	4	7	7	1
VC	10-33	5/28	18	2	0.15	5
1,1,1-TCA	5-53	2/28	7	200	200	0
1,1-DCA	9-12	3/28	11	NA	NA	NA
MECl	17-250	4/28	14	NA	NA	NA
MEK	25	1/11	9	NA	170	NA
Chloroform	22	1/28	4	100[1]100[1]	0	

Notes

MCL = maximum contaminant level

MEG = maximum exposure guideline

NA = no MCL/MEG

(1) Total trihalomethanes

5.0 SUMMARY OF FINDINGS

Based upon our review of the Phase 1, 2, and 3 site investigations at the site, the following conclusions are presented:

- Solvents have been detected in the soil and groundwater at the site. The principal areas of solvent handling appear to be the Parts Cleaning Area (Area 1), the Preheater Degreasing Area (Area 2), and a localized area across the access road near the former ammonia spheres.

- Trichloroethene (TCE), 1,2-dichloroethene, toluene, ethylbenzene, and xylenes were detected at low levels in shallow soil samples collected from the study area. TCE was the predominant chemical detected in the soils at the site, and was the only compound detected in concentrations exceeding 1 mg/kg. TCE concentrations exceeded 1 mg/kg in soil samples collected from B-2 (2.1 mg/kg); B-204 (3.4 mg/kg); and B-207 (1.4 mg/kg).

- The VOCs were primarily detected in the clayey glaciomarine deposits found at the site. The low hydraulic conductivity of these soils inhibit the

horizontal and vertical movement of the compounds from the site.

- Trichloroethene, 1,2-dichloroethene, 1,1-dichloroethene, 1,1-dichloroethane, tetrachloroethene, methylene chloride, and vinyl chloride were detected in groundwater samples collected from the site. Trichloroethene was the principal compound detected in the groundwater at the site. Laboratory analysis of 25 groundwater samples from the site reported TCE concentrations ranging from non-detect to 6.8 mg/l.

- The degradation products typically associated with TCE (1,1-DCE, 1,2-DCE, 1,1-DCA, and vinyl chloride)were also detected in the groundwater samples from the site. Very low levels of the remaining VOCs 1,1,1-TCA, 1,1-DCA, methylene chloride, 2-butanone, and chloroform were detected sporadically at the site.

- The locations of solvents detected in the soils and groundwater at the site coincide with those locations where interviews with former employees suggested solvents were used to clean parts and machinery in the 1950s and 1960s. Subsequent to the solvent use 30 to 40 years ago, the chemicals have likely been

redistributed, buried, and partially volatilized by plant construction and activities. Therefore, there is no clearly identifiable source of solvents at the site.

- Groundwater flow is generally southeasterly towards the Atlantic Ocean which is located 300 to 700 feet from the site. Due to the low hydraulic conductivities of the site soils, groundwater movement will be limited in both vertical and horizontal directions. It is expected that the levels of TCE in the groundwater will decrease with distance from the site due to dilution, adsorption and biodegradation.

- There are no groundwater users or human receptors located between the site and the ocean. Based on our understanding of the site hydrogeology and the results of the soil and groundwater analyses collected during this study, there does not appear to be a threat to human health from the presence of TCE and associated compounds in the groundwater.

- Because of the sporadic distribution and relatively low concentration of chemicals in the soils at the site, it is impractical to attempt to remediate the VOCs present in the soils.

- Because of the geologic conditions present at the site, i.e. the presence of low hydraulic conductivity glacial tills and marine sediments, the remediation of groundwater at the site is not practical.

6.0 RECOMMENDATIONS

Consistent with other industrial sites in which historical usage has resulted in contamination but no threat to human or other significant environmental receptors, institutional controls restricting groundwater use in the vicinity of the site appear to be the only necessary action. Because there is no remediation that appears likely to be successful, at least at any cost that can be justified in light of the threat, a deed restriction prohibiting use of groundwater in and around the vicinity of the site should be adequate to address the problem. Additionally, General Alum should develop and implement an excavation monitoring plan to assure that workers are not exposed to adverse levels of volatile organic compounds during construction activities at the site.

LIST OF REFERENCES

Caswell, W.B., and E.M. Lanctot, 1975. Ground Water Resource Maps of Waldo Co.; Maine Geological Survey, Augusta, Maine.

Caswell, W.B., 1979. Sand and Gravel Aquifers Map 19, Waldo and Knox Counties, Maine; Open-File No. 79-14, Maine Geological Survey, Augusta, Maine.

E.C. Jordan Co., 1984. Soil and Groundwater Quality Assessment, Delta Chemicals, Inc., Searsport, Maine; November 1984.

Normandeau Associates, Inc. (NAI), 1984. Hydrogeologic Study and Ground Water Quality Assessment, Delta Chemicals, Inc., Searsport, Maine; July 1984.

Osberg, P.H., A.M. Hussey II, and G.M. Boone (Editors), 1985. Bedrock Geologic Map of Maine; Maine Geological Survey, Augusta, Maine.

Sevee & Maher Engineers, Inc. (SME), 1991. Hydrogeologic Evaluation and Landfill Closure Plan for Delta Chemicals, Inc., Searsport, Maine; November 1991.

Sevee & Maher Engineers, Inc. (SME), 1992. Preliminary Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant at Delta Chemicals, Inc., Searsport, Maine; October 1992.

Sevee & Maher Engineers, Inc. (SME), 1993a. Preliminary Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant, Supplement I, Delta Chemicals, Inc., Searsport, Maine; January 1993.

Sevee & Maher Engineers, Inc. (SME), 1993b. Supplemental Landfill Closure Plan for Delta Chemicals, Inc., Searsport, Maine; July 1993 (Revised December 1993).

Sevee & Maher Engineers, Inc. (SME), 1993c. Phase 2 Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant at Delta Chemicals, Inc., Searsport, Maine; December 1993.

Sevee & Maher Engineers, Inc. (SME), 1994. Phase 3 Field Investigation in the Vicinity of the Polymers Building and Ammonia Plant at Delta Chemicals, Inc., Searsport, Maine; July 1994.

Sevee & Maher Engineers, Inc. (SME), 1995. Evaluation of Slow-Rate Sampling Methodology, General Alum, Inc., Searsport, Maine; February 1995.

Thompson, W.B., P.E. Calkins, and R.K. Fahnestock, 1977. Reconnaissance Surficial Geology of the Castine Quadrangle, Maine; Open File Map, Maine Geological Survey, Augusta, Maine.

Soil Conservation Service (SCS), 1984. Soil Survey of Waldo County, Maine, U.S.D.A., Washington, D.C.